

DG Taxation and Customs Union

Economic effects of tax cooperation in an enlarged European Union

Simulations of corporate tax harmonisation and savings tax coordination

Final report

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Preface

The European Commission has appointed Copenhagen Economics to prepare a study on tax cooperation in an enlarged European Union. The objectives of the study are to:

“Provide simulations on tax policies in the enlarged European Union. In particular, it will cover a significant part of the accession countries and the current European Union.

The focus of the investigation will be the analysis of the economic consequences of corporate tax co-ordination in an enlarged EU.”

A set of policy scenarios has been analysed to study the economic effects of tax cooperation. This final report provides detailed results and policy conclusions, including a description of the analysed scenarios, the underlying model and the features and limitations of the analytical framework.

Copenhagen Economics has prepared the report in October 2004. The report is based on our draft final report of September 2004, our intermediate report of June 2004, our inception report of February 2004, the technical specifications of the contract covering the study and the scenario outline provided by the European Commission's services.

We gratefully acknowledge the constructive input received from the steering group of the study at the interim meetings in March, June and September of 2004.

Comments regarding the study, including this report, may be sent directly to the project leader, Dr. Jesper Jensen, Copenhagen Economics (jj@copenhageneconomics.com).

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Executive summary

There are 25 different systems for corporate taxation in the European Union. This creates tax obstacles that reduce the benefits of the Internal Market. Companies involved in cross-border transactions are most affected, for example through tax-induced obstacles to investment decisions. From a purely economic point of view, the main culprit is the large variation in effective corporate tax rates, driven by uncoordinated nominal corporate tax rates and different rules for calculating corporate tax bases.

The purpose of this study is to evaluate the economic effects of different scenarios of tax cooperation in the enlarged European Union. The study develops scenarios for a common corporate tax base applicable in all EU Member States, for full harmonisation of tax bases and tax rates, and for the exchange of savings information in the context of personal income taxation. A published model is used to analyse the scenarios. The analysis leads to the following conclusions.

Corporate tax cooperation can yield gains in GDP and welfare. This applies both to cooperation across the whole EU and to enhanced cooperation among subsets of member states. The magnitude of the potential gains is in the order of 0.5% for GDP and somewhat less for welfare. Taking the limitations of the modelling framework into account, this figure may prove to underestimate the effects of tax cooperation.

The details of tax cooperation determine outcomes. Economic gains from tax cooperation cannot be taken for granted. Depending on the precise details of cooperation policies and the set of cooperating countries, gains can be reversed into losses. This calls for thorough analyses of specific policies before adoption.

Individual country effects can be large and sometimes negative. Aggregate gains from tax cooperation do not mean that all member states will be better off. All scenarios considered leave some member states as winners and others as losers from reform. Individual countries may experience significant changes in economic activity, tax revenues and government budgets. An agreement on tax reform is likely to require elaborate compensation mechanisms.

Enhanced cooperation is the most likely route towards tax cooperation. The large and diverse country effects suggest that enhanced cooperation for a subset of member states may be the most likely route towards tax cooperation. Both full harmonisation and tax base harmonisation across the EU as a whole will be very complicated to implement given the unanimity requirement on tax policy decisions. Cooperation among a subset of relatively equal member states will lead to less radical policy changes, but also smaller gains. This could constitute an important first step towards further policy reforms.

In the context of personal income tax coordination, exchange of savings information reduces tax evasion. The most apparent effect of exchanging savings information with tax havens is a significant reduction in tax evasion, an important gain in itself. Aggregate GDP and welfare outcomes are small and will vary depending on the use of tax revenues.

The financing of tax reforms is crucial. The choice of fiscal instrument for balancing government budgets can sometimes have a significant influence on the effects of corporate tax cooperation. This means that corporate tax harmonisation is likely to be bundled with additional tax policy reforms.

The conclusions are based on an analysis of a large set of policy scenarios. The study first establishes a baseline scenario that captures the enlargement of the European Union without any changes in current, largely non-cooperative, tax policies. This scenario serves as a reference for evaluation of the cooperation scenarios. A second reference scenario models full harmonisation of both corporate tax bases and rates across the whole EU25.

Between these two extremes – no cooperation and full harmonisation – the study develops two comprehensive sets of scenarios that capture the effects of partial tax cooperation. First, tax base harmonisation is thoroughly studied for the cases of uncoordinated tax rates, a minimum corporate tax rate, and labour tax adjustments to stabilise tax revenues. Second, international exchange of personal savings information is analysed in the cases of full cooperation within the EU25 and full cooperation with external tax havens. These scenarios are an important prerequisite for enforcing residence-based capital income taxation for individuals. The comparison of the different policy scenarios suggests that full harmonisation of both the corporate tax rate and tax base, at the weighted averages of current rates and bases, is the economically most interesting policy option.

A number of commonly debated issues fall outside the scope of the study and are left to future efforts. First, the economic literature has yet to develop and agree on how to model corporate tax compliance costs. This study has consequently not taken lower compliance costs into account when reporting the gains from corporate tax cooperation. Still, the study implicitly sheds some light on the issue on compliance costs. The large adjustments to tax bases that sometimes are required by harmonisation indicate that existing *de facto* rules for calculating taxable corporate income differ significantly across countries. This indicates that tax base harmonisation could result in sizeable reductions in compliance costs.

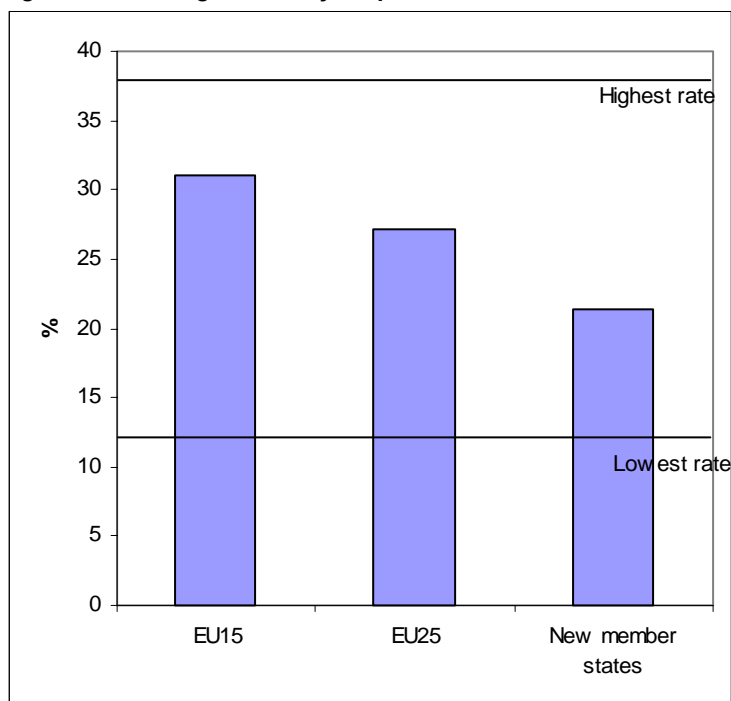
Second, more comprehensive studies should analyse the effects on GDP and welfare of issues such as e.g. EU-wide corporate income consolidation (i.e. allowing cross-border loss offsets), harmonisation towards the broadest possible tax base, effects of tax cooperation on tax competition and increased competition in the Internal Market following tax reforms. By including such effects into a broader modelling framework, a more comprehensive analysis of the effects of tax cooperation could be performed. This may capture more benefits of tax cooperation than is included in the current model.

Chapter 1 Introduction

The purpose of this study is to evaluate the economic effects of tax cooperation in the enlarged European Union with a focus on corporate taxes. Tax cooperation in the EU has been a topic for public and academic debate for a long time, but real progress has been modest and many issues remain to be researched and negotiated (European Commission, 2003). Heterogeneity has grown as a result of the enlargement (Eurostat, 2004) and the unanimity requirement for tax policy decisions will continue to be a challenge to comprehensive reforms.

Current corporate tax systems are remarkably heterogeneous and differ in the rules determining taxable profits as well as in statutory tax rates. Figure 1-1 illustrates the large differentials between current statutory rates in the EU. Average statutory corporate tax rates are significantly lower in the new member states than in the EU15, and the difference between the highest and the lowest rate is currently more than 25 percentage points.

Figure 1-1: Average statutory corporate tax rates in the EU, 2004



Note: The graph shows unweighted averages.

Source: Copenhagen Economics based on KPMG (2004).

The case for tax cooperation is based on concerns regarding distortions of investment decisions, administrative costs and tax competition (see European Commission 2001a, 2001b for a more comprehensive analysis). These concerns are briefly summarized below.

The influence of different tax regimes can cause companies to pursue socially sub-optimal strategies, i.e. by making investment decisions based on tax considerations. Wide-spread use of profit-shifting to low-tax jurisdictions can also be detrimental to the long-term revenue-raising capacities of member states. Variations in effective corporate tax rates can influence the localization of investments and differences in statutory corporate tax rates create incentives for firms to locate their profits in low-tax jurisdictions.

Moreover, the mere existence of 25 different systems for corporation taxation in the Internal Market has detrimental effects on the administrative burden of companies. Tax obstacles increase compliance costs and can hinder exploitation of the full benefits of the Internal Market. Quantitative assessments of compliance costs are rare, but estimates range from 2-4% of total corporate tax revenues raised (Lannoo & Levin, 2002). A recent and comprehensive Commission study on the topic estimates that compliance costs in the EU correspond to 1.9% of total taxes paid in the EU (European Commission, 2004).

Tax competition as a motivation for tax cooperation is supported by theoretical as well as empirical arguments. The theoretical case for tax cooperation revolves around a possible under-provision of public goods, caused by tax competition that leads to tax rates being set below the socially optimal level in order to attract mobile capital. Nominal and average effective tax rates have indeed been on a path of steady decline in the European Union since the mid 1990s. Still, there is only limited evidence for a “race to the bottom” and tax competition can alternatively be seen as a useful disciplinary constraint on government budgeting. Harmful forms of tax competition have moreover been addressed by the essentially implemented Code of Conduct (see European Commission, 2003).

Depending on which underlying problem is being highlighted, the variety of concerns that spurs interest in tax cooperation can motivate a range of alternative policies. This study will provide an understanding of the consequences of tax cooperation using a thorough quantitative economic analysis. The first step of the analytical process is therefore to design credible and relevant policy scenarios for the subsequent modelling. The next chapter provides detailed outlines of the analysed scenarios.

Chapter 2 Scenario definitions

This chapter presents a detailed outline of the analysed scenarios. The scenarios have been chosen and designed to allow for an analysis of the welfare effects of relevant policy options. Tax cooperation encompasses a wide range of possible tax instruments and coordination policies. A key challenge is to identify the economic effects of cooperation for specific tax policy instruments in a transparent and tractable manner. Consequently, each scenario generally reflects a limited number of changes to tax policies. Analyzed together, the complete set of scenarios addresses a very comprehensive set of relevant tax policy issues. The scenarios furthermore facilitate an analysis of associated policy challenges, outlining strategic incentives and their policy implications.

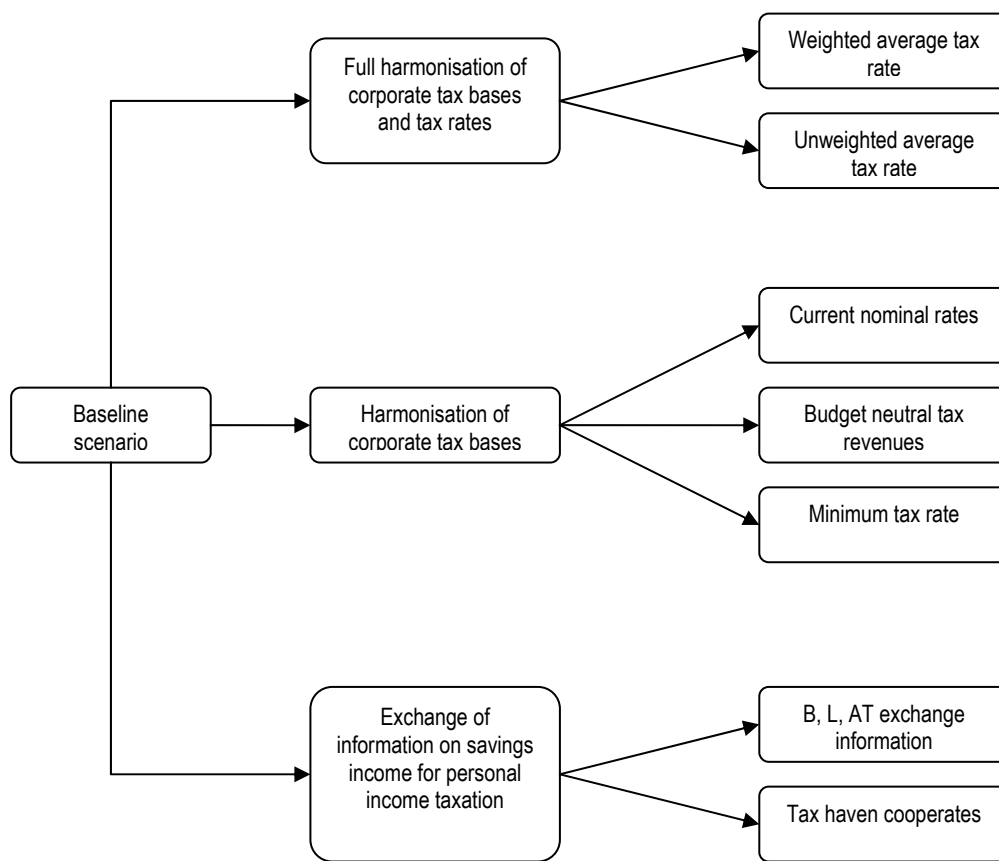
Some scenarios include the modelling of enhanced cooperation, in which only a subset of Member States decide to engage in tax policy cooperation. The definition of appropriate subsets is based on objective criteria, e.g. similarities in tax systems or extent of economic integration between countries.

The scope of the study mandates the inclusion of the new member states, in addition to the current EU, in the scenarios. The obvious ambition is complete coverage of the EU25 and all EU member states have indeed been included in the analysis.

To avoid any confusion in the following sections, it is useful to define that the term 'harmonised tax rate' means that the affected member states apply the same nominal rate. In the same vein, when the term 'harmonised tax base' is used, it means that all member states face the same rules for calculating the corporate tax bases in their respective territories.

The scenarios can be conceptually divided into three largely independent sets, as depicted in Figure 2-1. Full harmonisation of corporate tax bases and tax rates provides a reference point illustrating the effects of full cooperation between member states. Harmonisation of tax bases is the starting point for a set of scenarios where member states engage in partial cooperation. A final set of scenarios examine the effects of enhanced exchange of information in the savings area. The complete collection of scenarios allows for testing of a very comprehensive set of policy options for tax cooperation.

Figure 2-1: Overview of scenarios



Source: Own scenario definitions.

2.1. Baseline scenario

The purpose of this scenario is to provide a benchmark for the subsequent analysis. The scenario consequently entails the addition of the ten new member states to the old EU15 without any changes in tax systems, coordination mechanisms or existing political agreements. All other scenarios will subsequently be compared to this benchmark scenario to evaluate the economic outcomes of alternative policies.

The primary effect of enlargement, in relation to development of the economic model, is defined as increased capital mobility between the EU15 and the new member states. The appropriate level of capital mobility between the new member states and the EU15 can be attained by modifying investors' preferences or the overall transaction costs for investments in foreign stocks and bonds. The purpose of an adjustment is to capture portfolio behaviour that is commonly explained in terms of risk, return and co-variances of different types of assets. Taking into account that economic activity between the old and new member states has been steadily rising since the early 1990's, it is assumed that investors' preferences have not been changed by enlargement *per se*. Instead, enlargement is modelled purely as a decrease in transaction costs between the EU15 and the new member states. It is assumed that transaction costs between the EU15 and the new member states will be equal to the average of transaction costs within the EU15.

Regarding the Savings Directive (2003/48/EC), this scenario assumes that the directive is fully implemented. The model interpretation is that there exists an efficient and automatic system for

international reporting of the interest incomes of individuals between member states. The implication is that a certain share of the interest incomes of individuals originating from Member States of the EU25 are reported to the proper residence country authorities, with the exceptions mandated by the directive. It is assumed that initial reporting systems are imperfect and only report 75% of interest incomes. National reporting systems are assumed to be at least as efficient as bilateral reporting. For Belgium, Luxemburg and Austria, no interest incomes are reported and a withholding tax of 15% is levied. This assumption is based on the withholding tax rates applying until 2007 under current conditions.

The Parent-Subsidiary Directive (90/435/EEC) with recent amendments (2003/123/EC) eliminates withholding taxes on dividends paid by a subsidiary to a parent. The directive is assumed to be implemented in all new member states in addition to the old EU15. Accordingly, the model parameter representing the withholding tax rate on dividends from foreign subsidiaries is set to zero.

It is furthermore assumed that the Code of Conduct is fully implemented in the EU25. The modelling implication is that all companies in a member state face the same rules for taxation and that no preferential tax treatment is given to multinational subsidiaries or non-residents. This follows from the model structure and does not imply a change to any model parameter.

2.2. Full harmonisation

This scenario envisages full harmonisation of corporate tax bases and tax rates in the EU25, providing a valuable reference with respect to policies that go beyond the baseline scenario but fall short of complete harmonisation. An implication of harmonising both tax bases and tax rates is that transfer pricing with the purpose of profit-shifting to low-tax jurisdictions within the EU is largely eliminated. Furthermore, distortions to investment decisions caused by corporate tax considerations will significantly decrease. Some differences will remain, primarily because of different systems for double-taxation alleviation.

Harmonisation of tax rates implies that the statutory corporate tax rate will be set to a fixed value across the EU25. The harmonised tax rate will apply equally to retained and distributed profits.

Harmonisation of tax bases means that all member states face the same rules for calculating the corporate tax bases in their territories, i.e. for determining the differential between true profits and taxable profits. The broadness of the tax base in the model is determined by the rate of capital depreciation and the proportion of interest payments that may be deducted against taxable corporate income. Other capital allowances are not permitted and investment neutrality properties of the tax base are not explicitly considered. In this scenario, the rate of capital depreciation and the proportion of deductible interest payments will be identical for all member states, creating a harmonised tax base across the EU25.

Tax base harmonisation is often discussed in connection to the introduction of consolidated accounting. Under consolidated accounting, multinational firms would have a single set of accounts for their EU-wide operations. Tax bases would then be distributed among member states according to an apportionment mechanism. A move to consolidated accounting would in terms of the model require a redefinition of the objective function of multinational firms. This would imply a conceptual change in firm behaviour that is inconsistent with current business practices. The critical complication is however that it is impossible to find data to characterise a

behaviour that does not currently exist in the EU¹. Separate accounting is consequently applied in this scenario. Since governments will retain their national tax bases there is no need to define apportionment mechanisms.

An important motivation for harmonising tax bases is to decrease tax compliance costs for firms with multinational operations in the Internal Market. Tax compliance costs are generally estimated to amount to 2-4% of corporate tax revenues (Lanno & Levin, 2002). Solid evidence on the composition and causal mechanisms of compliance costs is however scarce and inconclusive.² In recognition of the problem, the Commission recently launched a comprehensive survey that estimated compliance costs in the EU to 1.9% of taxes paid. Explicit modelling of compliance costs is, however, not feasible before conclusive theoretical and empirical findings are available. In addition, systematic data needed for modelling does currently not exist as current surveys are based on perceived costs. Compliance costs can consequently not be included in the analysis.

Two sub-scenarios will be considered, with tax rates and tax bases harmonised at levels corresponding to respectively the unweighted average corporate tax rate and base of the EU25 and the average corporate tax rate and base of the EU25 weighted by GDP³. Each sub-scenario is furthermore tested for three different subsets of cooperating member states.

It should be noted that the legal basis for cooperation among a subset of countries is based on the concept of enhanced cooperation under the Treaty of Nice, which mandates that at least 8 Member states must decide to move forward.

The perhaps most interesting subset consists of the 12 Member States that have adopted the euro as their common currency. Harmonisation of tax bases would remove yet an important obstacle to economic integration within the euro-zone. It is accordingly both theoretically useful and of high policy relevance to analyse deeper integration within the euro-zone.

Two additional subsets are also tested, the EU15 and the so called EU15-A, which refers to the EU15 member states that share the same accounting view. The EU15-A includes all EU15 member states except the United Kingdom, Ireland, Denmark and the Netherlands.

All other parameters are assumed to be unchanged compared to the baseline scenario.

2.3. Tax base harmonisation

Tax base harmonisation is an important component of policies that aim to enhance appropriate tax cooperation within the EU while maintaining the right of member states to sovereignty over national tax policies. By harmonising tax bases, tax rate differentials become more transparent and less complicated to interpret. Harmonisation of corporate tax bases is therefore a useful starting point for the most comprehensive set of scenarios in the study.

¹ The Danish corporate tax system for example allows cross-border consolidation. However, it does not include an apportionment mechanism, which, depending on its definition, could also affect firms' behaviour.

² Several studies have been made on the subject of tax compliance costs. Slemrod and Blumenthal (1993) have provided figures for the USA, Pope et al (1990) for Australia, Sandford (1995) for the United Kingdom, Erard (1997) for Canada, and Allers (1994) for the Netherlands. The Ruding Committee has surveyed EC and EFTA countries (European Commission, 1992).

³ Future developments of this study could envisage simulations of corporate tax base harmonisation towards the broadest possible tax base, as this can be favoured policy in practice.

These scenarios share two characteristics with the full harmonisation scenario. First, harmonisation of tax bases means that all member states face the same rules for calculating the corporate tax bases in their territories, i.e. for determining the differential between true profits and taxable profits. The broadness of the tax base in the model is determined by the rate of capital depreciation and the proportion of interest payments that may be deducted against taxable corporate income. In this scenario, the rate of capital depreciation and the proportion of deductible interest payments will be identical for all member states, creating a harmonised tax base across the EU25. Since most member states allow for full deductions of interest payments, harmonisation will almost exclusively apply to the rate of capital depreciation.

Second, separate accounting is still applied, i.e. multinational firms will not have consolidated accounts for their EU-wide operations. Since governments will retain their national tax bases there is no need to define apportionment mechanisms. A move to consolidated accounting would in terms of the model require a redefinition of the objective function of multinational firms. This would imply a sweeping change in firm behaviour that is inconsistent with current practices. The critical complication is however that it is impossible to find data to match a behaviour that does not currently exist in the EU.

Three sub-scenarios are based on the common foundation of harmonised tax bases. They are defined in the following sections.

Tax base harmonisation with uncoordinated tax rates

This scenario assumes that tax bases are harmonised across some or all member states, but with the nominal corporate tax rates of the individual member states kept fixed at current levels. The scenario is tested with cooperation first among all member states, then for subsets of cooperating countries. As for full harmonisation, enhanced cooperation is tested for the Euro zone, the EU15 and the EU15-A.

All other parameters are assumed to be unchanged compared to the baseline scenario.

Tax base harmonisation with budget neutral tax revenues

Harmonisation of tax bases across countries with different tax systems will have different effects on the tax revenues of national governments. Notably, countries with currently broad tax bases may suffer significant losses in corporate tax revenues after harmonisation. Countries with narrow tax bases may conversely perceive sizeable losses in their ability to attract investments.

As a result, the possibility to stabilise tax revenues at a level where government budgets are unaffected after a harmonisation of tax bases may be crucial for creating political momentum for reform. An intuitive response to changes in tax bases is to adjust tax rates. This scenario analyses the implications of adjusting labour tax rates to a level where government budgets are stabilised. It should be duly noted that the choice of adjusting labour taxes only serves as an example for the analysis. The necessary adjustments could also have been made to e.g. consumption taxes.

The choice of adjusting a tax rate other than the corporate tax rate is based on two important considerations. First, if corporate tax rates were to be adjusted to fully account for tax base changes, effective corporate tax rate differentials in the EU would remain unchanged, thus retaining a significant barrier to the proper functioning of the Internal Market. Second, the large corporate tax revenue increases implied by tax base harmonisation would mean that the corporate tax rates for certain countries, e.g. Germany, would have to be cut to unrealistically low levels.

It is accordingly assumed that tax bases are harmonised across some or all member states, but that labour tax rates are endogenously adjusted to neutralise budget effects. Total tax revenues may not be completely unchanged, since variations in interest rates can increase the cost of government debt interest payments. The scenario is tested with cooperation first among all member states, then for the Euro zone, the EU15 and the EU15-A.

All other parameters are assumed to be unchanged compared to the baseline scenario.

Tax base harmonisation with minimum tax rate

Testing various levels of minimum tax rates is primarily motivated by a desire to minimize competition for “paper profits”, i.e. tax competition for transferred corporate profits. A closely related motivation is to secure a minimum level of revenue-raising capability among Member States while maintaining some national sovereignty over tax policy. The formal case for a minimum corporate tax rate is based on the negative spill over effects that arise when a country lowers its corporate tax to attract mobile capital. Conversely, countries that use their tax autonomy to choose higher corporate tax rates create positive spill over effects.

This scenario assumes that tax bases are harmonised across the EU25 and that all Member States are obliged to levy at least a minimum corporate tax rate. It is assumed that Member States with current statutory rates below the minimum rate will raise their corporate tax rates to match the minimum rate. All other Member States are assumed to keep their tax rates unchanged. It is worth noting that profits can still be shifted outside the EU.

The scenario is tested for minimum tax rates of 20%, 25% and 30%, respectively. All other parameters are assumed to be unchanged compared to the baseline scenario.

2.4. Exchange of savings information

The total tax burden on income from capital includes corporate taxes as well as personal taxes on income and wealth. Personal capital income taxes are indeed a key component of the overall taxation on capital incomes, but cross-border enforcement can be problematic. Even if corporation taxes are harmonized, national governments will retain control over personal taxes on interests, dividends and capital gains. Taxation of personal capital income can thus constitute a way for governments to tax capital income according to national preferences, provided that residence-based taxation is possible.

Effective exchange of information in the savings area can provide member states with more room for manoeuvre in the field of personal income taxation, making it less contentious to give up autonomy in the area of corporate taxation. If a member state finds that a harmonized corporate tax implies an inappropriately low level of taxation, it can add personal taxes on dividends and capital gains at the shareholder level. Conversely, if a harmonized corporate tax is considered too high, corporate tax revenue can finance tax credits to shareholders.

The Savings Directive creates the necessary framework for residence-based taxation of interest income paid to individual savers. The scope of the directive is however limited by a number of non-cooperating countries. Firstly, Belgium, Luxembourg and Austria are allowed to apply a withholding tax for a transitional, but possibly indefinite, period. Secondly, tax havens continue to provide opportunities for tax evasion. The effects of removing these shortcomings are evaluated by analysing two sub-scenarios (as compared to a baseline scenario where

exchange of savings information is assumed to be implemented between all EU member states but Belgium, Luxembourg and Austria)⁴.

Full exchange of information within the EU

This scenario assumes that Belgium, Luxembourg and Austria exchange information with all other EU member states. It is assumed that 75% of interest incomes of individuals originating from Belgium, Luxembourg and Austria are actually reported to the proper residence country authorities. This assumption will be tested in the sensitivity analysis. National reporting systems are assumed to be at least as efficient as bilateral reporting.

All other parameters are assumed to be unchanged compared to the base line scenario.

Full exchange of information with external tax havens

This scenario assumes that not only Belgium, Luxembourg and Austria exchange information with EU member states, but that tax havens also exchange information. It is specifically assumed that there is an efficient and automatic system for international reporting of the interest incomes of individuals between all member states, Switzerland and the tax haven. Switzerland has been included in the analysis to provide a more accurate picture of the potential effects of exchanging information with tax haven jurisdictions, even though automatic reporting goes beyond current agreements. National reporting systems are assumed to be at least as efficient as bilateral reporting. Again, it is assumed that 75% of interest incomes of individuals are reported to the proper residence country authorities.

All other parameters are assumed to be unchanged compared to the base line scenario.

2.5. Summary of scenarios

For reference, a summary of all scenarios is provided in Table 2.1 below.

⁴ Future developments of this study could envisage simulations of the full application of the Savings directive, i.e. departing from a baseline scenario where there would be no exchange of information between EU countries whatsoever.

Table 2.1: Summary of scenarios

	Base-line	Full harmonisation		Tax base harmonisation			Exchange of information	
		Weighted average tax rates	Unweighted average tax rates	Uncoordinated tax rates	Budget neutral tax revenues	Minimum tax rate	Partial exchange	Full exchange
Corporate tax bases	Current rules	Harmonised	Harmonised	Harmonised	Harmonised	Harmonised	Current rules	Current rules
Corporate tax rates	Current rates	Harmonised	Harmonised	Current rates	Endogenous labour tax	Minimum tax rate (20%, 25% and 30%)	Current rates	Current rates
Automatic exchange of information	Not for B, L, AT and tax havens	Not for B, L, AT and tax havens	Not for B, L, AT and tax havens	Not for B, L, AT and tax havens	Not for B, L, AT and tax havens	Not for B, L, AT and tax havens	Not for tax havens.	For Switzerland and the tax haven.
Enhanced cooperation	n/a	Euro zone, EU-15, EU-15-A.	Euro zone, EU-15, EU-15-A.	Euro zone, EU-15, EU-15-A.	Euro zone, EU-15, EU-15-A.	n/a	n/a	n/a

Note: B, L, AT refers to Belgium, Luxembourg and Austria, respectively. The Euro-zone refers to the 12 Member States of the European Union that have adopted the euro as their common currency. EU-15-A refers to the subset of EU-15 countries that shares the same accounting view (i.e. legal image as opposed to fair value accounting).

Source: Own scenario definitions.

Chapter 3 Results

This chapter provides an overview of aggregate results for the scenarios. Detailed results are available in Appendix I where results on a wide range of variables are reported for all member states.

Some scenarios include the modelling of enhanced cooperation, in which only a subset of member states decide to engage in tax policy cooperation. To avoid any confusion, the subsets of member states for which enhanced cooperation is analysed are:

- EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom (15 countries).
- Euro zone: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain (12 countries).
- EU15-A: Austria, Belgium, Finland, France, Germany, Greece, Italy, Luxembourg, Portugal, Spain and Sweden (11 countries).

The reporting highlights the welfare and revenue effects of tax cooperation at both the European Union level and the member state level. The focus is on three major economic measures: GDP (at market prices), consumer welfare and total tax revenues.

Consumer welfare includes the welfare effects of consumption and saving, as well as the negative welfare incurred from increased working hours. The welfare measure is thus broader than the GDP measure. The results report percent changes relative to initial welfare.

The measure of total tax revenues covers all direct and indirect taxes. It is important to note that changes in corporate taxes will affect not only corporate tax revenues, but also a range of other sources of tax revenue. Changes in total tax revenues will generally tend to be significantly smaller than changes in corporate tax revenues. Government budgets are, however, balanced in all scenarios. Unless otherwise noted, it is assumed that government budgets are balanced by adjusting income transfers to offset any gains or losses in tax revenues.

3.1. Economic effects of corporate tax harmonisation

To better understand the results, it is helpful to consider the economic effects of corporate tax harmonisation taken into account in this study. In short, the results captured in the model framework are driven by two simultaneous effects.

First, harmonisation will increase the tax burden in some countries and decrease it in other countries. The policy changes required can be very significant. Individual country results are primarily influenced by the change in the overall tax burden. A larger national tax burden leads to higher tax revenues, but a loss in GDP due to more economic distortions. A smaller tax burden conversely leads to tax revenue drops and GDP gains caused by higher economic efficiency⁵. There is consequently a classic trade-off between taxation and economic efficiency. When individual country results are reviewed, changes in the corporate tax rate and tax base (reported in the detailed tables in Appendix I) will largely explain the economic outcomes. If it is assumed that current taxation systems reflect national preferences, economic gains from lower taxes must be evaluated together with the costs of deviating from the national preferences.

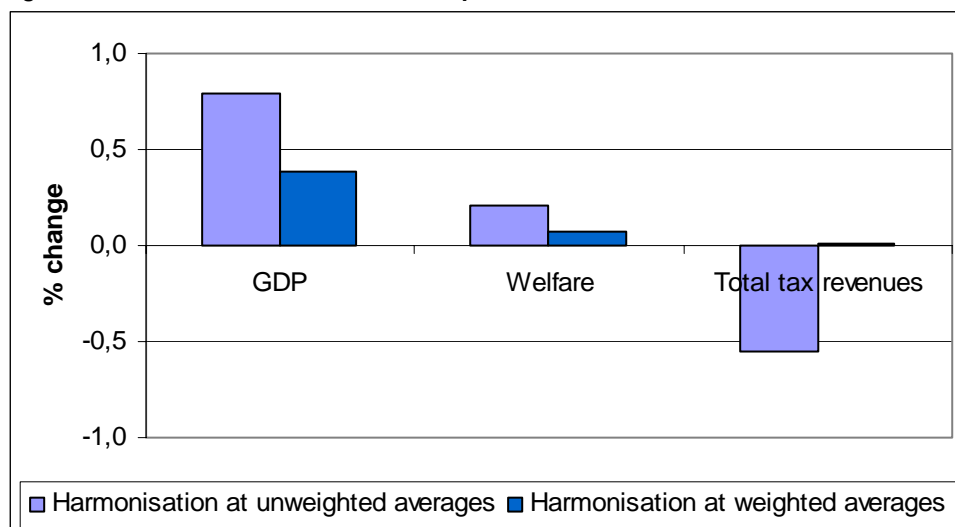
Second, harmonisation of both tax rates and tax bases reduces cross-country differences in effective tax rates, leading to a more efficient allocation of capital across cooperating countries (see Sørensen, 2004a). The gains from more efficient capital allocation can be thought of as the pure value-added from tax cooperation. The aggregate gains from more efficient allocation of capital will always be positive as long as tax cooperation indeed leads to less heterogeneous effective corporate tax rates. This will always be the case for full harmonisation, but not necessarily when only tax bases are harmonised.

The aggregate effect of changes to the total level of taxation often dominates the effects of more efficient allocation of capital. Large shifts in total tax revenues will in many cases lead to large shifts in GDP. This means that economic gains from tax cooperation cannot be taken for granted (in this standard modelling framework). Depending on the specific details of coordination policies (e.g. the point of reference for corporate tax harmonisation) and the set of cooperating countries, aggregate gains can be reversed into aggregate losses. The details of policy reform matter, as will be shown in the following sections.

3.2. Full harmonisation of the corporate tax rate and tax base

The economic effects of full harmonisation of both corporate tax rates and tax bases are illustrated in Figure 3-1. The corporate tax rate is harmonised at respectively 27.2% and 32.6%, corresponding to the unweighted and the GDP-weighted average of current rates. In the same way, the corporate tax base is harmonised at respectively the unweighted and the GDP-weighted average of current tax bases.

⁵ Other effects that link tax revenues with economic growth measured by GDP could also exist (e.g. using tax revenues to increase public investment that fosters economic growth), but are not taken into account in the model.

Figure 3-1: Full harmonisation of the corporate tax rate and tax base

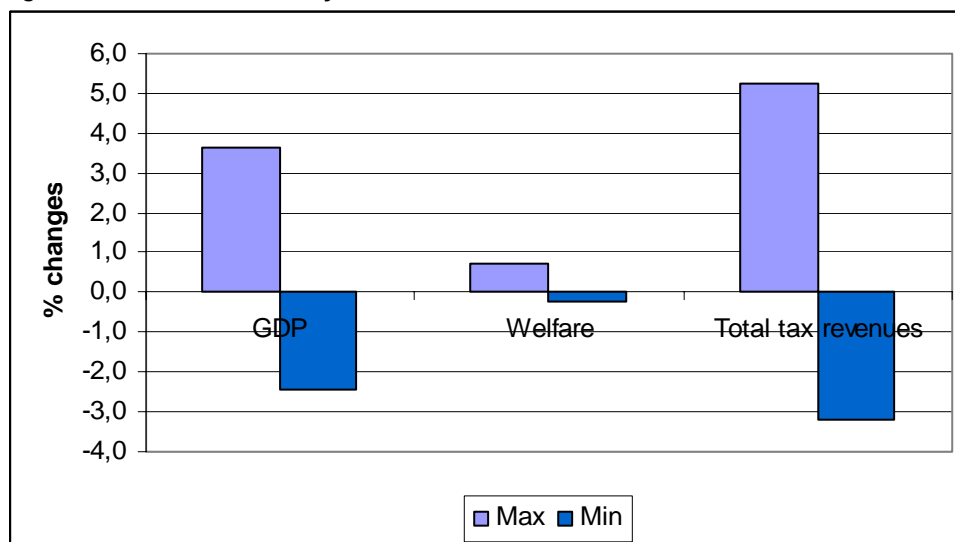
Note: The graph shows percentage changes in EU totals. The harmonised corporate tax rate is respectively 27.2% and 32.6%, corresponding to the unweighted and GDP-weighted average of current rates. The harmonised corporate tax base is calculated as respectively the unweighted and GDP-weighted average of current bases. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

In both cases, corporate tax harmonisation results in GDP and welfare gains. Harmonisation at unweighted averages leads to a significant drop in tax revenues. The results are driven by two simultaneous effects. As previously explained, the aggregate effect of changes to the total level of taxation can often dominate the effects of more efficient allocation of capital. This is also indicated in the figures above and below, where large shifts in total tax revenues result in correspondingly large shifts in GDP.

The case of full harmonisation at the weighted average tax rate and base is especially interesting to consider. There is a gain in GDP of around 0.4%, a very small welfare gain, but no aggregate decrease in aggregate tax revenues for the EU25 as a whole. The aggregate gain in both GDP and welfare are indicative of the positive effect of more efficient capital allocation, and can be thought of as the pure value-added from tax cooperation.

Though the aggregate effects of tax cooperation are relatively modest at the EU level, individual country effects are large and divergent. There are both winners and losers among member states. Figure 3-2 and Table 3.1 illustrate that individual countries will experience sizeable effects on economic activity and tax revenues.

Figure 3-2: Individual country variations for full harmonisation

Note: The graph shows the biggest positive and negative changes in member state outcomes. The scenario considered is full harmonisation of the corporate tax rate and tax base at unweighted averages. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

Table 3.1: Individual country effects of full harmonisation at unweighted averages

Member state	1. Change in corporate tax rate (percentage points)	2. Change in capital allowance rate (%)	3. Change in GDP (%)	4. Change in total tax revenues (%)
Austria	-6.8	0.1	0.7	-0.7
Belgium	-6.8	43.2	3.2	-0.5
Denmark	-2.8	57.4	1.8	-0.3
Finland	-1.8	73.9	1.6	-0.7
France	-7.8	36.2	2.4	-1.0
Germany	-10.8	-54.6	-1.6	0.6
Greece	-7.8	-3.2	1.1	-0.5
Ireland	14.7	7.8	-1.0	1.7
Italy	-5.8	23.5	1.4	-1.5
Luxembourg	-3.2	201.7	3.7	-3.2
Netherlands	-7.3	52.5	2.7	-1.4
Portugal	-0.3	53.8	1.2	-1.2
Spain	-7.8	-11.0	0.4	-0.3
Sweden	-0.8	44.5	1.1	-0.4
United Kingdom	-2.8	122.1	2.2	-2.7
Cyprus	12.2	-12.7	-1.2	4.4
Czech Republic	-0.8	134.5	2.3	-2.3
Estonia	1.2	-73.4	-2.5	5.2
Hungary	11.2	162.7	0.5	0.1
Latvia	12.2	98.4	0.1	1.5
Lithuania	12.2	176.1	0.4	0.9
Malta	-7.8	-40.4	-1.1	0.1
Poland	8.2	-24.0	-1.1	1.6
Slovak Republic	8.2	1.9	-0.7	2.3
Slovenia	2.2	-48.2	-1.7	1.3

Note: A negative (positive) figure in column 2 indicates a broadening (narrowing) of the corporate income tax base. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

Two important conclusions can be drawn from the numbers in Table 3.1. First, harmonisation of the corporate tax base implies very large changes to the rules for determining taxable corporate income in some countries, as illustrated by the large changes recorded in column 2. In particular, Germany is an outlier in the EU15 because of its narrow tax base. This can be intuitively understood by comparing Germany's relatively high statutory corporate tax rate to its relatively low ratio of corporate tax revenue to GDP, as illustrated in Table 2 of Appendix III⁶.

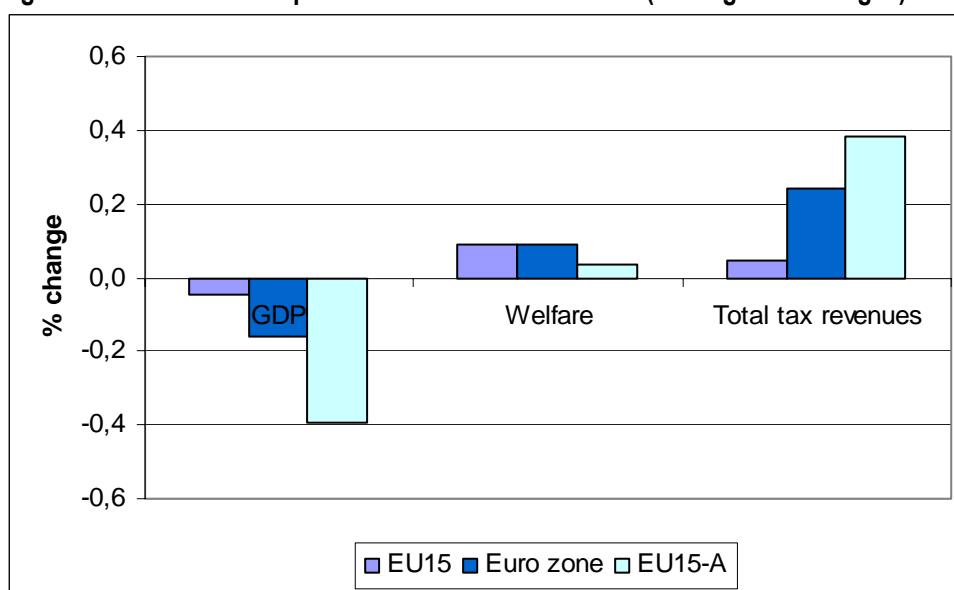
Second, for almost all countries, a gain in GDP comes at the cost of lower tax revenues. Conversely, a loss in GDP is generally accompanied by higher tax revenues. As previously noted, this is because changes in the level of taxation tend to outweigh all other effects at the country level. As previously noted, government budgets are balanced by adjusting income transfers to offset changes in tax revenues.

Enhanced cooperation

The difference between harmonisation at the unweighted or GDP-weighted average corporate tax rate and tax base is more pronounced when considering the case of enhanced cooperation, as illustrated in Figure 3-3 and Figure 3-4 below.

For the cases of enhanced cooperation analysed here, harmonisation at unweighted averages tends to imply losses in GDP and gains in tax revenues. Harmonisation at weighted averages yields opposite results.

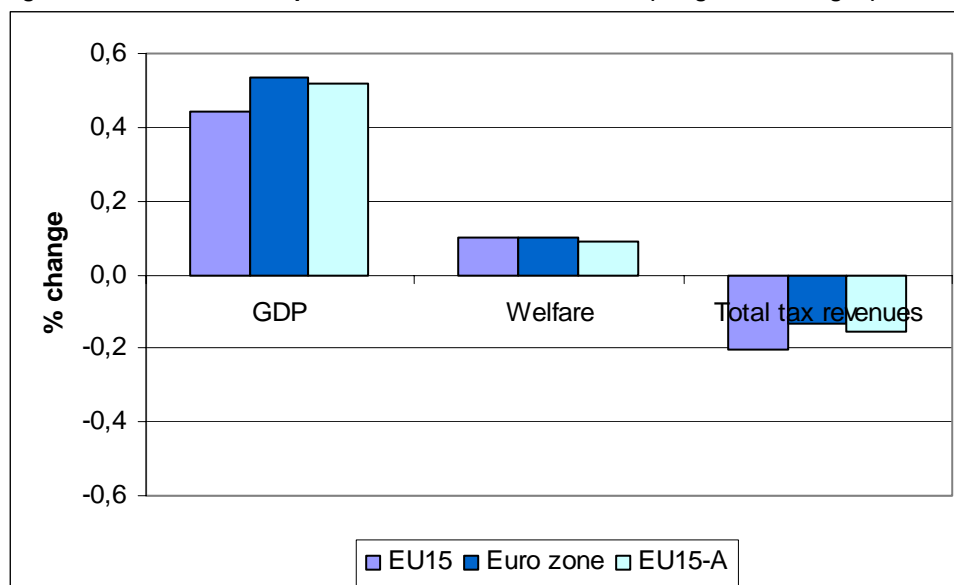
Figure 3-3: Enhanced cooperation on full harmonisation (unweighted averages)



Note: The graph shows percentage changes in sub-group totals. The harmonised corporate tax rate is 31% for the EU15, 31,5% for the Euro zone and 33% for the EU15-A, corresponding to unweighted subgroup averages. The harmonised corporate tax base is calculated as the unweighted subgroup average. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

⁶ The relatively low ratio of corporate tax revenues to GDP in Germany may be influenced by other factors than the narrowness of its corporate tax base, e.g. the relatively large fraction of unincorporated firms.

Figure 3-4: Enhanced cooperation on full harmonisation (weighted averages)

Note: The graph shows percentage changes in sub-group totals. The harmonised corporate tax rate is 34% for the EU15, 35% for the Euro zone and 35% for the EU15-A, corresponding to weighted subgroup averages. The harmonised corporate tax base is calculated as the weighted subgroup average. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

The differences are to a large extent driven by the composition of subgroups and individual country impacts, most notably by Germany, which has the largest economy in the EU. As previously noted, the German economy is an outlier in the sense that its tax base is very narrow compared to other EU15 countries. Again, this can be intuitively understood by comparing Germany's relatively high statutory corporate tax rate to its relatively low corporate tax revenues.

When harmonisation takes place at the unweighted average tax rate and tax base, the German tax base is drastically increased. This leads to a sharp increase in total corporate tax burden (despite the fact that the unweighted tax rate averages are lower than the weighted tax rate averages)⁷, and an accompanying fall in economic activity (as a result of introducing more distortions to the economy). Because Germany constitutes around one fifth of the total EU economy, this effect has a strong impact on the results for enhanced cooperation at unweighted averages. Though harmonisation at the weighted average tax rate and base may seem a tempting alternative for enhanced cooperation, it does imply that the rules for determining the harmonised tax base must be heavily oriented towards recreating the effects of German tax legislation.

3.3. Tax base harmonisation

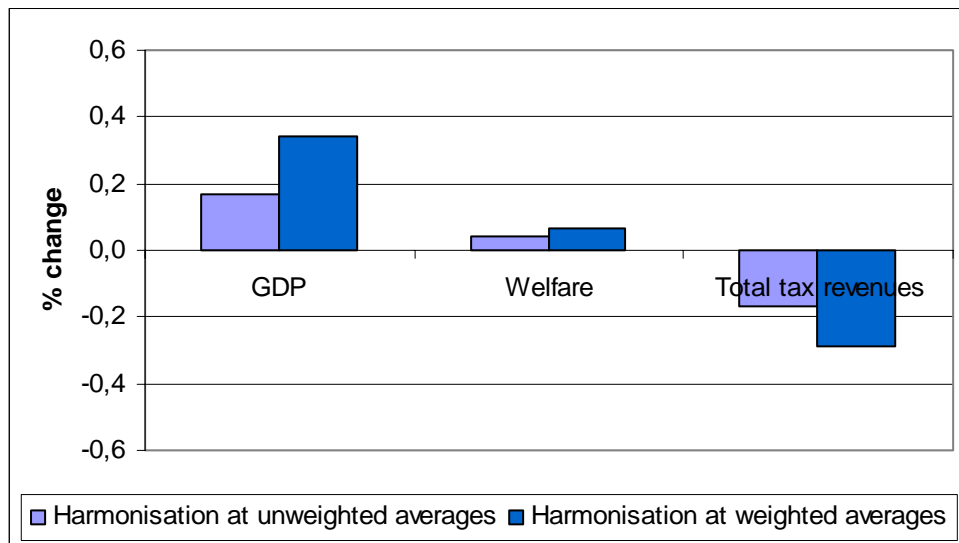
The economic effects of tax base harmonisation are in a sense conceptually different from full harmonisation. When only the tax base is harmonised, effective corporate tax rates will remain very heterogeneous. In fact, since countries with relatively broad tax bases tend to have relatively low tax rates, and vice versa, tax base harmonisation will often lead to an increase in effective tax rate differences if tax rates are assumed to remain unchanged. The implication is

⁷ This suggests that, in these scenarios, the economic outcomes are more influenced by the harmonised tax base than by the level of tax rate harmonisation.

that cross-country distortions to investment decisions may remain or even increase, thereby eliminating any gains from the improved capital allocation that follows full harmonisation.

Still, tax base harmonisation can result in economic gains as illustrated in Figure 3-5. The gains in GDP and welfare are, however, primarily caused by the overall drop in taxation. The decrease in tax revenues is the effect of harmonising only one of the two components determining corporate tax revenues, i.e. the tax base and the tax rate. In this case, where only the corporate tax base is harmonised, the result is a drop in overall taxation. Again, lower taxation will reduce economic distortions and increase economic activity at the cost of lower tax revenues. As noted previously, government budgets are balanced by adjusting income transfers to offset changes in tax revenues.

Figure 3-5: Tax base harmonisation

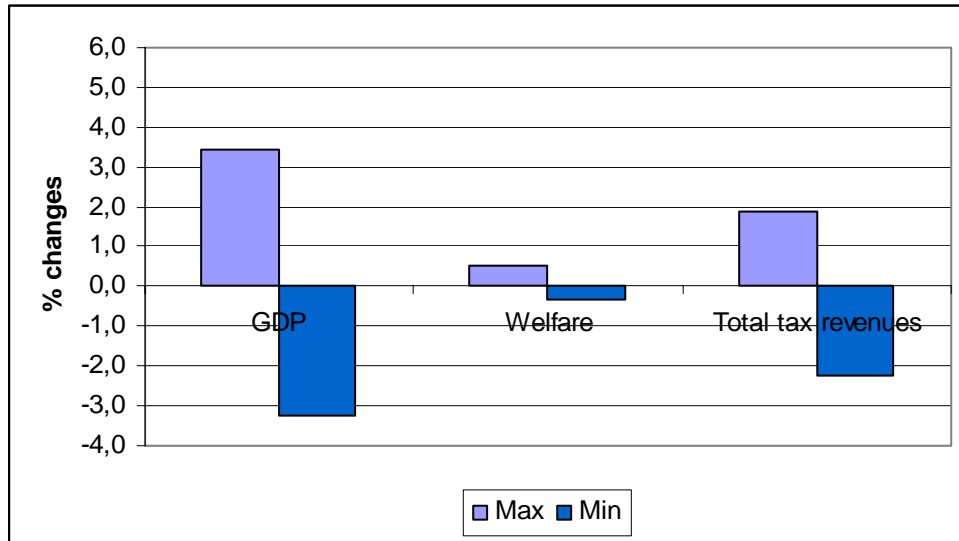


Note: The graph shows percentage changes in EU totals. Corporate tax rates are kept constant at current levels. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

As was the case for full harmonisation, individual country effects are significantly larger than the aggregate for the EU as a whole. There are still clear winners and losers from harmonisation. Figure 3-6 shows that the span between biggest positive and negative outcomes is considerable. Detailed figures are provided in Table 9 of Appendix I.

Figure 3-6: Individual country effects for tax base harmonisation



Note: The graph shows the biggest positive and negative changes in member state outcomes. The scenario considered is harmonisation at the unweighted average tax base. Government budgets are balanced by adjusting income transfers.

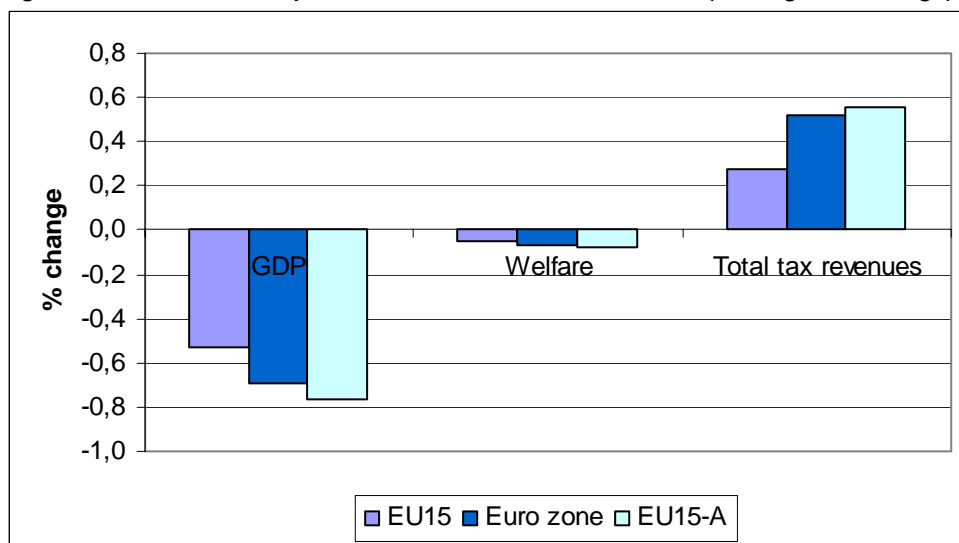
Source: CETAX simulations.

In the following, only tax base harmonisation at the unweighted average corporate tax base is considered. The general economic mechanisms will, however, also apply to harmonisation at the GDP-weighted average tax base.

Enhanced cooperation

Enhanced cooperation on tax base harmonisation at the unweighted average tax base will yield losses in both GDP and welfare. Total tax revenues will increase as illustrated in Figure 3-7. Again, these results are driven by individual country effects in general and by the economic outcomes in Germany in particular. The German economy is especially hard hit by a large increase its tax base and effective corporate tax rate.

Figure 3-7: Enhanced cooperation on tax base harmonisation (unweighted average)



Note: The graph shows percentage changes in sub-group totals. The harmonised corporate tax base is calculated as the unweighted average of subgroup tax bases. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

Minimum tax rate

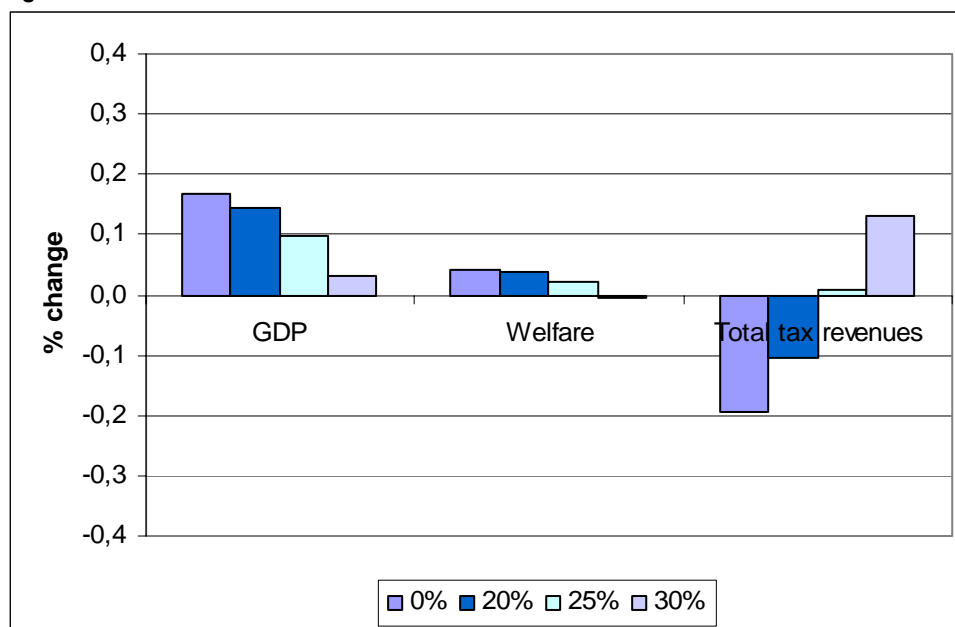
Tax base harmonisation is often considered in connection with requirements on minimum tax rates. A minimum tax rate can have two primary effects. First, it prohibits tax competition below the defined level. Second, for countries where the minimum tax rate becomes binding it will contribute towards full harmonisation of their effective tax rates. This means that a binding minimum tax rate will lead to economic gains from more efficient allocation of capital across countries.

The aggregate economic effects of tax base harmonisation with a minimum tax rate are summarized in Figure 3-8. All analyzed scenarios yield small increases in GDP. The relationship between GDP and tax revenues is somewhat more complex. The imposition of both a 25% and a 30% minimum tax rate results in overall gains of both GDP and total tax revenues. Again, it should be noted that government budgets are balanced by adjusting income transfers to offset any changes in tax revenues.

Again, the results are driven by the two effects on taxation levels and capital allocation. As the minimum tax rate increases, it becomes binding for a larger number of countries. The 25% rate is binding for 7 member states and the 30% rate for 13 member states. This gradually leads to a higher level of aggregate taxation and contributes negatively to total GDP. However, as more countries are bound by the minimum tax rate, cross-country differences in the effective average corporate tax rates decrease. This leads to economic gains from more efficient allocation of capital across countries.

At the level of harmonisation implied by the minimum tax rates of 25% and 30%, the capital allocation gains outweigh the losses from economic distortions caused by higher taxation.

Figure 3-8: Tax base harmonisation with a minimum tax rate



Note: The graph shows percentage changes in EU totals. The scenario with a 0% minimum tax rate corresponds to tax base harmonisation with uncoordinated tax rates and is restated for reference. Government budgets are balanced by adjusting income transfers.

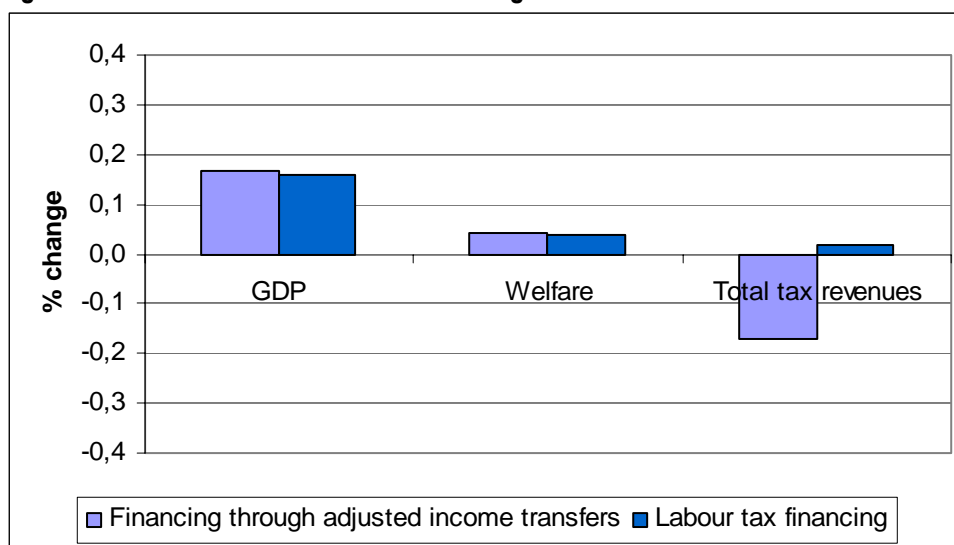
Source: CETAX simulations.

Budget neutral tax revenues

Harmonisation of tax bases across countries with different tax systems will have very divergent effects on the tax revenues of national governments. When tax revenues decrease, painful budget cuts may become necessary. As a result, the possibility to stabilise tax revenues after a harmonisation of tax bases may be crucial for creating political momentum for reform.

The scenario analyses the implications of stabilising national tax revenues at a level where government consumption and income transfers remain unchanged. This is done by adjusting labour tax rates. It should be duly noted that the choice of adjusting labour taxes only serves as an example for the analysis. The necessary adjustments could also have been made to e.g. consumption taxes. Total tax revenues may change slightly, since changes in interest rates can increase the cost of government debt interest payments.

Figure 3-9: Tax base harmonisation with budget neutral tax revenues



Note: The graph shows percentage changes in EU totals. The scenario with budget balancing through adjusted income transfers is restated for reference.

Source: CETAX simulations.

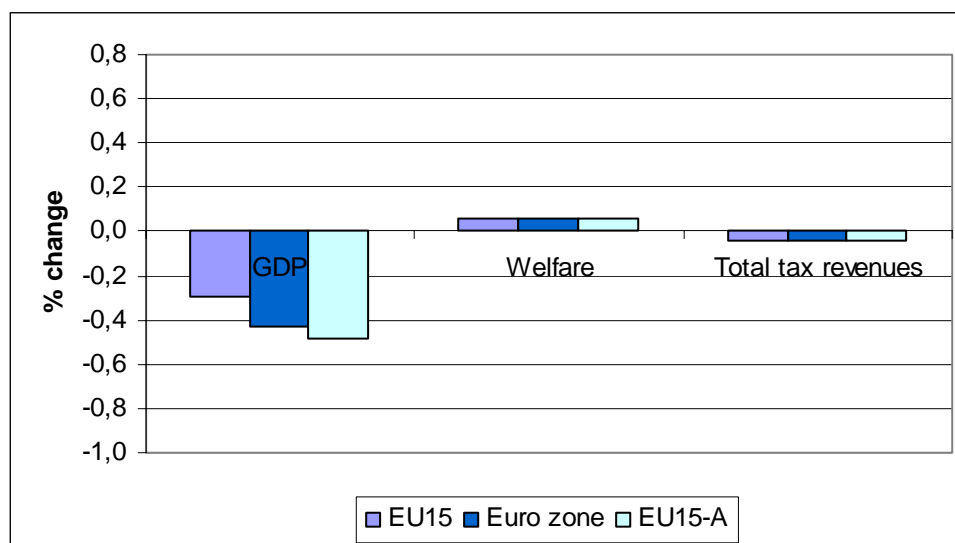
Figure 3-9 shows that tax base harmonisation can result in positive effects on GDP, welfare and total tax revenues. Compared to the reference scenario, the aggregate shortfall in tax revenues is compensated by increased labour taxes. The distortionary effect of the new labour taxes reduces GDP, but by a very small amount since the implied change to labour tax rates is minimal and labour supply is less elastic than the supply of capital. It is sufficiently small to still leave a gain in both GDP and welfare for the EU as a whole. The results consequently reflect that labour taxes are less distortionary than corporate taxes at the margin. This is also likely to be the case for e.g. consumption taxes. The slight increase in total tax revenues is necessary to cover increased costs for servicing existing government debt.

The economic effects of stabilising government budgets through adjustment of the labour tax rate are more evident when considering enhanced cooperation on tax base harmonisation. Figure 3-7 showed that tax base harmonisation with budget balancing through adjustments of income transfers resulted in relatively large increases in total tax revenues, caused by a rise in corporate income taxes. When labour taxes are adjusted to neutralise budget effects, the increased revenue from corporate income taxes is used to lower labour taxes.

As illustrated in Figure 3-10, which should be compared with Figure 3-7, the cut in the distortionary tax on labour is enough to create a small welfare gain, although not large enough to reverse the overall fall in GDP. The welfare gain is primarily driven by a fall in overall

unemployment. The small decrease in total tax revenues is explained by a slight decrease in the costs of servicing existing government debt.

Figure 3-10: Enhanced cooperation on tax base harmonisation with budget neutral tax revenues



Note: The graph shows percentage changes in subgroup totals.
Source: CETAX simulations.

3.4. Exchange of savings information

The final set of analysed scenarios concern exchange of information in the savings area. The Savings Directive creates a framework for residence-based taxation of interest income paid to individual savers, but automatic exchange of information is yet to be fully implemented by all member states. The baseline scenario assumes that there is already automatic exchange of information implemented between all EU member states, except for Austria, Belgium and Luxembourg.

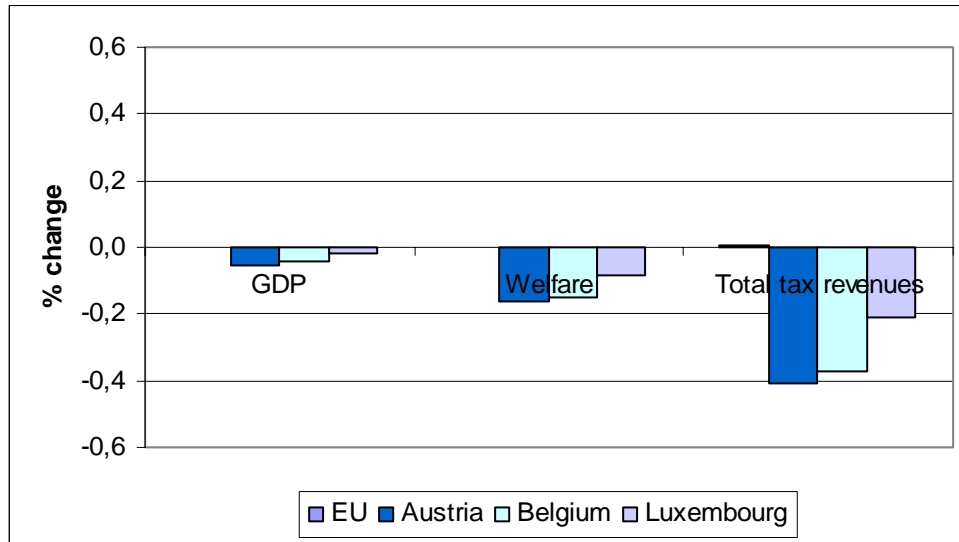
The economic effects of extending the exchange of information to include Austria, Belgium and Luxembourg are close to zero for the EU as a whole, as illustrated in Figure 3-11. This is a result of the policy impact on the total capital stock being very modest. Had the full exchange of savings information been simulated from a baseline with no exchange of information whatsoever, the economic effects would be more significant. This could be a possible extension of the study for future research.

Total tax revenues increase very slightly as a result of an increase in total taxable interest income. GDP and welfare is not affected for the EU as a whole. Exchange of savings information increases the share of taxable interest income, thereby reducing the net return on investments in interest-bearing assets, but the overall effect is minimal.

The effects are somewhat more pronounced for Austria, Belgium and Luxembourg than for the EU as a whole. With only a 15% withholding tax and no reporting of interest income to residence countries in the baseline, exchange of information leads to drops in inward portfolio investment and withholding tax revenues. This affects national incomes and thereby welfare. The result is also a slight decrease in the total stock of business capital. This translates into a small negative effect on economic activity.

As for corporate tax cooperation, the aggregate effects of exchanging savings information depend on how changes in tax revenues are handled. If increases in tax revenues from exchanging information were used e.g. to lower distortionary taxes, the economic outcomes would be slightly more favourable.

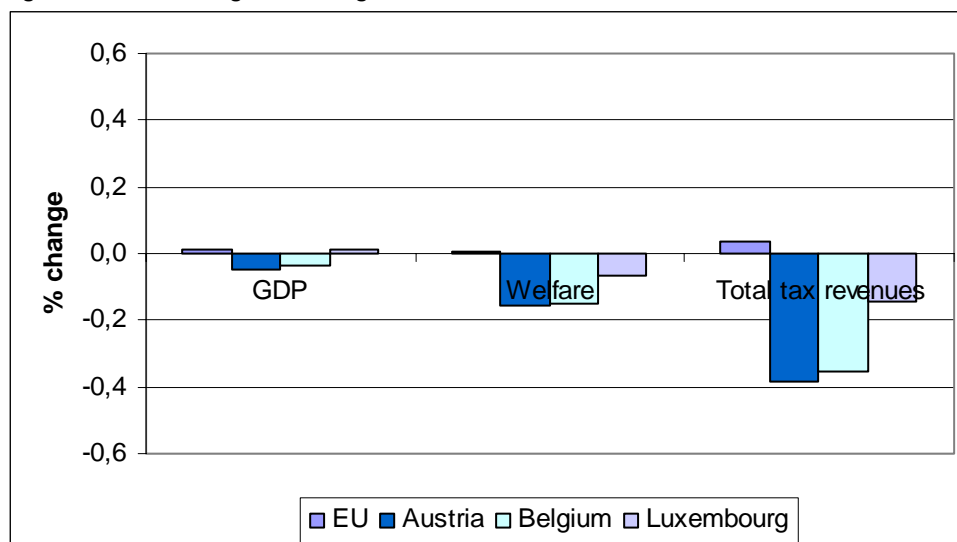
Figure 3-11: Exchange of savings information within the EU



Note: The graph shows percentage changes in EU25 and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 15%. Government budgets are balanced by adjusting income transfers. 75% of household interest income is reported to residence country authorities (and taxed at the personal tax rate on interest income of the residence country).

Source: CETAX simulations.

The picture changes only slightly when tax havens also exchange information, as illustrated in Figure 3-12. The primary aggregate effect, compared to exchanging information only within the EU, is an increase in total tax revenues. Its small magnitude is a result of the portfolio investment in tax haven bonds constituting only a small share of total portfolio investment in bonds.

Figure 3-12: Exchange of savings information within the EU and with tax havens

Note: The graph shows percentage changes in EU25 and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 15%. Exchange of information takes place with Switzerland and the tax haven. Government budgets are balanced by adjusting income transfers. 75% of household interest income is reported to residence country authorities.

Source: CETAX simulations.

The biggest change is to the extent of tax evasion. Table 22 in Appendix I documents that investors decrease their portfolio holdings of interest-bearing assets in the tax haven by up to 80%.

3.5. Sensitivity analysis

The sensitivity analysis focuses on the effects of assumptions regarding strategic policy parameters. For corporate tax cooperation, the composition of sub-groups for enhanced cooperation is the most important and debateable parameter in the different scenarios. Still, the most contentious policy assumptions concern the exchange of savings information, which will therefore receive most attention. First, initial withholding tax rates on interest income from Austria, Belgium and Luxembourg will vary in accordance with the Savings Directive. Second, the effectiveness of automatic reporting systems can be more or less efficient than assumed. Detailed results by country are provided in Appendix II.

Enhanced cooperation

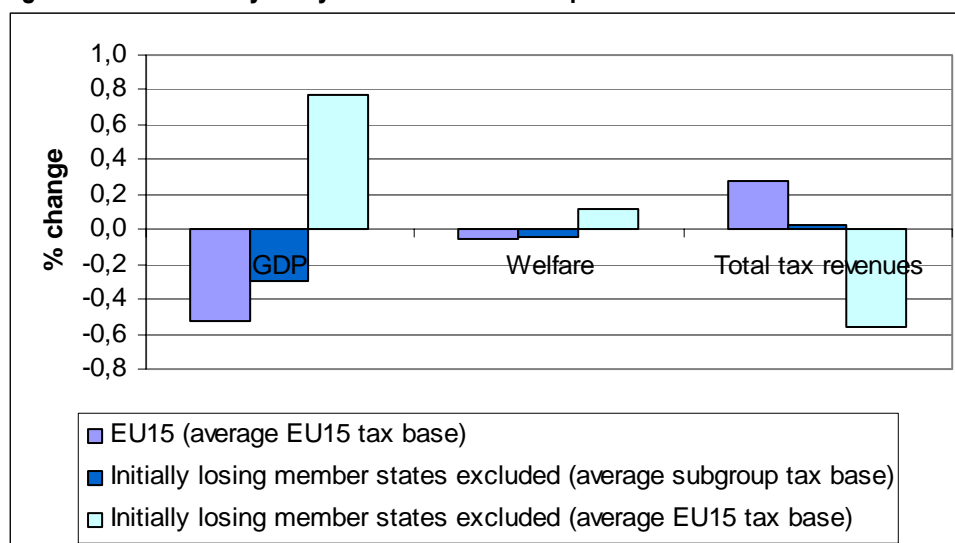
When engaging in enhanced cooperation, a preferred sub-group would consist of only those member states that are better off from reform. Unfortunately, within the standard modelling framework used in this study, the economics of corporate tax cooperation does in practice not allow for a scenario where all individual member states are unambiguously left better off. The formation of winners and losers from tax cooperation is a result of initial differences in national systems of taxation. If there were no initial differences, there would be no gains from cooperation.

This effect has been analysed for the case of enhanced cooperation on tax base harmonisation in the EU15. The original scenario, with 15 cooperating member states, was modified to exclude those countries that experienced losses in both GDP and welfare.⁸ Figure 3-13

⁸ The excluded countries are Austria, Germany, Greece, Ireland and Spain.

illustrates the results of tax base harmonisation at respectively the unweighted average base of the remaining ten member states, and the original unweighted average tax base of the EU15.

Figure 3-13: Sensitivity analysis on enhanced cooperation on tax base harmonisation



Note: The graph shows percentage changes in subgroup totals. The excluded member states are Austria, Germany, Greece, Ireland and Spain. The original EU15 figures are restated as a reference. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

The results show that tax base harmonisation for the new subgroup still results in GDP and welfare losses if the harmonised tax base reflects the new subgroup composition. Aggregate effects are smaller, but new losers have visibly been formed and individual country results have a large impact on the aggregate outcome.

The picture changes if tax base harmonisation for the new subgroup is performed at the level of the unweighted average tax base of the EU15, as in the original scenario. The harmonised tax base does then not reflect the new subgroup composition and the policy change effectively leads to a reduction of the total tax burden. This increases economic activity and welfare.

The primary conclusion of the sensitivity analysis on enhanced cooperation on tax base harmonisation is that the details of the policy change matter greatly for the economic outcomes. Both the composition of cooperating subgroups and the chosen level of harmonisation have large impacts. It should also be noted that there always will be winners and losers from reform if harmonisation takes place at a level where individual member state differences are taken into account.

Exchange of savings information

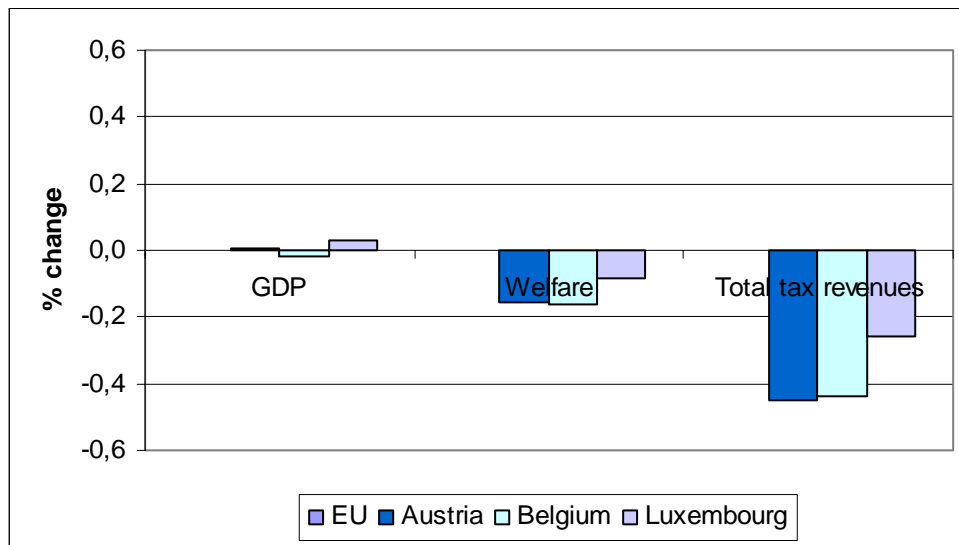
Two important assumptions on the character of policy reform in the area of savings taxation need specific attention. First, initial withholding tax rates on interest income from Austria, Belgium and Luxembourg will vary in accordance with the Savings Directive. Second, the effectiveness of automatic reporting systems can be assumed to vary.

The assumption that the withholding tax rate applying to interest income is 15% is only valid for the first three years of the so called transitional period for which Austria, Belgium and Luxembourg are exempt from exchanging information. The applicable withholding tax rate according to the Savings Directive is 20% for the next three years, and 35% thereafter.

The two scenarios for exchange of savings information are therefore repeated for the two cases of baseline withholding tax rates of 20% and 35%, respectively. The results of the sensitivity analysis presented here should consequently be compared to the results presented in Figure 3-11 and Figure 3-12.

Figure 3-14 shows that the difference between applying a 15% and a 20% initial withholding tax rate is minimal. The situation is somewhat different when the initial withholding tax rate is set at 35% which is sufficiently high to deter a significant amount of inward portfolio investment. When Austria, Belgium and Luxembourg start exchanging information and scrap the high withholding tax, portfolio inflows increase and cause small GDP gains, as illustrated in Figure 3-15. The abolition of withholding taxes still results in significantly reduced tax revenues.

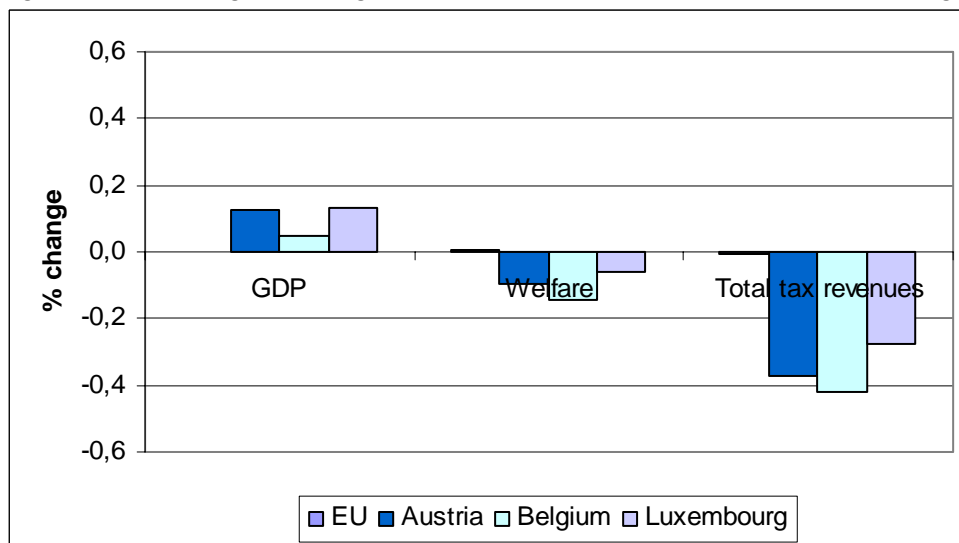
Figure 3-14: Exchange of savings information within the EU (20% initial withholding tax)



Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 20%. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

Figure 3-15: Exchange of savings information within the EU (35% initial withholding tax)

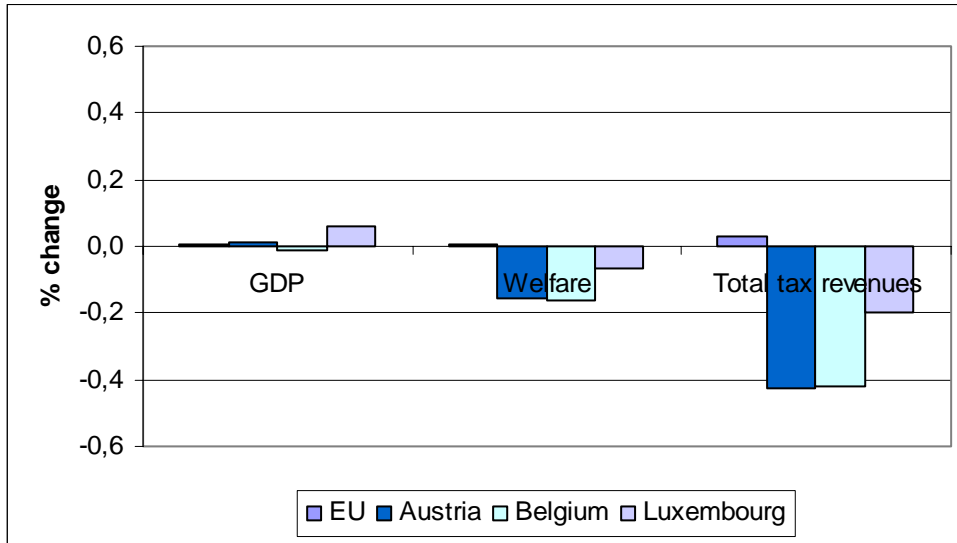


Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 35%. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

For the scenario where exchange of information takes place both within the EU and with tax havens, Figure 3-16 and Figure 3-17 show that the results are similar to exchange of information only within the EU. As in the original scenario, the results are driven by changes in portfolio flows within the EU, which dominate the effects of exchanging information with the tax havens.

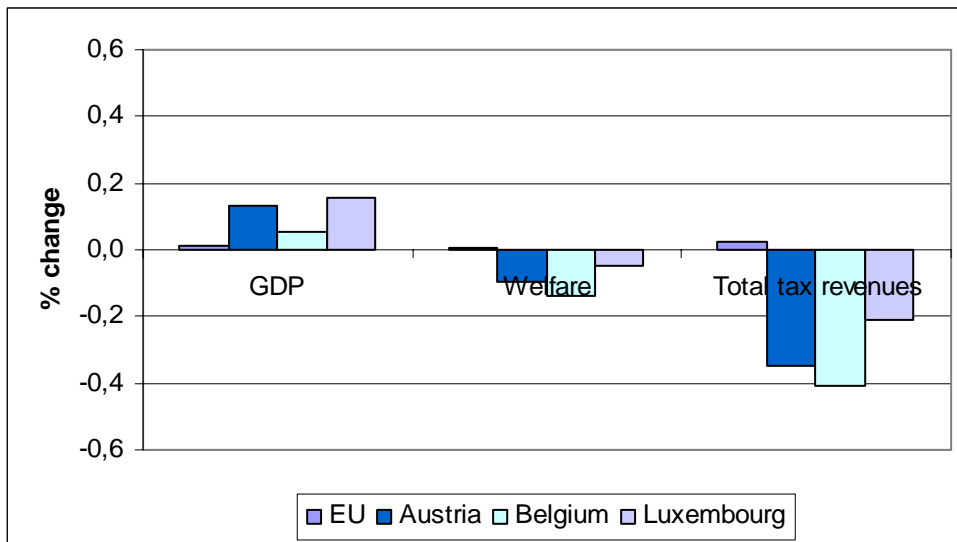
Figure 3-16: Exchange of savings information within the EU and with tax havens (20% initial withholding tax)



Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 20%. Exchange of information takes place within the EU and with Switzerland and the tax haven. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

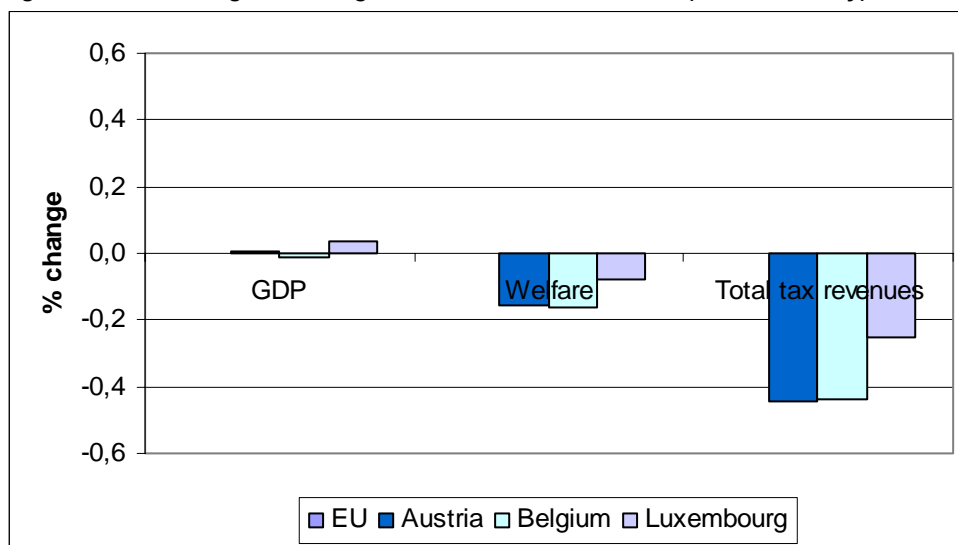
Figure 3-17: Exchange of savings information within the EU and with tax havens (35% initial withholding tax)



Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 35%. Exchange of information takes place within the EU and with Switzerland and the tax haven. Government budgets are balanced by adjusting income transfers.
Source: CETAX simulations.

The previous exchange of information scenarios assume that automatic reporting systems for interest income from Belgium, Austria and Luxembourg will cover 75% of household interest income. It should also be analysed if the outcomes of exchange of information differ if tax enforcement is more or less efficient than the baseline assumption. Figure 3-18 shows the results of assuming that only 50% of interest income is reported to residence country authorities within the EU and Figure 3-19 illustrates the effects of assuming perfect reporting.

Figure 3-18: Exchange of savings information within the EU (50% efficiency)

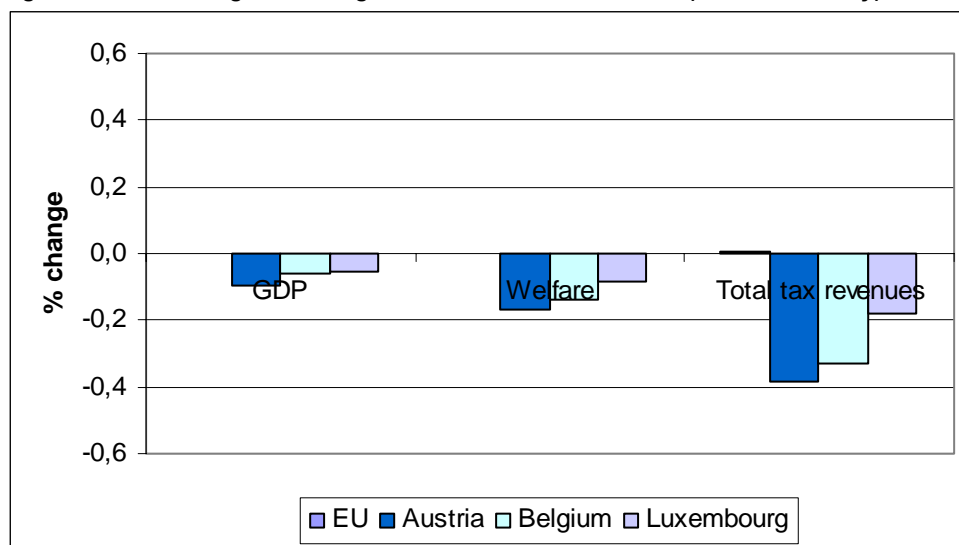


Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 15%. Government budgets are balanced by adjusting income transfers. 50% of household interest income from Belgium, Luxembourg and Austria is reported to residence country authorities.
Source: CETAX simulations.

In both cases, the aggregate results for the EU as a whole are close to zero, as was the case for 75% reporting.

With exchange of information, Belgium, Luxembourg and Austria lose their withholding tax revenues, but portfolio inflows actually increase if only 50% of interest income is reported. The result is an increase in total capital stocks and more positive GDP effects than in the case of 75% reporting.

If automatic reporting systems are working perfectly, the results are similar to the original scenario where 75% of interest income is reported. In both cases, the effective tax rate on interest income increases as a result of efficient enforcement and abolished withholding taxes. Total tax revenues increase very slightly for the EU as a whole as a result of a higher share of taxable interest income.

Figure 3-19: Exchange of savings information within the EU (100% efficiency)

Note: The graph shows percentage changes in EU and national totals. The baseline withholding tax rate for interest income from Austria, Belgium and Luxembourg is 15%. Government budgets are balanced by adjusting income transfers. All household interest income from Belgium, Luxembourg and Austria is reported to residence country authorities.

Source: CETAX simulations.

3.6. Comparison of policy scenarios

To sum up the model results and to facilitate a direct comparison of different policy options, this section provides summary tables with results from the different scenarios. Table 3.2 shows that full harmonisation at weighted averages is the most attractive policy option for corporate tax cooperation if the overall level of taxation is to be kept unchanged for the EU as a whole. Larger gains can be achieved only by significantly lower taxation resulting in lower tax revenues.

Table 3.2: Comparison of full harmonisation and tax base harmonisation in the EU

	Full harmonisation		Tax base harmonisation	
	Unweighted averages	Weighted averages	Unweighted average	Weighted average
GDP	0.79	0.38	0.17	0.34
Welfare	0.21	0.07	0.04	0.06
Tax revenues	-0.56	0.01	-0.17	-0.29

Note: The table shows percentage changes in EU totals. Government budgets are balanced by adjusting income transfers. Full harmonisation refers to harmonisation of both the corporate tax rate and tax base.

Source: CETAX simulations.

The picture is more complex for the case of enhanced cooperation. Still, full harmonisation at weighted averages again appears as the most interesting policy option. Table 3.3 illustrates that only full harmonisation at weighted averages consistently results in both GDP and welfare gains.

Table 3.3: Comparison of enhanced cooperation scenarios

	Full harmonisation						Tax base harmonisation		
	Unweighted averages			Weighted averages			Unweighted average		
	EU15	Euro-z	EU15A	EU15	Euro-z	EU15A	EU15	Euro-z	EU15A
GDP	-0.05	-0.16	-0.40	0.44	0.53	0.52	-0.53	-0.69	-0.76
Welfare	0.09	0.09	0.04	0.10	0.10	0.09	-0.05	-0.07	-0.08
Tax revenues	0.05	0.24	0.38	-0.20	-0.13	-0.15	0.28	0.52	0.55

Note: The table shows percentage changes in subgroup totals. Government budgets are balanced by adjusting income transfers. Full harmonisation refers to harmonisation of both the corporate tax rate and tax base. Euro-z refers to the Euro zone.

Source: CETAX simulations.

The scenarios for corporate tax cooperation also analyse tax base harmonisation with a minimum corporate tax rate and budget neutral tax revenues, respectively. For the case of a minimum tax rate, the scenario with a rate of 25% is the most interesting policy option if the overall level of taxation is to be kept unchanged for the EU as a whole. Tax base harmonisation with budget neutral tax revenues is also an interesting alternative from an economic point of view, since both GDP and welfare gains can be realized without tax revenue losses.

Table 3.4: Comparison of minimum tax rate and budget neutral tax revenue scenarios

	Minimum tax rate			Budget neutral tax revenues
	20 %	25 %	30 %	
GDP	0.14	0.10	0.03	0.16
Welfare	0.04	0.02	-0.01	0.04
Tax revenues	-0.10	0.01	0.13	0.02

Note: The table shows percentage changes in EU totals. Government budgets are balanced by adjusting income transfers.

Source: CETAX simulations.

Finally, regarding exchange of savings information, the results in section 3.4 clearly indicate that exchange of savings information with tax havens is relatively more beneficial for the EU than exchange of savings information only with Belgium, Luxembourg and Austria. Still, the aggregate effects on the EU as a whole are very small.

The comparison of the different policy options suggests that full harmonisation of both the corporate tax rate and the corporate tax base, at the weighted averages of current rates and bases, is the most interesting option from an economic point of view. As previously noted, this is because full harmonisation at weighted averages comes closest to realizing the benefits from improved capital allocation without affecting the level of taxation.

Chapter 4 Policy implications

The study shows that corporate tax cooperation can result in aggregate gains for the EU. The magnitude of the potential gains is in the order of 0.5% for GDP and somewhat less for welfare. This applies both to cooperation across the whole EU and to enhanced cooperation among subsets of member states. The comparison of the different policy options suggests that full harmonisation of both the corporate tax rate and tax base, at the weighted averages of current rates and bases, is the economically most interesting policy option (in terms of higher GDP) among the scenarios tested.

The relatively modest magnitude of the gains is explained by the continued existence of other distortions to the free movement of capital within the EU (see Sørensen, 2004a). Tax rules for household and institutional investors still differ across member states. Investors are furthermore home-biased in their decision making, which reduces the substitutability of assets. Moreover, a significant part of total capital stocks is invested outside the corporate sector, particularly in housing capital. Corporate tax harmonisation alone is therefore not enough to equalize the cost of capital across the EU

Aggregate gains from tax cooperation does not mean that all member states will be equally well off. All scenarios considered leave some member states as winners and others as losers from reform. Individual countries will experience significant changes in economic activity, total tax revenues and government budgets.

Unfortunately, the standard economics of corporate tax cooperation does not allow for a scenario where all individual member states are better off in the absence of compensating international transfers. The formation of winners and losers from tax cooperation is a result of initial differences in national systems of taxation. If there were no initial differences, there would be no gains from cooperation. Taking the distributional effects of corporate tax cooperation into account will therefore be a crucial obstacle to policy reform.

4.1. Distributional effects

To understand the distributional effects of corporate tax cooperation, it is necessary to recognize the two primary factors influencing the economic outcomes.

First, reductions of cross-country differences in effective tax rates lead to more efficient allocation of capital across the EU. The aggregate gains from more efficient allocation of capital will always be positive as long as tax cooperation indeed leads to more equalized effective corporate tax rates. This will always be the case for full harmonisation, but not necessarily when only tax bases are harmonised.

Second, harmonisation of the corporate tax rate or tax base will affect the overall level of taxation in individual member states (unless reforms are designed to be revenue-neutral by shifting the tax burden or tax cuts to other taxes). The tax burden will increase in some countries and decrease in others. A larger total tax burden will almost invariably lead to a fall in GDP and welfare. A smaller tax burden will generally lead to a rise in GDP and welfare. There is consequently a classic trade-off between taxation and economic efficiency. The fact that changes in the overall level of taxation is a main driver of individual member state results is not surprising, but may have problematic policy implications when there are distributional effects.

Specifically, in any group for which corporate tax harmonisation takes place and where gains are unevenly distributed, there will be demands for compensation of member states that are left worse off. Any compensation scheme must identify winners and losers. This is where problems may emerge. If losers are defined as those countries where tax revenues fall off as a result of the reforms, the implication would be that countries suffering drops in GDP would compensate countries with gains in GDP. If, on the other hand, losers are defined as those countries where GDP decreases as a result of the reforms, the implication would be that countries suffering drops in tax revenues would compensate countries with gains in tax revenues. Both options would prove hard to accept for policy makers.

It should also be noted that economic gains from tax cooperation cannot be taken for granted. The model indicates that, depending on the specific details of cooperation policies and the set of cooperating countries, aggregate gains can be reversed into aggregate losses. The details of policy reform matter, as discussed in the following sections.

4.2. Enhanced cooperation

The large and diverse country effects suggest that enhanced cooperation for a subset of member states may be the most likely route towards tax cooperation. Both full harmonisation and tax base harmonisation across the EU as a whole would be very complicated to implement given the unanimity requirement on tax policy decisions. The simulations suggest that cooperation among a subset of relatively equal member states would, on the contrary, lead to less radical policy changes, but also smaller gains. This could constitute an important first step towards further policy reforms.

The unanimity rule for tax policy decisions implies that all countries have an equal say when deciding on the definition of a harmonised tax base. Given the general tendency of governments to favour national sovereignty on corporate taxation, the unanimity rule in theory makes harmonisation at a level close to the unweighted average of current systems most relevant. In practice, a move towards the widest possible definition of the corporate tax base can also be a favoured policy.

Harmonisation at the weighted average of current tax rates and tax bases implies that large economies are given more say when it is decided upon the rules for determining the harmonised tax base and tax rate. The study shows that this makes more economic sense, but it implies a larger dent in national sovereignty. Political will for reform would thus be an important factor for the outcome of corporate tax cooperation.

Although the choice of the specific level of harmonisation may seem a purely technical issue, the policy implications are more profound. The study shows that there is a large difference between harmonisation at the unweighted and weighted averages of current corporate tax rates and bases. For enhanced cooperation on full harmonisation, the difference is a question of either aggregate gains or aggregate losses. Enhanced cooperation may therefore be preferred because of the need for very specific agreements on the details of tax cooperation.

A decision to engage in tax cooperation needs to be carefully researched and followed by a detailed agreement in order to avoid unwanted economic effects for cooperating member states. This will be more probable to succeed if negotiations can be held between only a subset of member states.

4.3. Financing tax reforms

Whether they are positive or negative, the revenue effects of tax cooperation must be absorbed in some way. The choice fiscal instrument for balancing government budgets can sometimes have a significant influence on the effects of corporate tax cooperation. In fact, the often large country level effects on tax revenues mean that corporate tax cooperation would be likely to be bundled with additional tax policy reforms.

For both full harmonisation and tax base harmonisation, it would not be realistic to envision adjustments of solely corporate tax rates to stabilize revenues for all member states. The required changes would be too large to be practically feasible. As an alternative, this study has therefore analysed the effects of adjusting labour tax rates to balance government budgets.

In the case of tax base harmonisation, the model shows that bundling corporate tax cooperation with labour tax reforms can result in positive gains in both GDP, welfare and tax revenues. Increasing labour taxes to reduce corporate tax revenue shortfalls would, however, increase unemployment. Such reforms may prove equally painful as reforms requiring cuts in income transfers or other public expenditure.

The scenarios analysing exchange of savings information provide some insight into the possibilities of governments to more efficiently tax personal capital income. The results indicate that effective exchange of information may contribute towards more national autonomy in the field of personal income taxation if information exchange included tax havens. The positive effects of exchanging savings information would be reinforced if increased tax revenues were used to lower for example labour or capital income taxes.

The model suggests that it is, however, not until high withholding tax rates are applied that Austria, Belgium and Luxembourg would have incentives to exchange information. The results also show how investors can adjust their allocation of capital from financial assets to primarily housing capital. Policy makers must consequently consider the breadth of investment options available to investors, providing ample legal opportunities to escape high taxation.

The study shows that tax evasion using tax havens would decrease drastically as a result of exchanging information. This implies that exchange of information with tax havens may result in a significant political gain, in addition to any economic gains.

4.4. Compliance costs

An important motivation for corporate tax cooperation is to decrease tax compliance costs for firms with multinational operations in the Internal Market. The comprehensive European Tax Survey (European Commission, 2004) estimates perceived compliance costs (for company taxation and VAT) at 1.9% of taxes paid. Regrettably, explicit modelling of compliance costs is not feasible before conclusive theoretical and empirical findings are available. The formal model analysis of this study has consequently not taken lower compliance costs into account when reporting the gains from corporate tax cooperation.

Still, this study implicitly sheds some additional light on the issue on compliance costs. The large adjustments to tax bases that sometimes are required by harmonisation indicate that existing *de facto* rules for calculating taxable corporate income differ significantly across

countries. This suggests that tax base harmonisation could result in sizeable reductions in compliance costs. This study therefore underestimates the gains from tax cooperation.

To get a more comprehensive picture of the economic effects of corporate tax cooperation, this macro-level study can be complemented by the micro-level European Tax Survey. The European Tax Survey produced several important findings concerning compliance costs. First, the survey found that compliance costs impose a relatively larger burden on small- and medium-sized enterprises (SMEs) than on large firms. The survey indicates that perceived compliance costs in SMEs may amount to up to 30.9% of taxes paid. Given the significant share of SMEs in the EU economy, there may be significant gains from easing their compliance cost burden.

Second, The European Tax Survey also shows that compliance costs are an obstacle to the smooth functioning of the Internal Market. The survey suggests that firms with subsidiaries abroad experience higher compliance costs, and that compliance costs increase with the number of subsidiaries abroad.

In short, the European Tax Survey finds that current systems for corporate taxation in the EU hinder the smooth functioning of the Internal Market and imposes a particularly heavy burden on SMEs. Though the direct economy-wide impact of compliance costs may be modest⁹, the indirect effects of obstacles to the Internal Market may be significantly higher. Policy makers should therefore take into account the benefits from increased cross-border activity and the growth potential of SMEs when considering the issue of corporate tax cooperation.

4.5. Limitations of the study

Despite the highly specialised modelling framework used in this study, there is ample scope for improvements for future studies. This section outlines some limitations of this study that could be improved on, and that should be taken into account when evaluating the results of this study:

- The complexity of Member States' legislation defining company tax bases is difficult to incorporate in a detailed manner in the model. The tax base harmonisation in the model almost exclusively applies to a calibrated rate of effective capital depreciation. This means that some country-specific policies may not be fully captured.
- Multinational firms do not have consolidated accounts for their EU-wide operations. Moving to consolidated accounting would imply a change in firms' behaviour which was not possible to include in the model. Therefore, the study can not be regarded as an assessment of the gains of moving to an EU tax system for multi-jurisdictional corporate taxation based on consolidation of firms' EU-wide income.
- As mentioned in the previous section, the study does not estimate the gains related to lower compliance and administrative costs that would result from the harmonisation of corporate tax bases.
- The model does not capture the dynamics of fiscal interactions between Member States, i.e. the reactions of Member States to each other's fiscal policies. In practice, however, phenomena of harmful tax competition may exist as countries compete to

⁹ Assuming that corporate taxes constitute on average 3% of GDP in the EU and that tax cooperation reduces compliance costs with 25%, the reduced compliance costs amount to 0.015% of GDP.

attract investment and capital. Taking into account dynamic effects of harmful tax competition could strengthen the case for tax cooperation.

- The model does not take into account some dynamic effects, e.g. a possible increase in the number of new start-up firms as a consequence of tax reforms, or the exploitation of economies of scale or scope for firms that decide to expand across the EU following tax cooperation.
- The set of scenarios analysed, though large, is not able to cover all possible tax cooperation scenarios. Other scenarios of tax cooperation can be envisaged for future analysis. For example, the harmonisation of tax bases towards the broadest possible definition could be an interesting policy option.

By including the above effects into a broader modelling framework, a more comprehensive analysis of the effects of tax cooperation could be performed. This may capture more benefits of tax cooperation than is possible in the current model.

4.6. Summary of conclusions

The policy analysis in the previous sections is summarized by the following conclusions:

Corporate tax cooperation could yield gains in GDP and welfare. This applies both to cooperation across the whole EU and to enhanced cooperation among subsets of member states. The magnitude of the potential gains is in the order of 0.5% for GDP and somewhat less for welfare. Full harmonisation of both the corporate tax rate and base, at the weighted averages of current rates and bases, is the most advantageous policy option (in terms of aggregate gains in GDP) among the analysed scenarios.

The details of tax cooperation determine outcomes. Economic gains from tax cooperation cannot be taken for granted (in this standard modelling framework). Depending on the precise details of cooperation policies and the set of cooperating countries, gains can be reversed into losses. This calls for thorough and comprehensive analyses of specific policies before adoption.

Individual country effects could be large and sometimes negative. Aggregate gains from tax cooperation do not mean that all member states would be better off. All scenarios considered leave some member states as winners and others as losers from reform. Individual countries may experience significant changes in economic activity, tax revenues and government budgets. An agreement on tax reform could therefore require some form of compensation.

Enhanced cooperation seems the most likely route towards tax cooperation. The large and diverse country effects suggest that enhanced cooperation for a subset of member states may be the most likely route towards tax cooperation. Both full harmonisation and tax base harmonisation across the EU as a whole could be very complicated to implement given the unanimity requirement on tax policy decisions. Cooperation among a subset of relatively equal member states could lead to less radical policy changes, but also smaller gains. This could constitute an important first step towards further policy reforms.

The financing of tax reforms is crucial. The choice of fiscal instrument for balancing government budgets can sometimes have a significant influence on the effects of corporate tax cooperation. This means that corporate tax cooperation would be likely to be bundled with additional tax policy reforms. For example, exchange of savings information will increase tax revenues.

In the context of personal income taxation, exchange of savings information would reduce tax evasion. The most apparent effect of exchanging savings information with tax havens is a significant reduction in tax evasion. Aggregate economic outcomes would vary depending on the use of tax revenues.

Chapter 5 Concluding remarks

This study offers new insights to corporate tax policies in the European Union. A number of commonly debated issues fall outside the scope of the study and are left to future efforts.

First, the economic literature has yet to develop and agree on how to model corporate tax compliance costs. This study has consequently not taken lower compliance costs into account when reporting the gains from corporate tax cooperation. Still, the study implicitly sheds some light on the issue on compliance costs. The large adjustments to tax bases that sometimes are required by harmonisation indicate that existing *de facto* rules for calculating taxable corporate income differ significantly across countries. This indicates that tax base harmonisation could result in sizeable reductions in compliance costs.

Second, more comprehensive studies should analyse the effects on GDP and welfare of issues such as e.g. EU-wide corporate income consolidation (i.e. allowing cross-border loss offsets), harmonisation towards the broadest possible tax base, effects of tax cooperation on tax competition and increased competition in the Internal Market following tax reforms. By including such effects into a broader modelling framework, a more comprehensive analysis of the effects of tax cooperation could be performed. This may capture more benefits of tax cooperation than is possible in the current model.

An important conclusion of this study is that gains from corporate tax cooperation cannot be taken for granted in this standard modelling framework. Several of the scenarios considered result in aggregate GDP and welfare losses, and all scenarios result in losses for some member states. To support policy formulation, further studies will be required to analyse more dynamic effects, possible compensation mechanisms and the details of specific policy proposals.

The introduction of possible compensation mechanisms would undoubtedly give rise to numerous debates. As previously pointed out, identifying winners and losers would be far from uncontroversial if compensation mechanisms were to be introduced. For example, if losers were defined as those countries where tax revenues fall off as a result of the reforms, the implication would be that countries suffering drops in GDP would compensate countries with gains in GDP. If, on the other hand, losers were defined as those countries where GDP decreases as a result of the reforms, the implication would be that countries suffering drops in tax revenues would compensate countries with gains in tax revenues.

To define policies that are both politically feasible and create proper incentives for member states, targeted research is needed. The results of this study show that there can be a significant difference in outcomes between policies that seem similar. This suggests that a rigorous economic analysis should precede any decision on policy reform.

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Appendix I Detailed results

Table 1 Full harmonisation at unweighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.7	0.2	-17.5	-0.7	-1.5	0.8	2.3	-20.1	0.1
Belgium	3.2	0.7	-30.5	-0.5	-2.0	4.2	10.5	-20.1	43.2
Denmark	1.8	0.4	-27.2	-0.3	-0.7	3.0	7.7	-9.5	57.4
Finland	1.6	0.3	-29.5	-0.6	-1.6	2.3	7.3	-6.4	73.9
France	2.4	0.5	-33.1	-1.0	-2.9	3.4	7.9	-22.4	36.2
Germany	-1.6	0.1	49.2	0.6	2.0	-2.4	-6.7	-28.5	-54.6
Greece	1.1	0.3	-13.1	-0.5	-1.2	1.3	2.7	-22.4	-3.2
Ireland	-1.0	-0.2	90.4	1.7	2.8	-1.7	-4.0	117.2	7.8
Italy	1.4	0.2	-28.6	-1.5	-5.2	1.4	4.7	-17.7	23.5
Luxembourg	3.7	0.6	-39.0	-3.2	-5.1	4.8	14.4	-10.6	201.7
Netherlands	2.7	0.5	-37.5	-1.4	-3.9	3.9	9.2	-21.3	52.5
Portugal	1.2	0.2	-24.1	-1.2	-4.5	1.8	4.8	-1.3	53.8
Spain	0.4	0.3	-9.6	-0.3	-0.7	0.5	0.8	-22.4	-11.0
Sweden	1.1	0.2	-21.2	-0.4	-1.0	1.6	4.2	-3.0	44.5
UK	2.2	0.3	-38.4	-2.7	-9.6	2.9	10.5	-9.5	122.1
Cyprus	-1.2	-0.2	94.6	4.4	47.5	-2.2	-4.3	81.0	-12.7
Czech Rep.	2.3	0.3	-38.1	-2.3	-8.2	3.3	8.7	-3.0	134.5
Estonia	-2.4	-0.1	370.4	5.2	56.9	-3.9	-9.2	4.4	-73.4
Hungary	0.5	-0.2	-2.4	0.1	-0.1	0.2	2.0	69.7	162.7
Latvia	0.1	0.0	23.3	1.5	4.9	-0.1	0.2	81.0	98.4
Lithuania	0.4	0.0	7.8	0.9	3.0	0.3	1.6	81.0	176.1
Malta	-1.1	0.0	18.2	0.1	0.8	-2.0	-4.1	-22.4	-40.4
Poland	-1.1	-0.2	62.4	1.6	3.3	-1.6	-4.3	42.9	-24.0
Slovak Rep.	-0.7	-0.2	39.4	2.3	-60.4	-1.1	-2.4	42.9	1.9
Slovenia	-1.7	-0.2	79.7	1.3	3.2	-2.8	-6.1	8.6	-48.2

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 27.2%

The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 2 Full harmonisation at weighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.4	0.1	-6.7	-0.2	-0.4	0.3	1.1	-4.2	5.6
Belgium	2.4	0.6	-24.4	-0.2	-1.4	3.3	8.6	-4.2	51.2
Denmark	1.3	0.2	-21.0	-0.2	-0.5	2.4	6.3	8.6	66.1
Finland	1.2	0.2	-20.6	-0.3	-0.8	1.8	6.0	12.4	83.5
France	2.0	0.3	-26.1	-0.7	-2.3	2.7	6.6	-6.9	43.7
Germany	-2.1	-0.1	71.5	1.3	4.0	-2.9	-8.2	-14.2	-52.1
Greece	0.6	0.2	-4.2	0.0	-0.1	0.7	1.4	-6.9	2.1
Ireland	-1.3	-0.3	113.6	2.0	3.4	-2.1	-4.8	160.7	13.7
Italy	1.1	0.1	-17.6	-0.7	-2.6	1.1	3.6	-1.2	30.3
Luxembourg	3.4	0.5	-28.1	-1.7	-2.7	4.5	13.4	7.3	218.3
Netherlands	2.3	0.3	-29.1	-0.8	-2.4	3.4	8.0	-5.5	60.9
Portugal	0.8	0.1	-14.7	-0.6	-2.5	1.3	3.7	18.5	62.3
Spain	0.0	0.1	0.7	0.1	0.2	-0.1	-0.3	-6.9	-6.1
Sweden	0.7	0.0	-12.4	-0.1	-0.4	1.1	3.1	16.4	52.5
UK	1.9	0.2	-29.6	-1.8	-6.6	2.6	9.5	8.6	134.3
Cyprus	-1.4	-0.3	119.2	5.6	60.0	-2.6	-5.0	115.1	-7.8
Czech Rep.	2.0	0.2	-29.5	-1.6	-5.8	2.9	7.6	16.0	144.4
Estonia	-2.6	-0.2	430.0	6.2	67.5	-4.1	-9.7	25.1	-71.3
Hungary	0.3	-0.4	7.3	0.3	0.7	-0.4	1.4	101.5	173.6
Latvia	-0.2	0.0	44.6	2.6	8.3	-0.3	-0.8	115.5	107.7
Lithuania	0.1	-0.1	23.8	1.7	5.7	0.0	0.7	116.7	190.5
Malta	-1.4	-0.1	36.4	1.0	4.4	-2.5	-5.2	-6.9	-36.9
Poland	-1.3	-0.4	82.1	2.0	4.4	-1.8	-4.8	71.2	-19.7
Slovak Rep.	-0.9	-0.3	57.6	3.3	-87.2	-1.5	-3.3	71.2	7.5
Slovenia	-1.9	-0.3	101.9	1.9	4.5	-3.0	-6.7	29.7	-44.4

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 32.6%. The tax base is harmonised at the weighted average of EU25 tax bases.

Source: CETAX simulations.

Table 3 Full harmonisation for the EU15 at weighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.2	0.1	-4.6	-0.1	-0.3	0.2	0.8	-0.9	6.2
Belgium	2.2	0.5	-24.2	-0.3	-1.7	3.0	8.1	-0.9	51.9
Denmark	1.1	0.2	-20.4	-0.2	-0.6	2.2	5.8	12.3	67.0
Finland	1.1	0.1	-18.9	-0.2	-0.7	1.7	5.7	16.2	84.4
France	1.8	0.3	-24.9	-0.7	-2.2	2.5	6.3	-3.7	44.5
Germany	-2.3	-0.1	75.9	1.4	4.3	-3.0	-8.6	-11.3	-51.8
Greece	0.4	0.1	-3.4	-0.1	-0.2	0.4	0.9	-3.7	2.6
Ireland	-1.3	-0.3	118.0	2.1	3.5	-2.2	-5.0	169.6	14.3
Italy	1.0	0.1	-15.2	-0.6	-2.1	1.0	3.3	2.1	31.0
Luxembourg	3.3	0.5	-25.9	-1.5	-2.2	4.4	13.1	10.9	220.0
Netherlands	2.2	0.3	-27.4	-0.8	-2.2	3.2	7.6	-2.3	61.8
Portugal	0.7	0.0	-13.2	-0.6	-2.3	1.2	3.4	22.5	63.2
Spain	-0.1	0.0	2.5	0.1	0.3	-0.2	-0.6	-3.7	-5.6
Sweden	0.6	0.0	-10.7	-0.1	-0.4	0.9	2.8	20.4	53.3
UK	1.9	0.2	-28.1	-1.7	-6.2	2.5	9.2	12.3	135.6
Cyprus	0.0	0.0	0.1	0.0	-0.4	-0.1	-0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Estonia	0.0	0.0	0.3	0.0	-0.2	-0.1	-0.1		
Hungary	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Malta	0.0	0.0	0.1	0.0	-0.1	-0.2	-0.2		
Poland	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1		
Slovak Rep.	0.0	0.0	0.1	0.0	0.3	-0.1	-0.1		
Slovenia	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 33.7%. The tax base is harmonised at the weighted average of EU15 tax bases.

Source: CETAX simulations.

Table 4 Full harmonisation for the Euro zone at weighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.6	0.1	-10.8	-0.2	-0.6	0.7	2.4	2.0	20.5
Belgium	2.5	0.6	-31.1	-0.5	-2.7	3.6	10.0	2.0	72.4
Denmark	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.2		
Finland	1.4	0.1	-24.0	-0.3	-0.9	2.2	7.2	19.6	109.3
France	2.2	0.3	-31.3	-0.9	-3.0	3.1	7.8	-0.9	64.0
Germany	-1.9	-0.1	64.5	1.2	3.7	-2.5	-7.3	-8.7	-45.3
Greece	0.8	0.1	-10.6	-0.3	-0.9	1.1	2.6	-0.9	16.5
Ireland	-1.1	-0.4	102.0	1.8	3.0	-1.8	-3.7	177.5	29.7
Italy	1.4	0.1	-21.0	-0.7	-2.8	1.5	4.8	5.1	48.6
Luxembourg	3.7	0.5	-27.8	-1.5	-2.3	4.9	14.6	14.2	263.2
Netherlands	2.6	0.3	-32.6	-0.9	-2.6	3.9	9.2	0.6	83.6
Portugal	1.0	0.0	-19.8	-0.9	-3.6	1.7	4.8	26.2	85.2
Spain	0.3	0.0	-6.5	-0.2	-0.6	0.3	0.9	-0.9	7.1
Sweden	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.2		
UK	0.0	0.0	0.0	0.0	0.1	-0.1	-0.2		
Cyprus	0.0	0.0	0.1	0.0	-0.3	-0.1	-0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Estonia	0.0	0.0	0.3	0.0	-0.1	-0.1	-0.1		
Hungary	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Malta	0.0	0.0	0.1	0.0	-0.1	-0.1	-0.1		
Poland	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1		
Slovak Rep.	0.0	0.0	0.0	0.0	0.2	-0.1	-0.1		
Slovenia	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 34.7%. The tax base is harmonised at the weighted average of Euro zone tax bases.

Source: CETAX simulations.

Table 5 Full harmonisation for the EU15-A at weighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.7	0.1	-11.7	-0.3	-0.7	0.7	2.6	2.5	22.8
Belgium	2.6	0.6	-32.2	-0.5	-2.8	3.7	10.3	2.5	75.7
Denmark	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.2		
Finland	1.4	0.1	-24.8	-0.4	-1.0	2.2	7.4	20.2	113.3
France	2.3	0.2	-32.3	-1.0	-3.1	3.2	8.1	-0.4	67.1
Germany	-1.9	-0.1	62.9	1.2	3.7	-2.5	-7.1	-8.3	-44.3
Greece	0.8	0.1	-11.7	-0.4	-1.0	1.3	2.8	-0.4	18.7
Ireland	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1		
Italy	1.4	0.1	-21.8	-0.8	-2.9	1.6	5.0	5.6	51.5
Luxembourg	3.7	0.5	-28.0	-1.5	-2.3	5.0	14.8	14.7	270.1
Netherlands	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2		
Portugal	1.0	0.0	-20.8	-0.9	-3.8	1.8	5.0	26.8	88.7
Spain	0.4	0.0	-7.8	-0.3	-0.7	0.4	1.2	-0.4	9.2
Sweden	0.9	0.0	-18.0	-0.3	-0.8	1.6	4.5	24.5	77.3
UK	0.0	0.0	0.0	0.0	0.1	-0.1	-0.1		
Cyprus	0.0	0.0	0.1	0.0	-0.2	-0.1	-0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Estonia	0.0	0.0	0.2	0.0	-0.1	-0.1	-0.1		
Hungary	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Malta	0.0	0.0	0.1	0.0	-0.1	-0.1	-0.1		
Poland	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1		
Slovak Rep.	0.0	0.0	0.0	0.0	0.1	-0.1	-0.1		
Slovenia	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 34.9%. The tax base is harmonised at the weighted average of EU15-A tax bases.

Source: CETAX simulations.

Table 6 Full harmonisation for the EU15 at unweighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.3	0.0	3.5	0.0	0.0	-0.3	-1.2	-8.7	-16.5
Belgium	1.7	0.5	-14.3	0.0	-0.1	2.5	5.8	-8.7	19.5
Denmark	0.7	0.1	-11.7	-0.1	-0.2	1.5	3.7	3.5	31.4
Finland	0.7	0.1	-12.4	-0.2	-0.4	1.2	3.7	7.1	45.1
France	1.3	0.3	-15.7	-0.4	-1.1	1.9	4.1	-11.3	13.7
Germany	-2.7	-0.1	90.0	1.5	4.9	-3.4	-10.2	-18.3	-62.1
Greece	-0.2	0.1	7.1	0.3	0.9	-0.4	-1.2	-11.3	-19.3
Ireland	-1.7	-0.3	138.7	2.3	3.9	-2.6	-6.8	148.5	-10.1
Italy	0.4	0.1	-7.6	-0.4	-1.2	0.5	1.4	-5.9	3.0
Luxembourg	2.8	0.3	-24.9	-1.8	-2.8	3.8	11.2	2.2	151.8
Netherlands	1.6	0.3	-20.8	-0.6	-1.7	2.4	5.6	-10.0	27.3
Portugal	0.3	0.0	-4.3	-0.1	-0.5	0.6	1.5	12.9	28.4
Spain	-0.7	0.1	15.0	0.6	1.5	-0.9	-2.6	-11.3	-25.7
Sweden	0.1	0.0	-1.9	0.0	0.1	0.3	0.9	10.9	20.6
UK	1.5	0.2	-22.8	-1.5	-5.2	2.1	7.2	3.5	85.3
Cyprus	0.0	0.0	0.0	0.0	-0.1	0.0	0.0		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Estonia	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0		
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Poland	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1		
Slovak Rep.	0.0	0.0	0.0	0.0	0.2	0.0	0.0		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 31.1%. The tax base is harmonised at the unweighted average of EU15 tax bases.

Source: CETAX simulations.

Table 7 Full harmonisation for the Euro zone at unweighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.1	0.0	0.5	-0.1	-0.1	0.0	-0.4	-7.4	-10.4
Belgium	1.9	0.5	-17.5	-0.1	-0.4	2.8	6.7	-7.4	28.2
Denmark	0.0	0.0	-0.7	0.0	0.0	0.1	0.3		
Finland	0.9	0.1	-14.9	-0.2	-0.5	1.5	4.5	8.6	55.6
France	1.5	0.3	-18.8	-0.5	-1.4	2.2	4.9	-10.0	21.9
Germany	-2.6	-0.1	84.3	1.4	4.7	-3.2	-9.6	-17.1	-59.3
Greece	0.0	0.1	3.6	0.2	0.6	0.0	-0.3	-10.0	-13.4
Ireland	-1.6	-0.3	130.9	2.2	3.8	-2.4	-6.1	151.9	-3.6
Italy	0.6	0.1	-10.5	-0.4	-1.5	0.8	2.1	-4.6	10.5
Luxembourg	3.0	0.3	-26.0	-1.8	-2.9	4.1	11.9	3.7	170.0
Netherlands	1.8	0.3	-23.3	-0.7	-1.9	2.8	6.4	-8.7	36.5
Portugal	0.4	0.0	-7.4	-0.3	-1.1	0.9	2.2	14.5	37.7
Spain	-0.5	0.1	10.8	0.4	1.1	-0.6	-1.8	-10.0	-20.3
Sweden	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
UK	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Cyprus	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Estonia	0.0	0.0	-0.2	0.0	0.0	0.0	0.0		
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Poland	0.0	0.0	0.1	0.0	0.0	0.0	-0.1		
Slovak Rep.	0.0	0.0	0.0	0.0	0.1	0.0	0.0		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 31.5%. The tax base is harmonised at the unweighted average of Euro zone tax bases.

Source: CETAX simulations.

Table 8 Full harmonisation for the EU15-A at unweighted averages

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.2	0.0	3.6	0.0	0.1	-0.2	-0.8	-4.0	-10.4
Belgium	1.7	0.4	-15.9	-0.1	-0.4	2.5	6.0	-4.0	28.2
Denmark	0.0	0.0	-0.5	0.0	0.0	0.2	0.3		
Finland	0.8	0.1	-12.4	-0.1	-0.4	1.3	4.0	12.5	55.7
France	1.3	0.2	-16.6	-0.4	-1.2	2.0	4.5	-6.8	22.0
Germany	-2.7	-0.1	90.6	1.6	5.1	-3.3	-10.0	-14.1	-59.3
Greece	-0.2	0.0	6.1	0.3	0.9	-0.2	-0.8	-6.8	-13.4
Ireland	0.0	0.0	-0.1	0.0	0.0	0.1	0.1		
Italy	0.5	0.1	-7.3	-0.2	-0.8	0.7	1.7	-1.1	10.5
Luxembourg	2.9	0.3	-23.3	-1.5	-2.4	3.9	11.5	7.4	170.1
Netherlands	0.0	0.0	-0.3	0.0	0.0	0.1	0.2		
Portugal	0.3	0.0	-4.9	-0.1	-0.6	0.7	1.8	18.6	37.7
Spain	-0.6	0.0	13.9	0.5	1.3	-0.8	-2.2	-6.8	-20.3
Sweden	0.2	-0.1	-2.4	0.0	0.1	0.5	1.3	16.5	29.4
UK	0.0	0.0	0.1	0.0	0.0	0.1	0.2		
Cyprus	0.0	0.0	-0.1	0.0	0.2	0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Estonia	0.0	0.0	-0.2	0.0	0.1	0.1	0.1		
Hungary	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Malta	0.0	0.0	-0.1	0.0	0.1	0.1	0.1		
Poland	0.0	0.0	0.1	0.0	0.0	0.0	0.0		
Slovak Rep.	0.0	0.0	0.0	0.0	-0.1	0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.1	0.1		

Note: All figures are percentage changes from the baseline.

The harmonised corporate tax rate is 32.6%. The tax base is harmonised at the unweighted average of EU15-A tax bases.

Source: CETAX simulations.

Table 9 Tax base harmonisation at the unweighted average tax base

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1		0.1
Belgium	1.8	0.4	-20.9	-0.3	-1.6	2.5	6.8		43.2
Denmark	1.5	0.3	-21.4	-0.2	-0.4	2.7	6.7		57.4
Finland	1.5	0.2	-24.9	-0.4	-1.1	2.2	6.9		73.9
France	1.4	0.2	-19.7	-0.6	-1.8	1.9	4.9		36.2
Germany	-3.2	-0.3	101.6	1.9	5.9	-3.9	-11.2		-54.6
Greece	-0.2	0.0	1.8	0.0	0.0	-0.3	-0.6		-3.2
Ireland	0.1	0.0	-3.9	0.0	-0.1	0.1	0.3		7.8
Italy	0.8	0.1	-13.3	-0.5	-1.8	0.9	2.9		23.5
Luxembourg	3.4	0.5	-31.5	-2.3	-3.6	4.6	13.6		201.7
Netherlands	1.8	0.2	-23.0	-0.6	-1.8	2.7	6.5		52.5
Portugal	1.3	0.2	-21.9	-1.0	-3.9	2.0	5.0		53.8
Spain	-0.6	-0.1	10.0	0.3	0.8	-0.8	-1.8		-11.0
Sweden	1.1	0.1	-18.9	-0.3	-0.8	1.7	4.2		44.5
UK	2.1	0.3	-31.8	-2.1	-7.4	2.8	9.9		122.1
Cyprus	-0.2	0.0	9.3	0.4	4.1	-0.4	-0.8		-12.7
Czech Rep.	2.3	0.3	-36.1	-2.2	-7.6	3.3	8.6		134.5
Estonia	-0.9	0.0	-22.1	-1.1	-11.0	-1.4	-3.6		-73.4
Hungary	1.3	0.2	-38.9	-1.2	-4.4	1.9	5.0		162.8
Latvia	0.9	0.1	-33.7	-1.3	-4.4	1.0	3.4		98.4
Lithuania	1.3	0.1	-41.2	-1.5	-5.7	1.7	5.1		176.2
Malta	-1.8	-0.2	52.0	1.6	6.9	-3.2	-6.6		-40.4
Poland	-0.4	0.0	18.3	0.4	0.8	-0.6	-1.8		-24.0
Slovak Rep.	0.0	0.0	-1.1	0.0	1.8	0.0	0.0		1.9
Slovenia	-1.5	-0.1	65.7	1.0	2.5	-2.4	-5.4		-48.2

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 10 Tax base harmonisation at the weighted average tax base

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.2	0.0	-3.7	-0.1	-0.2	0.1	0.7		5.6
Belgium	2.0	0.5	-24.0	-0.3	-1.9	2.8	7.8		51.2
Denmark	1.7	0.3	-23.8	-0.2	-0.4	2.9	7.4		66.1
Finland	1.7	0.3	-27.2	-0.5	-1.2	2.4	7.5		83.5
France	1.6	0.2	-23.0	-0.7	-2.2	2.2	5.7		43.7
Germany	-3.0	-0.3	94.1	1.7	5.4	-3.7	-10.5		-52.1
Greece	0.0	0.0	-2.0	-0.1	-0.3	0.0	0.2		2.1
Ireland	0.1	0.0	-6.7	-0.1	-0.2	0.1	0.5		13.7
Italy	1.0	0.1	-16.6	-0.6	-2.4	1.1	3.5		30.3
Luxembourg	3.6	0.6	-32.9	-2.3	-3.7	4.8	14.2		218.3
Netherlands	2.0	0.3	-25.9	-0.7	-2.0	3.0	7.3		60.9
Portugal	1.4	0.2	-24.5	-1.2	-4.4	2.2	5.5		62.3
Spain	-0.3	0.0	5.3	0.2	0.4	-0.5	-1.1		-6.1
Sweden	1.2	0.2	-21.6	-0.4	-0.9	1.9	4.7		52.5
UK	2.2	0.3	-33.9	-2.2	-7.9	3.0	10.5		134.3
Cyprus	-0.1	0.0	5.7	0.2	2.2	-0.3	-0.6		-7.9
Czech Rep.	2.4	0.3	-38.5	-2.3	-8.2	3.5	9.1		147.5
Estonia	-0.9	0.0	-21.8	-1.1	-10.9	-1.5	-3.6		-71.9
Hungary	1.4	0.2	-41.1	-1.2	-4.7	1.9	5.3		177.3
Latvia	0.9	0.1	-36.3	-1.4	-4.8	1.1	3.7		109.3
Lithuania	1.4	0.1	-43.4	-1.6	-6.0	1.8	5.4		191.4
Malta	-1.7	-0.2	46.5	1.5	6.2	-2.9	-6.0		-37.1
Poland	-0.4	0.0	14.6	0.3	0.6	-0.6	-1.5		-19.8
Slovak Rep.	0.1	0.0	-4.5	-0.2	6.8	0.1	0.3		7.5
Slovenia	-1.3	-0.1	60.1	0.9	2.3	-2.3	-4.9		-45.3

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the weighted average of EU25 tax bases.

Source: CETAX simulations.

Table 11 Tax base harmonisation for the EU15 at the unweighted average tax base

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.7	-0.1	11.7	0.2	0.6	-0.7	-2.4		-16.5
Belgium	1.0	0.2	-10.5	-0.1	-0.4	1.5	3.8		19.5
Denmark	1.0	0.2	-13.0	-0.1	-0.2	1.8	4.3		31.4
Finland	1.1	0.2	-16.8	-0.3	-0.7	1.7	4.9		45.1
France	0.6	0.1	-8.2	-0.2	-0.6	1.0	2.3		13.7
Germany	-4.0	-0.4	127.1	2.3	7.3	-4.7	-13.7		-62.1
Greece	-1.0	-0.2	14.5	0.4	1.2	-1.5	-3.3		-19.3
Ireland	-0.1	0.0	5.7	0.1	0.1	0.0	-0.3		-10.1
Italy	0.2	0.0	-1.9	0.0	0.0	0.3	0.6		3.0
Luxembourg	2.9	0.3	-26.5	-2.0	-3.2	4.0	11.6		151.8
Netherlands	1.1	0.1	-13.3	-0.3	-0.8	1.8	4.0		27.3
Portugal	0.8	0.1	-12.8	-0.6	-2.2	1.4	3.2		28.4
Spain	-1.3	-0.2	26.0	0.9	2.2	-1.7	-4.2		-25.7
Sweden	0.6	0.1	-9.6	-0.1	-0.3	1.0	2.4		20.6
UK	1.6	0.2	-24.5	-1.6	-5.7	2.4	7.9		85.3
Cyprus	0.0	0.0	-0.1	0.0	0.2	0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Estonia	0.0	0.0	-0.2	0.0	0.1	0.1	0.1		
Hungary	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Malta	0.0	0.0	-0.1	0.0	0.1	0.1	0.1		
Poland	0.0	0.0	0.2	0.0	0.0	0.1	0.1		
Slovak Rep.	0.0	0.0	0.0	0.0	-0.3	0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.1	0.1		

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted average of EU15 tax bases.

Source: CETAX simulations.

Table 12 Tax base harmonisation for the Euro zone at the unweighted average tax base

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.4	-0.1	7.1	0.1	0.4	-0.4	-1.4		-10.4
Belgium	1.3	0.3	-14.4	-0.1	-0.6	2.1	5.1		28.2
Denmark	0.0	0.0	-0.1	0.0	0.0	0.2	0.3		
Finland	1.3	0.2	-20.0	-0.3	-0.8	2.0	5.8		55.6
France	1.0	0.1	-12.6	-0.3	-1.0	1.5	3.4		21.9
Germany	-3.7	-0.4	117.3	2.1	6.8	-4.3	-12.6		-59.3
Greece	-0.7	-0.1	9.8	0.3	0.9	-0.9	-2.1		-13.4
Ireland	0.0	0.0	1.9	0.0	0.0	0.1	0.0		-3.6
Italy	0.5	0.0	-6.3	-0.2	-0.6	0.6	1.6		10.5
Luxembourg	3.1	0.4	-28.6	-2.1	-3.4	4.3	12.5		170.0
Netherlands	1.4	0.2	-17.1	-0.4	-1.1	2.3	5.1		36.5
Portugal	1.0	0.1	-16.3	-0.8	-2.8	1.7	4.0		37.7
Spain	-1.0	-0.1	19.8	0.7	1.7	-1.2	-3.1		-20.3
Sweden	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
UK	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
Cyprus	0.0	0.0	-0.1	0.0	0.3	0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Estonia	0.0	0.0	-0.3	0.0	0.2	0.1	0.1		
Hungary	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Malta	0.0	0.0	-0.1	0.0	0.2	0.1	0.1		
Poland	0.0	0.0	0.2	0.0	0.0	0.1	0.2		
Slovak Rep.	0.0	0.0	-0.1	0.0	-0.4	0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.1	0.1		

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted average of Euro zone tax bases.

Source: CETAX simulations.

Table 13 Tax base harmonisation for the EU15-A at the unweighted average tax base

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.4	-0.1	7.1	0.1	0.4	-0.3	-1.4		-10.4
Belgium	1.3	0.3	-14.4	-0.1	-0.6	2.1	5.2		28.2
Denmark	0.0	0.0	-0.2	0.0	0.0	0.2	0.3		
Finland	1.3	0.2	-20.0	-0.4	-0.8	2.0	5.8		55.7
France	1.0	0.1	-12.6	-0.3	-1.0	1.5	3.5		22.0
Germany	-3.7	-0.4	117.2	2.1	6.8	-4.3	-12.6		-59.3
Greece	-0.7	-0.1	9.8	0.3	0.9	-0.9	-2.1		-13.4
Ireland	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
Italy	0.5	0.0	-6.3	-0.2	-0.5	0.7	1.7		10.5
Luxembourg	3.1	0.4	-28.6	-2.2	-3.4	4.3	12.5		170.1
Netherlands	0.1	0.0	-0.1	0.0	0.1	0.2	0.2		
Portugal	1.0	0.1	-16.4	-0.8	-2.8	1.7	4.0		37.7
Spain	-1.0	-0.1	19.8	0.7	1.7	-1.2	-3.1		-20.3
Sweden	0.8	0.1	-13.2	-0.2	-0.5	1.4	3.3		29.4
UK	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
Cyprus	0.0	0.0	-0.1	0.0	0.4	0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Estonia	0.0	0.0	-0.3	0.0	0.2	0.1	0.1		
Hungary	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Malta	0.0	0.0	-0.1	0.0	0.2	0.2	0.2		
Poland	0.0	0.0	0.2	0.0	0.0	0.1	0.2		
Slovak Rep.	0.0	0.0	-0.1	0.0	-0.4	0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0	0.0	0.1	0.1		

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted average of EU15-A tax bases.

Source: CETAX simulations.

Table 14 Tax base harmonisation with a minimum tax rate (20%)

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.2	0.0	0.0	-0.1	0.0		0.1
Belgium	1.8	0.4	-20.9	-0.3	-1.6	2.5	6.8		43.2
Denmark	1.5	0.3	-21.3	-0.2	-0.4	2.7	6.7		57.4
Finland	1.5	0.2	-24.9	-0.4	-1.1	2.2	6.9		73.9
France	1.4	0.2	-19.6	-0.6	-1.8	1.9	4.9		36.2
Germany	-3.2	-0.3	101.6	1.9	5.9	-3.9	-11.2		-54.6
Greece	-0.2	0.0	1.8	0.0	0.0	-0.3	-0.6		-3.2
Ireland	-0.4	0.0	45.7	0.9	1.5	-0.7	-1.6	58.0	7.8
Italy	0.8	0.1	-13.3	-0.5	-1.8	0.9	2.9		23.5
Luxembourg	3.4	0.5	-31.5	-2.3	-3.6	4.6	13.6		201.7
Netherlands	1.8	0.2	-23.0	-0.6	-1.8	2.7	6.5		52.5
Portugal	1.3	0.2	-21.9	-1.0	-3.9	2.0	5.0		53.8
Spain	-0.6	-0.1	10.0	0.3	0.8	-0.8	-1.8		-11.0
Sweden	1.1	0.1	-18.9	-0.3	-0.8	1.7	4.2		44.5
UK	2.1	0.3	-31.8	-2.1	-7.4	2.8	9.9		122.1
Cyprus	-0.6	0.0	42.8	2.0	21.8	-1.0	-2.1	32.2	-12.7
Czech Rep.	2.3	0.3	-36.3	-2.2	-7.7	3.3	8.6		134.5
Estonia	-2.3	-0.1	336.5	4.7	51.8	-3.5	-8.5		-73.4
Hungary	1.0	0.1	-25.5	-0.7	-2.7	1.3	4.0	24.2	162.8
Latvia	0.6	0.0	-12.2	-0.2	-0.9	0.7	2.3	32.2	98.4
Lithuania	1.0	0.1	-21.8	-0.5	-2.1	1.2	3.8	32.2	176.2
Malta	-1.8	-0.2	51.3	1.6	6.8	-3.1	-6.5		-40.4
Poland	-0.5	-0.1	22.9	0.5	1.1	-0.7	-2.0	5.1	-24.0
Slovak Rep.	0.0	0.0	3.3	0.2	-5.3	-0.1	-0.2	5.1	1.9
Slovenia	-1.5	-0.1	65.7	1.0	2.5	-2.4	-5.3		-48.2

Note: All figures are percentage changes from the baseline.

The minimum corporate tax rate is 20%. The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 15 Tax base harmonisation with a minimum tax rate (25%)

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		0.1
Belgium	1.8	0.4	-20.8	-0.3	-1.5	2.5	6.8		43.2
Denmark	1.5	0.3	-21.3	-0.2	-0.4	2.7	6.7		57.4
Finland	1.5	0.2	-24.8	-0.4	-1.1	2.2	6.9		73.9
France	1.4	0.2	-19.6	-0.6	-1.8	1.9	4.9		36.2
Germany	-3.2	-0.3	101.7	1.9	5.9	-3.9	-11.2		-54.6
Greece	-0.2	0.0	1.9	0.0	0.0	-0.3	-0.6		-3.2
Ireland	-0.7	-0.1	77.2	1.5	2.5	-1.2	-2.9	96.7	7.8
Italy	0.8	0.1	-13.3	-0.5	-1.8	0.9	2.9		23.5
Luxembourg	3.4	0.5	-31.5	-2.3	-3.6	4.6	13.6		201.7
Netherlands	1.8	0.2	-23.0	-0.6	-1.7	2.8	6.5		52.5
Portugal	1.3	0.2	-21.8	-1.0	-3.9	2.0	5.0		53.8
Spain	-0.6	-0.1	10.1	0.3	0.9	-0.8	-1.8		-11.0
Sweden	1.1	0.1	-18.9	-0.3	-0.8	1.7	4.2		44.5
UK	2.1	0.2	-31.8	-2.1	-7.4	2.8	9.9		122.1
Cyprus	-1.0	-0.1	77.4	3.7	39.6	-1.7	-3.5	64.4	-12.7
Czech Rep.	2.3	0.3	-36.3	-2.2	-7.7	3.3	8.6		134.5
Estonia	-2.3	-0.1	336.5	4.7	51.8	-3.5	-8.5		-73.4
Hungary	0.7	-0.1	-9.8	-0.1	-0.8	0.6	2.8	54.4	162.8
Latvia	0.3	0.0	10.8	0.9	2.9	0.3	1.1	64.4	98.4
Lithuania	0.6	0.0	-2.2	0.4	1.3	0.8	2.5	64.4	176.2
Malta	-1.8	-0.2	51.3	1.6	6.8	-3.1	-6.5		-40.4
Poland	-0.8	-0.2	50.3	1.2	2.7	-1.1	-3.2	30.5	-24.0
Slovak Rep.	-0.4	-0.1	27.9	1.7	-44.0	-0.7	-1.6	30.5	1.9
Slovenia	-1.5	-0.1	65.7	1.0	2.5	-2.4	-5.3		-48.2

Note: All figures are percentage changes from the baseline.

The minimum corporate tax rate is 25%. The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 16 Tax base harmonisation with a minimum tax rate (30%)

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		0.1
Belgium	1.8	0.4	-20.7	-0.3	-1.5	2.5	6.8		43.2
Denmark	1.5	0.3	-21.2	-0.2	-0.4	2.7	6.7		57.4
Finland	1.4	0.2	-22.8	-0.4	-0.9	2.1	6.5	3.3	73.9
France	1.4	0.2	-19.6	-0.6	-1.8	1.9	4.9		36.2
Germany	-3.2	-0.3	101.8	1.9	5.9	-3.9	-11.2		-54.6
Greece	-0.2	0.0	1.9	0.0	0.0	-0.3	-0.6		-3.2
Ireland	-1.1	-0.2	106.6	1.9	3.3	-1.8	-4.3	135.3	7.8
Italy	0.8	0.1	-13.3	-0.5	-1.8	0.9	2.9		23.5
Luxembourg	3.4	0.5	-31.5	-2.3	-3.6	4.7	13.6		201.7
Netherlands	1.8	0.2	-23.0	-0.6	-1.7	2.8	6.5		52.5
Portugal	1.0	0.1	-16.5	-0.7	-2.8	1.6	4.1	8.8	53.8
Spain	-0.5	-0.1	10.1	0.3	0.9	-0.8	-1.8		-11.0
Sweden	0.9	0.1	-14.4	-0.2	-0.5	1.4	3.5	6.9	44.5
UK	2.1	0.2	-31.8	-2.1	-7.4	2.9	9.9		122.1
Cyprus	-1.4	-0.2	110.2	5.2	55.9	-2.4	-4.8	96.7	-12.7
Czech Rep.	2.1	0.3	-32.3	-1.9	-6.6	3.1	8.0	6.9	134.5
Estonia	-2.6	-0.1	404.4	5.8	63.0	-3.9	-9.5	14.9	-73.4
Hungary	0.4	-0.3	4.2	0.3	0.6	-0.1	1.6	84.6	162.8
Latvia	-0.1	0.0	35.1	2.1	6.7	-0.1	-0.3	96.7	98.4
Lithuania	0.3	-0.1	17.0	1.3	4.5	0.2	1.1	96.7	176.2
Malta	-1.8	-0.2	51.3	1.6	6.9	-3.1	-6.5		-40.4
Poland	-1.2	-0.3	75.6	1.9	4.0	-1.5	-4.5	56.0	-24.0
Slovak Rep.	-0.8	-0.2	51.0	3.0	-78.4	-1.2	-3.0	56.0	1.9
Slovenia	-1.9	-0.2	96.4	1.7	4.1	-3.0	-6.7	19.3	-48.2

Note: All figures are percentage changes from the baseline.

The minimum corporate tax rate is 30%. The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 17 Tax base harmonisation with budget neutral tax revenues

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Unemployment	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.2	0.0	0.1	-0.1	-0.1		0.1
Belgium	1.3	0.2	-21.0	0.2	3.5	2.2	6.3		43.2
Denmark	1.3	0.2	-21.3	0.0	2.4	2.5	6.4		57.4
Finland	1.2	0.1	-24.8	0.0	1.3	2.0	6.6		73.9
France	0.6	-0.2	-19.7	0.1	4.8	1.4	4.1		36.2
Germany	-2.1	0.2	102.2	-0.1	-9.2	-3.3	-10.2		-54.6
Greece	-0.2	0.0	1.8	0.0	0.0	-0.3	-0.6		-3.2
Ireland	0.0	0.0	-3.9	0.0	0.1	0.0	0.3		7.8
Italy	0.6	0.0	-13.3	0.1	0.1	0.8	2.7		23.5
Luxembourg	3.0	0.4	-31.3	-0.1	4.0	4.3	13.1		201.7
Netherlands	1.5	0.1	-22.9	0.1	2.1	2.5	6.1		52.5
Portugal	1.0	0.1	-21.9	0.1	2.9	1.8	4.7		53.8
Spain	-0.4	0.0	10.0	0.0	-0.7	-0.7	-1.7		-11.0
Sweden	0.9	0.1	-18.8	0.0	0.1	1.5	4.0		44.5
UK	1.7	0.1	-31.6	0.1	1.6	2.6	9.5		122.1
Cyprus	-0.2	0.0	9.3	0.0	-0.2	-0.4	-0.7		-12.7
Czech Rep.	1.7	0.0	-36.2	0.1	2.4	2.9	8.1		134.5
Estonia	-1.1	-0.1	-22.0	-0.1	0.5	-1.6	-3.8		-73.4
Hungary	0.9	-0.1	-38.9	0.1	2.2	1.6	4.7		162.8
Latvia	0.6	0.0	-33.7	0.0	0.7	0.9	3.2		98.4
Lithuania	0.8	-0.1	-41.2	0.1	1.3	1.4	4.7		176.2
Malta	-1.4	0.1	52.0	-0.1	-2.1	-2.8	-6.2		-40.4
Poland	-0.2	0.1	18.3	0.0	-0.5	-0.5	-1.6		-24.0
Slovak Rep.	0.0	0.0	-1.1	0.0	0.0	0.0	0.0		1.9
Slovenia	-0.8	0.3	65.7	0.0	-4.0	-2.0	-4.9		-48.2

Note: All figures are percentage changes from the baseline.

Labour tax rates are adjusted to keep income transfers constant. The tax base is harmonised at the unweighted average of EU25 tax bases.

Source: CETAX simulations.

Table 18 Tax base harmonisation for the EU15 with budget neutral tax revenues

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Unemployment	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.5	0.0	11.7	0.0	-1.7	-0.6	-2.3		-16.5
Belgium	0.8	0.2	-10.5	0.0	1.1	1.4	3.5		19.5
Denmark	0.8	0.1	-12.9	0.0	1.4	1.7	4.1		31.4
Finland	0.9	0.1	-16.8	0.0	0.8	1.5	4.6		45.1
France	0.4	-0.1	-8.2	0.0	1.6	0.8	2.0		13.7
Germany	-2.7	0.2	127.9	-0.2	-11.2	-3.9	-12.5		-62.1
Greece	-0.8	-0.1	14.5	-0.1	-0.6	-1.4	-3.2		-19.3
Ireland	-0.1	0.0	5.7	0.0	-0.2	-0.1	-0.3		-10.1
Italy	0.2	0.0	-1.8	0.0	0.0	0.3	0.6		3.0
Luxembourg	2.5	0.2	-26.4	-0.1	3.5	3.7	11.1		151.8
Netherlands	0.9	0.1	-13.2	0.0	1.0	1.6	3.7		27.3
Portugal	0.6	0.0	-12.8	0.0	1.6	1.2	2.9		28.4
Spain	-0.9	0.0	26.0	-0.1	-1.7	-1.5	-3.9		-25.7
Sweden	0.5	0.0	-9.6	0.0	0.0	0.9	2.3		20.6
UK	1.3	0.1	-24.4	0.0	1.2	2.2	7.5		85.3
Cyprus	0.0	0.0	-0.1	0.0		0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Estonia	0.0	0.0	-0.2	0.0		0.1	0.1		
Hungary	0.0	0.0	0.0	0.0		0.1	0.1		
Latvia	0.0	0.0	0.0	0.0		0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0		0.1	0.1		
Malta	0.0	0.0	0.0	0.0		0.1	0.1		
Poland	0.0	0.0	0.2	0.0		0.1	0.1		
Slovak Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0		0.1	0.1		

Note: All figures are percentage changes from the baseline.

Labour tax rates are adjusted to keep income transfers constant. The tax base is harmonised at the unweighted average of EU15 tax bases.

Source: CETAX simulations.

Table 19 Tax base harmonisation for the Euro zone with budget neutral tax revenues

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Unemployment	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.3	0.0	7.1	0.0	-1.1	-0.3	-1.3		-10.4
Belgium	1.1	0.2	-14.4	0.1	1.5	1.9	4.8		28.2
Denmark	0.0	0.0	-0.1	0.0		0.1	0.2		
Finland	1.0	0.1	-19.9	0.0	0.9	1.8	5.5		55.6
France	0.6	-0.1	-12.6	0.0	2.5	1.2	3.0		21.9
Germany	-2.4	0.2	118.0	-0.1	-10.5	-3.6	-11.5		-59.3
Greece	-0.5	0.0	9.8	-0.1	-0.4	-0.8	-2.0		-13.4
Ireland	0.0	0.0	1.9	0.0	-0.1	0.1	0.0		-3.6
Italy	0.4	0.0	-6.2	0.0	0.0	0.6	1.5		10.5
Luxembourg	2.7	0.2	-28.4	-0.1	3.8	4.0	12.0		170.0
Netherlands	1.2	0.1	-17.0	0.0	1.3	2.0	4.8		36.5
Portugal	0.8	0.0	-16.3	0.0	2.1	1.5	3.7		37.7
Spain	-0.7	0.0	19.8	-0.1	-1.3	-1.1	-2.9		-20.3
Sweden	0.0	0.0	0.1	0.0		0.1	0.2		
UK	0.0	0.0	0.0	0.0		0.1	0.2		
Cyprus	0.0	0.0	-0.1	0.0		0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Estonia	0.0	0.0	-0.2	0.0		0.1	0.1		
Hungary	0.0	0.0	0.0	0.0		0.1	0.1		
Latvia	0.0	0.0	0.0	0.0		0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0		0.1	0.1		
Malta	0.0	0.0	-0.1	0.0		0.1	0.1		
Poland	0.0	0.0	0.2	0.0		0.1	0.1		
Slovak Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0		0.1	0.1		

Note: All figures are percentage changes from the baseline.

Labour tax rates are adjusted to keep income transfers constant. The tax base is harmonised at the unweighted average of Euro zone tax bases.

Source: CETAX simulations.

Table 20 Tax base harmonisation for the EU15-A with budget neutral tax revenues

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Unemployment	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	-0.3	0.0	7.1	0.0	-1.1	-0.3	-1.3		-10.4
Belgium	1.1	0.2	-14.4	0.1	1.5	1.9	4.9		28.2
Denmark	0.0	0.0	-0.1	0.0		0.1	0.3		
Finland	1.0	0.1	-19.9	0.0	0.9	1.8	5.5		55.7
France	0.6	-0.1	-12.6	0.0	2.5	1.2	3.0		22.0
Germany	-2.4	0.2	118.0	-0.1	-10.5	-3.6	-11.4		-59.3
Greece	-0.5	0.0	9.8	-0.1	-0.4	-0.8	-2.0		-13.4
Ireland	0.0	0.0	0.0	0.0		0.1	0.2		
Italy	0.4	0.0	-6.3	0.0	0.0	0.6	1.6		10.5
Luxembourg	2.7	0.2	-28.4	-0.1	3.8	4.0	12.0		170.1
Netherlands	0.0	0.0	-0.1	0.0		0.1	0.2		
Portugal	0.8	0.0	-16.3	0.0	2.1	1.6	3.8		37.7
Spain	-0.7	0.0	19.8	-0.1	-1.3	-1.0	-2.9		-20.3
Sweden	0.7	0.0	-13.2	0.0	0.1	1.3	3.1		29.4
UK	0.0	0.0	0.0	0.0		0.2	0.2		
Cyprus	0.0	0.0	-0.1	0.0		0.1	0.1		
Czech Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Estonia	0.0	0.0	-0.3	0.0		0.1	0.1		
Hungary	0.0	0.0	0.0	0.0		0.1	0.1		
Latvia	0.0	0.0	0.0	0.0		0.1	0.1		
Lithuania	0.0	0.0	0.0	0.0		0.1	0.1		
Malta	0.0	0.0	-0.1	0.0		0.1	0.1		
Poland	0.0	0.0	0.3	0.0		0.1	0.1		
Slovak Rep.	0.0	0.0	0.0	0.0		0.1	0.1		
Slovenia	0.0	0.0	-0.1	0.0		0.1	0.1		

Note: All figures are percentage changes from the baseline.

Labour tax rates are adjusted to keep income transfers constant. The tax base is harmonised at the unweighted average of EU15-A tax base.

Source: CETAX simulations.

Table 21 Exchange of savings information within the EU (15% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	-0,1	-0,2	-0,3	-0,4	-0,9	-0,4	0,1	-0,1	0,0
Belgium	0,0	-0,1	-0,3	-0,4	-1,3	-0,7	-0,1	-0,1	0,0
Denmark	0,0	0,0	1,6	0,1	0,1	-0,3	0,8	0,0	0,0
Finland	0,0	0,0	-0,1	0,0	0,0	0,1	0,0	0,0	0,0
France	0,0	0,0	-2,6	0,0	0,0	0,2	-0,2	0,0	0,0
Germany	0,0	0,0	0,3	0,0	0,1	-0,1	0,3	0,0	0,0
Greece	0,0	0,0	-0,5	0,0	0,0	0,1	-0,1	0,0	0,0
Ireland	0,0	0,0	-1,7	0,0	0,0	0,1	0,0	0,0	0,0
Italy	0,0	0,0	-0,3	0,0	0,0	0,2	-0,2	0,0	0,0
Luxembourg	0,0	-0,1	2,8	-0,2	-0,3	-0,5	0,6	0,0	0,1
Netherlands	0,0	0,0	-4,0	0,0	0,0	0,1	0,1	0,0	0,0
Portugal	0,0	0,0	-0,5	0,0	0,1	0,2	-0,1	0,0	0,0
Spain	0,0	0,0	5,5	0,1	0,2	-0,4	0,8	0,1	0,1
Sweden	0,0	0,0	-0,8	0,0	0,1	0,0	0,1	0,0	0,0
UK	0,0	0,0	-1,7	0,0	0,1	0,1	0,2	0,0	0,0
Cyprus	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Czech Rep.	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Estonia	0,0	0,0	0,0	0,0	0,0	0,1	-0,1	0,0	0,0
Hungary	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Latvia	0,0	0,0	0,3	0,0	0,0	0,0	0,0	0,0	0,0
Lithuania	0,0	0,0	0,4	0,0	0,0	0,1	-0,1	0,0	0,0
Malta	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Poland	0,0	0,0	3,6	0,0	0,0	0,0	-0,1	0,0	0,0
Slovak Rep.	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Slovenia	0,0	0,0	0,2	0,0	0,0	0,0	0,1	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 15%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 22 Exchange of savings information within the EU and with tax havens (15% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio invest- ment	Tax haven bonds	Total capital stock	Business capital
Austria	0,0	-0,2	-0,6	-0,4	-0,8	-0,5	-51,6	0,0	0,1
Belgium	0,0	-0,1	-0,7	-0,4	-1,2	-0,7	-31,3	-0,1	0,0
Denmark	0,0	0,0	3,6	0,2	0,3	-1,3	-77,0	0,2	0,1
Finland	0,0	0,0	-0,3	0,0	0,1	0,1	-58,0	0,0	0,0
France	0,0	0,0	-5,2	0,0	0,1	0,1	-33,7	0,0	0,0
Germany	0,0	0,0	0,6	0,0	0,1	-0,2	-75,2	0,1	0,1
Greece	0,0	0,0	-1,2	0,0	0,1	-0,1	-42,7	0,0	0,0
Ireland	0,0	0,0	-3,4	0,0	0,0	0,0	-51,0	0,0	0,0
Italy	0,0	0,0	-0,6	0,0	0,1	0,3	-26,8	0,0	0,0
Luxembourg	0,0	-0,1	6,3	-0,1	-0,2	-1,3	-82,3	0,1	0,2
Netherlands	0,0	0,0	-11,0	0,0	0,1	0,0	-70,7	0,0	0,0
Portugal	0,0	0,0	-1,2	0,0	0,2	-0,1	-41,6	0,0	0,0
Spain	0,1	0,1	12,6	0,2	0,6	-1,5	-77,3	0,3	0,2
Sweden	0,0	0,0	-1,8	0,1	0,2	-0,5	-58,8	0,1	0,1
UK	0,0	0,0	-3,6	0,1	0,2	0,0	-71,0	0,0	0,0
Cyprus	0,0	0,0	1,5	0,0	-0,1	0,2	-0,2	0,0	0,0
Czech Rep.	0,0	0,0	0,4	0,0	0,0	0,1	-71,6	0,0	0,0
Estonia	0,0	0,0	0,2	0,0	0,0	0,2	-0,3	0,0	0,0
Hungary	0,0	0,0	0,1	0,0	0,0	0,2	-0,2	0,0	0,0
Latvia	0,0	0,0	0,9	0,0	0,1	-0,1	-61,2	0,0	0,0
Lithuania	0,0	0,0	1,1	0,0	0,0	0,1	-41,9	0,0	0,0
Malta	0,0	0,0	0,2	0,0	0,0	0,3	-42,0	-0,1	-0,1
Poland	0,0	0,0	10,4	0,0	0,0	0,0	-52,3	0,0	0,0
Slovak Rep.	0,0	0,0	0,1	0,0	-0,1	0,2	-29,8	0,0	0,0
Slovenia	0,0	0,0	0,5	0,0	0,0	0,1	-77,6	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 15%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Appendix II Detailed results of sensitivity analysis

Table 1 Sensitivity analysis on enhanced cooperation on tax base harmonisation (new tax base)

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
Belgium	-0.6	-0.2	6.3	0.1	0.4	-0.7	-2.0		-10.7
Denmark	-0.1	0.0	0.9	0.0	0.0	-0.1	-0.2		-1.9
Finland	0.2	0.0	-3.6	-0.1	-0.1	0.4	1.1		8.4
France	-0.8	-0.1	10.4	0.3	0.9	-1.0	-2.5		-15.1
Germany	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Greece	0.0	0.0	0.0	0.0	0.1	0.1	0.1		
Ireland	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
Italy	-1.1	-0.1	16.6	0.6	2.1	-1.2	-3.6		-23.1
Luxembourg	2.0	0.3	-17.9	-1.3	-2.0	2.7	7.8		88.0
Netherlands	-0.2	0.0	2.7	0.1	0.2	-0.3	-0.7		-5.0
Portugal	-0.1	0.0	2.1	0.1	0.4	-0.2	-0.4		-4.1
Spain	0.0	0.0	0.0	0.0	0.0	0.1	0.1		
Sweden	-0.3	-0.1	5.4	0.1	0.2	-0.5	-1.2		-9.9
UK	0.9	0.1	-12.7	-0.8	-2.9	1.2	4.0		38.4
Cyprus	0.0	0.0	0.0	0.0	0.1	0.0	0.0		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Estonia	0.0	0.0	-0.1	0.0	0.0	0.0	0.0		
Hungary	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lithuania	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Poland	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Slovak Rep.	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Slovenia	0.0	0.0	0.0	0.0	0.0	0.0	0.0		

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted subgroup average.

Source: CETAX simulations.

Table 2 Sensitivity analysis on enhanced cooperation on tax base harmonisation (EU15 tax base)

	GDP	Welfare	Corporate tax revenue	Total tax revenue	Transfers	Total capital stock	Business capital	Corporate tax rate	Capital allowance rate
Austria	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.2		
Belgium	0.9	0.2	-10.3	-0.1	-0.9	1.1	3.1		19.5
Denmark	0.9	0.2	-12.8	-0.1	-0.2	1.5	3.8		31.4
Finland	1.0	0.2	-16.7	-0.3	-0.7	1.4	4.5		45.1
France	0.6	0.1	-8.2	-0.2	-0.8	0.7	1.9		13.7
Germany	0.0	0.0	-0.2	0.0	-0.1	-0.2	-0.2		
Greece	-0.1	0.0	-0.4	-0.1	-0.2	-0.2	-0.3		
Ireland	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2		
Italy	0.1	0.0	-2.0	-0.1	-0.5	0.0	0.2		3.0
Luxembourg	2.9	0.5	-26.2	-1.8	-2.8	3.8	11.3		151.8
Netherlands	1.0	0.2	-13.1	-0.3	-1.0	1.5	3.6		27.3
Portugal	0.7	0.1	-12.7	-0.6	-2.3	1.0	2.7		28.4
Spain	-0.1	0.0	0.0	0.0	0.0	-0.2	-0.2		
Sweden	0.5	0.1	-9.7	-0.2	-0.4	0.7	2.0		20.6
UK	1.6	0.2	-24.5	-1.6	-5.6	2.1	7.5		85.3
Cyprus	0.0	0.0	0.1	0.0	-0.4	-0.1	-0.1		
Czech Rep.	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Estonia	0.0	0.0	0.3	0.0	-0.2	-0.1	-0.1		
Hungary	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1		
Latvia	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Lithuania	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1		
Malta	0.0	0.0	0.1	0.0	-0.1	-0.2	-0.2		
Poland	0.0	0.0	-0.2	0.0	0.0	-0.1	-0.1		
Slovak Rep.	0.0	0.0	0.1	0.0	0.3	-0.1	-0.1		
Slovenia	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1		

Note: All figures are percentage changes from the baseline.

Statutory corporate tax rates are unchanged. The tax base is harmonised at the unweighted average for the EU15.

Source: CETAX simulations.

Table 3 Exchange of savings information within the EU (20% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	0,0	-0,2	-1,0	-0,4	-0,8	4,2	2,6	0,3	0,4
Belgium	0,0	-0,2	-1,0	-0,4	-1,2	7,4	2,3	0,2	0,2
Denmark	0,0	0,0	1,5	0,1	0,1	-0,2	0,4	0,0	0,0
Finland	0,0	0,0	-0,1	0,0	0,0	0,1	-0,1	0,0	0,0
France	0,0	0,0	-2,5	0,0	0,0	0,2	-0,4	0,0	0,0
Germany	0,0	0,0	0,3	0,0	0,1	-0,1	0,1	0,0	0,0
Greece	0,0	0,0	-0,5	0,0	0,0	0,2	-0,3	0,0	0,0
Ireland	0,0	0,0	-1,6	0,0	0,0	0,1	-0,2	0,0	0,0
Italy	0,0	0,0	-0,3	0,0	0,0	0,2	-0,3	0,0	0,0
Luxembourg	0,0	-0,1	-4,4	-0,3	-0,5	4,1	2,4	0,2	0,3
Netherlands	0,0	0,0	-3,4	0,0	0,0	0,1	-0,1	0,0	0,0
Portugal	0,0	0,0	-0,5	0,0	0,1	0,2	-0,3	0,0	0,0
Spain	0,0	0,0	4,5	0,1	0,2	-0,3	0,4	0,0	0,0
Sweden	0,0	0,0	-0,8	0,0	0,1	0,0	-0,1	0,0	0,0
UK	0,0	0,0	-1,4	0,0	0,1	0,1	0,0	0,0	0,0
Cyprus	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Czech Rep.	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Estonia	0,0	0,0	0,0	0,0	0,0	0,1	-0,2	0,0	0,0
Hungary	0,0	0,0	0,0	0,0	0,0	0,1	-0,1	0,0	0,0
Latvia	0,0	0,0	0,3	0,0	0,0	0,1	-0,1	0,0	0,0
Lithuania	0,0	0,0	0,4	0,0	0,0	0,1	-0,2	0,0	0,0
Malta	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Poland	0,0	0,0	3,5	0,0	0,0	0,0	-0,1	0,0	0,0
Slovak Rep.	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Slovenia	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 20%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 4 Exchange of savings information within the EU and with tax havens (20% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	0,0	-0,2	-1,3	-0,4	-0,8	4,1	-50,4	0,3	0,4
Belgium	0,0	-0,2	-1,5	-0,4	-1,1	7,4	-29,7	0,2	0,2
Denmark	0,0	0,0	3,5	0,2	0,3	-1,2	-77,1	0,1	0,1
Finland	0,0	0,0	-0,3	0,0	0,1	0,1	-58,1	0,0	0,0
France	0,0	0,0	-5,1	0,0	0,1	0,1	-33,8	0,0	0,0
Germany	0,0	0,0	0,6	0,0	0,1	-0,2	-75,2	0,1	0,0
Greece	0,0	0,0	-1,2	0,0	0,1	-0,1	-42,8	0,0	0,0
Ireland	0,0	0,0	-3,3	0,0	0,0	0,0	-51,0	0,0	0,0
Italy	0,0	0,0	-0,6	0,0	0,1	0,3	-26,9	0,0	0,0
Luxembourg	0,1	-0,1	-1,1	-0,2	-0,4	3,3	-82,0	0,4	0,4
Netherlands	0,0	0,0	-10,4	0,0	0,1	0,0	-70,7	0,0	0,0
Portugal	0,0	0,0	-1,2	0,0	0,2	-0,1	-41,7	0,0	0,0
Spain	0,1	0,1	11,5	0,2	0,5	-1,3	-77,4	0,2	0,2
Sweden	0,0	0,0	-1,7	0,1	0,2	-0,5	-58,9	0,1	0,1
UK	0,0	0,0	-3,4	0,1	0,2	0,1	-71,0	0,0	0,0
Cyprus	0,0	0,0	1,5	0,0	-0,1	0,2	-0,2	0,0	0,0
Czech Rep.	0,0	0,0	0,4	0,0	0,0	0,1	-71,6	0,0	0,0
Estonia	0,0	0,0	0,2	0,0	0,0	0,2	-0,3	0,0	0,0
Hungary	0,0	0,0	0,1	0,0	0,0	0,2	-0,2	0,0	0,0
Latvia	0,0	0,0	0,9	0,0	0,1	-0,1	-61,2	0,0	0,0
Lithuania	0,0	0,0	1,1	0,0	0,1	0,1	-41,9	0,0	0,0
Malta	0,0	0,0	0,2	0,0	0,0	0,3	-42,0	-0,1	-0,1
Poland	0,0	0,0	10,3	0,0	0,0	0,0	-52,3	0,0	0,0
Slovak Rep.	0,0	0,0	0,1	0,0	-0,1	0,2	-29,9	0,0	0,0
Slovenia	0,0	0,0	0,5	0,0	0,0	0,1	-77,6	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 20%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 5 Exchange of savings information within the EU (35% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	0,1	-0,1	-2,2	-0,4	-0,5	14,2	7,5	0,9	1,0
Belgium	0,1	-0,1	-2,4	-0,4	-0,5	27,2	7,1	0,8	0,6
Denmark	0,0	0,0	1,5	0,1	0,1	0,0	-0,3	0,0	0,0
Finland	0,0	0,0	-0,1	0,0	0,0	0,1	-0,4	0,0	0,0
France	0,0	0,0	-2,3	0,0	0,0	0,3	-0,6	0,0	0,0
Germany	0,0	0,0	0,2	0,0	0,0	0,0	-0,2	0,0	0,0
Greece	0,0	0,0	-0,4	0,0	0,0	0,3	-0,6	0,0	0,0
Ireland	0,0	0,0	-1,4	0,0	0,0	0,1	-0,5	0,0	0,0
Italy	0,0	0,0	-0,2	0,0	0,0	0,2	-0,5	0,0	-0,1
Luxembourg	0,1	-0,1	-15,1	-0,3	-0,5	13,6	5,6	0,6	0,7
Netherlands	0,0	0,0	-2,4	0,0	0,0	0,1	-0,4	0,0	0,0
Portugal	0,0	0,0	-0,4	0,0	0,0	0,3	-0,7	0,0	0,0
Spain	0,0	0,0	2,7	0,0	0,1	0,0	-0,3	0,0	0,0
Sweden	0,0	0,0	-0,8	0,0	0,1	0,2	-0,5	0,0	0,0
UK	0,0	0,0	-1,0	0,0	0,0	0,2	-0,4	0,0	0,0
Cyprus	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Czech Rep.	0,0	0,0	0,1	0,0	0,0	0,0	-0,1	0,0	0,0
Estonia	0,0	0,0	0,0	0,0	0,0	0,1	-0,3	0,0	0,0
Hungary	0,0	0,0	0,0	0,0	0,0	0,1	-0,2	0,0	0,0
Latvia	0,0	0,0	0,3	0,0	0,1	0,1	-0,3	0,0	0,0
Lithuania	0,0	0,0	0,3	0,0	0,0	0,1	-0,3	0,0	0,0
Malta	0,0	0,0	0,0	0,0	0,0	0,0	-0,2	0,0	0,0
Poland	0,0	0,0	3,3	0,0	0,0	0,1	-0,2	0,0	0,0
Slovak Rep.	0,0	0,0	0,0	0,0	0,0	0,0	-0,2	0,0	0,0
Slovenia	0,0	0,0	0,2	0,0	0,0	0,0	-0,1	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 35%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 6 Exchange of savings information within the EU and with tax havens (35% withholding tax)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	0,1	-0,1	-2,5	-0,3	-0,4	14,1	-48,0	1,0	1,0
Belgium	0,1	-0,1	-2,8	-0,4	-0,4	27,2	-26,4	0,8	0,7
Denmark	0,0	0,1	3,5	0,2	0,3	-1,0	-77,2	0,1	0,1
Finland	0,0	0,0	-0,3	0,0	0,1	0,1	-58,2	0,0	0,0
France	0,0	0,0	-4,8	0,0	0,0	0,2	-34,0	0,0	0,0
Germany	0,0	0,0	0,5	0,0	0,1	-0,2	-75,3	0,0	0,0
Greece	0,0	0,0	-1,1	0,0	0,1	0,0	-43,0	0,0	0,0
Ireland	0,0	0,0	-3,1	0,0	0,0	0,1	-51,2	0,0	0,0
Italy	0,0	0,0	-0,5	0,0	0,0	0,3	-27,1	0,0	0,0
Luxembourg	0,2	0,0	-12,2	-0,2	-0,4	12,7	-81,5	0,8	0,9
Netherlands	0,0	0,0	-9,5	0,0	0,1	0,0	-70,8	0,0	0,0
Portugal	0,0	0,0	-1,1	0,0	0,2	0,0	-41,9	0,0	0,0
Spain	0,0	0,0	9,6	0,2	0,4	-1,0	-77,6	0,2	0,1
Sweden	0,0	0,0	-1,8	0,1	0,2	-0,3	-59,0	0,1	0,0
UK	0,0	0,0	-3,0	0,0	0,2	0,1	-71,1	0,0	0,0
Cyprus	0,0	0,0	1,5	0,0	-0,1	0,2	-0,3	0,0	0,0
Czech Rep.	0,0	0,0	0,4	0,0	0,0	0,1	-71,7	0,0	0,0
Estonia	0,0	0,0	0,2	0,0	0,0	0,2	-0,4	0,0	0,0
Hungary	0,0	0,0	0,1	0,0	0,0	0,2	-0,3	0,0	0,0
Latvia	0,0	0,0	0,8	0,0	0,1	0,0	-61,3	0,0	0,0
Lithuania	0,0	0,0	1,1	0,0	0,1	0,1	-42,0	0,0	0,0
Malta	0,0	0,0	0,2	0,0	0,0	0,3	-42,1	-0,1	-0,1
Poland	0,0	0,0	10,1	0,0	0,0	0,1	-52,4	0,0	0,0
Slovak Rep.	0,0	0,0	0,1	0,0	-0,1	0,2	-29,9	0,0	0,0
Slovenia	0,0	0,0	0,5	0,0	0,0	0,1	-77,7	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 35%.

75% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 7 Exchange of savings information within the EU (15% withholding tax, 50% reporting)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio investment	Tax haven bonds	Total capital stock	Business capital
Austria	0,0	-0,2	-1,0	-0,4	-0,8	4,2	2,7	0,3	0,4
Belgium	0,0	-0,2	-1,0	-0,4	-1,1	7,2	2,4	0,2	0,2
Denmark	0,0	0,0	1,4	0,1	0,1	-0,2	0,2	0,0	0,0
Finland	0,0	0,0	-0,1	0,0	0,0	0,1	-0,2	0,0	0,0
France	0,0	0,0	-1,8	0,0	0,0	0,2	-0,3	0,0	0,0
Germany	0,0	0,0	0,3	0,0	0,1	-0,1	0,1	0,0	0,0
Greece	0,0	0,0	-0,4	0,0	0,0	0,2	-0,3	0,0	0,0
Ireland	0,0	0,0	-1,3	0,0	0,0	0,1	-0,2	0,0	0,0
Italy	0,0	0,0	-0,2	0,0	0,0	0,2	-0,3	0,0	0,0
Luxembourg	0,0	-0,1	-4,6	-0,3	-0,4	4,2	2,4	0,2	0,3
Netherlands	0,0	0,0	-3,4	0,0	0,0	0,1	-0,1	0,0	0,0
Portugal	0,0	0,0	-0,4	0,0	0,0	0,2	-0,3	0,0	0,0
Spain	0,0	0,0	5,1	0,1	0,2	-0,2	0,3	0,0	0,0
Sweden	0,0	0,0	-0,7	0,0	0,1	0,1	-0,2	0,0	0,0
UK	0,0	0,0	-1,5	0,0	0,1	0,1	-0,1	0,0	0,0
Cyprus	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Czech Rep.	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Estonia	0,0	0,0	0,0	0,0	0,0	0,1	-0,2	0,0	0,0
Hungary	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Latvia	0,0	0,0	0,2	0,0	0,0	0,1	-0,1	0,0	0,0
Lithuania	0,0	0,0	0,3	0,0	0,0	0,1	-0,2	0,0	0,0
Malta	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Poland	0,0	0,0	3,0	0,0	0,0	0,0	-0,1	0,0	0,0
Slovak Rep.	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Slovenia	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 15%.

50% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven.

Source: CETAX simulations.

Table 8 Exchange of savings information within the EU (15% withholding tax, 100% reporting)

	GDP	Welfare	Interest income tax revenue	Total tax revenue	Transfers	Inward portfolio invest- ment	Tax haven bonds	Total capital stock	Business capital
Austria	-0,1	-0,2	0,2	-0,4	-0,9	-3,6	-1,6	-0,3	-0,2
Belgium	-0,1	-0,1	0,2	-0,3	-1,4	-6,2	-1,8	-0,3	-0,2
Denmark	0,0	0,0	1,5	0,1	0,1	-0,4	1,1	0,1	0,0
Finland	0,0	0,0	-0,2	0,0	0,0	0,1	0,1	0,0	0,0
France	0,0	0,0	-3,2	0,0	0,0	0,1	-0,1	0,0	0,0
Germany	0,0	0,0	0,2	0,0	0,1	-0,1	0,4	0,0	0,0
Greece	0,0	0,0	-0,6	0,0	0,0	0,1	0,0	0,0	0,0
Ireland	0,0	0,0	-1,8	0,0	0,0	0,1	0,1	0,0	0,0
Italy	0,0	0,0	-0,4	0,0	0,0	0,2	-0,1	0,0	0,0
Luxembourg	-0,1	-0,1	7,6	-0,2	-0,3	-3,7	-0,7	-0,2	-0,1
Netherlands	0,0	0,0	-3,9	0,0	0,0	0,1	0,2	0,0	0,0
Portugal	0,0	0,0	-0,6	0,0	0,1	0,1	0,0	0,0	0,0
Spain	0,0	0,0	5,0	0,1	0,2	-0,5	1,0	0,1	0,1
Sweden	0,0	0,0	-0,9	0,0	0,1	-0,1	0,4	0,0	0,0
UK	0,0	0,0	-1,5	0,0	0,1	0,1	0,4	0,0	0,0
Cyprus	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Czech Rep.	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0
Estonia	0,0	0,0	0,0	0,0	0,0	0,1	-0,1	0,0	0,0
Hungary	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0
Latvia	0,0	0,0	0,3	0,0	0,0	0,0	0,0	0,0	0,0
Lithuania	0,0	0,0	0,4	0,0	0,0	0,1	-0,1	0,0	0,0
Malta	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Poland	0,0	0,0	3,7	0,0	0,0	0,0	0,0	0,0	0,0
Slovak Rep.	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Slovenia	0,0	0,0	0,1	0,0	0,0	0,0	0,2	0,0	0,0

Note: All figures are percentage changes from the baseline. The baseline withholding tax for Austria, Belgium and Luxembourg is 15%. 100% of interest income is reported to tax authorities. 'Tax haven bonds' refers to the proportion of household bonds held in the tax haven. Source: CETAX simulations.

Appendix III Model description

The policy scenarios have been tested in CETAX, a simulation model based on the OECDTAX model developed by Peter Birch Sørensen (Sørensen, 2001; 2004b). The OECDTAX model was developed specifically for the purpose of studying cooperation on corporate tax policies. It has already been applied to a wide range of policy issues that are relevant in the current context; corporate tax harmonization in the EU, corporate tax reform in Germany and reductions in corporate tax rates across the EU financed by higher labour income taxes (Sørensen, 2002; 2004a; 2004b).

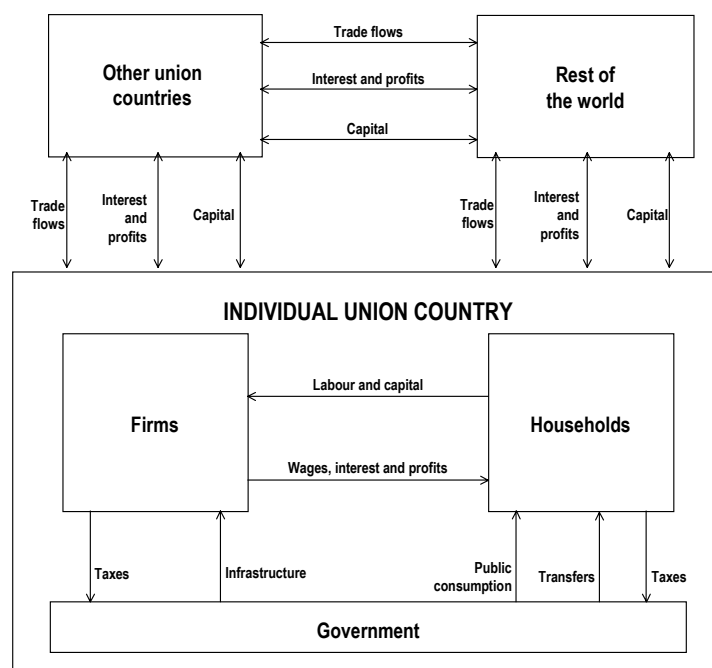
Introduction

The CETAX model is a CGE model describing the international spill-over effects of national tax policies via the world capital market. The model features private portfolio composition, endogenous corporate financial policies, incorporation of a housing market, a distinction between foreign direct investment and foreign portfolio investment, explicit modelling of the financial sector and a detailed description of tax systems. The model can be used both to analyse the effects of unilateral changes in tax policies and of various forms of international tax cooperation.

Each of the countries in the model is modelled with a household sector, a business sector and a government, and all countries are linked together via international capital markets and trade in goods and services (Figure 1 provides an overview of the model structure).

The government of each country provides infrastructure, other public goods and transfers. The expenditures are financed through collection of revenues from a long list of direct taxes on capital and labour, and indirect taxes on goods and services.

Figure 1: The CETAX model



Features

The CETAX model is characterized by a high degree of institutional realism with regard to capital markets and capital taxation. This section outlines the main features of the model. An exhaustive list of model features can be found in the OECDTAX model documentation (Sørensen, 2001).

The world economy is modelled as consisting of two regions, the European Union, corresponding to the individual EU25 countries, and the Rest of the World (ROW)¹⁰. One country in the ROW is a tax haven that facilitates tax evasion. Each country produces the same homogenous good, which is traded in an integrated international goods market.

Capital is imperfectly mobile across nations, and the supply of capital to an individual country is an increasing function of the rate of return offered in that country. By parametrically varying the elasticity of substitution between assets invested in different countries, it is possible to adjust the degree of capital mobility. The model is specifically designed to allow for higher capital mobility within the EU than between the EU and the rest of the world.

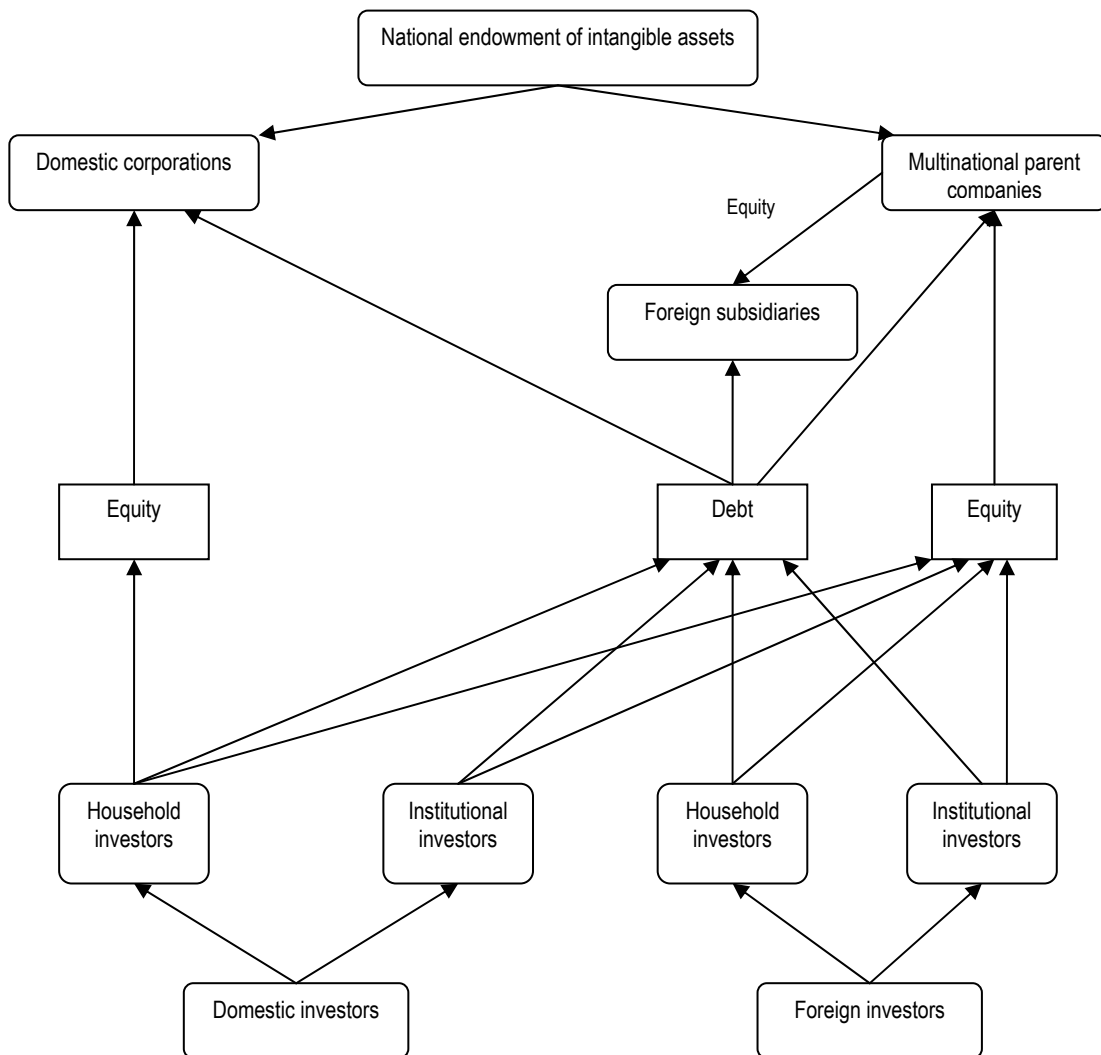
Businesses are modelled as either purely domestic firms with no international operations or as multinational parent companies with fully owned subsidiaries in each of the other countries of the world. All subsidiaries are thus 100% owned by their parents. Each country is endowed with a fixed stock of intangible assets representing e.g. human capital and management know-how. An exogenous fraction of these assets is allocated to multinationals, the rest to domestic firms. Figure 2 provides a graphical representation of the main flows of capital within the business sector. Domestic firms issue debt to both domestic and foreign investors, in addition to purchasing labour services from domestic households.

¹⁰ The ROW region consists of Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland, Turkey, the United States and a tax haven jurisdiction.

By contrast, multinational corporations issue shares as well as debt instruments to foreign as well as domestic household and institutional investors. The multinational parent companies inject equity into foreign subsidiaries, representing foreign direct investment, and provide their subsidiaries with intermediate inputs. Subsidiaries also borrow in the host country capital market.

Multinationals have the possibility to engage in transfer pricing to shift taxable profits between parent and subsidiaries. Accompanying distortions to input prices are assumed to incur organisational costs. Factor demands and financial policies are chosen to maximize global after-tax profits.

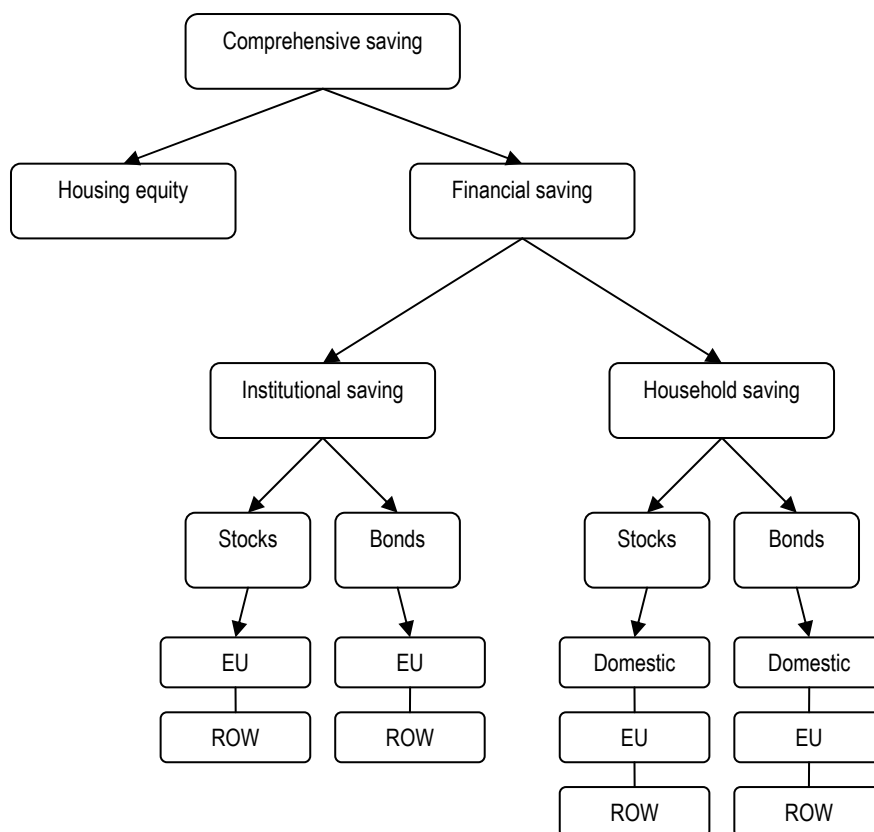
Figure 2: Overview of capital flows within the business sector



Consumers choose to either consume their endowments immediately or to postpone some consumption and invest in financial assets or housing equity. The distribution of savings across different instruments is described in Figure 3. The consumer allocates his financial saving across institutional saving and household saving in different countries. Institutional saving represents e.g. pension funds, whereas household saving corresponds to e.g. bank deposits and direct purchases of bonds and shares. Assets are allocated to maximize after-tax returns,

creating incentives to increase savings when the real rate of return increases and to invest abroad to evade domestic tax

Figure 3: Allocation of savings



Being static, the model does not illustrate the dynamics of capital stock adjustment and does not include adjustment costs. In this sense, the model describes a long run equilibrium. On the other hand the model assumes that national endowments of intangible assets are fixed. In the very long run such assets may become mobile internationally, so the time horizon of the model may best be thought of as a medium to long run of about 10 years.

Taxes

Real world tax codes are complex and distinguish between e.g. foreign direct investment and foreign portfolio investment, between household investors and institutional investors, between different asset types, between current income and capital gains, and between debt and equity. The model provides a detailed representation of capital taxation, incorporating the above mentioned distinctions, with a variety of exogenous taxes.

Direct taxes can e.g. be levied on corporate profits, interest income, dividends and capital gains, as well as on labour income and housing consumption. It is possible to differentiate between different types of investors with both short and long term investments. Indirect taxes exist on non-durable consumer goods and housing construction.

A wide range of policy variables allows fine-tuning of the model to closely describe national tax systems. This includes qualitative features like tax credit mechanisms, deduction rules, specific treatment of speculative investments, and the extent of residence-based taxation for different investors and assets. It is furthermore possible to apply a wide range of withholding taxes.

International double tax relief is comprehensively modelled to take the diversity of current tax systems properly into account.

Overview of model variables

The CETAX model contains more than 300 variables. A brief overview of the main groups of exogenous and endogenous variables is provided in Table 1.

Table 1: CETAX model variables

Exogenous variables	Endogenous variables
Endowments	Outputs
Technology	Factor inputs
Preferences	Capital stocks
Scale parameters	Portfolio holdings
Policy variables	Effective tax rates
	Net profits
	Net revenues
	Wages
	Unemployment

Source: CETAX model.

Model extensions

For the purpose of the current study the CETAX model has been adapted and customised to the specific needs of the Commission. The following necessary extensions and revisions have been implemented:

1. The original OECDTAX model represents 24 OECD countries, including the current 15 EU Member States. The CETAX model has been extended to include all new member states, covering the whole EU25.
2. The representation of taxes in the model has been updated and revised to properly represent all the taxes important to the study and to allow for the subsequent scenario analysis.
3. The model database has been updated and extended to account both for the geographical extension with the new member states and for new model features. The primary data source is the OECD.
4. The enlargement and the tax policy scenarios have been translated into model language and implemented to allow for policy analysis.
5. The reporting of the results from the model has been updated and customised to the requirements of the European Commission.

Calibration principles

The simultaneity of the model means that most endogenous variables depend on all model parameters, but some parameters can be assigned the task of generating realistic values of certain endogenous variables (Sørensen, 2001). When calibrating the model, parameters for initial endowments of e.g. wealth and intangible assets have thus been chosen so as to generate realistic levels of GDP and national income. Labour market parameters have been set to replicate current unemployment rates and financial sector fees have been set to produce plausible values of the financial sector income ratio in individual countries. In this way, calibration and the choice of parameter values have been performed much in the same way as in previous applications of the OECDTAX model (e.g. Sørensen, 2002; 2004a; 2004b). The primary data source for the calibration has been OECD national accounts and OECD revenue data, supplemented with various national sources for some of the new member states.

The most contentious calibration issue in the context of this study is the calibration of the parameter that initially defines the broadness of the tax base, i.e. the rate of depreciation for

tax purposes. The parameter is calibrated to replicate the empirically observed ratio of corporate tax revenue to GDP. The numerical value of the parameter will consequently be model-specific. Proper calibration of the parameter is strongly dependent on reported corporate tax revenues. This figure tends to vary significantly, both between different data sources (e.g. OECD and Eurostat) and between years. Individual country results may consequently vary according to which data the model is calibrated to. The aggregate effects are, however, less affected by this issue. The corporate tax revenue data and corporate tax rates used for the calibration of the rate of depreciation for tax purposes are provided in Table 2. Because the most recent revenue statistics for corporate income taxes cover the year 2001, corporate tax rates for 2001 have been used to maintain consistency in the calibration.

Table 2: Tax data used for calibrating the rate of depreciation for tax purposes

	Taxes on corporate income as percentage of GDP	Corporate tax rate (2001)
Austria	3.1	34 %
Belgium	3.6	40 %
Denmark	3.1	30 %
Finland	4.9	29 %
France	3.4	35 %
Germany	0.6	39 %
Greece	3.4	37 %
Ireland	3.6	20 %
Italy	3.6	36 %
Luxembourg	7.5	37 %
Netherlands	4.1	35 %
Portugal	3.6	35 %
Spain	2.8	35 %
Sweden	2.9	28 %
United Kingdom	3.5	30 %
Cyprus	2.4	25 %
Czech Rep.	4.2	31 %
Estonia	0.7	26 %
Hungary	2.4	18 %
Latvia	2.0	22 %
Lithuania	2.0	15 %
Malta	2.4	35 %
Poland	2.0	28 %
Slovak Rep.	2.2	25 %
Slovenia	1.4	25 %

Note: The corporate tax rate is applied equally to retained and distributed profits, except for the case of Estonia, where retained profits are tax exempt.

Source: Eurostat (2003), Martinez-Serrano & Patterson (2003), OECD (2003), KPMG (2001) and own calculations based on national accounts.

The model baseline reflects the corporate tax rates in force in 2004, which are reported in Table 3. Primary sources for tax data are Eurostat (2003), Eurostat (2004), Sørensen (2004a), Martinez-Serrano and Patterson (2003), Danish Ministry of Taxation (2004) and ZEW (2003).

Table 3: Corporate tax rates in the model baseline

	Corporate tax rate (2004)
Austria	34 %
Belgium	34 %
Denmark	30 %
Finland	29 %
France	35 %
Germany	38 %
Greece	35 %
Ireland	12,5 %
Italy	33 %
Luxembourg	30 %
Netherlands	34,5%
Portugal	27,5 %
Spain	35 %
Sweden	28 %
United Kingdom	30 %
Cyprus	15 %
Czech Rep.	28 %
Estonia	26 %
Hungary	16 %
Latvia	15 %
Lithuania	15 %
Malta	35 %
Poland	19 %
Slovak Rep.	19 %
Slovenia	25 %

Note: The corporate tax rate is applied equally to retained and distributed profits, except for the case of Estonia, where retained profits are tax exempt.

Source: Eurostat (2004), KPMG (2004), Danish Ministry of Taxation (2004) and ZEW (2003).

Table 4 shows the values of some selected elasticities in the model. The source of all model elasticities is Sørensen (2002, 2004b). The substitution elasticities between different types of assets and international transaction cost parameters have thus been chosen to generate realistic patterns of portfolio composition. Crucially, the elasticities generate an equilibrium where interest rates differentials are relatively small across the OECD, as empirically observed.

Table 4: Selected model elasticities

Parameter	Value
Elasticity of saving with respect to the after-tax rate of return	0.2
Elasticity of labour supply with respect to the after-tax wage rate	0.2
Elasticity of substitution between housing assets and financial assets	1.0
Elasticity of substitution between household saving and institutional saving	1.0
Elasticity of substitution between stocks and bonds	4.0
Elasticity of substitution between foreign and domestic stocks held by households	3.5
Elasticity of substitution between foreign and domestic bonds held by households	4.0

Source: Sørensen (2002, 2004b).