

**Study on the Economic and Budgetary  
Impact of the Introduction of a Common  
Consolidated Corporate Tax Base in the  
European Union**

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Commissioned by the Irish Department of Finance

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This study was prepared by Ernst & Young, drawing on the experience of the Quantitative Economics and Statistics Practice (QUEST) of Ernst & Young LLP for the Irish Department of Finance. QUEST is a group of economists, statisticians, and tax policy researchers within Ernst & Young's National Tax Practice, located in Washington, DC. QUEST provides quantitative advisory services and products to private and public sector clients that enhance business processes, support regulatory compliance, and analyse proposed policy issues.

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# 1. Executive summary

The European Commission is considering a fundamental change to the tax system for companies with taxable operations in the European Union. The new system is referred to as the Common Consolidated Corporate Tax Base ('CCCTB'). Companies that are eligible and opt in to the CCCTB would be taxed on their consolidated taxable profits across the participating Member States. Those profits would be allocated between the participating Member States based on a formula apportionment and taxed in each of the States at the corporate tax rate applicable in that State. This replaces the existing system where each Member State taxes, based on its own rules, the profits of companies with a taxable nexus in that country. The CCCTB could allow for one tax computation and one tax filing for corporate groups with operations across the whole of the EU, as opposed to the current system where up to 27 different tax computations and filings may be required.

It is important for policymakers within the Commission and the Member States to understand the revenue and economic effects of a major change in corporate income taxation before such a change is adopted. For this reason, in mid 2008, the Irish Department of Finance commissioned Ernst & Young to carry out an independent economic impact assessment of the CCCTB.

## 1.1 Ernst & Young CCCTB impact assessment

Prior empirical studies of the CCCTB have shown significant variation in the change in corporate income taxes and taxable income across the Member States, ranging from large tax increases to large tax decreases. The studies have also shown the significant sensitivity of the revenue effects to the type of CCCTB system, i.e. whether the system is mandatory or voluntary and how taxable income of multinational groups is allocated among the Member States. The prior empirical studies have also identified some of the difficulties policy analysts face in estimating a complex tax scenario with available company information.

Building on prior European empirical studies plus experience estimating formulary apportionment and combined reporting scenarios in the US, Ernst & Young has constructed a tax model based on unconsolidated company-level financial information, supplemented by aggregate statistical information, to estimate changes in redistribution of corporate income tax collections among the participating Member States. In addition, Ernst & Young analysis presents estimates of the potential CCCTB impacts on the real economy, as measured by gross domestic product ('GDP'), employment and foreign direct investment ('FDI').

The methodology used to assess the economic and budgetary impact of the CCCTB on the Member States is outlined below.

## 1.2 Impact assessment methodology

This analysis presents estimates of the potential impact of the CCCTB on Member State tax collections before consideration of behavioral effects and resulting changes in economic activity ('static revenue impacts') and the estimates of the economic effects of the CCCTB due to behavioral effects of companies and the economy in each Member State ('dynamic economic impacts'). Potential impacts are estimated for three different scenarios:

- ▶ mandatory CCCTB in all 27 EU Member States
- ▶ voluntary CCCTB in all 27 EU Member States
- ▶ mandatory CCCTB in nine EU Member States.

To estimate the static impact of CCCTB, Ernst & Young has built a model which has over 50,000 groups of companies, including close to 4 million individual companies, representing 96% of the EU corporate income tax collections. The model starts with all European companies that are part of the Bureau Van Dijk's data on financial statements (Amadeus) and

ownership data, in 2005. The Amadeus data contains information on assets, employment, sales, payroll, income, taxes, and are supplemented with ownership information.

Nearly 200,000 companies were ultimately identified as companies that would be affected by the CCCTB and report enough information. More than 3.8m companies are not affected by CCCTB either because they are single entities or belong to a group but do not meet the 75% ownership test. These 4m companies (3.8m companies not affected by CCCTB and 200,000 companies affected by CCCTB) have €14.9 trillion of total fixed assets. The roughly 200,000 subset (i.e. those companies affected by the CCCTB) has €5.8 trillion of total fixed assets.

The economic impact of the CCCTB system on Member State economies would be driven by changes in the relative corporate income tax rates that apply to new investments in each participating Member State. Under current law, additional income is subject to each Member State's corporate income tax rate. In contrast, under the CCCTB (formula apportionment) the increase in income is shared or distributed across all Member States. Each Member State's share of the income is then taxed at their own corporate income tax rate. As a result, the new system would subject the income from new investments in each Member State to a weighted average (consolidated) tax rate that depends upon the tax rates in all Member States where a group operates.

The analysis determines the change in effective corporate tax rates in each Member State from moving to a CCCTB system by comparing a Member State's relative tax rate (compared to the EU) under current law and under the CCCTB. This change in effective tax rates (see definition of ETR in Appendix D) is then translated into changes in economic variables based on estimates of the responsiveness of economic activity to tax rate changes.

### 1.3 Winners and losers

The effects of a CCCTB will depend on the coverage of the CCCTB, both in terms of the number of participating Member States and the number of companies opting into the system. The empirical studies to date suggest that a CCCTB would create significant winners and losers, assuming no change in corporate income tax rates, across Member States with respect to corporate tax revenues.

The net impact on a Member State's corporate income tax revenues, as well as on the tax liabilities of specific groups of taxpayers, can be determined by three major differences between current law corporate tax systems and the CCCTB:

- ▶ firstly, the CCCTB may change the definition of the tax base. An example would be a change in the calculation of depreciation allowances
- ▶ secondly, the CCCTB would result in a reduced tax base for some taxpayers by allowing full offset of cross-border losses among group members
- ▶ thirdly, the CCCTB would redistribute the resulting tax base across Member States based on the distribution of measures of economic activity ('factors'). This can differ substantially from the current law distribution, which is based on the use of separate accounting to determine the location of income.

Depending on the specific scenario, some Member States would have significantly greater corporate income tax revenues while other Member States would lose significant corporate income tax revenues.

Member States that would lose significant corporate tax revenues are less likely to be willing to participate in a CCCTB system. If they participate, they will be faced with difficult political choices including:

- ▶ reducing public spending
- ▶ increasing corporate income tax rates
- ▶ increasing taxes on households.

Fewer participating Member States would reduce the potential positive effects of a CCCTB.

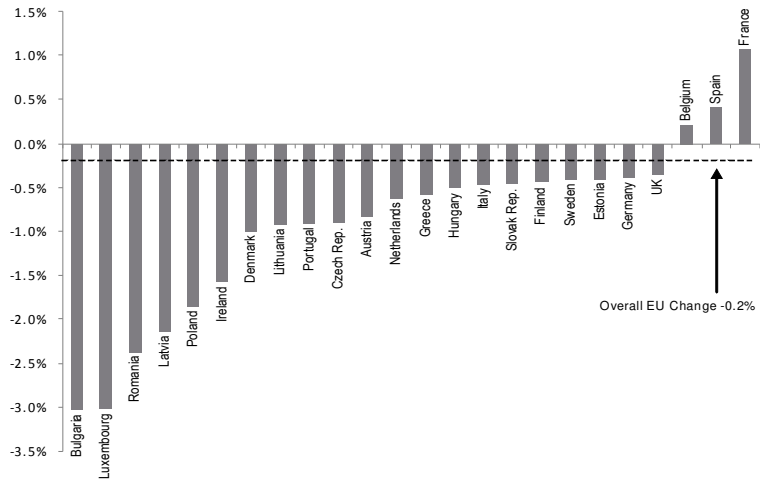
In addition to redistributing corporate income taxes among participating Member States, the CCCTB would create winners and losers in terms of Member State economies. The results in Figure 1 and Figure 2 summarise the estimated employment, GDP and FDI impacts of the 27 Member State mandatory and voluntary CCCTB systems assuming that changes in government revenue from tax collections are offset by changes in transfers to households. The results show that:

- ▶ While the CCCTB is close to having a zero-sum static revenue impact, it does result in significant redistributions of economic activity among the participating Member States. Movements of real economic factors, including employment and investment, among Member States and between the EU and the rest-of-the-world would drive the redistribution of economic activity across participating Member States. The dynamic economic impact analysis includes estimates of the shift in jobs and employment that is expected in response to the adoption of the CCCTB.
- ▶ Employment changes under the mandatory 27 Member State scenario range from a decrease of 1.6% in Luxembourg to an increase of 0.6% in France (Figure 1). GDP decreases in Bulgaria and Luxembourg by 3% and increases in France by 1.1%. The changes are even larger for FDI, ranging from a decrease of 11.7% in Bulgaria to an increase of a little over 5% in France.
- ▶ Under the voluntary 27 Member State scenario, the employment changes range from a 1.4% decrease in Luxembourg to a 0.2% increase in France (Figure 2). The GDP changes range from -2.7% in Luxembourg to 0.4% in France; FDI changes range from -3.2% in Romania to 1.4% in France.
- ▶ The employment impacts under the nine Member State mandatory scenario range from -1.5% in Luxembourg to 0.4% in France.
- ▶ Spain and France benefit from increased employment under the two 27 Member State CCCTB scenarios. In other words, their economies expand as a result of reductions in effective corporate income tax rates on new investments in the countries.
- ▶ The other 24 EU countries experience reduced levels of employment due to increases in effective tax rates (based on the CCCTB consolidated effective average tax rate) on affected groups operating within the Member State.

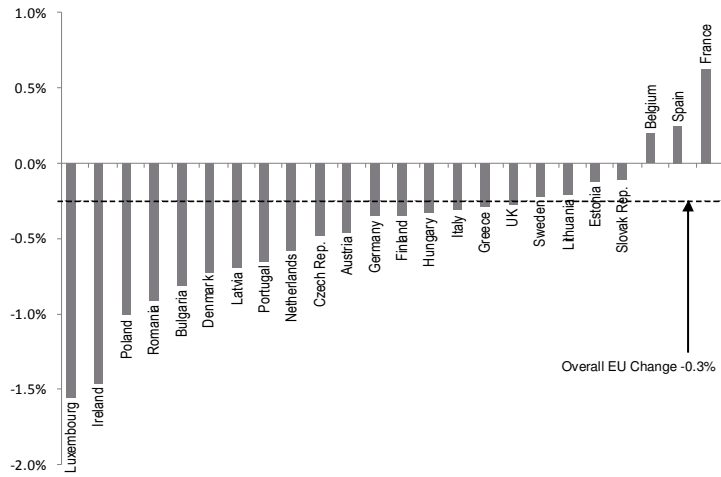


Figure 1 Net changes in GDP, employment and FDI: 27 Member State mandatory CCCTB, balanced with transfer payment changes

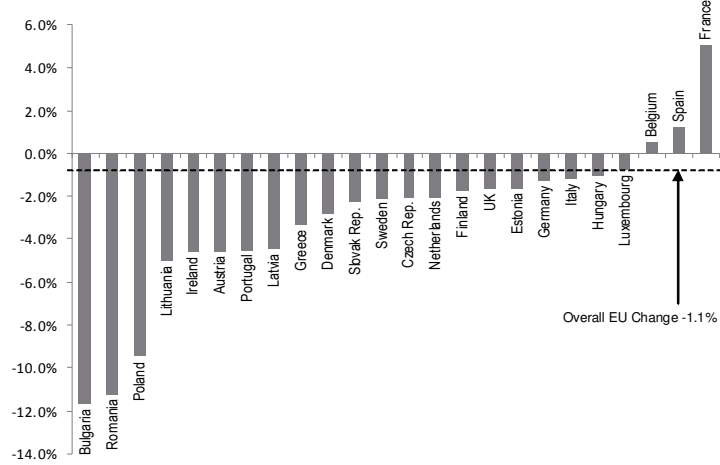
Percent change in GDP



Percent change in employment

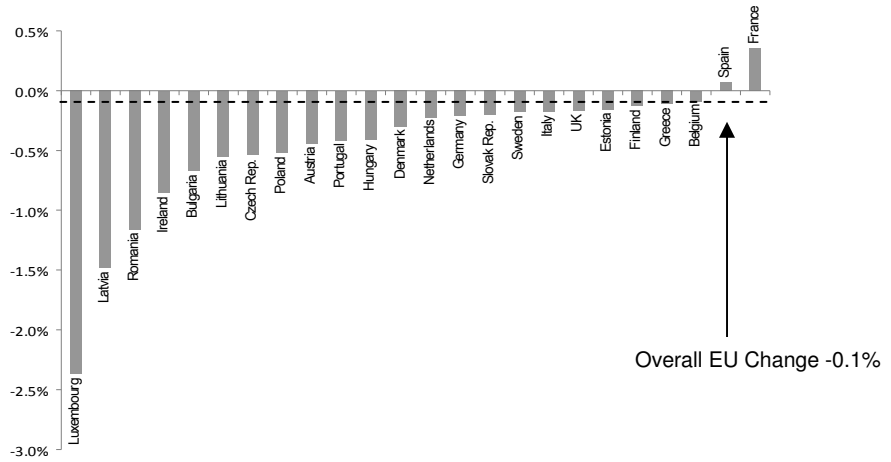


Percent change in FDI

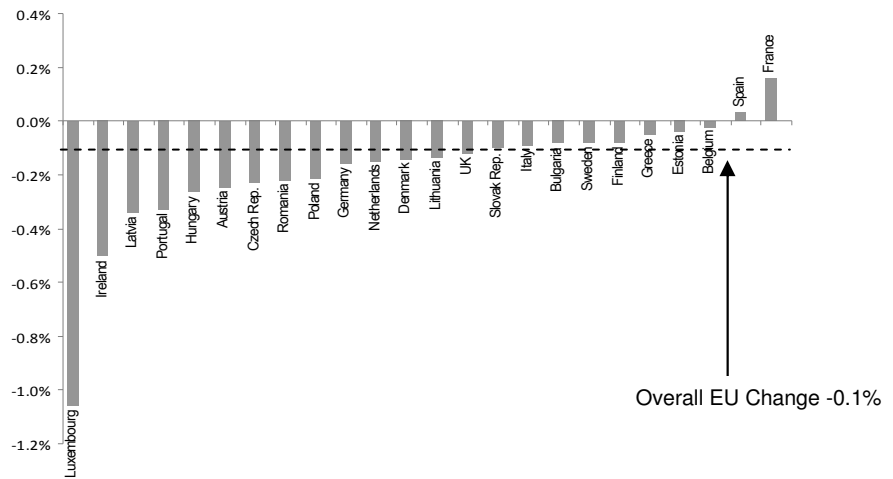


**Figure 2 Net changes in employment, GDP and FDI. 27 Member State voluntary CCCTB, balanced with transfer changes**

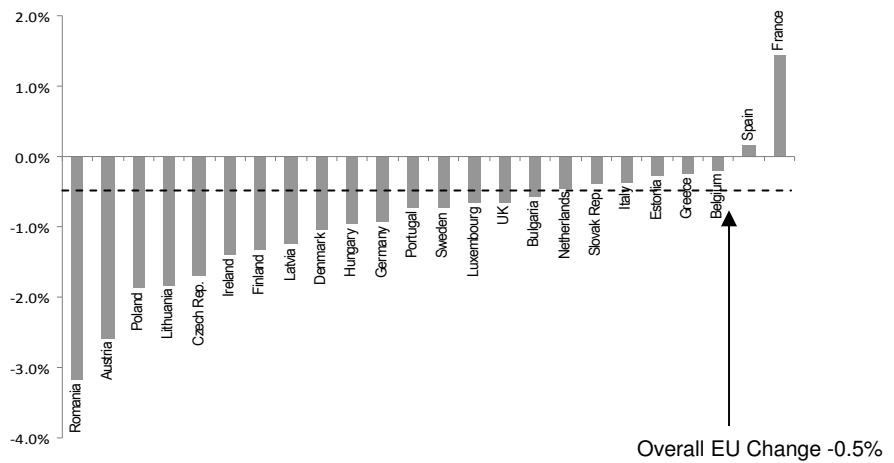
**Percent change in GDP**



**Percent change in Employment**



**Percent Change in FDI**



## 1.4 Key findings of the static revenue analysis

The static revenue analysis was completed for all 27 EU Member States but, due to data limitations for some countries, results are presented for selected countries only.<sup>1</sup> The results are based on 2005 financial statement information and 2005 statutory corporate tax rates.

### 1.4.1 Mandatory CCCTB in all 27 EU Member States

Although a mandatory CCCTB is not currently contemplated by the European Commission, it has been modelled in prior empirical analyses and some analysts have argued that the efficiency and compliance reduction effects would be highest under a mandatory system.

A mandatory 27 Member States CCCTB would increase EU corporate income tax collections by €591m annually, or roughly 0.2% of current total corporate income tax collections. For affected companies, the change would be a 0.7% increase.

Revenue would increase for some Member States while decreasing for others. The changes in corporate tax collections are estimated to range from -8.3% in Denmark to +6.0% in France, as shown in Figure 3.

However, the relationship between profits and factors does not account for all of the tax changes under CCCTB. The combination of income for all companies in the CCCTB group would remove the risk of current year losses being locked in one company, enabling them to be offset within the group, either in current or future periods. Such spreading of losses among all members of the group would reduce the overall size of taxable income under CCCTB.

**Figure 3 Static revenue impact of a mandatory CCCTB, 27 participating Member States**

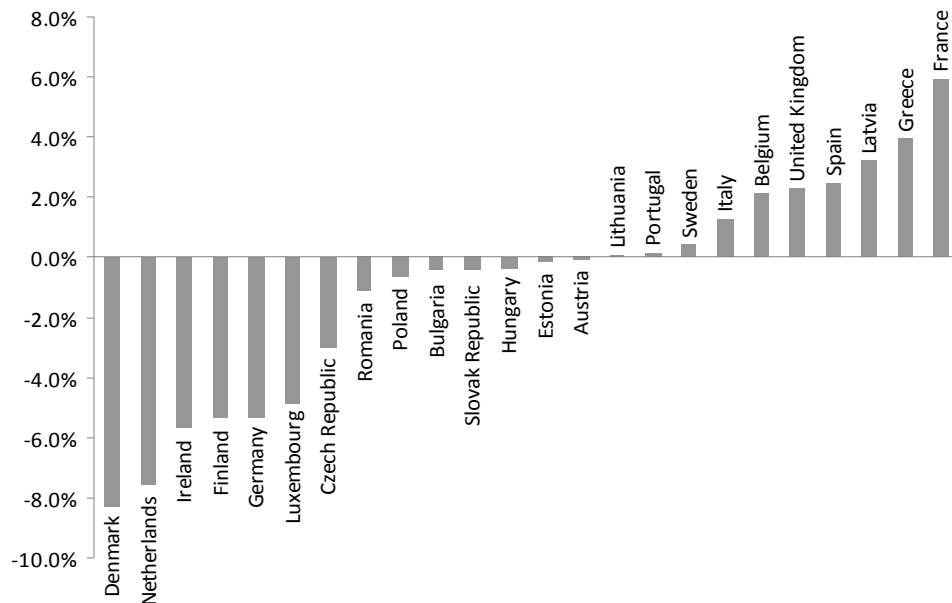


Table 1 shows the distribution of winners and losers under a mandatory 27 Member State CCCTB by group and by size of the tax change for all EU groups. Over 50% of the groups would not be affected by a mandatory CCCTB since they are a domestic-only (single country) group and do not have available group losses. Over 4,400 groups would have tax reductions in excess of 1%, totalling -€1.9bn, while approximately 23,000 groups would have tax increases in excess of 1%, totalling €2.5bn and representing about 42% of total groups.

<sup>1</sup> Cyprus, Malta, and Slovenia are excluded from the analysis due to scarcity of data

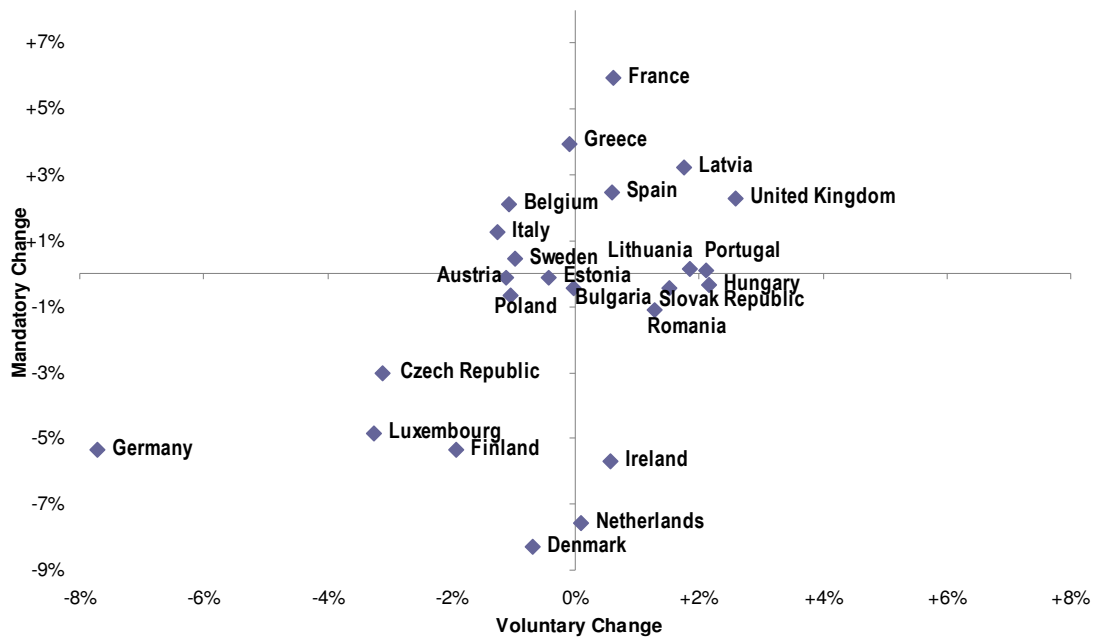
**Table 1 Distribution by groups' tax change from a mandatory CCCTB**

Change due to CCCTB	Number of Groups	Tax Change (€ millions)
- 25% or more	942	(€ 847)
-10 - 25%	329	(413)
-5-10%	329	(439)
-1 - 5%	2,828	(235)
- 0 - 1%	407	(17)
0%	26,632	-
0 - 1%	612	30
1 - 5%	1,877	501
5-10%	17,875	1,312
10 - 25%	2,049	484
25% or more	1,355	216
<b>EU27 Total</b>	<b>55,235</b>	<b>€ 591</b>

Source: Ernst & Young calculations

Figure 4 compares the revenue effect for the 27 Member States under the voluntary and mandatory scenarios. There are four possible combinations of tax increases and decreases. Four countries are estimated to have significantly higher tax collections under both a voluntary and mandatory CCCTB, being France, Spain, Latvia and the United Kingdom. Four countries are estimated to have significantly lower tax collections under both a voluntary and mandatory CCCTB: Denmark, Finland, Germany and Luxembourg. The other countries have small or different revenue effects under a voluntary and mandatory CCCTB.

**Figure 4 Comparison of revenue effect of a voluntary vs. mandatory CCCTB tax systems**



### 1.4.2 Voluntary CCCTB in all 27 EU Member States

A voluntary CCCTB scenario would reduce overall EU corporation tax revenue by €1.8bn or 0.6% of total EU corporate income tax collections and would reduce corporation tax by -2.2% for companies affected by the scenario.

Under a voluntary system, only groups that would experience a lower total EU tax burden would be expected to switch into the new system. Such groups would be those able to benefit from the group loss offset and/or have taxable income apportioned away from higher tax rate countries to lower tax rate countries.

The revenue impact of the voluntary system for a single country is the net impact of changes in the group's consolidated income tax base and the redistribution of the base among countries due to the apportionment formula. In Germany, for example, the voluntary CCCTB apportionment effect results in a net shift of income out of the country by groups with ratios of income to factors in Germany that are higher than the ratio of the group's combined income to total EU factors. In contrast, despite the fact that France has a higher statutory corporate income tax rate than Germany, participating groups shift more taxable income into France under the CCCTB and tax collections increase. This occurs even though the groups electing to participate would pay less in EU-wide combined corporate income taxes.

**Figure 5 Static revenue impact of a voluntary CCCTB, 27 participating Member States**

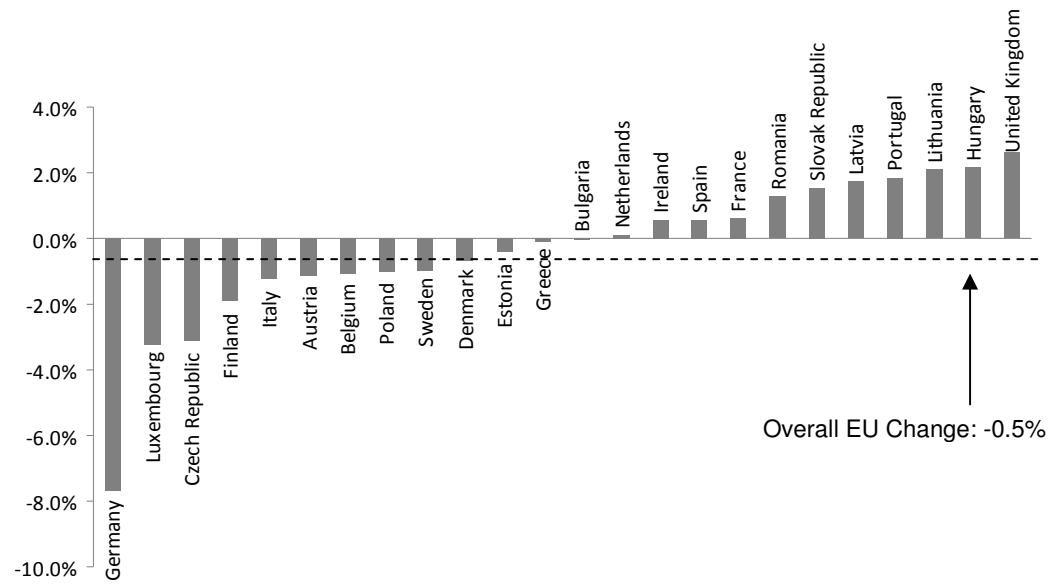


Table 2 shows the distribution of winners under a voluntary CCCTB by group and by size of the tax change. Less than 9% of the EU consolidated groups would experience a tax decrease under a voluntary CCCTB scenario. Therefore, 91% of groups would not participate in a voluntary system. Of the groups electing to participate, most would experience only a small tax reduction of between 1% and 5% which may not compensate for the transition and additional compliance costs of switching to a new system. Nearly two-thirds of the tax reduction would accrue to 1,271 groups, or 2% of total participating groups, with the tax reductions exceeding 10%.

**Table 2 Distribution by groups' tax change from a voluntary CCCTB**

Change due to CCCTB	Number of Groups	Tax Change (€ millions)
-25% or more	942	(789)
-10 - 25%	329	(385)
-5 - 10%	329	(409)
-1 - 5%	2,828	(219)
-0 - 1%	407	(16)
0%	50,400	-
<b>EU27 Total</b>	<b>55,235</b>	<b>(1,819)</b>

Source: Ernst & Young calculations

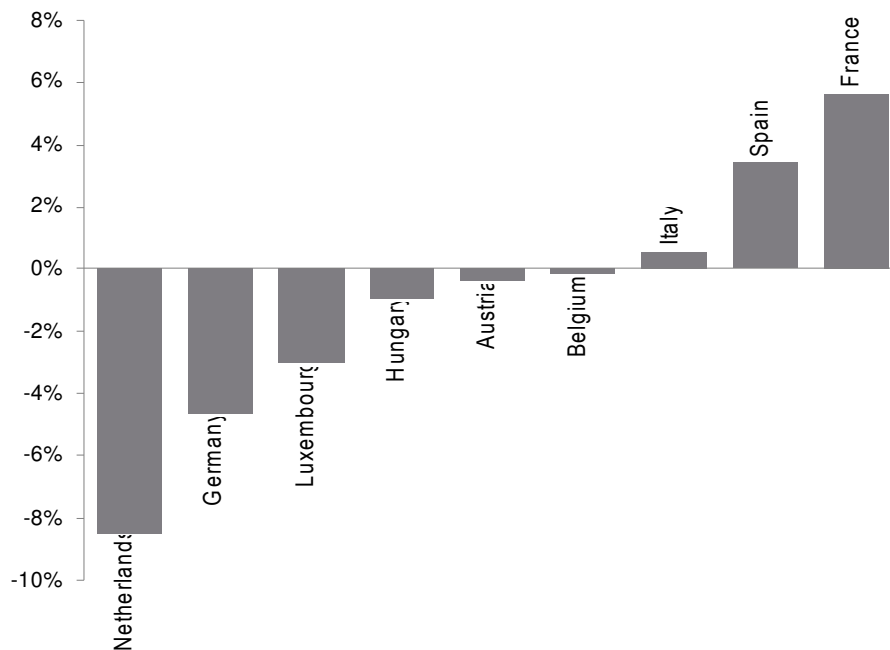
### 1.4.3 Mandatory CCCTB in nine EU Member States

Although a mandatory nine Member States CCCTB is not currently contemplated by the European Commission, it has been modelled in prior empirical analyses.

A mandatory CCCTB may be adopted by a subset of the EU Member States. For the purposes of modelling this illustrative scenario, nine countries were assumed to adopt a mandatory CCCTB: Austria, Belgium, France, Germany, Hungary, Italy, Luxembourg, the Netherlands, and Spain. These nine countries account for approximately 61% of the corporate income tax in the EU. Factors would be apportioned differently, distributing tax among nine countries rather than twenty-seven.

A mandatory nine Member States CCCTB scenario would increase corporate income tax collections by €147m annually, or roughly 0.1% of current total corporate income tax collections. Affected companies would experience a 1.3% increase. The percentage change in corporate income tax collections of the nine Member States would range from -8.5% for the Netherlands to +5.7% for France.

**Figure 6 Static revenue impact of mandatory CCCTB, 9 participating Member States**



## 1.5 Key findings of the dynamic economic analysis

The following are key findings of the analysis of the dynamic economic impacts of three CCCTB scenarios. The economic impact estimates include the effects on consumption of changes in government transfers to households to offset any increase or decrease in corporate income tax collections under the CCCTB scenarios. The summary focuses on employment changes as an overall measure of the dynamic economic impact. The results are similar for changes in GDP and income.

### 1.5.1 Overall changes in economic activity

The CCCTB would have positive or negative economic impacts on each participating Member State. In addition, the scenarios would change the relative competitiveness of the EU compared to non-EU countries and reduce overall economic activity in the EU. The study finds that:

- ▶ The mandatory 27 Member State CCCTB reduce overall EU economic activity. As measured by employment the reduction is 0.3%, a reduction of almost 512,000 jobs. The scenario would reduce GDP by 0.2% and FDI by 1.1%.
- ▶ The reduction in employment under the voluntary 27 Member State CCCTB is smaller, 0.1% or more than 206,000 jobs. GDP falls by 0.1% and overall FDI falls by 0.5%. While companies that choose to participate in the voluntary system reduce their total EU tax

payments, their effective tax rate, which is applicable to new investment in most Member States will negatively impact growth in most Member States.

- ▶ The mandatory nine Member State scenario also reduces jobs in participating Member States by 0.2% or 257,000 jobs. Income and GDP in the nine Member States are reduced by 0.2% and 0.3%, respectively.

### **1.5.2 Effective tax rates on new investments**

The CCCTB would increase effective corporate income tax rates on new investments for most taxpayers in most Member States. Under current law a new investment is subject to the statutory corporate income tax rate in the Member State where the investment occurs. Under the CCCTB, the corporate income tax rate that applies to new investments in a Member State depends upon the statutory tax rate in each Member State where the company making the investment is a taxpayer.

Because the CCCTB apportions consolidated income to each Member State based on the location of factors (sales, assets, employment and labor compensation), the effective tax rate on a new investment is a weighted average of the effective tax rates in each Member State. The weights are determined by the distribution of factors and the parameters of the apportionment formula. In effect, the CCCTB leads to an effective harmonization of EU tax rates for a taxpayer making a marginal investment and operating in multiple Member States. However, the change in effective tax rates due to the adoption of the CCCTB would depend upon the locations of a taxpayer's operations in each Member State.

### **1.5.3 Budget balancing effects**

The dynamic economic impacts summarised in Figure 1 and Figure 2 and described in more detail in the report are net impacts that include effective tax rate impacts and budget balancing impacts. The budget balancing changes are designed to offset any changes in corporate income tax revenues due to the static revenue effects of the CCCTB. The study measures and compares the additional economic impact of two different budget balancing mechanisms:

- ▶ Changing government transfers to households.
- ▶ Changing corporate income tax rates.

The budget balancing analysis finds that:

- ▶ The addition of the balanced budget requirement magnifies the positive or negative impacts of the CCCTB due to changes in effective tax rates on new investments in most Member States;
- ▶ Balancing the budget with changes in corporate income tax rates would have larger positive or negative impacts on most Member State's economies than changes in household transfers. This is the case because of the higher sensitivity of new investment to changes in the cost of capital and because smaller, more open Member State economies may import a larger share of goods and services from other Member States. As a result of the higher percentage of goods and services imported by smaller Member States, reductions in transfer payments would have a smaller impact on domestic production because a significant portion of the decline in the level of production related to goods and services purchases would be experienced by other countries. That is, the smaller the Member State, the more likely it is that the impact of changes in consumption would be "exported" to other Member State economies.

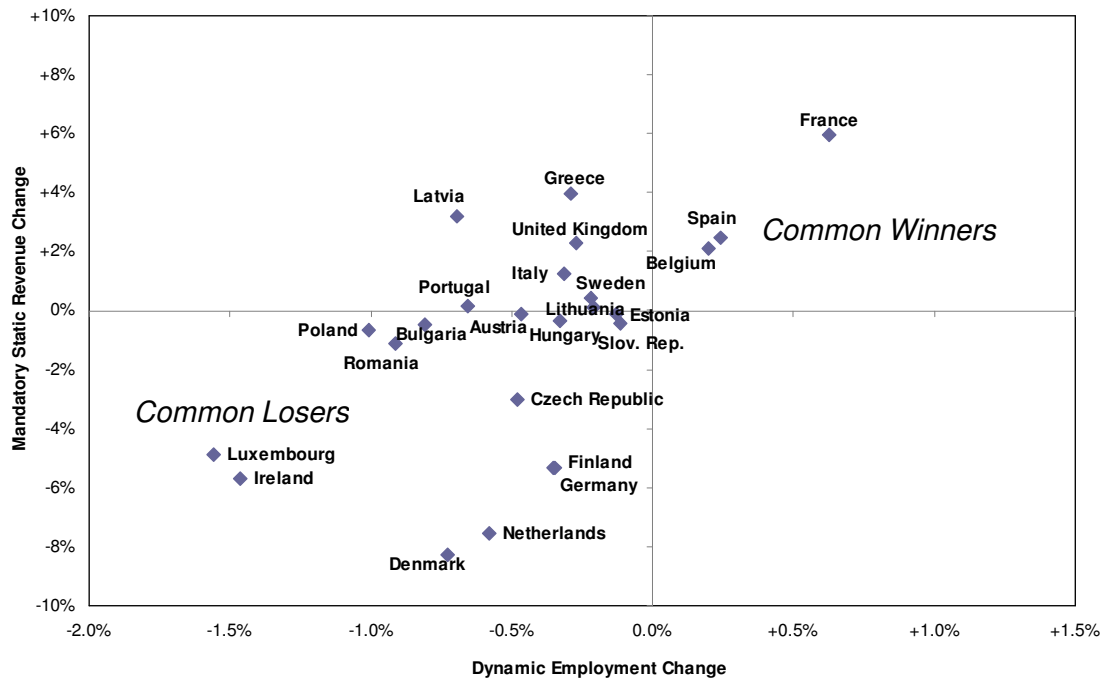
## **1.6 Comparing revenue and economic impacts of CCCTB**

Figure 7 combines the results from the static revenue effects and the dynamic employment changes under the 27 Member State mandatory CCCTB. This comparison provides a better understanding of the complex impact of CCCTB on individual Member States.

Figure 7 ranks the Member States by static corporate income tax revenue changes on the vertical axis and dynamic employment changes along the horizontal axis. Member States in the “Common Losers” quadrant, including Germany, Ireland, Denmark, the Netherlands, Finland, the Czech Republic, Poland, Romania, Bulgaria, Austria, Hungary, Estonia, the Slovak Republic and Luxembourg, are Member States that lose both corporate income tax revenue and employment under the 27 Member State mandatory CCCTB scenario. Groups operating in these countries tend to face higher effective tax rates on new investments under the CCCTB. In addition, because they also lose corporate tax revenues, these Member States must either decrease transfers to households or increase corporate income tax rates to balance their budgets and there is an additional negative impact on their economies.

Countries in the “Common Winners” quadrant – France, Spain and Belgium – benefit in terms of both higher revenues and lower effective tax rates on new investments. The lower effective tax rates generate more investments and jobs in these countries. Because of higher corporate income tax collections, these countries can either increase transfers to households or reduce corporate income taxes. Both effects operate in the same direction to increase economic activity.

**Figure 7 Comparison of revenue and economic results for mandatory CCCTB**



## 1.7 Summary Qualitative Considerations

There are a number of key qualitative considerations for policy makers in any future developments of the CCCTB:

- ▶ The cost savings under CCCTB may be overestimated. For example, tax accounting costs and the costs of eliminating intra-group transactions on tax consolidation are likely to continue under CCCTB. In addition, the CCCTB is likely to result in a significant additional complication in the corporate tax audit in an individual country or entity;
- ▶ It is unclear as to what extent sector specific rules are necessary and what sectors should be covered by the specific rules. In addition, the current working papers do not provide for the case where businesses would fall within more than one sector. It is unclear whether businesses would have to apportion its tax base according to different sector specific formulae or, depending of the business activities, one sector specific formula would be applied;



- ▶ If the Commission adopts a sector specific approach, it is likely that there would be a strong lobby for more sector specific rules. This is likely to result in increased complexity of the scenario and may potentially negate some of the compliance cost savings;
- ▶ Even if there were an agreed intent to bring local GAAP more in line with IFRS, experience with VAT legislation has shown that differences are likely to remain and compliance savings may be difficult to achieve. In addition, it is inevitable that every Member State participating in the CCCTB would, to a greater or lesser degree, interpret or implement the rules differently or, where there are no explicit rules, fill in the gaps differently;
- ▶ A side effect of the voluntary scenario is that groups would be faced with the need to evaluate on a regular basis whether they should operate within the CCCTB or operate outside. As a result, this would add a further burden to the companies;
- ▶ While it is possible that the CCCTB would reduce the level of compliance costs relating to transfer pricing, a core level of work would remain. For example, transfer pricing would still be required between companies that are external to the consolidated group;
- ▶ An additional area of complication under CCCTB would be the allocation of current and deferred tax liabilities to the individual company accounts. This could cause difficulties in local company accounts, for example potentially changing the ability to pay dividends;
- ▶ The lack of a theoretical justification for the apportionment formula may lead to instability and increase uncertainty for taxpayers. In addition, the centralization of control over the definition of the tax base is likely to reduce the responsiveness of the tax system to changes in the external environment;
- ▶ Formula apportionment is likely to introduce opportunities for tax planning. In particular, the labor and asset factors could be expected to result in lower labor and asset investment in the EU countries with higher corporate tax rates;
- ▶ The CCCTB may result in additional administrative costs to governments of collecting CCCTB. These additional costs may include the costs of having two distinct corporate tax regimes running at the same time; the requirement to interact to a greater extent than hitherto with other tax authorities around Europe and tax audits may require a cross-border element under CCCTB. In addition, the US State tax experience shows that formula apportionment can result in opportunities for disputes between tax authorities and taxpayers and tax authorities;
- ▶ There will be concerns over the transition to the CCCTB regime. In particular, the transition in respect of the intangible assets and double taxation agreements. Consequently, the transition to the new CCCTB regime is likely to result in significant transitional costs.

## 1.8 Lesson learned from the US States' experience

In considering the design of a CCCTB, the experience of the US States is instructive, given the existence of State level taxation based on formula apportionment. However, the system differs slightly since each US State imposes its own tax rules, with no formal central authority or even coordination with other States, and its base and formula may differ from other States. In addition, US State taxes are considerably lower than corporate tax rates across the EU and the tax rate arbitrages available are also smaller. Despite these differences between the US State taxes and the CCCTB, the following points are worth noting.

- ▶ The States are split on the question of the relative benefits of consolidation (referred to by the States as "combined" reporting). 20 States use some form of mandatory combined reporting, while 31 States have separate filing systems. Before 2006, no State had adopted combined reporting in over two decades but, since then, four States with corporate income tax systems have adopted combined reporting. The new adoptions were aimed at reducing the perceived shifting of income among the States for tax planning purposes. There is, however, still sharp disagreement among the States concerning combined reporting. Similar disagreement within the EU will make it difficult to adopt a uniform system among the Member States.

- ▶ Among the States using combined reporting, there is substantial variation in the formulae used to apportion (allocate) among the States. Over 50 years ago, representatives of selected States agreed to a uniform, equally-weighted, three-factor formula (payroll, real and tangible property, and destination sales) for apportioning combined income. Driven primarily by interstate tax competition, the majority of the States now have formulae with at least 50% weight on the sales factor. At least 19 States have adopted a sales factor only apportionment formula for all or a significant group of industries. This experience suggests that it may be difficult for the EU to defend a constant, uniform apportionment formula over time.
- ▶ The more diverse the business activities among members of a group of taxpayers, the weaker is the rationale for combination (consolidation) and apportionment of income and the greater the economic distortions caused by the mechanism. Constitutional constraints in the US system recognise this fact by requiring that companies in a combined group are “unitary” in their operating relationships. This requirement is designed to prevent States from taxing extra-territorial income. The CCCTB does not include a unitary requirement for inclusion in a group. As a consequence, there could be a substantial disconnect between the distribution of measureable apportionment factors and of the economic activities that actually generate income in a Member State.
- ▶ The CCCTB throwback rule may be more controversial than the current discussion suggests. In the US, a number of States have adopted throwback provisions for the destination sales factors. These provisions reassign sales made to other States to the home State if the home-state company is not taxable in the destination State. There are also a number of States that reject the throwback concept as having a negative impact on a State’s economic competitiveness. Member States may also differ in their perceptions of how the conflicting revenue and competitiveness objectives should be balanced.
- ▶ The US States’ experience suggests that the country-by-country revenue impacts of combination and apportionment under the CCCTB are very uncertain and difficult to estimate reliably. State revenue estimators in separate filing States have very limited information to estimate the expected revenue impacts of adopting combined reporting. For example, they do not know which companies will satisfy the criteria used to determine affiliates in a group, they have limited information on accumulated losses and unused credits, and they may have no information about companies that are not current taxpayers but may be included in a group. The absence of apportionment factor information for companies that are not currently taxpayers also provides a significant estimating challenge.
- ▶ The States have found that there are a large number of winners and losers among taxpayers when combined income is adopted. This adds to the uncertainty over both the tax revenue and dynamic economic impacts of combined reporting.
- ▶ The experience in the US suggests that the focus of corporate income tax controversy in the EU would switch from transfer pricing and income sourcing under separate accounting to sourcing of factors under CCCTB. This experience also suggests that the definition of the factors would become the focus of dispute between taxpayers and tax administrators under the CCCTB. This controversy would be in addition to the continuing transfer pricing disputes over transactions between affiliates in and outside of groups and EU and non-EU affiliates. In addition, it is very likely that the definition of factors would be changed legislatively over time. This is particularly true with sourcing the sales of services and intangibles.

## 1.9 Limitations and unique features of the analysis

Any empirical tax analysis has limitations due to the available data, uncertainty of the interpretation of the tax law, and uncertainty about the behavior of the affected taxpayers and tax administrators. This analysis is no different, but has attempted to minimize the limitations

to those absolutely necessary while maximising the potential information content for policymakers.

The quality of data for some Member States is poor relative to that available for others. By way of example, in the Amadeus database a surprisingly high percentage of companies do not report sales, employees or employee compensation. Due to scarcity of data for a number of smaller Member States, their static revenue effects are not separately presented.

In determining the common tax base (as well as the apportionment factors), intra-group transactions (sales and expenses) would be eliminated. However, because of data limitations inherent in the Amadeus database used to calculate the revenue impacts, the estimates do not quantify the effect of these eliminations.

The CCCTB requires a permanent establishment or an affiliated company in another participating Member State to consolidate income and apportion the income across the Member States. A single company with permanent establishments in more than one Member State may opt into the voluntary CCCTB system. However, data limitations prevent identifying permanent establishment of companies for these single companies that operate unincorporated branches in other countries.

Companies are assigned to countries based on their financial reporting location which may not necessarily be the actual geographic location of the entity's operations.

Given incomplete reporting of a number of financial variables by many companies, analysts are faced with the choice of excluding the companies with missing data from the analysis, or imputing the missing information from similar companies that have reported the data. Either way introduces potential biases. The Ernst & Young analysis chooses to impute as much of the required information as possible in order to maximize the number of companies in the analysis.

Despite the various data limitations, this analysis extends prior empirical analysis in several important ways. The analysis:

- ▶ is of the specific CCCTB rules as of September 2008
- ▶ is the first to include an adjustment for a common tax base and the specific apportionment formula: destination sales with a throwback provision
- ▶ includes more companies and multi-national groups affected by the CCCTB and shows the static revenue winners and losers across the Member States as well as across different companies and industries
- ▶ extrapolates the information from the sample companies to calibrate the analysis to current tax collections.

These features provide additional insights for policymakers when considering the static revenue effects of the current version of the CCCTB. The static revenue estimates provide a starting point for an analysis of the dynamic revenue and economic effects of a CCCTB.

## 2. Introduction to the CCCTB

The European Commission is considering a fundamental change to the tax system for companies with taxable operations in the European Union. The new system is referred to as the Common Consolidated Corporate Tax Base ('CCCTB'). Companies that are eligible and opt in to the CCCTB would be taxed on their consolidated taxable profits across the participating Member States. Those profits would be allocated between the participating Member States based on the formula apportionment and taxed in each of the States at the corporate tax rate applicable in that State. This replaces the existing system where each Member State taxes, based on its own rules, the profits of companies with a taxable nexus with that country. The CCCTB could allow for one tax computation and one tax filing for corporate groups with operations across the whole of the EU, as opposed to the current system where up to 27 different tax computations and filings may be required.

It is important for policymakers within the Commission and the Member States to understand the revenue and economic effects of a major change in corporate income taxation before such a change is adopted.

This analysis presents estimates of the potential static revenue impacts of a common consolidated corporate tax base system (CCCTB) for EU Member States. Revenue impacts are estimated for three different scenarios for the CCCTB scenario.

The CCCTB scenarios examined include:

1. *Mandatory System, 27 Participating Member States.* All EU companies who are at least 75% owned by another company in EU are subjected to the CCCTB tax system;
2. *Voluntary System, 27 Participating Member States.* All EU companies who are at least 75% owned by another company in EU may elect to participate in the CCCTB tax system;
3. *Mandatory System, 9 Participating Member States.* Companies in Austria, Belgium, France, Germany, Hungary, Italy, Luxembourg, Netherlands and Spain who are at least 75% owned by another company in these nine Member States are subjected to the CCCTB tax system.

The analysis uses unconsolidated company-level financial data, supplemented with imputations for missing data and extrapolated to Member State aggregate tax revenue collections. The analysis provides estimates of the static change in corporate income tax revenue from current law to alternative proposed laws across the Member States. The analysis shows the effects of:

- ▶ the change in the common tax base
- ▶ the ability to use group loss offsets
- ▶ the reallocation of tax base due to formula apportionment. In addition, the analysis shows the winners and losers not only of Member States, but also for groups of companies.

### 2.1 Background

*The purpose is to create a more efficient tax system*

The CCCTB draws its origins from 2001, when the Communication '*Towards an internal market without tax obstacles: A strategy for providing companies with a consolidated corporate tax base for their EU-wide activities*' (COM(2001) 582) was issued. That strategy considered mechanisms to achieve the following primary objectives:

- ▶ significantly reduce the compliance costs of companies operating across the internal market resolve existing transfer pricing problems
- ▶ allow for the consolidation of profits and losses
- ▶ simplify many international restructuring operations

- ▶ reduce some of the complexities arising from the co-existence of the classical and exemption approaches to international taxation
- ▶ avoid many situations of double taxation and remove many discriminatory situations and restrictions.

In the initial discussions it was noted that:

*'...the purpose of the common tax base is not to reduce the level of taxation in any way but rather to create a more efficient method of taxing EU companies in a broadly revenue neutral manner.'*<sup>2</sup>

In so doing, it is further suggested that the CCCTB could make a significant contribution to the success of the Internal Market, to improve growth and employment and to the enhanced competitiveness of EU business in line with the renewed Lisbon Strategy. In addition, it was claimed that the EU could become a more attractive market for investment and this should lead to increased intra-EU investment and foreign direct investment.

In 2004, following discussion at the informal meeting of the ECOFIN Council in September under the Dutch Presidency, where a Commission Non-Paper 'A Common Consolidated EU Corporate Tax Base' was presented, the Common Consolidated Corporate Tax Base Working Group (CCCTB WG) was established. It was chaired by the European Commission and included representatives from all Member States. Additional sub-groups chaired by Member States were established to address specific topics. A series of working papers have been released to facilitate the work of the various groups. The final meeting of the Working Group was held in April 2008.<sup>3</sup>

## 2.2 Technical details

The technical details of the calculation of the consolidated tax base are set out in the various working papers and annexes issued by the European Commission. The initial papers considered only broad principles but greater detail has emerged as each subsequent working paper was released.

The CCCTB is intended to be available to EU groups and single companies which are subject to Member State corporate income taxes (or similar subsequently introduced taxes). Where a group opts into the regime, all companies with more than 75% common control would be included in the consolidated group.<sup>4</sup> The election would apply to all eligible companies within the group and it would not be possible for some companies within a group to opt in and some to stay out. It would be expected that the decision to opt in or out would be taken by the parent/head company.

At a summary level the CCCTB working papers envisage a tax base which is taken from the local GAAP accounting numbers of each participating Member State. These accounting numbers are then adjusted for accounting differences ('bridged') and using the common rules supported by a number of tax principles, are pooled to form a common consolidated corporate tax base for that group's entities in participating Member States.<sup>5</sup> The tax base is designed to be wide, based on the 'profit' of the group. This measure of profit would not be based directly on International Accounting Standards or IFRS and, as yet, there has been little detail as to how this taxable profit is to be calculated and, consequently, how bridging would occur; although any final method would obviously have to be complete and bridging tailored for each country. The current CCCTB working papers assume:

- ▶ profit will be calculated on an accruals basis

*Not based on IAS/IFRS*

<sup>2</sup> Commission of the European Communities, (2004) 'Non-Paper to informal Ecofin Council, 10 and 11 September 2004. A Common Consolidated EU Corporate Tax Base. 7 July 2004', p. 4.

<sup>3</sup> Additional information can be found at:

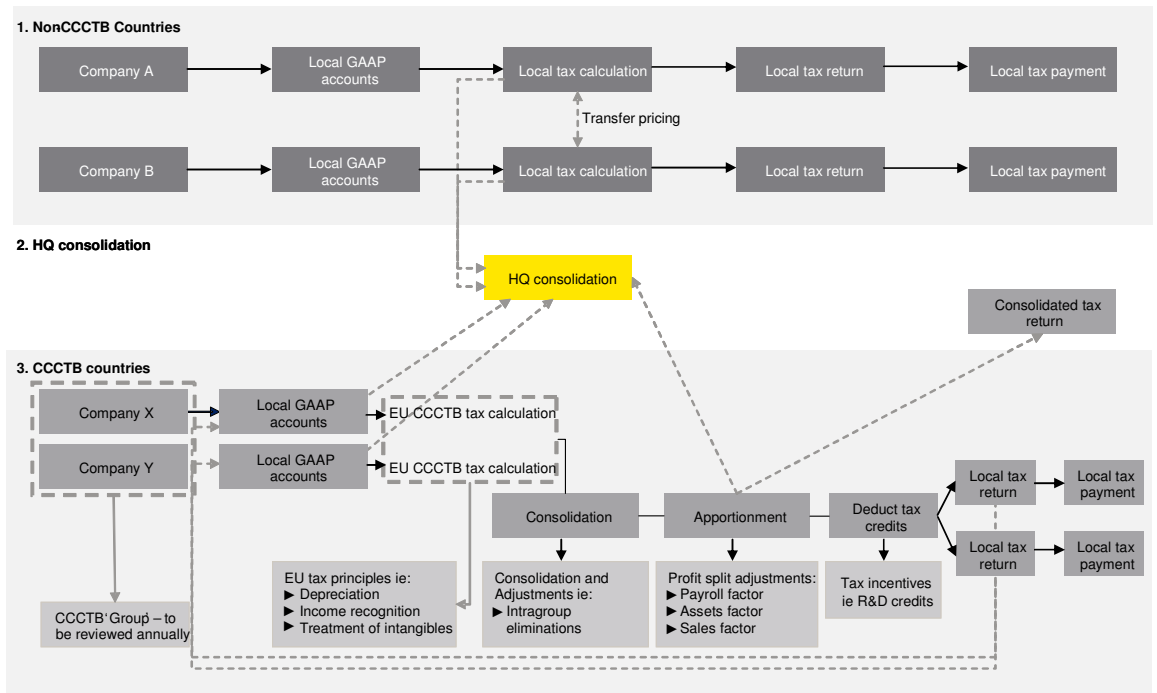
[http://ec.europa.eu/taxation\\_customs/taxation/company\\_tax/common\\_tax\\_base/index\\_en.htm](http://ec.europa.eu/taxation_customs/taxation/company_tax/common_tax_base/index_en.htm)

<sup>4</sup> Commission Services: CCCTB working Group Paper. (2007) CCCTB: possible elements of a technical outline CCCTB/WP057\doc\en', 26 July 2007, para 6.

<sup>5</sup> Ibid, para 9.

- ▶ non-monetary transactions and transactions between group companies will be at market price
- ▶ tax depreciation will be available on certain assets at rates dependent on the type of asset
- ▶ transactions, and consequent profits, between companies in a consolidated CCCTB group would have to be eliminated in calculating the tax base for the group.

**Figure 8 Interaction of CCCTB and domestic tax systems**



Foreign income would be included in the CCCTB under the principle of worldwide taxation. Dividends (and gains) from major shareholdings and permanent establishments in third countries would be exempt, subject to a switch over to a credit method where the corporate tax rate in the source country was low. Portfolio dividends (less than 10% holding) and other passive income would be taxed with a credit for withholding tax. Taxable income would be shared among Member States in accordance with the CCCTB allocation key with the credit also being allocated (see further below).

## 2.2.1 Losses

Under a CCCTB system, it is generally envisaged that losses which arise in one CCCTB company in a Member State would be offset against profits from other CCCTB companies, provided the companies are members of the same CCCTB group.

*Losses can be offset*

Losses incurred by a taxpayer before entering a CCCTB group would be excluded from the consolidation, but would be offset against the share of future consolidated profits attributed to this taxpayer in accordance with national rules. When consolidation results in an overall loss for the group, this loss would be carried forward at group level and set off against future consolidated profits, before any future net profits are shared out.<sup>6</sup>

## 2.2.2 Apportionment factors

European Commission working papers suggest that income apportionment would be based on three factors: sales, labor and assets. Taxable profits would be apportioned from the

<sup>6</sup> Ibid, para 100.

consolidated tax base to each group member on an individual entity basis using a formula. The formula to apportion the tax base to a company A of a given group would be as follows<sup>7</sup>:

*Three factor formula*

$$\text{Total base}^A = \left( \frac{1}{m} \times \frac{\text{Sales}^A}{\text{Sales}^{\text{Group}}} + \frac{1}{n} \times \left( \frac{1}{2} \times \frac{\text{Payroll}^A}{\text{Payroll}^{\text{Group}}} + \frac{1}{2} \times \frac{\text{No. of Employees}^A}{\text{No. of Employees}^{\text{Group}}} \right) + \frac{1}{o} \times \frac{\text{Assets}^A}{\text{Assets}^{\text{Group}}} \right) \times \text{CCCTB}$$

$$\text{with } \frac{1}{m} + \frac{1}{n} + \frac{1}{o} = 1$$

While the Commission has stated that factor weighting is ultimately a political issue, equal weighting is suggested in the working papers. All taxable income earned by the group should be consolidated and apportioned via the formula (i.e., business and non-business income).

Through this formula the tax base would be shared between the various countries involved. Each country, through their competent authority, would then tax the base attributable to that country at the corporate tax rate that applies in that country. How this formula works out for each group that elects for CCCTB would affect the corporate tax take in each country and hence may impact the decision of each country as to the rate of tax.

### 2.2.2.1 Sales factor

The role of the sales factor in the formula apportionment is to represent the demand side in income generation. Sales would be attributed to the Member State of the 'destination' of the sale (i.e. the place in which the goods are ultimately delivered) rather than the 'origin' (i.e. the place from which the goods are shipped). The use of a 'sales by destination' factor is argued to be more preferable because it is less mobile than the location of assets and employees.<sup>8</sup>

*'Sales by destination' factor excludes intra-group sales*

The sales factor would exclude intra-group sales, since they do not contribute to the consolidated income that the factor seeks to apportion.<sup>9</sup> Only sales in the normal course of business are included in the sales factor. This would exclude passive income (interest, dividends and royalties). Intra-group, intra-CCCTB, sales would be also excluded from the base and thus the sales factor.

The European Commission suggests that the sales factor would include 'spread throwback rule', i.e. if sales are made to a Member State where the group does not have a taxable presence (nexus) through a subsidiary or a permanent establishment or to a third country, the sales would be distributed to the members of the group in proportion to their labor and asset factors.

### 2.2.2.2 Labor factor

*Payroll and employee numbers combined*

The labor factor would be combined of two equally weighted elements: payroll of the work force and number of employees. It is, therefore, necessary to identify the costs and the number of the qualifying work force attributable to an entity<sup>10</sup> and compare that with the cost and the number of the qualifying work force attributable to the entire group.

Payrolls will include payments that are deductible as expenses, including fringe benefits, social contributions and stock options. With regards to services, the working papers specify that the labor factor is attributable to the location where services are provided.

### 2.2.2.3 Assets factor

*Intangibles and financial assets excluded*

All fixed assets would be included at their tax written down (depreciated) value and attributed to the entity using the assets. The asset factor would exclude intangible and financial assets and inventory. Leased assets would be included in the asset factor for both the lessor and the lessee (valued at eight times the annual rental price).

<sup>7</sup> Ibid, paras 11-12.

<sup>8</sup> Commission Services: CCCTB working Group Paper. (2007) CCCTB: possible elements of the sharing mechanism CCCTB/WP060\doc\en, 13 November 2007, para 46.

<sup>9</sup> Ibid, para 48.

<sup>10</sup> Ibid, paras 20-21.

## 2.3 Administrative framework

*'One stop shop' concept*

The Administrative Framework of the CCCTB<sup>11</sup> is designed to be as efficient as possible for taxpayers and tax authorities. Central to this design is the 'one stop shop' concept. Each group within the CCCTB would have a 'principal taxpayer' (even where a larger group has a number of EU sub-groups, one company would be nominated to be the principal taxpayer). Each principal taxpayer would then deal with one 'principal tax administrator'; which would be from all of the competent tax authorities where the group has a taxable presence. This should be the competent tax authority where the principal taxpayer has its main nexus.

*Principal taxpayer and principal tax authority*

Member States would decide at national level whether to offer the CCCTB to groups in that Member State. The CCCTB would be offered to companies as an alternative base to the multiple corporate tax regimes and it is intended that participation would be at the discretion of the corporate group, rather than being required if the Member State is one that has chosen to offer CCCTB. The groups would be able to opt in or out of the CCCTB every three years (with an initial five year election) but would be required to opt in on an 'all or nothing' basis, with all qualifying companies in participating Member States being required to join the CCCTB group.<sup>12</sup> There would be provision for companies entering or leaving groups.

Within the group the principal taxpayer, generally, would be required to notify the principal tax administrator at least three months before the start of a tax year of the exercise of the option to opt into the CCCTB. The principal tax administrator would then notify the other competent authorities involved.

The tax system would be based on self-administration with one tax return for the whole group to be filed by the principal taxpayer with the principal tax authority within nine months of the end of a tax year. The principal tax authority would have primary responsibility for verification of the consolidated tax return and for issuing assessments or amended assessments concerning a consolidated tax return. There would be a central administrative appeals body which would be the forum of first instance for tax appeals. The appeal would then continue through the national courts of the Member State of the principal tax authority and, if appropriate, onto the European Court of Justice.

There would be an arbitration panel to deal with disputes between competent tax authorities and an interpretation body to deal with technical queries and uncertainties. Any audits of the taxpayer would be led and formally initiated by the principal tax authority.

The impact of double tax agreements, both between CCCTB participant countries and with third countries, has yet to be clarified as the CCCTB may not be compatible with existing treaties and some bilateral work may be required with third countries.

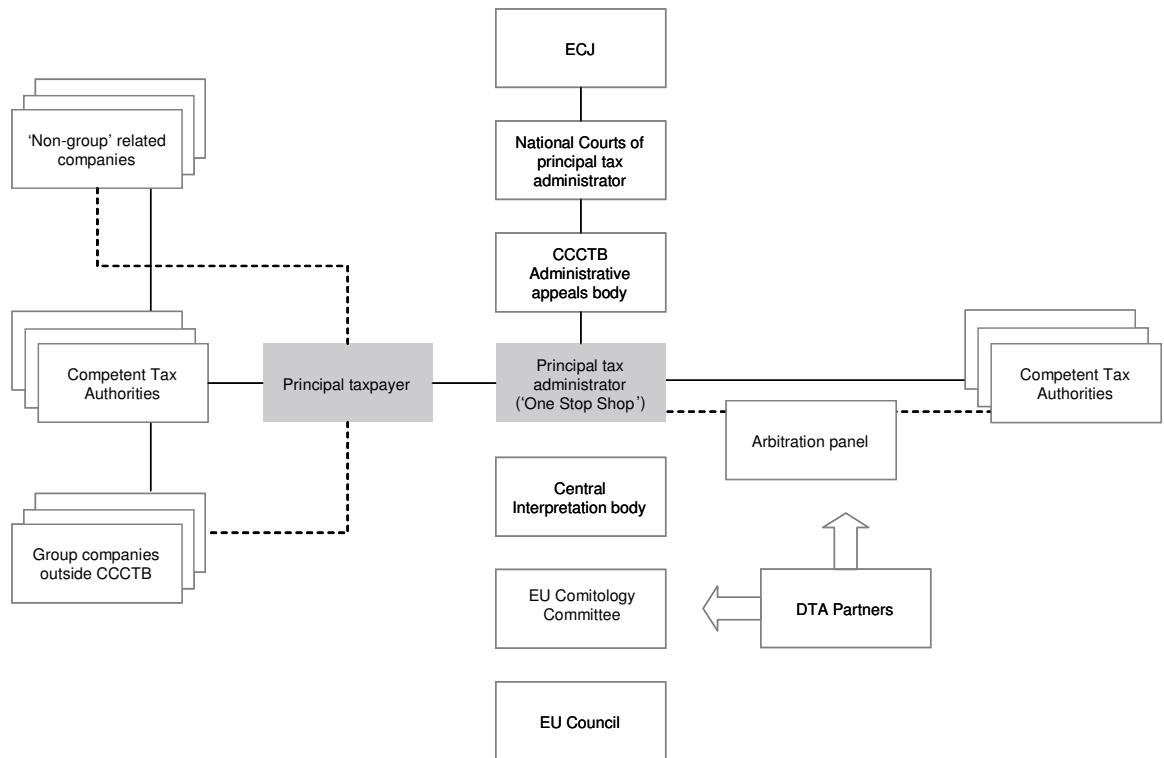
A diagrammatical representation is shown below in Figure 9.

<sup>11</sup> Commission Services: CCCTB working Group Paper. (2007) CCCTB: possible elements of the sharing mechanism CCCTB/WP060\doc\en, 13 November 2007 and CCCTB/WP062A\doc\en 26 November 2007.

<sup>12</sup> Commission Services: CCCTB working Group Paper. (2007) CCCTB: possible elements of a technical outline CCCTB/WP057\doc\en', 26 July 2007, para 11.



Figure 9 Potential administrative structure of CCCTB



## 2.4 Anti-abuse rules

*Significant anti-abuse rules envisaged*

The CCCTB system would include certain anti-abuse rules<sup>13</sup>, designed to prevent taxpayers using the rules in unintended ways to reduce or eliminate tax liabilities. It is likely that the anti-abuse rules would be a combination of specific and general anti-abuse rules. According to the current CCCTB working papers, specific anti-abuse rules would include the following:

- ▶ thin capitalisation: to prevent companies having connected party debt, in excess of debt levels that would be commercially justified or usual
- ▶ interest stripping: to prevent companies charging rates of interest on debt provided by group companies in excess of normal commercial rates
- ▶ controlled foreign companies: to prevent groups allocating certain mobile profits (for example, treasury activity profits) to subsidiaries located in low or no-tax locations
- ▶ anti-avoidance anti-double dips: to prevent companies from obtaining a tax deduction twice for a single commercial loss or cost
- ▶ anti-tax credit and participation exemption manipulation rules: to prevent the exploitation of rules for exempting dividends and sales of shareholdings and the transition from each set of rules to the CCCTB rules.

A general rule is intended to allow for the recharacterisation of wholly artificial transactions, subject to rebuttal by evidence of commercial justification.

<sup>13</sup> See Commission Services: CCCTB working Group Paper. (2008), Anti-Abuse Rules. CCCTB/WP065\doc\en 26 March 2008.

## 2.5 Sector specific rules

The Commission is considering having different methods for apportionment for specific sectors, in particular it has stated that, in general, financial institutions should be:

*'...subject to the same set of tax rules as the 'ordinary' entities except where a special treatment is justified due to the specificity of the financial institutions and the special tax treatment should only reflect the peculiar feature of the financial sector and should not represent a more favourable treatment.'*

While there have been some deliberations on the types of special treatments that might apply and the Commission has issued some supporting discussion papers, no definitive conclusions have been made publicly available.

*Different apportionment formula for financial services*

The Commission has acknowledged that it would be inappropriate to allocate the base of financial institutions in exactly the same way as for manufacturing business. Qualifying assets for 'ordinary' entities do not include intangibles, financial and current assets, and the Commission has acknowledged that such a formula would give unrealistic results when applied to credit entities, requiring a specific allocation formula for financial services to include financial assets and income arising from them. Therefore, the analysis incorporates an adjustment to the asset factor for financial services companies to reflect the inclusion of financial and current assets.

The Commission has suggested that its preference in terms of variations to the standard formula would be adjusting the scope, valuation and location of the factors. As in the case of the specific base rules, no conclusive rules were available to the authors.

## 3. Methodology

### 3.1 Insights from earlier empirical studies

Two empirical studies to date have estimated the static revenue impact of the CCCTB across the Member States. They provide many insights for policy makers, as they identify specific aspects of the CCCTB system that affect countries' tax bases and revenues. These studies are also subject to many data limitations and do not estimate a number of key aspects of the current CCCTB rules. These two empirical studies are examined below in detail along with a third study, by Van de Horst et al which uses a general equilibrium model to estimate the welfare effects from a mandatory CCCTB.

#### 3.1.1 Devereux & Loretz<sup>14</sup>

The Devereux & Loretz analysis uses a large database of unconsolidated company-level data to estimate the effect of the change in corporate income tax collections in each Member State due to CCCTB. By examining a sample of company records from 2000-2004, the study analyses the effect of both group loss relief and certain apportionment factors. The study estimates that corporate tax revenues might fall by 2.5% under a voluntary CCCTB system due to greater uses of loss offsets, while total revenues could rise by more than 2% under a mandatory CCCTB system. The study shows a significant range of changes in corporate tax revenues (-18% to +60%) across the Member States in their base case.<sup>15</sup>

*Significant differences between Devereux analysis and actual scenario*

There are several important differences from the current CCCTB system compared to the system analysed by Devereux & Loretz, including an origin sales measure (rather than destination sales), no inclusion of a throwback rule or special industry apportionment, an ownership test for group consolidation at 50% of direct or indirect ownership (rather than 75%), and no adjustment for the common tax base.

The number of companies Devereux & Loretz analyse is significantly reduced to 400,000 companies of which only 50,000 are affected by CCCTB. This is due to the multiple years of data used, a €2m threshold for assets, and the need for 'complete' information. Another 64,000 companies in the database are part of domestic groups that could benefit from loss offset rule changes.

When the reported tax charge equals zero, negative earnings before interest and taxes (EBIT) is assumed to be the income tax base. Since this excludes interest deductions, the imputed base figure could substantially understate the annual losses for these companies. The analysis also excludes companies that do not report taxes from the sample of group companies affected by CCCTB. Although some of these companies may have no taxable income of their own (e.g., pass-through companies), excluding them also drops inappropriately their apportionment factors from the group's apportionment factors.

Reported book taxes include both current taxes and deferred taxes, and thus could overstate or understate estimated tax liabilities. The overestimate could be greater in Member States with a larger number of timing tax issues in current law or a greater proportion of foreign tax credits. In the other direction, the estimate of corporate taxes paid could be underestimated due to non-foreign tax credits. Without a clear calibration of the estimated taxes from the sample with aggregate tax collections from the affected companies, it is not clear what, if any, bias is caused by the estimation of corporate taxes paid under current law for this book-tax difference. The estimated taxes from their sample represent a little under two-thirds of total corporate tax payments, but the proportion of tax revenue by country varies from 17% in Luxembourg to 92% in Italy.

The Devereux & Loretz analysis also shows relatively small overall change in EU corporate tax revenues under both a voluntary and mandatory CCCTB, but significant winners and losers across Member States. It is important to note that because the data is from a sample

<sup>14</sup> Devereux, Michael P., and Simon Loretz, (2008) "The Effects of EU Apportionment on Corporate Tax Revenues," *Fiscal Studies* 29(1), pp. 1-33.

<sup>15</sup> Excludes results for Estonia, which show extremely large revenue increases.

and not aggregated to total Member States' tax bases, the overall EU change is a simple unweighted average.

In addition, the Devereux & Loretz study includes some results with a larger sample including companies that didn't report sufficient employment data. As is evident from the impacts based on the larger sample, the change in impacts are concentrated in Ireland and, to a lesser extent, Denmark and the Netherlands. In effect, the comparison of the results for the two sample sizes illustrates how sensitive the results are to the number of observations used and imputations made to the reported financial data.

### 3.1.2 Important data limitations of public financial information

Devereux & Loretz use financial reports and ownership information based on the Orbis database which is provided by Bureau van Dijk. Although this database includes a large number of corporations in the EU and other countries, it has some significant limitations of which policymakers should be aware.

The ownership database covers only a fraction of companies reporting financial information in Orbis. Among the companies reporting in the EU27, only 11% of the companies have an ownership link to another company in the database. Some companies in the database appear to be incorrectly assigned to country where they file their financial reports

*Companies with missing information excluded from Devereux*

Many companies in the database are missing financial information necessary for the analysis. A large number of companies do not report all of the information required for the Devereux and Loretz analysis, and are simply excluded from the analysis. This approach has the benefit of analysing reported information rather than imputed or estimated amounts, but has the disadvantage of excluding many companies from the analysis. Either approach has potential biases. The question is whether the imputed information systematically biases the results more than the bias from excluding a large number of companies that may be different than ones included in the analysis.

Devereux and Loretz do impute probably the most important measure, being current law taxable income. Since taxable income is not available from public financial reports, Devereux and Loretz gross up reported taxes by the statutory corporate tax rate. For companies that report zero tax liability, they use negative earnings before interest and taxes. Devereux and Loretz consider their imputed measure of current law taxable income reasonable, despite significant potential errors (e.g., current versus deferred taxes, book/tax differences in income measurement, multiple tax rates, tax credits). Because exports are not disaggregated by countries, Devereux & Loretz do not analyse the current CCCTB system which uses destination sales.

An additional limitation is that many companies in the database are filing consolidated financial reports without sufficient information to identify the separate financial information for the EU subsidiaries being consolidated. In this situation, including the financial information of the consolidated company would double count income, assuming the EU subsidiaries are already in the database. Alternatively, the income of non-EU subsidiaries that would not be affected by CCCTB would be included. Nevertheless, excluding these companies may also exclude the income of some subsidiaries that are operating in the EU. Because companies filing consolidated returns tend to be large, both Ernst & Young and Devereux & Loretz choose to exclude them from the analysis and keep their EU subsidiaries.

Tax definitions in the financial reporting databases should also be interpreted carefully across the EU27. For example, 'taxation' is defined as 'corporate income taxes' in France, 'taxes' in the UK, and 'income taxes' in the Netherlands. Some companies might report taxes other than corporate income taxes (e.g., VAT, sales taxes, or local excise taxes) in the tax category.

There are other limitations that require careful attention in the use of these databases. Financial statement amounts are reported in different currencies and units of measurement across countries. The discussion does highlight, however, the fact that the effective use of this information requires that careful attention be paid to the quality of the data, as well as the interaction of financial accounting and tax system concepts.

### 3.1.3 Fuest/Hemmelgarn/Ramb<sup>16</sup>

*Fuest analysis uses a relatively small sample of companies*

The Fuest/Hemmelgarn/Ramb analysis uses two different company-level databases to estimate the effect of a mandatory CCCTB on the tax base of Member States. The data on German company-level foreign direct investment and balance sheet information from the German parent shows that formula apportionment will tend to shift taxable income from smaller countries to larger countries. They estimate that adding cross-border loss offsets created after the adoption of CCCTB would reduce most national tax bases and the overall corporate income tax base decline would be approximately 20%. Similar to the Devereux & Loretz study, this study examines the effect of both formula apportionment and loss offsets with a sample of actual companies, and finds significant variation across Member States (-74% to +112%) in the change to the corporate tax base.

The companies included in the Fuest et al. study are limited to less than 2,000 German parent companies and their 6,000 foreign subsidiaries in other EU15 Member States, and relate to data from 1996 to 2001. The tax base measure used is derived from a combination of financial statement profits and losses and tax accounting information (an estimated 50% of the data). As a result, the Fuest study may provide more accurate tax base estimates, including income losses, than estimates based on financial income information alone.

With respect to the CCCTB system analysed, the Fuest analysis:

- ▶ Assumes the CCCTB is mandatory
- ▶ Makes neither adjustment for book/tax differences nor the changes to a common tax base
- ▶ Does not incorporate existing (pre-CCCTB) cross-border group tax loss offsets
- ▶ Does not include tax base changes for domestic groups
- ▶ Uses origin sales, not destination sales, for the sales apportionment
- ▶ Does not include a payroll factor
- ▶ Does not include a throw-back provision.

For these groups of German companies, the analysis finds that moving from current law to formula apportionment without loss offset would result in a 3% increase in overall EU15 taxable income, ranging from -65% in Netherlands to +173% in Austria. With loss offset, the change in overall EU15 taxable income would be -22%, ranging from -74% in Netherlands to +112% in Austria.

*Fuest analyses the tax base, not changes in revenue*

The study limits its findings to changes in the tax base rather than changes in tax revenues. To the extent the redistribution shifts taxable income from lower tax rate countries to higher tax rate countries, the overall effect on EU revenues would be less than the 22% reduction in the EU overall. It is important to note that because the data is from a sample and not aggregated to total Member States' tax bases, the overall EU change is a simple unweighted average.

### 3.1.4 Van der Horst, Bettendorf and Rojas-Romagosa

The van der Horst, Bettendorf and Rojas-Romagosa<sup>17</sup> analysis uses a general equilibrium model to estimate the welfare effects from a mandatory CCCTB scenario.

The van der Horst et al. analysis uses a highly-stylised general equilibrium model of 17 EU Member States. The model assumes that each Member State has a multinational corporation

<sup>16</sup> Clemens Fuest & Thomas Hemmelgarn & Fred Ramb (2007), "How would the introduction of an EU-wide formula apportionment affect the distribution and size of the corporate tax base? An analysis based on German multinationals," *International Tax and Public Finance*, Springer, vol. 14(5), pages 605-626, October.

<sup>17</sup> Van der Horst, Albert, Bettendorf, Leon & Rojas-Romagosa, Hugo (2007), "Will corporate tax consolidation improve efficiency in the EU?," CPB Documents 141, CPB Netherlands Bureau for Economic Policy Analysis.

parent that has subsidiaries in each of the other 16 Member States. The model has a domestic company sector and a multinational company sector in each country, with employment fixed in each country. Given fixed labor, if the effective tax rate on the multinational company declines (or increases) due to the CCCTB, then it expands (or contracts) operations in the country and uses more (less) workers which move from (to) domestic companies. In contrast to labor, a significant portion of capital is mobile across Member States.

The analysis models only a mandatory CCCTB, does not include the effect of loss offsets<sup>18</sup>, and uses in-country production rather than destination sales in the apportionment formula. The study's inability to incorporate loss offsets highlights that their analysis is different from the other studies that analyze the effect on tax bases and revenue. The analysis assumes that all companies have to switch to the common tax base. The common tax base is modelled as requiring the average depreciation rate in all Member States, rather than the proposed CCCTB depreciation rules. The analysis assumes that compliance costs are equal to 10% of corporate tax payments, and assumes that a CCCTB would eliminate compliance costs for subsidiaries, since it assumes (incorrectly) that transfer pricing would be completely eliminated, despite transactions with non-consolidated EU affiliates and non-EU affiliates.

In their model, a change in corporate taxes due to CCCTB automatically results in partially offsetting changes in taxes on labor and consumption because shifts in capital trigger shifts in consumption and wage tax bases. Any remaining aggregate tax gap is closed in the model by a change in the labor tax rate. Member States that would lose corporate revenue due to formula apportionment would have higher taxes on the countries' labor. The use of a labor tax to close any remaining gap is a modelling convenience, not an assessment of politically-likely outcomes.

The van der Horst et al. analysis concludes that a mandatory CCCTB would only increase welfare by 0.02% of GDP. Although the model estimates significant efficiency gains from lower assumed compliance costs, they are largely offset by new tax distortions. The simulations suggest that low tax rate countries would benefit from the switch in tax planning strategies. Favourable profit shifting is assumed to be eliminated, but the CCCTB would cause multinational corporations to shift factors among Member States. For example, companies would expand real economic activities in low tax rate countries, increasing capital and driving up wages and thus increasing the citizen's welfare. Conversely, welfare would be reduced in Member States facing higher tax rates. They argue that the EU would benefit overall only from a mandatory CCCTB system with equal tax rates in each Member State, a result that is in conflict with the important CCCTB objective of ensuring tax rate sovereignty for each Member State.

The van der Horst et al. analysis also shows a wide range of economic effects across the Member States. The change in GDP ranges from a -0.7% decline in Italy (-0.72% in Greece) to a 0.82% increase in Germany.

The van der Horst et al. analysis is an important first step in examining the dynamic economic effects of a CCCTB. Similar to the other empirical studies, it shows the CCCTB as principally a redistribution of taxes and economic activity within the EU rather than an increase in overall EU welfare. It also shows the sensitivity of the results to a number of important key modelling parameters and policy features. In addition, their analysis provides a useful framework for identifying the different impacts on tax rates and real economic activity in different Member States under CCCTB.

### **3.1.5 Significant winners and losers**

The effects of a CCCTB will depend on the coverage of the CCCTB, both in terms of the number of participating Member States and the number of companies opting in to the system. The empirical studies to date suggest that a CCCTB will create significant winners and losers, assuming no change in corporate income tax rates, across Member States with respect to corporate tax revenues.

<sup>18</sup> The analysis assumes all existing companies are profitable in steady state.

*Common base definition, cross-border losses, and apportionment determine revenue impact*

The net impact on a Member State's corporate tax revenues, as well as on the tax liabilities of specific groups of taxpayers, will be determined by three major differences between current law corporate tax systems and the CCCTB. First, the CCCTB may change the definition of the tax base. An example would be a change in the calculation of depreciation allowances. Second, the CCCTB could result in a reduced tax base for many taxpayers by allowing full offsets of cross-border losses among group members. Third, the CCCTB would redistribute the resulting tax base across Member States based on the distribution of measures of economic activity ('factors'). This can differ substantially from the current law distribution, which is based on the use of separate accounting to determine the location of income.

Depending on the specific scenario, some Member States would have significantly greater corporate tax revenues while other Member States would lose significant corporate tax revenues.

The empirical studies to date suggest that a mandatory CCCTB would create significant winners and losers among EU-resident groups of companies. Depending on the type of business, the distribution of profits or losses among members of a group, and their current geographic locations, some multinational companies could experience significant reductions in corporate tax liabilities while others would experience significant tax increases, before any behavior changes.

### **3.1.6 Data limitations**

*Public financial data must be cleaned, interpreted, and used carefully*

The discussion of database limitations identifies some of the issues that must be addressed by researchers using public financial databases to estimate the impacts of CCCTB. Despite these limitations, unconsolidated company financial data is a key building block for a detailed analysis of corporate income tax. However, the discussion highlights the fact that the effective use of this information requires that careful attention be paid to the quality of the data, imputations and extrapolation, as well as the interaction of financial accounting and tax system concepts. This process is much more labor-intensive than it might appear to be.

## **3.2 Ernst & Young analysis**

*Incomplete data are estimated to retain the maximum number of observations*

The Ernst & Young revenue analysis methodology incorporates company-level financial data, aggregate economic data, and a tax model to estimate the revenue impact of three scenarios of a proposed CCCTB. Given incomplete reporting of a number of financial variables by many companies, analysts are faced with the choice of excluding the companies with missing data from the analysis, or imputing the missing information from similar companies that have reported the data. Either way introduces potential biases. The Ernst & Young analysis chooses to impute as much of the required information as possible in order to maximize the number of companies in the analysis.

This analysis extends prior empirical analysis in several important ways. Most importantly, the analysis is of the specific CCCTB system as of September 2008. The analysis is the first to include an adjustment for a common tax base and the specific apportionment formula: destination sales with a throwback provision. The analysis includes more companies and multi-national groups affected by the CCCTB and shows the static revenue winners and losers across different companies (and industries) as well as across the Member States. The analysis also extrapolates the information from the sample companies to calibrate the analysis to current tax collections

The company-level data is from the Amadeus database of European company financial and ownership data for over 6.6m companies in 2005. Company-level data in the Amadeus database provides tax, income, sales, payroll, employment, asset, industry classification, and ownership information for individual members of a consolidated group as well as for companies that are not eligible to consolidate under CCCTB. For entities that are eligible to consolidate under CCCTB, this company-level information is supplemented with aggregate economic data to impute missing sales, employee, and payroll information for some companies and to estimate the Member State distribution of the destination sales factor for all companies.

The dynamic economic impact of the CCCTB system on Member State economies would be driven by changes in the relative corporate income tax rates that apply to new investments in each participating Member State. Under current law, additional income is subject to each Member State's income tax rate. In contrast, under the CCCTB (formula apportionment) the increase in income is shared or distributed across all Member States. Each Member State's share of the income is then taxed at their own income tax rate. As a result, the new system would subject the income from new investments in each Member State to a weighted average (consolidated) tax rate that depends upon the tax rates in all Member States where a group operates.

The dynamic economic impact analysis determines the change in effective corporate tax rates in each Member State from moving to a CCCTB system by comparing a Member State's relative tax rate (compared to the EU) under current law and under the CCCTB. This change in effective tax rates is then translated into changes in economic variables based on estimates of the responsiveness of economic activity to tax rate changes. The economic impacts were estimated by industry group, using industry-level economic information and elasticity estimates for each Member State.

### 3.2.1 Static revenue analysis underlying data

Two primary sources of information are used in the revenue estimation: unconsolidated company-level financial data from the Amadeus database and aggregate, industry-level information from the Eurostat database.<sup>19</sup>

*Companies are assigned to countries based on their financial reporting location*

The first step in creating the data on which the revenue estimates are based is the assignment of each company to the Member State in which it is resident. This is accomplished using the country identifier for each company from the Amadeus database. This field indicates the Member State from which the company reports its financial information to Bureau van Dijk, the publisher of the Amadeus database. An important assumption in the revenue estimation process is that this field correctly reports the actual geographic location of the entity's operations. An equally important assumption due to data limitations is that each company only has operations in a single Member State. Permanent establishments and branches in other countries are not identified in the public financial reporting information.

Once individual companies have been assigned to Member States, financial data describing each company's corporate income tax, income, sales, employees, payroll, assets (total, tangible, and intangible), and industry classification are introduced into the analysis. The precise definition of the data varies slightly across Member States, but can generally be defined as follows:

- ▶ **Tax:** Current and deferred corporate tax reported by companies on their income statement. The tax is assumed to have accrued in the Member State to which the company has been assigned, based on the reporting location of its financial statements (see Appendix B). This assumption is required due to the lack of information about permanent establishments and foreign tax credits
- ▶ **Income:** The Amadeus database reports earnings before interest and taxes (EBIT), which is used as a proxy for taxable income when companies report no tax liability.
- ▶ **Sales:** The sales item in Amadeus is reported as turnover and/or operating revenue. Operating revenue is preferred because it is more consistently reported by companies and is reported for all countries. Turnover is not reported in all Member States but was used when operating revenue was not provided by a company.
- ▶ **Employees:** The number of employees. No adjustment is made for full-time equivalents.

<sup>19</sup> This analysis relied on company-level data from the Amadeus database, published by Bureau van Dijk. The Amadeus database contains financial information on approximately 6.6 million European companies. Other analyses have used the Orbitz database (also published by Bureau Van Dijk), which contains the same financial data as Amadeus for companies with financial reporting locations in European and non-European locations. Both the Amadeus and Orbitz databases incorporate the global Bureau Van Dijk global database, which was used to identify European companies owned by a common parent headquartered outside the European Union.



- ▶ **Payroll:** Payroll equals 'cost of employment' reported by companies in Amadeus. This data item includes wages and salaries and other forms of labor compensation.
- ▶ **Assets:** Total, tangible, and intangible assets are reported. Total assets include all tangible, intangible, and financial assets of a company. Tangible assets include plant, property, and equipment.
- ▶ **Industry classification:** Each entity reports an industry classification based on the NACE industry designation. In many cases, the industry classification reported reflects the activity performed by a subsidiary company rather than the general industry in which a related group of companies operates.

Data for 2005 were selected from the Amadeus database for estimating the change in the corporate income tax base because 2005 was fairly representative year, unaffected by recession. There was positive nominal GDP growth in every EU27 Member State in 2005. In contrast, the 2000-2004 period was characterised by significant declines in GDP growth rates in many Member States and single years of negative nominal GDP growth for four Member States.

### 3.2.2 Supplementing the data

*Missing data are imputed based on observed data for companies in the same industry*

Selected information reported for individual companies in Amadeus is often missing. Limited imputations for selected variables allow more companies to be included in the analysis and mitigate differences in coverage across Member States that would result due to a variable that is consistently missing from records of a Member State (e.g., number of employees in Ireland). The Ernst & Young model merged the indirect and global ownership link of each company to build back a group's ownership chain. Approximately 7,000 companies' links were reconstructed manually.

Even after imputing missing information to records, there are still differences in the level of coverage provided by Amadeus in each Member State. To adjust for coverage differences across Member States, the results are extrapolated to total corporation tax collections based on aggregate country-level tax collection information.

#### 3.2.2.1 Data coverage and imputations

Missing sales, employee, and payroll information was imputed using ratios of the factor to assets for companies in which both variables are observed. The reporting quality of each variable differs significantly by Member State.

- **Income:** Tax or earnings before interest and taxes (EBIT) was reported for 65% of group companies in the EU27. Companies that did not report a tax amount are excluded from the analysis.
- **Sales or operating revenue:** Sales or operating revenue was reported for 58% of EU27 group companies. Missing sales amounts were imputed using reported tangible fixed asset data and the ratio of observed sales to tangible fixed assets for other companies. Missing data was imputed by industry for Eastern and Western Europe.
- **Employees:** Employee headcount was missing for 45 % of EU27 group companies. Missing employee data were imputed based on the ratio of reported employees to tangible fixed assets by industry for Eastern and Western Europe.
- **Payroll:** Cost of employment was missing for 54% of EU27 group companies. Missing cost of employment data were imputed based on reported or imputed employee headcount and the ratio of cost of employees and employee headcount for companies reporting both items. Because cost of employment data was missing for most companies in certain Member States, missing data was imputed by industry using ratios of companies reporting both items in Eastern and Western Europe. The Eastern or Western Europe ratio was then multiplied by employment to impute the cost of employment.

### 3.2.2.2 Extrapolation to Member State tax aggregates

*Results are extrapolated to adjust for missing data in each country*

To estimate the overall impact of the CCCTB on total corporate tax collections in each Member State, the income tax reported by all companies in Amadeus is summed by Member State and compared to each Member State's aggregate corporate tax collections reported in Eurostat. This ratio, the sum of taxes reported by individual companies in Amadeus to aggregate tax collections reported by Member States, is used to benchmark the results for observed companies to the entire population of affected companies in each Member State.

As shown in Table 29, the amount of income reported by companies in Amadeus represents between 12% (Austria and Luxembourg) and 113% (Belgium). The results have been benchmarked to total tax collections in the Member State by applying a factor adjustment that increases or decreases the tax reported in Amadeus to equal 100% of the aggregate tax collections. This adjustment implicitly assumes that companies not observed in the Amadeus database have the same ownership characteristics and are affected by CCCTB to the same degree as companies that are modelled.

Differences in the total corporate taxes reported for companies in the Amadeus database from actual government corporate income tax collections could be the result of:

- ▶ incomplete coverage of corporations in the Amadeus database
- ▶ inclusion of more than just corporate income taxes in the reported corporate tax in financial statements
- ▶ inclusion of both current and deferred tax liabilities in reported financial statement taxes or taxes paid in countries other than the company's domicile country, among others.

### 3.2.3 Descriptive statistics for the estimating database

#### 3.2.3.1 Sample description

To estimate the static impact of CCCTB, the Ernst & Young model starts with all European companies that are part of the Bureau Van Dijk's data on financial statements (Amadeus) and ownership data, in 2005. The Amadeus data contains information on assets, employment, sales, payroll, income, taxes, and are supplemented with ownership information.

*Almost 4m companies are included in the analysis*

Table 25 shows the screening process used to identify companies potentially subject to the CCCTB and for which sufficient information is available to model the CCCTB's effects. There are 6.6m companies in the 27 Member States in the Amadeus database in 2005. 4m of these companies are included in the Ernst & Young model of the corporate tax base. Most of the excluded companies do not report any tax information and other income or asset information. Another 22,000 reported only consolidated group returns, which could include significant non-EU company assets and income.

Almost 200,000 companies were ultimately identified as companies that would be affected by the CCCTB and report enough information. 3.8m companies are not affected by CCCTB because they are single entities (single companies that are not part of a group), do not report ownership information, or belong to a group but do not meet the 75% ownership test.<sup>20</sup> These 4m companies have €14.9 trillion of total fixed assets. The roughly 200,000 companies affected by the CCCTB have €5.8 trillion of total fixed assets.

Appendix B Table 26 shows the distribution of single country and multinational groups by country in which they have subsidiaries. Almost 90% of 55,000 groups are single country groups, with almost 6,000 multinational groups.

By comparison, the Devereux and Loretz (2007) database starts with about 400,000 records (for 2003) meeting the selection criteria. Of those, approximately 125,000 companies are

<sup>20</sup> Where possible, the model uses a direct ownership test to identify companies meeting the 75% ownership threshold. In some cases, however, Amadeus reports only total direct and indirect ownership. In these cases, the ownership test is satisfied by 75% total ownership in another company even though this ownership may result because of the combination of direct holdings of less than 75% by multiple direct parents.

identified as being part of a consolidated group (based on their percentage ownership test of 50%). Devereux and Loretz analyse almost 17,000 groups, of which 2400 are multinational groups.

### 3.2.3.2 Multi-company ownership

*5% of members of groups do not meet ownership threshold*

The static revenue estimates apply a 75% ownership test to permit consolidation.<sup>21</sup> Annex B shows the number of companies by ownership status. We do not observe enough information to identify any groups that would be affected by CCCTB in three countries: Cyprus, Malta, and Slovenia, so those countries are excluded from the analysis and the tables. In some countries, only a small number of groups are affected by CCCTB (e.g., Luxembourg and Slovak Republic), and thus could have large percentage changes due to the small number of companies in the analysis.

Among the companies not affected by CCCTB, 95% are single entities, and 5% belong to a group but do not meet the percentage ownership test or do not have percentage ownership information.

To identify ownership, the ownership chain of each company in Amadeus is rebuilt, starting from the direct ownership link.<sup>22</sup> All companies with greater than 75% ownership are included in the consolidated group. A qualifying subsidiary is one owned directly or indirectly through 75% or more of stock voting rights. In determining the chain of ownership, if ownership is greater than 75%, it is considered to be 100% in the chain of calculations. If the ownership is less than 50%, it is set at 0% in the chain of calculations. These different percentages are designed to avoid problems in determining the indirect link percentages.

### 3.2.3.3 Apportionment factors

Apportionment factors are based on the reported company-level data or, when not reported in Amadeus, imputed using reported tangible fixed assets and an industry-specific ratio of the apportionment factor to fixed assets for companies where both variables are reported in the database. Because of generally lower wage levels in Eastern European countries, separate ratios were used in the apportionment factor imputations calculated after grouping reporting companies into two country groups: Eastern Europe and Western Europe.<sup>23</sup>

### 3.2.3.4 Consolidated income

*Current law loss consolidation is incorporated*

In estimating the impact of income consolidation on EU country tax collections, adjustments must be made for the degree of consolidation under current law. The current law estimated tax base incorporates loss-offsets for domestic groups in the 18 Member States that currently allow some degree of loss offsetting or compensation.<sup>24</sup> Under current law, 92% of all EU27 groups' net operating loss carry-forwards come from these countries.

## 3.2.4 Dynamic economic analysis methodology

The percentage changes in each Member State's effective tax rates (CCCTB consolidated effective average tax rates compared to current law effective tax rates) are the key inputs in determining the impact of CCCTB system on the economy in each participating Member State.

The dynamic economic impact model translates the percentage change in effective tax rates into percentage changes in the cost of capital on new investments under each CCCTB scenario. The cost of capital is the before-tax rate of return that an investment must generate

<sup>21</sup> As noted in CCCTB WP057: Possible Elements of a Technical Outline, Annotated (20 November 2007), "The paper identifies >20% owned companies as related companies; companies which are >50% but <75% owned as members of a 'group' for the purposes of opting or not opting for the CCCTB but not for the purposes of consolidation; and companies >75% owned as members of a consolidated group." (p. 4).

<sup>22</sup> When direct ownership link is missing, the global ownership link is used.

<sup>23</sup> Missing data were imputed based on the ratio of the missing factor to tangible fixed assets for the appropriate industry multiplied by the company's reported tangible fixed assets.

<sup>24</sup> Three countries, Austria, Denmark and Italy generally allow offsets for cross-country losses for a group. These current loss offsets are not included in the estimate of the change in the consolidated tax base going to the CCCTB system.

to provide the uniform after-tax rate of return set by international capital markets. If the effective tax rate in a Member State increases under CCCTB, the cost of capital must also increase to cover the unchanged after-tax rate of return, which is assumed to be the same in each Member State. If the effective tax rate decreases in a Member State, the cost of capital is reduced.

As a result of a higher cost of capital there would be less investment and lower employment, income, and GDP in a Member State. Reductions in effective tax rates would increase investment and have positive economic impacts. The dynamic impact model uses estimates by industry of the elasticity or responsiveness of the economic variables in each Member State to changes to percentage changes in the cost of capital.<sup>25</sup> The estimated percentage changes in the cost of capital (by industry) are multiplied by the estimated elasticities to derive estimates of the percentage changes in each economic variable for Member States affected by each CCCTB scenario.

The elasticities used to estimate the economic impact of changes in effective tax rates are “intermediate-run” elasticities that measure expected responses approximately five years after the full implementation of CCCTB. Empirical studies and economic impact models find that the elasticities tend to increase, but at a decreasing rate, over time. For example, dynamic impact models of tax policy changes in the US States suggest that the income and value-added (GDP) response elasticities after ten years could be 10% to 20% higher.<sup>26</sup>

By estimating the impacts by major industry groups, the dynamic impact model allows for significant variation in aggregate economic impacts across EU countries. In addition, a detailed input-output model for almost all countries was used to calibrate the elasticity impacts for differences in the composition of economic activities within each Member State. The elasticities tend to range between -0.5 and -1.0 for most industries and countries.

The input-output multipliers used in this step were created using country-level, input-output matrices for each Member State for which data is reported in Eurostat. The tables show the interaction of businesses and households in 53 sectors of the economy. Tables showing the use of commodities by industries, the making of commodities by industry, and the imports of commodities by industry are combined and used as input data in calculating output multipliers for each of 53 sectors of the Member State economies. The multipliers measure the total change in output for a Member State economy given a direct change in the output of a specific industry. These detailed multipliers are aggregated to the sectors reported in the results by taking an average of the industries included in each sector, weighted by the level of output in each sector.

The final step in the process is to estimate the percentage of the overall change that is associated with only the groups that are affected by the CCCTB system. The static revenue database is used to determine what percentage of economic activity in each Member State is affected by the CCCTB.

<sup>25</sup> The elasticities are derived from a review of the economic literature, as well as results of US state-level economic impact models used by Ernst & Young in a number of tax impact policy studies focused on apportionment taxation. The elasticities are adjusted for differences in the relative size of a country's economy. As explained in the Appendix B, changes in a country's foreign direct investment uses a different methodology.

<sup>26</sup> For a discussion of the difference between intermediate- and long-run impacts of corporate income tax changes on the US state economies, see Kelly D. Edmiston, “Strategic Apportionment of the State Corporate Income Tax: An Applied General Equilibrium Analysis,” *National Tax Journal*, Vol. LV, no. 2 (June 2002).

## 4. Results of static revenue and dynamic economic analysis

### 4.1 Overview of analysis

This section presents the country-by-country estimates of the expected impacts of the three CCCTB scenarios on corporate income tax collections.

The CCCTB scenarios examined include:

1. *Mandatory System, 27 Participating Member States.* All EU companies who are at least 75% owned by another company in EU are subjected to the CCCTB tax system;
2. *Voluntary System, 27 Participating Member States.* All EU companies who are at least 75% owned by another company in EU may elect to participate in the CCCTB tax system;
3. *Mandatory System, nine Participating Member States.* Companies in Austria, Belgium, France, Germany, Hungary, Italy, Luxembourg, Netherlands and Spain who are at least 75% owned by another company in these nine Member States are subjected to the CCCTB tax system.

In addition, this section provides estimates of the impacts of the CCCTB on each Member State's GDP, employment, income and FDI. A detailed description of the methodology used to estimate the economic impacts is provided in the Appendix C.

### 4.2 Static revenue analysis results

Sections 4.2.1 through 4.2.3 below present the static revenue estimates of the three CCCTB scenarios: mandatory CCCTB in 27 Member States, voluntary CCCTB in 27 Member States, and a mandatory CCCTB in nine Member States.

#### 4.2.1 Mandatory CCCTB adopted by 27 Member States

Table 3 shows the estimated static revenue impact by country for a mandatory CCCTB in all 27 Member States. Overall, companies affected by CCCTB would experience an increase in tax by 0.7%, while total corporate income tax collections in the EU would increase 0.2%. A country by country breakdown reveals significant winners and losers to this new tax system. The changes in corporate tax collections range from -8.3% in Denmark to +6.0% in France.

**Table 3 Static revenue impact of mandatory CCCTB, 27 participating Member States**

(€ millions)

Member State	Current Law Corporate Income Tax	Proposed Law Corporate Income Tax	Change in Corporate Income Tax	Percentage Change	
				Total Corporate Income Tax	Tax of Affected Companies
Austria	5,695	5,690	(€6)	-0.1%	-0.3%
Belgium	10,223	10,439	216	2.1%	6.3%
Bulgaria	632	629	(3)	-0.5%	-1.5%
Czech Republic	4,482	4,347	(135)	-3.0%	-15.6%
Denmark	8,083	7,414	(669)	-8.3%	-19.0%
Estonia	160	159	(0)	-0.1%	-0.6%
Finland	5,248	4,968	(280)	-5.3%	-11.5%
France	39,885	42,264	2,379	6.0%	15.9%
Germany	38,565	36,514	(2,051)	-5.3%	-16.4%
Greece	6,402	6,655	253	4.0%	8.8%
Hungary	1,877	1,871	(7)	-0.4%	-3.2%
Ireland	5,701	5,377	(325)	-5.7%	-45.3%
Italy	33,629	34,054	425	1.3%	5.0%
Latvia	260	268	8	3.2%	32.1%
Lithuania	437	437	0	0.1%	0.8%
Luxembourg	1,753	1,668	(85)	-4.9%	-37.6%
Netherlands	18,735	17,319	(1,416)	-7.6%	-18.0%
Poland	6,069	6,030	(39)	-0.6%	-2.0%
Portugal	4,151	4,156	6	0.1%	0.5%
Romania	2,137	2,114	(23)	-1.1%	-5.3%
Slovak Republic	1,049	1,045	(5)	-0.5%	-4.2%
Spain	35,647	36,525	878	2.5%	9.0%
Sweden	10,703	10,751	48	0.5%	0.9%
United Kingdom	61,490	62,910	1,420	2.3%	5.7%
<b>EU27 Total</b>	<b>€ 304,628</b>	<b>€ 305,219</b>	<b>€ 591</b>	<b>0.2%</b>	<b>0.7%</b>

Source: Ernst & Young calculations

Figure 10 shows the change in corporate tax revenue from a mandatory CCCTB scenario, with destination sales factor, for the Member States, ranked by the percentage change in revenue.

**Figure 10 Static revenue impact of mandatory CCCTB, 27 participating Member States**

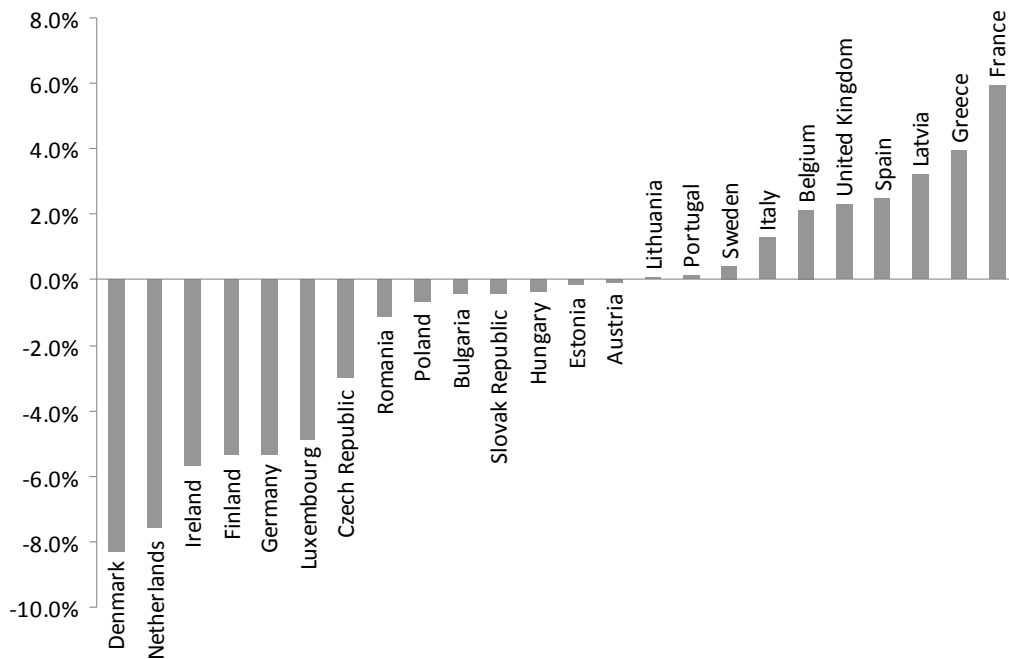


Table 4 shows the distribution of winners and losers under a mandatory CCCTB by group and by size of the tax change for all EU groups. Over 50% of the groups would not be affected by a mandatory CCCTB since they are a domestic-only (single country) group and do not have group losses. Approximately 9% of groups would experience a reduction in tax. 4,400 groups would have tax reductions in excess of 1%, totalling - €1.9bn, while 23,000 groups would have tax increases in excess of 1%, totalling €2.5bn.

**Table 4 Distribution by groups' tax change from a mandatory CCCTB**

<b>Change due to CCCTB</b>	<b>Number of Groups</b>	<b>Tax Change (€ millions)</b>
- 25% or more	942	(847)
-10 - 25%	329	(413)
-5-10%	329	(439)
-1 - 5%	2,828	(235)
- 0 - 1%	407	(17)
0%	26,632	-
0 - 1%	612	30
1 - 5%	1,877	501
5-10%	17,875	1,312
10 - 25%	2,049	484
25% or more	1,355	216
<b>EU27 Total</b>	<b>55,235</b>	<b>591</b>

*Source: Ernst & Young calculations*

Table 5 below shows the change in corporate tax revenues by industry across the 27 EU Member States under a mandatory system. The industry effects are averaged across the entire EU, so more significant percentage changes could occur for industries within a single country.

Table 5 Static revenue impact of mandatory CCCTB by industry

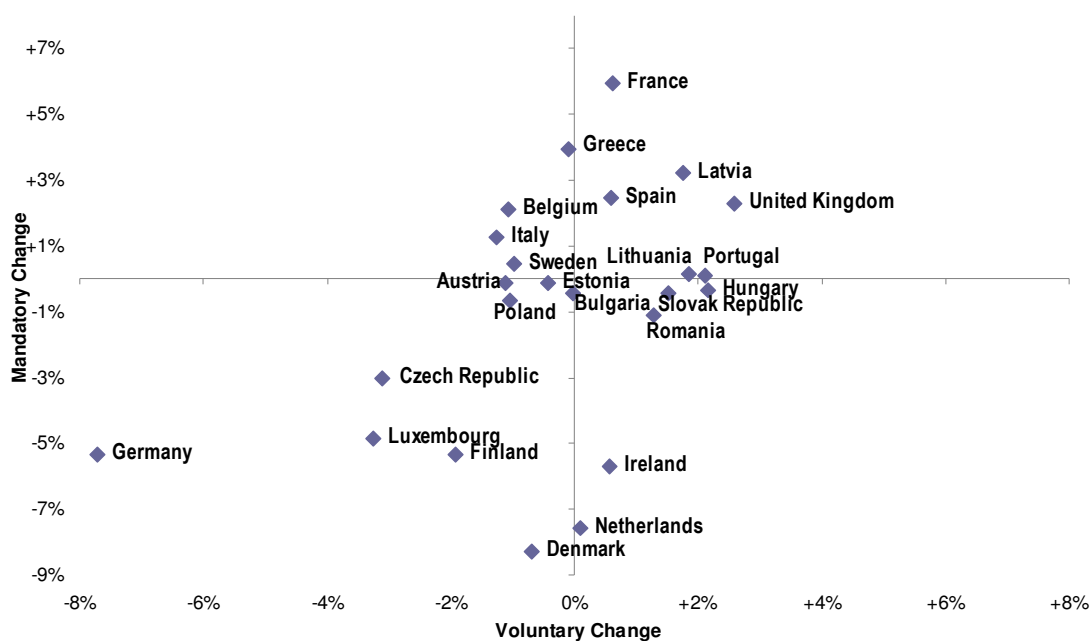
(€ millions)

Industry	Current Law Corporate Income Tax	Proposed Law Corporate Income Tax	Change in Corporate Income Tax	% Change in Total Corporate Income Tax
Agriculture & Mining	€13,652	€14,095	129	0.9%
Business & Mgmt Services	88,505	89,128	181	0.2
Construction	20,945	21,004	17	0.1
Financial Services	15,689	16,040	102	0.7
Hotel & Restaurant	29,951	30,607	191	0.6
Manufacturing	57,427	57,302	(36)	-0.1
Real Estate	13,659	13,873	62	0.5
Telecommunications	27,238	26,315	(269)	-1.0
Transportation	37,562	38,295	214	0.6
<b>EU27 Total</b>	<b>€ 304,628</b>	<b>€ 305,219</b>	<b>€ 591</b>	<b>0.2%</b>

Source: Ernst & Young calculations

Figure 11 compares the revenue effect for the 27 Member States under the voluntary and mandatory scenarios. There are four possible combinations of tax increases and decreases. Four countries are estimated to have significantly higher tax collections under both a voluntary and mandatory CCCTB: France, Spain, Latvia and the UK. Five countries are estimated to have significantly lower tax collections under both a voluntary and mandatory CCCTB: the Czech Republic, Denmark, Finland, Germany and Luxembourg. The other countries have small or different revenue effects under a voluntary and mandatory CCCTB.

Figure 11 Comparison of revenue effect of a voluntary vs. mandatory CCCTB Tax Systems



#### 4.2.2 Voluntary CCCTB in 27 Member States

Under a voluntary CCCTB system, it is assumed that companies choose whether or not to participate in the CCCTB system by calculating their tax under the current system and the new system. A voluntary CCCTB would reduce annual tax by €1,819m, or 0.6% of total corporate tax collections based on corporate tax collection data published by Eurostat as shown in Table 6. Companies affected by the CCCTB would have their corporate income taxes reduced by 2.2% on average.

As expected, a voluntary CCCTB tax system results in a shift of tax revenue from higher tax rate countries (such as Germany, Denmark, Italy) to countries with lower tax rates.



A voluntary CCCTB scenario would increase revenues from some Member States while reducing them for others. The change in corporate tax collections are estimated to range from -7.7% in Germany to +2.6% in the United Kingdom, as shown in Table 6.

For CCCTB affected companies, the change in corporate income tax would be much larger. For affected companies, tax changes range from -25.1% in Luxembourg to +19.7% in Hungary.

Member States that would lose significant corporate tax revenues are less likely to be willing to participate in a CCCTB system. If they participate, they are likely to be faced with difficult political choices including:

- ▶ reducing public spending;
- ▶ increasing corporate income tax rates; or
- ▶ increasing taxes on households.

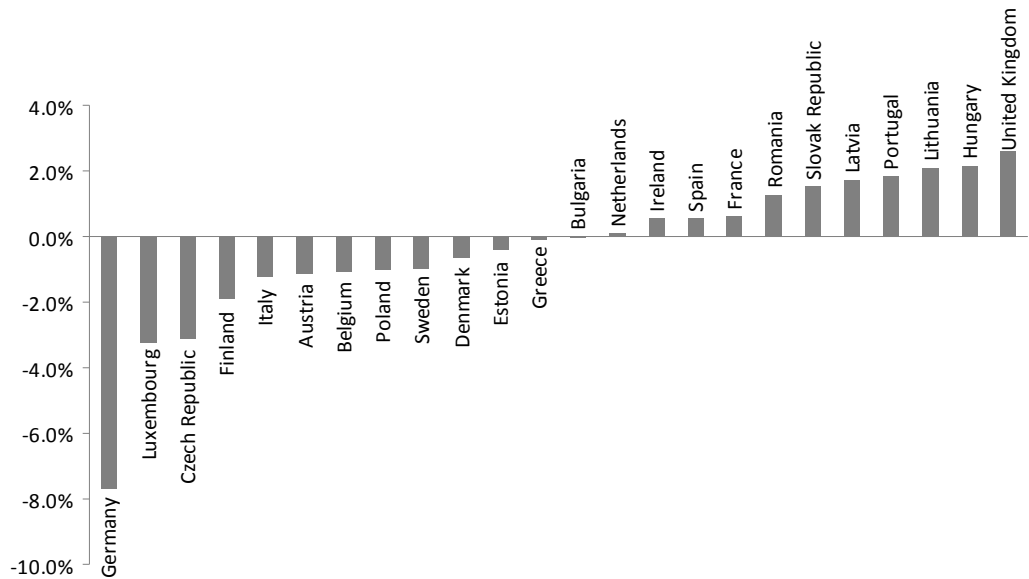
**Table 6 Static revenue impact of voluntary CCCTB, 27 participating Member States**  
(€ millions)

Member State	Current Law Corporate Income Tax	Proposed Law Corporate Income Tax	Change in Corporate Income Tax	Percentage Change	
				Total Corporate Income Tax	Tax of Affected Companies
Austria	€ 5,695	€ 5,632	(€ 63)	-1.1%	-3.5%
Belgium	10,223	10,113	(109)	-1.1%	-3.2%
Bulgaria	632	631	(0)	0.0%	-0.1%
Czech Republic	4,482	4,342	(140)	-3.1%	-16.2%
Denmark	8,083	8,028	(55)	-0.7%	-1.6%
Estonia	160	159	(1)	-0.4%	-1.9%
Finland	5,248	5,147	(101)	-1.9%	-4.1%
France	39,885	40,131	246	0.6%	1.6%
Germany	38,565	35,592	(2,973)	-7.7%	-23.7%
Greece	6,402	6,396	(6)	-0.1%	-0.2%
Hungary	1,877	1,918	41	2.2%	19.7%
Ireland	5,701	5,733	32	0.6%	4.4%
Italy	33,629	33,209	(420)	-1.2%	-5.0%
Latvia	260	264	5	1.7%	17.5%
Lithuania	437	446	9	2.1%	16.5%
Luxembourg	1,753	1,696	(57)	-3.2%	-25.1%
Netherlands	18,735	18,753	18	0.1%	0.2%
Poland	6,069	6,006	(63)	-1.0%	-3.2%
Portugal	4,151	4,227	77	1.9%	6.5%
Romania	2,137	2,164	27	1.3%	6.3%
Slovak Republic	1,049	1,065	16	1.5%	14.1%
Spain	35,647	35,855	208	0.6%	2.1%
Sweden	10,703	10,599	(104)	-1.0%	-1.9%
United Kingdom	61,490	63,085	1,594	2.6%	6.4%
<b>EU27 Total</b>	<b>€ 304,628</b>	<b>€ 302,809</b>	<b>(€1,819)</b>	<b>-0.6%</b>	<b>-2.2%</b>

Source: Ernst & Young calculations

Figure 12 shows the change in corporate tax revenue from a voluntary CCCTB scenario for the Member States, ranked by the percentage change in revenue.

Figure 12 Static revenue impact of voluntary CCCTB, 27 participating Member States



Under a voluntary system, only groups that would experience a lower total EU tax burden would be expected to switch into the new system. Groups that are likely to find a voluntary system attractive are those that would be able to use the group loss offset and/or have taxable income apportioned away from higher tax rate countries to lower tax rate countries.

Table 7 shows one measure of the degree of participation in a voluntary CCCTB. The percentage of taxable income of groups voluntarily participating ranges from 10% in Bulgaria to 66% in the Czech Republic. Countries with low tax rates can benefit from a voluntary CCCTB since only the small percentage of groups that would benefit from the lower tax rates would participate.

**Table 7 Percent of voluntary participation of CCCTB**

<b>Member State</b>	<b>Percentage of pre-tax income of groups that voluntarily participate</b>
Austria	38%
Belgium	41
Bulgaria	10
Czech Republic	66
Denmark	18
Estonia	17
Finland	23
France	51
Germany	63
Greece	19
Hungary	36
Ireland	18
Italy	18
Latvia	44
Lithuania	24
Luxembourg	43
Netherlands	12
Poland	24
Portugal	41
Romania	43
Slovak Republic	21
Spain	27
Sweden	25
United Kingdom	29
<b>EU 27 Total</b>	<b>32%</b>

*Source: Ernst & Young calculations*

Table 8 shows the distribution of winners under a voluntary CCCTB by group and by size of the tax change. 9% of the EU consolidated groups would experience a tax decrease under a voluntary CCCTB scenario. However, most of the groups would experience only a modest tax reduction (less than 1%) which may not compensate for the transition and additional compliance costs of switching to a new system. Nearly 90% of the tax reduction would accrue to approximately 1600 groups, with tax reductions exceeding 5%.

**Table 8 Percentage of voluntary participation of CCCTB**

<b>Change due to CCCTB</b>	<b>Number of Groups</b>	<b>Tax Change (€ millions)</b>
- 25% or more	942	(789)
-10 - 25%	329	(385)
-5 - 10%	329	(409)
-1 - 5%	2,828	(219)
-0 - 1%	407	(16)
0%	50,400	-
<b>EU27 Total</b>	<b>55,235</b>	<b>(€ 1,819)</b>

*Source: Ernst & Young calculations*

### **4.2.3 Mandatory CCCTB adopted by nine participating Member States**

A mandatory CCCTB might be adopted by a subset of participating EU Member States. For purposes of this scenario, nine countries were assumed to adopt a mandatory CCCTB: Austria, Belgium, France, Germany, Hungary, Italy, Luxembourg, the Netherlands, and Spain. These nine countries account for approximately 61% of corporate income taxes in the EU. Table 9 shows the revenue effects for this scenario.

**Table 9 Static revenue impact of mandatory CCCTB, 9 participating Member States**  
(€ millions)

Member State	Current Law Corporate Income Tax	Proposed Law Corporate Income Tax	Change in Corporate Income Tax	Percentage Change	
				Total Corporate Income Tax	Tax of Affected Companies
Austria	€ 5,695	€ 5,674	(€ 21)	-0.4%	-1.2%
Belgium	10,223	10,206	(17)	-0.2	-0.5
France	39,885	42,146	2,261	5.7	15.1
Germany	38,565	36,770	(1,795)	-4.7	-14.3
Hungary	1,877	1,859	( 18)	-0.9	-8.6
Italy	33,629	33,811	182	0.5	2.2
Luxembourg	1,753	1,699	(54)	-3.1	-23.6
Netherlands	18,735	17,138	(1,597)	-8.5	-20.3
Spain	35,647	36,854	1,207	3.4	12.4
<b>EU9 Total</b>	<b>€ 186,009</b>	<b>€ 186,156</b>	<b>€ 147</b>	<b>0.1%</b>	<b>1.3%</b>

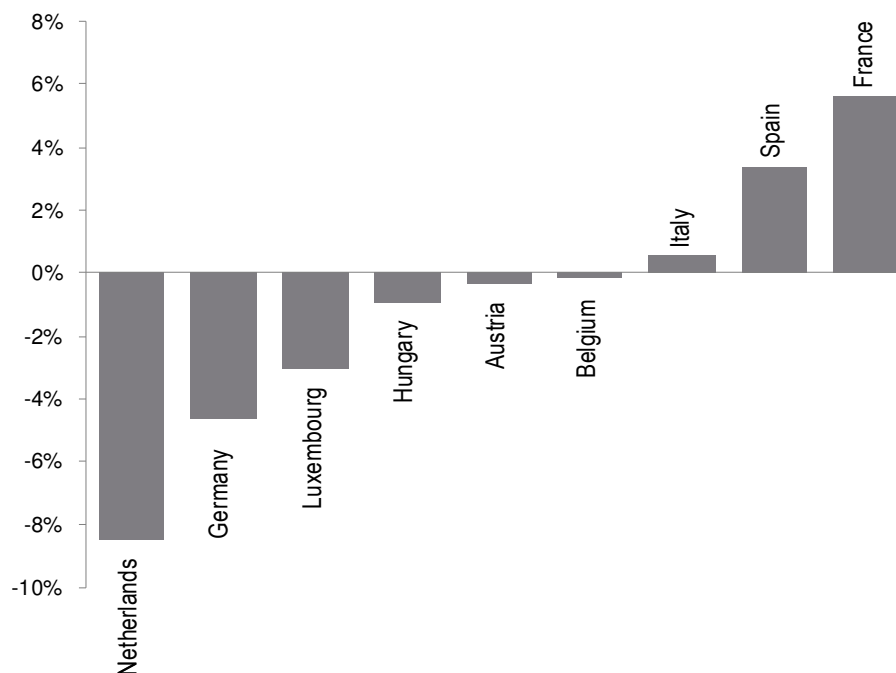
Source: Ernst & Young calculations

- ▶ A mandatory CCCTB scenario adopted by only nine EU Member States would increase the corporate tax collections of those States by 0.1% or €147m. The percentage change in corporate income tax collections would range from -8.5% for the Netherlands to +5.7% for France;
- ▶ Seven of the nine participating countries would have lower corporate income tax collections compared to an EU-wide mandatory CCCTB system. Only Luxembourg and Spain would be relatively better off in this nine country CCCTB rather than an EU-wide mandatory system;
- ▶ Six of the nine participating countries would have lower corporate income tax collections for all companies relative to an EU-wide voluntary CCCTB system.

Relative to an EU-wide mandatory CCCTB, a CCCTB with only nine participating Member States would involve less pooling of taxable income. Factors would also be apportioned differently, distributing tax among nine countries rather than twenty-seven.

Figure 13 shows the change in corporate tax revenue from a mandatory nine Member States CCCTB scenario, with destination sales factor, for the nine Member States, ranked by the percentage change in revenue.

Figure 13 Static revenue impact of mandatory CCCTB, 9 participating Member States



#### 4.2.4 Limitations of the analysis

Any empirical tax analysis has limitations due to the available data, uncertainty of the interpretation of the tax law, and uncertainty about the behavior of the affected taxpayers and tax administrators. Ernst & Young analysis is consistent, but has attempted to minimize the limitations to those absolutely necessary while maximising the potential information content for policymakers.

*The revenue estimates are static; dynamic changes have additional effects*

Most importantly, the estimates of corporate tax collections are static estimates, and thus do not reflect potential taxpayer behavior to the potential new law. Static revenue estimates provide policymakers with important information about the initial effects of potential law changes, and static estimates require extensive modelling even before attempting to model taxpayer behavior. With a tax system change as significant as the CCCTB system, the dynamic economic effects could be expected to be fairly large, and thus would have additional effects not only on corporate income tax collections, but all other taxes.

Data limitations make estimates from public financial reports, rather than tax returns, subject to potential biases and uncertainties. As noted below, many companies do not report key information for the analysis, including the amount of current corporate income tax. Also, the amount reported includes both current tax payments as well as 'deferred' tax liabilities for potential future tax payments due to tax timing issues. The amount reported as tax may include more than just corporate income taxes in some countries, and may include taxes paid to other countries. The amount of tax is net of business tax credits, so the estimation of taxable income by grossing up reported tax by the statutory marginal tax rate could be understated.

The public financial information does not identify branches or other tax permanent establishments that companies might have in other taxing jurisdictions. This could result in more tax allocated to countries with headquarters or multinational financial institutions than countries with less of those activities.

However, public financial reporting information is a useful place to start, when tax return information is not available. And it should be noted that not all of the information for the analysis is currently available from tax returns. In a similar situation, the US State revenue estimators are not able to estimate the effects of combined reporting due to insufficient information from the State tax returns, because some of the information is only available from other States.

Given incomplete reporting of a number of financial variables by many companies, analysts are faced with the choice of excluding the companies with missing data from the analysis, or imputing the missing information from similar companies that have reported the data. Either way introduces potential biases. The Ernst & Young analysis imputes as much of the required information as possible in order to maximize the number of companies in the analysis. In addition, the Ernst & Young analysis extrapolates the information from the sample companies to calibrate the analysis to current tax collections. These analytical techniques are common among government revenue estimators.

Finally, the Ernst & Young analysis is limited to a single year, 2005. This is the most recent year for which public financial reporting data was available, and is a fairly representative year over the course of the European business cycle. Multi-year data could capture some of the effects of net operating loss carry-forwards and carry-backs. This is one of the trade-offs between most recent data, more coverage of companies, and the issue of use of net operating losses.

### 4.3 Dynamic economic analysis results

The CCCTB redistributes corporate income tax collections among the participating Member States. This is the “static” revenue impact of the CCCTB. In addition, the changes in relative corporate income tax rates among the Member States would have significant economic impacts on Member States economies. This is the “dynamic” economic impact of the tax system changes. These changes would affect the real economy as measured by GDP, employment, income and FDI. This section presents estimates by Member States of these expected economic impacts of the three scenarios.

#### 4.3.1 Static revenue impacts

Table 10 summarizes the static revenue impacts presented in Section 4.2 by Member State for each of the three CCCTB scenarios. These static revenue changes are used in the dynamic impact analysis in two ways:

- ▶ the static revenue changes determine the offsetting changes in transfers to households or corporate income tax rates needed to balance Member State budgets in response to changes in static corporate income tax revenue under the CCCTB, and
- ▶ changes in the corporate income tax base under the CCCTB, a component of the static revenue impact estimates, change effective corporate income tax rates businesses pay on new investments, a key variable used to estimate the dynamic impacts

Key findings in Table 10 that are helpful in understanding and interpreting the dynamic impacts include:

- ▶ the mandatory 27 Member State scenario increases EU corporate income tax revenue by 0.2% (€591m) at 2005 levels, while the voluntary 27 Member State scenario reduces taxes by 0.6% (€1,819m) at 2005 levels;
- ▶ there is a wide variation in tax revenue changes under each scenario. For the mandatory 27 Member State scenario, tax changes range from an 8.3% loss in Denmark to a 6% increase in France. The effects of the voluntary 27 Member State scenario range from a 7.7% loss in Germany to a 2.6% increase in the UK;
- ▶ groups electing to participate in the voluntary system would pay lower levels of corporate income tax overall, although the apportionment of income may actually increase taxes in certain Member States.

**Table 10 Percentage changes in corporate income tax under alternative CCCTB scenarios**

<b>Member State</b>	<b>27 Member State Mandatory</b>	<b>27 Member State Voluntary</b>	<b>9 Member State Mandatory</b>
Austria	-0.1%	-1.1%	-0.4%
Belgium	2.1	-1.1	-0.2
Bulgaria	-0.5	0.0	
Czech Republic	-3.0	-3.1	
Denmark	-8.3	-0.7	
Estonia	-0.1	-0.4	
Finland	-5.3	-1.9	
France	6.0	0.6	5.7
Germany	-5.3	-7.7	-4.7
Greece	4.0	-0.1	
Hungary	-0.4	2.2	-0.9
Ireland	-5.7	0.6	
Italy	1.3	-1.2	0.5
Latvia	3.2	1.7	
Lithuania	0.1	2.1	
Luxembourg	-4.9	-3.2	-3.1
Netherlands	-7.6	0.1	-8.5
Poland	-0.6	-1.0	
Portugal	0.1	1.9	
Romania	-1.1	1.3	
Slovak Republic	-0.5	1.5	
Spain	2.5	0.6	3.4
Sweden	0.5	-1.0	
United Kingdom	2.3	2.6	
<b>EU27 Total:</b>	<b>0.2%</b>	<b>-0.6%</b>	<b>0.1%</b>

*Source: Ernst & Young calculations*

### 4.3.2 Change in effective tax rates

The adoption of a CCCTB corporate income tax system would fundamentally change the effective tax rates that are imposed on the taxable income from new investments in different Member States. Under current law this income is subject to the statutory corporate income tax rate in the Member State where the investment occurs. Under the CCCTB, the tax rate that applies to new investments in a Member State depends upon the statutory tax rates in each Member State where the company making the investment is a taxpayer. As a result, the CCCTB increases effective tax rates for most companies operating in most Member States.

The first column of Table 11 presents the current law top statutory tax rate in each Member State in 2008. The second column adjusts the statutory tax rate to recognize the fact that there is a difference in how broad or narrow the tax base is in different Member States. Since the corporate tax base is smaller than comprehensive profits, the effective tax rate (taxes divided by income generated from new investments) is less than the statutory rate.<sup>27</sup> The current law effective tax rate is used to determine the level and changes in corporate income tax rates under each CCCTB scenario.

<sup>27</sup> The effective tax rate used in this analysis is the effective average tax rate on new investment made by multinational groups affected by CCCTB. In concept it is the difference in the pre- and post-tax income streams from a new investment divided by the pre-tax income stream.

**Table 11 Change in effective tax rates for 27 Member State CCCTB**

Member State	Current Law Rate	Mandatory	Voluntary
	Statutory	CCCTB*	CCCTB**
Austria	25.0%	23.3%	23.8%
Belgium	34.0	23.7	24.7
Bulgaria	10.0	22.3	21.8
Czech Rep.	21.0	23.1	23.8
Denmark	25.0	23.1	23.9
Estonia	21.0	22.9	23.5
Finland	26.0	23.1	23.8
France	34.4	23.9	24.8
Germany	29.8	23.3	23.9
Greece	25.0	23.6	24.8
Hungary	21.3	22.7	23.6
Ireland	12.5	23.0	23.2
Italy	31.4	23.5	24.4
Latvia	15.0	22.7	22.7
Lithuania	15.0	22.8	23.2
Luxembourg	29.6	25.9	26.2
Netherlands	25.5	23.2	24.0
Poland	19.0	23.4	24.1
Portugal	26.5	23.9	24.0
Romania	16.0	23.0	23.8
Slovak Rep.	19.0	23.4	24.2
Spain	30.0	23.6	24.2
Sweden	28.0	23.6	24.1
UK	28.0	23.3	23.9

Source: Ernst & Young calculations

\*Mandatory analysis calculated based on 5,847 group records.

\*\*Differs from the Mandatory 27 because a different subset of companies.

Column 2 of Table 11 presents estimates of the consolidated effective average tax rates that apply to new investments in each Member State under the 27 mandatory CCCTB scenario. As explained further in the Annex, the effective CCCTB tax rate is a weighted average of the effective tax rates in each Member State where a corporate group affected by CCCTB operates. For example, a group that operates only in a single Member State would remain subject to the statutory corporate income tax rate in that country. A group with factors evenly split between a country with an effective tax rate of 10% and a country with an effective tax rate of 22% would have a consolidated effective tax rate of 16%. The weights are determined by the distribution of a group's factors (payroll, jobs, assets and sales) used in the CCCTB apportionment formula.

As shown in the second column of Table 11, the consolidated effective tax rates by Member State for groups affected by CCCTB varies much less than the current-law effective tax rates. The consolidated effective tax rates only vary from 22.3% for Bulgaria to 25.9% in Luxembourg. One explanation for this narrow range of effective tax rates is that the concentration of group factors in large Member States, including France, Germany and the UK, countries with relatively high effective average tax rates.

The last column in Table 11 presents the estimates for the effective tax rates under the 27 Member State voluntary system. Note that under the voluntary CCCTB scenario participating multinational groups expanding in Member States that have relatively low effective tax rates can still face large effective tax rate increases on new investments even though their EU-wide total taxes are lower than under current law.



### 4.3.3 Dynamic economic impacts due to changes in effective tax rates

#### 4.3.3.1 Estimated economic impacts

This section presents the economic impacts of changes in the effective tax rates on new investments in a participating Member State under each of the three CCCTB scenarios. The economic impacts presented in this section are the result of changes in effective tax rates on new investments before any changes in transfers to households or corporate tax rates to offset any change in static corporate income tax collections.

*Changes in effective tax rates drive changes in employment, income, and FDI*

The estimated percentage changes in economic variables for the 27 Member State mandatory scenario are shown in Table 12. The variables include employment, personal income, gross domestic product (GDP) and foreign direct investment (FDI). Figure 14 through Figure 16 rank Member States by the percentage changes in jobs, GDP and FDI.

The economic impact results show that:

- ▶ Belgium, Spain and France all have job increases under the mandatory CCCTB with France having the highest percentage increase at 0.5%. These countries have relatively high current law statutory tax rates and benefit from lower effective tax rates on new investments under the CCCTB.
- ▶ The remaining Member States have decreases in jobs with Ireland, Luxembourg and Poland all experiencing job losses of at least 1.0%. In these countries new investments are subject to higher effective tax rates under the 27 Member State mandatory scenario.
- ▶ The results are similar for economic impacts on income and GDP.
- ▶ The percentage changes in foreign direct investment are significantly larger than the effects on GDP, jobs and income. This is partly due to the fact that direct foreign investment, in addition to investment in machinery, equipment and buildings, also includes financial transactions, such as mergers and acquisitions, retained earnings and net purchases of debt and other financial instruments that are not directly related to current economic activity.<sup>28</sup>

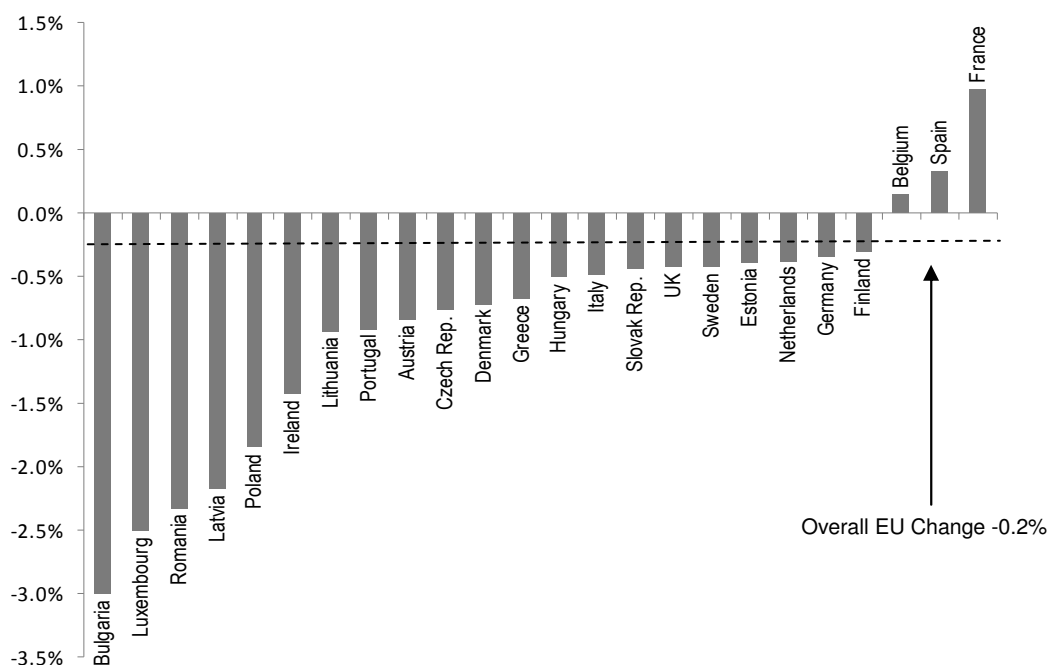
<sup>28</sup> For a detailed description of the measurement of EU foreign direct investment, see European Commission, European Union Foreign Direct Investment Yearbook 2008: Data 2001-2006 (2008), Chapter 1 and Glossary.

**Table 12 Dynamic economic impacts for 27 Member State mandatory CCCTB due to changes in effective tax rates**

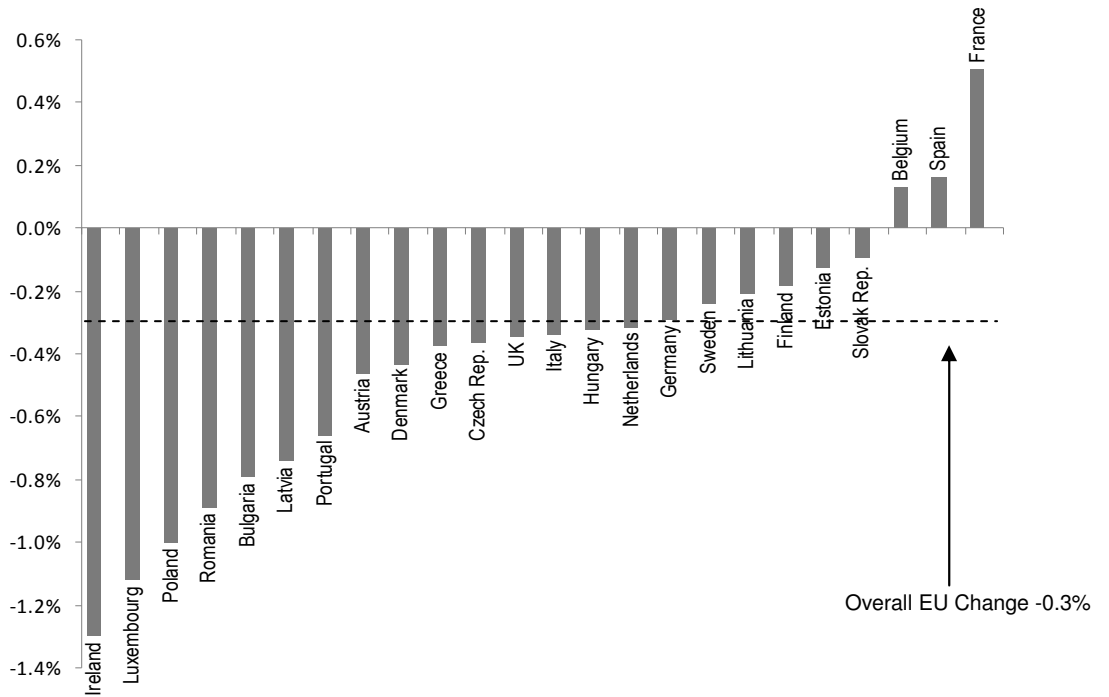
Member State	GDP	Employment	Income	FDI
Austria	-0.8%	-0.5%	-0.5%	-4.6%
Belgium	0.1	0.1	0.1	0.5
Bulgaria	-3.0	-0.8	-1.0	-11.7
Czech Republic	-0.8	-0.4	-0.5	-2.1
Denmark	-0.7	-0.4	-0.4	-2.8
Estonia	-0.4	-0.1	-0.2	-1.6
Finland	-0.3	-0.2	-0.2	-1.8
France	1.0	0.5	0.6	5.0
Germany	-0.3	-0.3	-0.2	-1.3
Greece	-0.7	-0.4	-0.4	-3.3
Hungary	-0.5	-0.3	-0.6	-1.1
Ireland	-1.4	-1.3	-1.3	-4.6
Italy	-0.5	-0.3	-0.3	-1.2
Latvia	-2.2	-0.7	-1.2	-4.5
Lithuania	-0.9	-0.2	-0.3	-5.0
Luxembourg	-2.5	-1.1	-2.1	-0.8
Netherlands	-0.4	-0.3	-0.3	-2.1
Poland	-1.8	-1.0	-0.9	-9.5
Portugal	-0.9	-0.7	-0.5	-4.5
Romania	-2.3	-0.9	-1.5	-11.2
Slovak Rep.	-0.4	-0.1	-0.1	-2.3
Spain	0.3	0.2	0.2	1.3
Sweden	-0.4	-0.2	-0.2	-2.1
United Kingdom	-0.4	-0.3	-0.3	-1.7
<b>Total</b>	<b>-0.2%</b>	<b>-0.3%</b>	<b>-0.1%</b>	<b>-1.1%</b>

Source: Ernst & Young calculations

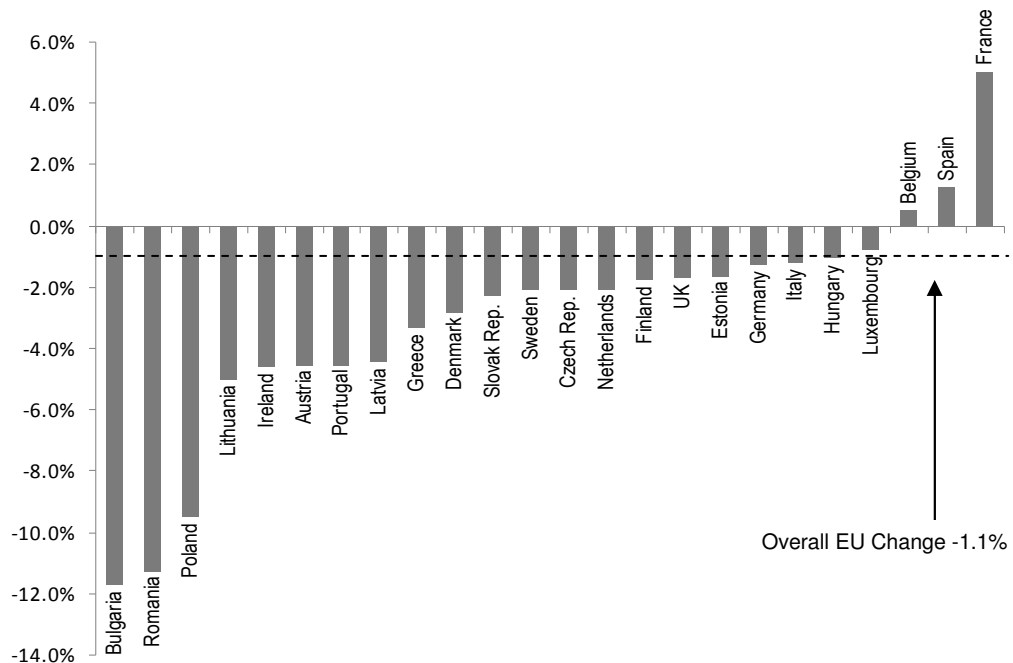
**Figure 14 Percent change in GDP for 27 Member State mandatory CCCTB due to changes in effective tax rates**



**Figure 15 Percent change in employment for 27 Member State mandatory CCCTB due to changes in effective tax rates**



**Figure 16 Percent change in FDI for 27 Member State mandatory CCCTB due to changes in effective tax rates**



The estimated percentage changes in economic variables for the 27 Member State voluntary scenario due to changes in effective tax rates are shown in Table 13 and Figure 17 through Figure 19. The economic impact results show that:

- ▶ The voluntary 27 Member State scenario has smaller positive and negative economic impacts than the mandatory CCCTB scenario. While many of the companies affected by the voluntary system would have higher or lower effective tax rates than under current

law, they represent a smaller percentage of total economic activity in a Member State. Therefore, there are smaller percentage changes in economic activity in most Member States under the voluntary system.

- ▶ Although the EU-wide combined average effective tax rate falls for groups voluntarily participating in the CCCTB, the consolidated effective tax rate on new investments in most countries is higher than the current tax rate. As a result, there is a negative impact on most economies as shown in Table 13 and the accompanying figures.

As was the case for the economic impacts of the 27 Member State mandatory CCCTB, the impacts on GDP, jobs and income are similar in size, but there are larger percentage changes in FDI due to changes in effective tax rates on new investments.

**Table 13 Dynamic economic impacts of a 27 Member State voluntary CCCTB due to changes in effective tax rates**

<b>Member State</b>	<b>GDP</b>	<b>Employment</b>	<b>Income</b>	<b>FDI</b>
Austria	-0.4%	-0.2%	-0.2%	-2.6%
Belgium	-0.1	0.0	0.0	-0.2
Bulgaria	-0.7	-0.1	-0.1	-0.6
Czech Republic	-0.5	-0.2	-0.3	-1.7
Denmark	-0.3	-0.1	-0.2	-1.1
Estonia	-0.2	0.0	-0.1	-0.3
Finland	-0.1	-0.1	-0.1	-1.3
France	0.4	0.2	0.2	1.4
Germany	-0.2	-0.2	-0.1	-0.9
Greece	-0.1	0.0	-0.1	-0.3
Hungary	-0.4	-0.3	-0.5	-0.9
Ireland	-0.9	-0.5	-0.5	-1.4
Italy	-0.2	-0.1	-0.1	-0.4
Latvia	-1.5	-0.3	-1.0	-1.2
Lithuania	-0.6	-0.1	-0.2	-1.8
Luxembourg	-2.4	-1.1	-2.0	-0.7
Netherlands	-0.2	-0.2	-0.2	-0.5
Poland	-0.5	-0.2	-0.2	-1.9
Portugal	-0.4	-0.3	-0.2	-0.7
Romania	-1.2	-0.2	-0.6	-3.2
Slovak Rep.	-0.2	-0.1	-0.1	-0.4
Spain	0.1	0.0	0.1	0.2
Sweden	-0.2	-0.1	-0.1	-0.7
United Kingdom	-0.2	-0.1	-0.1	-0.7
<b>Total</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.5%</b>

*Source: Ernst & Young calculations*

Figure 17 Percent change in GDP for 27 Member State voluntary CCCTB due to changes in effective tax rates

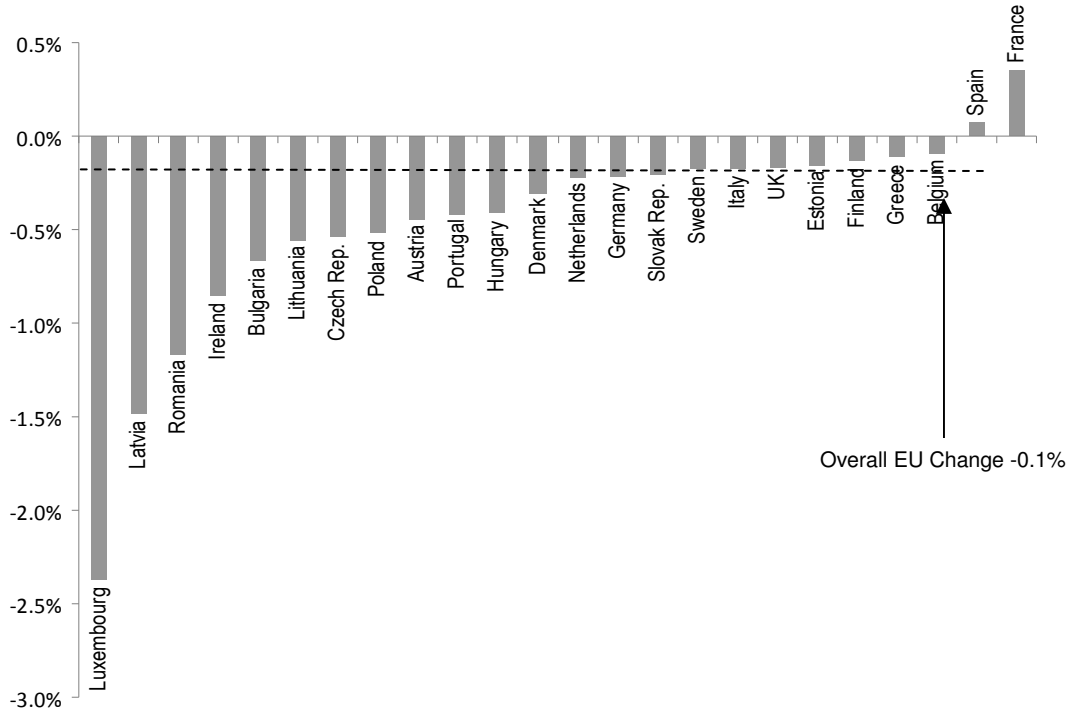
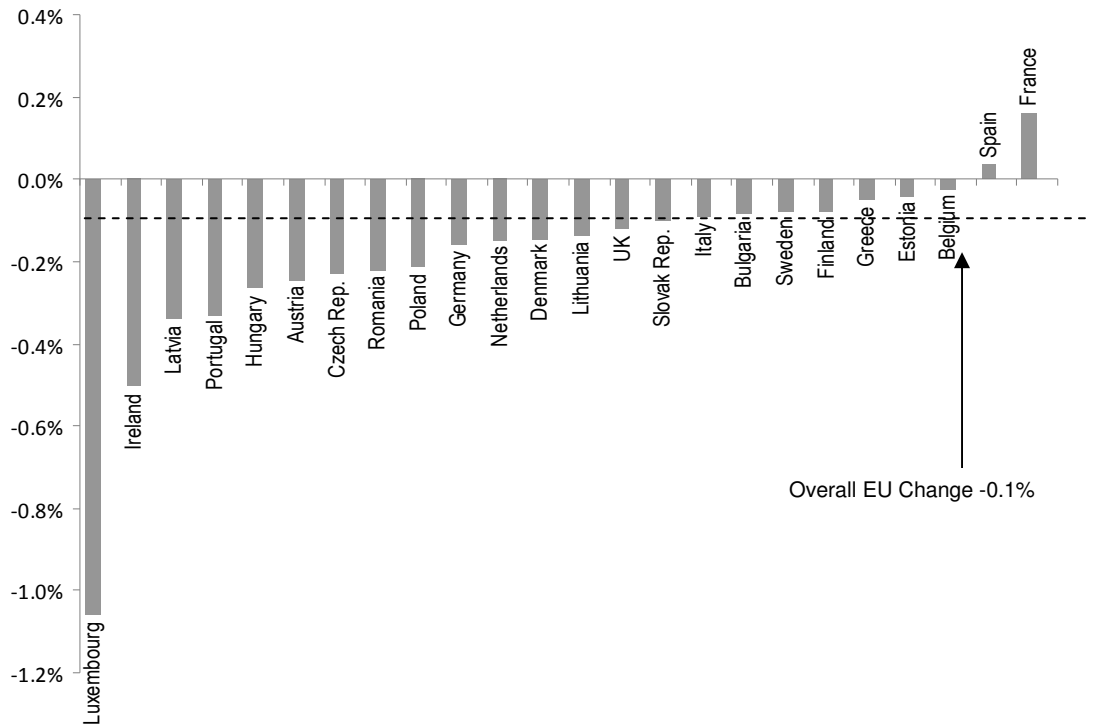


Figure 18 Percent change in employment for 27 Member State voluntary CCCTB due to changes in effective tax rates



**Figure 19 Percent change in FDI for 27 Member State voluntary CCCTB due to changes in effective tax rates**

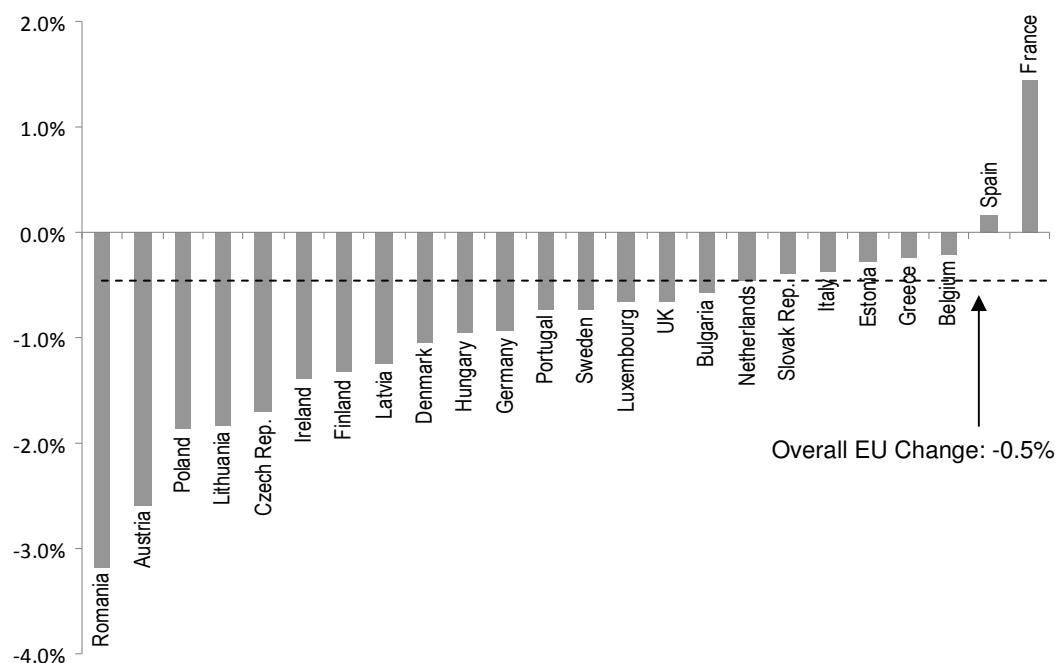


Table 14 presents the economic impact results for a nine Member State mandatory system that is assumed to include Austria, Belgium, France, Germany, Hungary, Italy, Luxembourg, the Netherlands and Spain. The results show that:

- ▶ Under the nine Member State mandatory CCCTB scenario, France and Spain benefit from increased jobs, income, GDP and FDI.
- ▶ Overall, the nine Member States have net reductions in jobs, income and GDP of 0.2% to 0.3% as their effective tax rates increase relative to other EU and non-EU countries.

**Table 14 Dynamic economic impacts of 9 Member State mandatory CCCTB due to changes in effective tax rates**

Member State	GDP	Employment	Income	FDI
Austria	-1.0%	-0.6%	-0.6%	-7.5%
Belgium	-0.3	-0.1	-0.1	-0.8
France	0.6	0.3	0.4	2.7
Germany	-0.6	-0.5	-0.4	-2.2
Hungary	-0.6	-0.4	-0.7	-2.5
Italy	-0.7	-0.5	-0.4	-2.8
Luxembourg	-2.8	-1.2	-2.3	-2.7
Netherlands	-0.6	-0.5	-0.5	-3.8
Spain	0.1	0.0	0.0	0.3
<b>Total</b>	<b>-0.3%</b>	<b>-0.2%</b>	<b>-0.2%</b>	<b>-2.2%</b>

Source: Ernst & Young calculations

#### 4.3.4 Net dynamic economic impacts including balanced budget changes

*Changes in tax collections would be offset by changes in tax rates or expenditures*

There are significant changes, both increases and decreases, in corporate income tax collections under the CCCTB. The last component in analysing the dynamic economic impacts of CCCTB is to balance Member State budgets to offset any changes in corporate income taxes. This is modelled as a change in government transfers to households or as a change in the corporate income tax rate.

The following two sections present a summary of the net economic impacts of the three CCCTB scenarios. The impacts combine the effective tax rate economic impacts presented in Section 4.3.3 with the economic impacts of changing transfer payments or corporate income tax rates to offset any changes in static corporate income tax collections under the CCCTB. The first section presents the results for the case where changes in transfers to households are used to balance the public budgets in each Member State. The second section presents economic impact results in the case where changes in corporate income tax rates are used to balance the budgets.

##### 4.3.4.1 Economic impacts with changes in transfers to balance budgets

This section presents estimates of the net economic impacts of the three CCCTB scenarios where budgets are balanced by changing government transfers to households. The net economic effects include the combined impacts of changes in effective tax rates on new investments and of changes in transfers to balance the budget. For countries with more corporate income tax revenue under a CCCTB, transfers are increased to balance the budget; transfers are decreased to offset any reduction in corporate tax collections. The change in transfers results in changes in disposable income and household consumption.

The dynamic impact model uses Member State-specific estimates of the responsiveness of consumption to changes in household income to estimate the economic impacts of the offsetting budget changes.<sup>29</sup> These income elasticities of demand are estimated for nine major consumption categories and vary by country. Generally, the elasticities decrease as per capital income levels in a country increase. The simple average of income elasticities for the EU Member States ranges from 0.4 for food and beverages to 1.3 for consumer durable goods.

Table 15 shows that the addition of the budget balancing effect increases the magnitude of both increases and decreases in economic activity under the CCCTB for most countries.

<sup>29</sup> See Appendix C for a discussion of data sources and the methodology used to estimate the budget-balancing impacts of the CCCTB.

**Table 15 Net Dynamic economic impacts of a 27 Member State mandatory CCCTB, balanced with transfer changes**

<b>Member State</b>	<b>GDP</b>	<b>Employment</b>	<b>Income</b>	<b>FDI</b>
Austria	-0.8%	-0.5%	-0.5%	-4.6%
Belgium	0.2	0.2	0.2	0.5
Bulgaria	-3.0	-0.8	-1.1	-11.7
Czech Republic	-0.9	-0.5	-0.6	-2.1
Denmark	-1.0	-0.7	-0.7	-2.8
Estonia	-0.4	-0.1	-0.2	-1.6
Finland	-0.4	-0.3	-0.3	-1.8
France	1.1	0.6	0.7	5.0
Germany	-0.4	-0.4	-0.3	-1.3
Greece	-0.6	-0.3	-0.3	-3.3
Hungary	-0.5	-0.3	-0.6	-1.1
Ireland	-1.6	-1.5	-1.5	-4.6
Italy	-0.5	-0.3	-0.2	-1.2
Latvia	-2.1	-0.7	-1.2	-4.5
Lithuania	-0.9	-0.2	-0.3	-5.0
Luxembourg	-3.0	-1.6	-2.5	-0.8
Netherlands	-0.6	-0.6	-0.6	-2.1
Poland	-1.9	-1.0	-0.9	-9.5
Portugal	-0.9	-0.7	-0.5	-4.5
Romania	-2.4	-0.9	-1.5	-11.2
Slovak Rep.	-0.4	-0.1	-0.1	-2.3
Spain	0.4	0.2	0.3	1.3
Sweden	-0.4	-0.2	-0.2	-2.1
United Kingdom	-0.4	-0.3	-0.2	-1.7
<b>Total</b>	<b>0.0%</b>	<b>-0.3%</b>	<b>-0.1%</b>	<b>-1.1%</b>

Source: Ernst & Young calculations

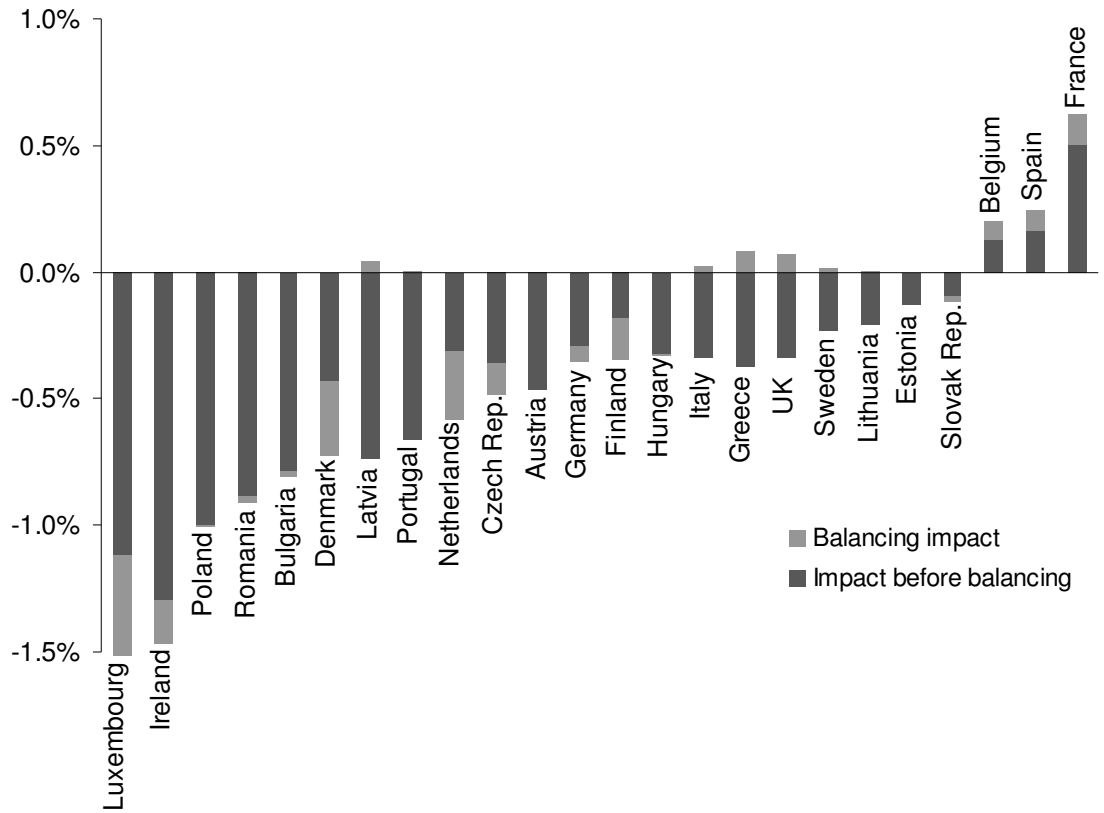
Figure 20 uses the 27 Member State mandatory CCCTB system to illustrate the separate economic contributions of the effective tax rate effect and the budget balancing effect. As shown in Figure 20, for most Member States the reduction in corporate tax collections due to the CCCTB is offset with reductions in transfers that reduce household consumption and increase the negative economic impacts of the CCCTB system.<sup>30</sup> For example, in Ireland the loss of jobs under the 27 Member State mandatory CCCTB scenario increases by 12% when the budget is balanced with reductions in transfers (the combination of the dark and light bar sections in Figure 20) required to offset a 5.7% decrease in corporate tax collections.

In contrast, in the UK the negative impact of higher effective tax rates on new investments (dark bar segment showing the effective tax rate impact before balancing) is partly offset by the positive impact of an increase in household consumption as transfers are increased to offset a 2.3% increase in corporate income tax collections (light bar segment showing the balancing impact).

<sup>30</sup> In the dynamic impact model, the change in household consumption does not have a direct impact on corporate income effective tax rates; as a result, there is no change in the FDI variable when the consumption effect is added.

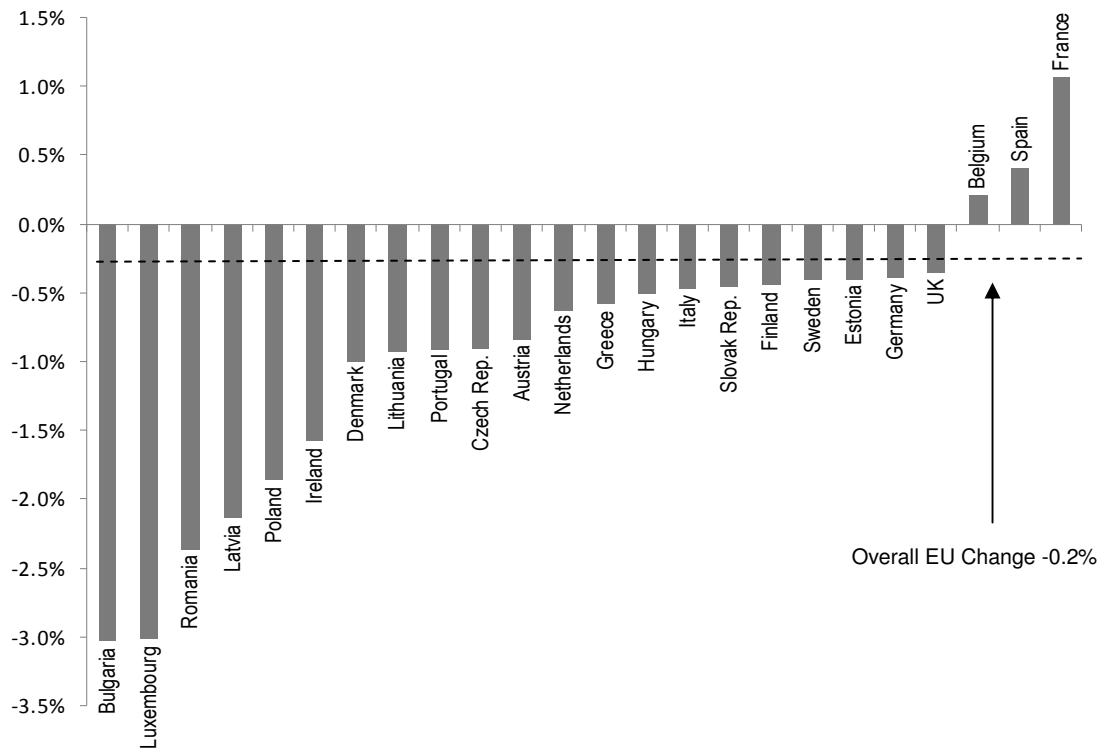


Figure 20 Net changes in employment from CCCTB balanced by changes in transfers



The net economic impacts of the 27 Member State mandatory CCCTB scenario when combining the effective tax rate impact with the budget balancing impact using changes in transfers to households are in Figure 21 through Figure 23.

**Figure 21 Net percent change in GDP for 27 Member State mandatory CCCTB balanced with transfer changes**



**Figure 22 Net percent change in employment for 27 Member State mandatory CCCTB balanced with transfer changes**

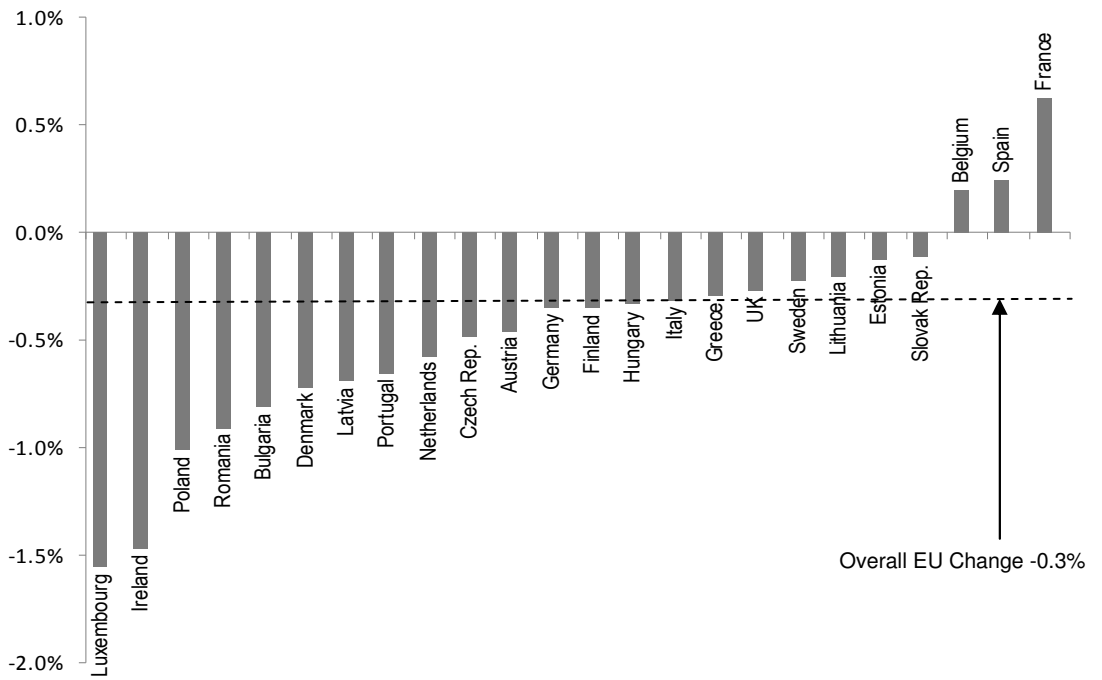


Figure 23 Net percent change in FDI for 27 Member State mandatory CCCTB balanced with transfer changes

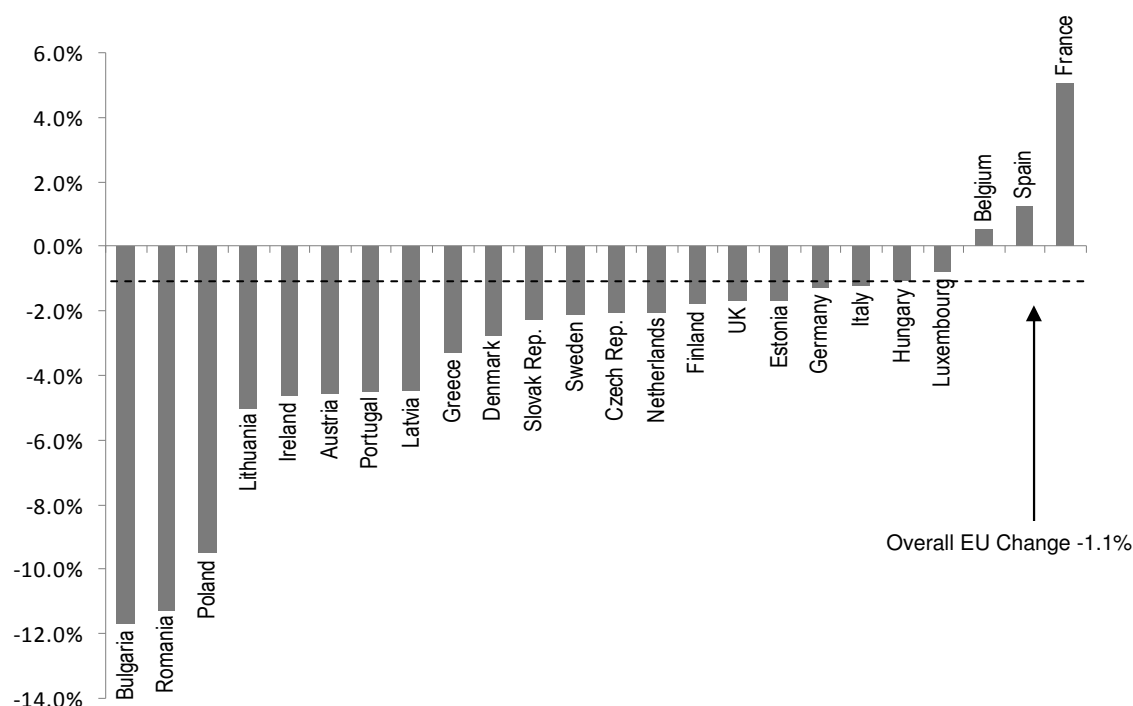


Table 16 and Figure 24 through to Figure 26 below present the net results for the 27 Member State voluntary CCCTB system including the impacts of balancing budgets through changes in transfers to households.

Table 16 Net Dynamic economic impacts of 27 Member State voluntary CCCTB balanced with transfer changes

Member State	GDP	Employment	Income	FDI
Austria	-0.5%	-0.3%	-0.3%	-2.6%
Belgium	-0.1	-0.1	-0.1	-0.2
Bulgaria	-0.7	-0.1	-0.1	-0.6
Czech Republic	-0.7	-0.4	-0.4	-1.7
Denmark	-0.3	-0.2	-0.2	-1.1
Estonia	-0.2	0.0	-0.1	-0.3
Finland	-0.2	-0.1	-0.1	-1.3
France	0.4	0.2	0.2	1.4
Germany	-0.3	-0.2	-0.2	-0.9
Greece	-0.1	-0.1	-0.1	-0.3
Hungary	-0.4	-0.2	-0.5	-0.9
Ireland	-0.8	-0.5	-0.5	-1.4
Italy	-0.2	-0.1	-0.1	-0.4
Latvia	-1.5	-0.3	-1.0	-1.2
Lithuania	-0.5	-0.1	-0.2	-1.8
Luxembourg	-2.7	-1.4	-2.3	-0.7
Netherlands	-0.2	-0.1	-0.2	-0.5
Poland	-0.5	-0.2	-0.3	-1.9
Portugal	-0.3	-0.3	-0.1	-0.7
Romania	-1.1	-0.2	-0.5	-3.2
Slovak Rep.	-0.1	0.0	0.0	-0.4
Spain	0.1	0.1	0.1	0.2
Sweden	-0.2	-0.1	-0.1	-0.7
United Kingdom	-0.1	0.0	-0.1	-0.7
<b>Total</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.5%</b>

Source: Ernst & Young calculations

Figure 24 Net percent change in GDP for 27 Member State voluntary CCCTB balanced with transfer changes

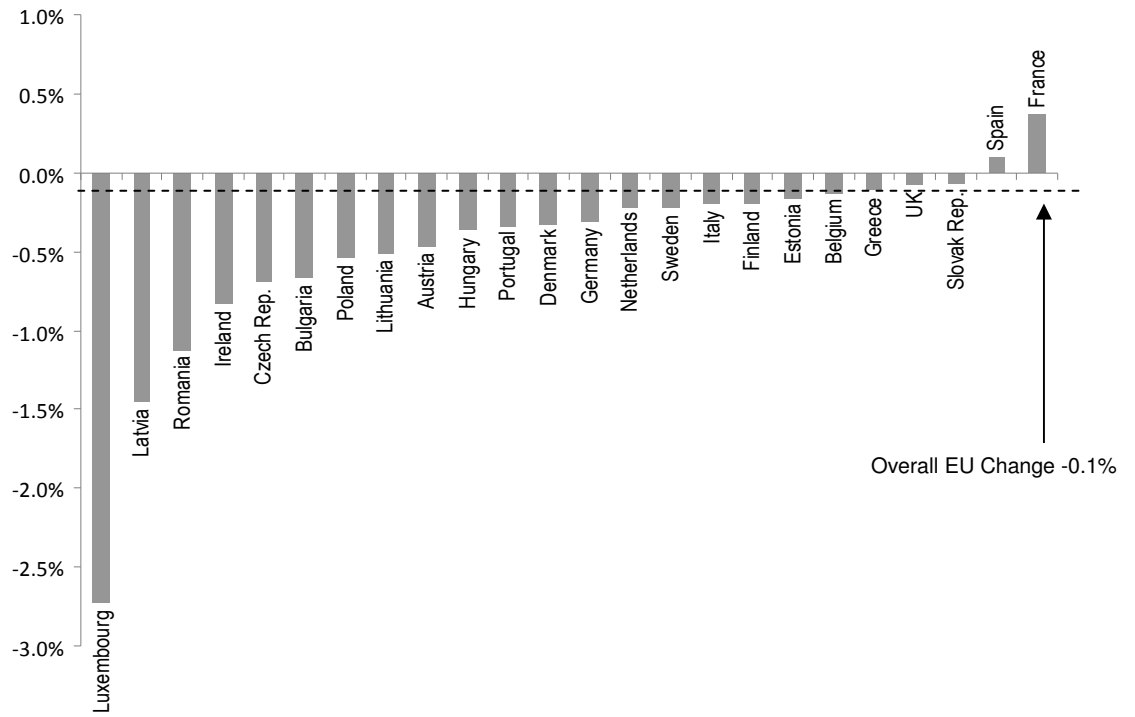


Figure 25 Net percent change in employment for 27 Member State voluntary CCCTB balanced with transfer changes

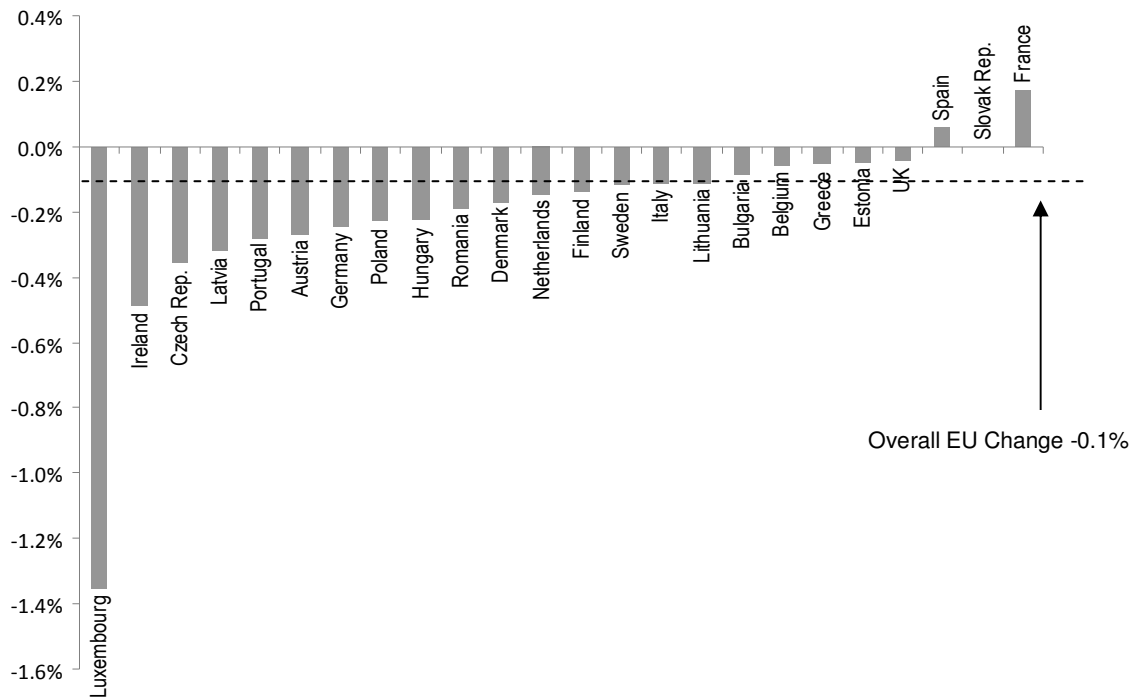


Figure 26 Net percent change in FDI for 27 Member State voluntary CCCTB balanced with transfer changes

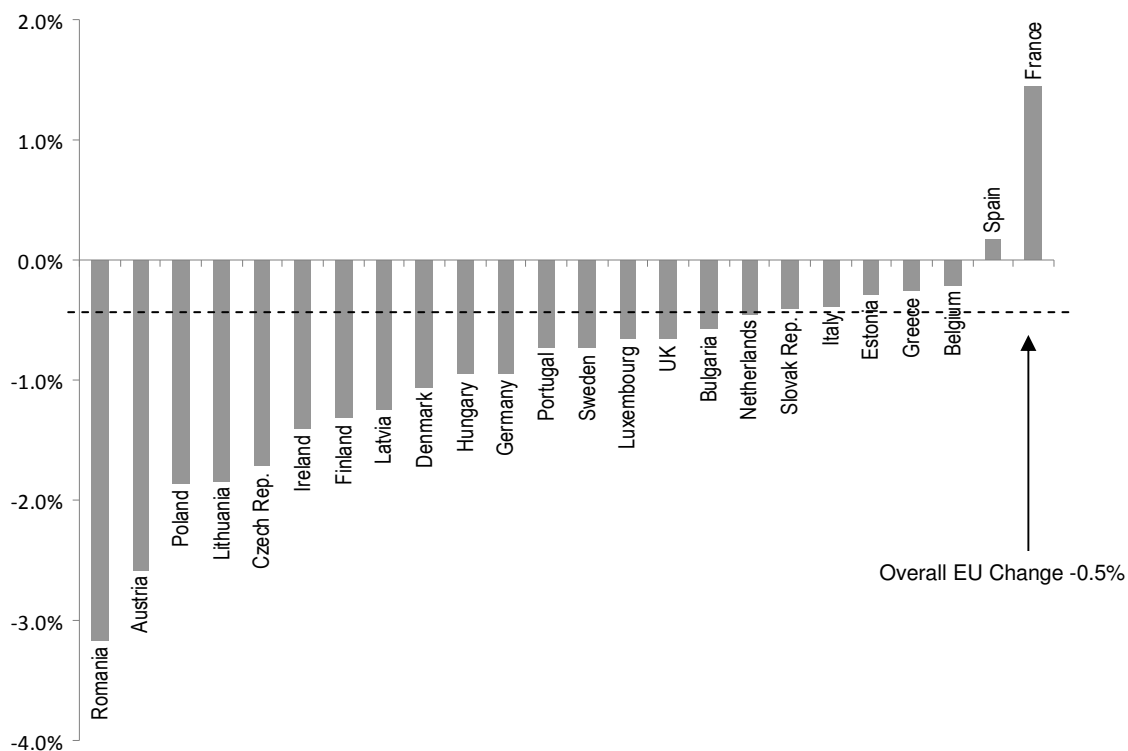


Table 17 presents the net dynamic economic impacts for the nine Member State mandatory CCCTB scenario including the impacts of effective tax rate changes and budget balancing through changes in transfers to households.

Table 17 Net dynamic economic impacts of 9 Member State mandatory CCCTB balanced with changes in transfers

Member State	GDP	Employment	Income	FDI
Austria	-1.0%	-0.6%	-0.6%	-7.5%
Belgium	-0.3	-0.1	-0.1	-0.8
France	0.7	0.4	0.5	2.7
Germany	-0.6	-0.5	-0.4	-2.2
Hungary	-0.6	-0.4	-0.7	-2.5
Italy	-0.7	-0.5	-0.4	-2.8
Luxembourg	-3.1	-1.5	-2.6	-2.7
Netherlands	-0.9	-0.8	-0.8	-3.8
Spain	0.2	0.1	0.1	0.3
<b>Total</b>	<b>-0.3%</b>	<b>-0.2%</b>	<b>-0.2%</b>	<b>-2.2%</b>

Source: Ernst & Young calculations

#### **4.3.4.2 Economic impacts with changes in corporate tax rates to balance budget**

This section presents a summary of the net economic impacts of the three CCCTB scenarios in the case where changes in corporate income tax rates are used to balance participating Member State's budgets. For example, if a Member State collects less corporate income tax revenue under a CCCTB, the Member State would increase the corporate income tax rate to offset the loss in collections. The change in the statutory tax rate then changes the effective tax rates on new investments. The economic impact model is used to estimate the impact of this additional effective tax rate change on a Member State's economy.

Table 18, Table 19 and Table 20 report the dynamic economic impacts for the three CCCTB scenarios. The impacts include both the effective tax rate economic impacts presented in Section 4.3.3 with the economic impacts of changing corporate income tax rates to offset any changes in static corporate income tax collections under the CCCTB scenarios.

A comparison of the economic impacts of CCCTB scenarios using changes in transfer payments or changes in corporate income tax rates show that the impacts can be greater when the budget is balanced by changes in corporate income tax rates. For the 27 Member State mandatory system, the negative economic impacts of the scenario are magnified in a number of countries. For example, comparing Table 15 and Table 18 shows that Germany's decrease in jobs is -0.4% with transfer changes and -0.9% with increases in corporate tax rates.

The changes in corporate income tax rates to balance budgets affects the real economy through the same mechanism as changes in effective tax rates on new investments. However, increases or decreases in tax rates change taxes for all corporations, not just those that are directly affected by the CCCTB. This creates a more complicated picture of net impacts.

In a low-tax Member State, Ireland for example, the effective tax rate impact would reduce overall jobs and economic activity under the CCCTB. However, once all Member States have changed corporate tax rates to balance budgets, the new consolidated average effective tax rate may actually decrease slightly and stimulate the economy. But the increase in the corporate income tax rate for domestic Irish companies would further reduce new investment and economic activity. The net result is that balancing the budget through corporate tax rate increases can have a larger negative impact on the economy than balancing through transfer payments.

In contrast, in the case of a high-tax Member State such as France, the additional corporate tax revenue under CCCTB would result in a reduction in corporate tax rates to balance the budget. The lower rate would increase investment and economic activity for both domestic and multinational companies. This positive impact reinforces the positive effective tax rate impact for France under the CCCTB.

**Table 18 Net dynamic economic impacts of 27 Member State mandatory CCCTB balanced with changes in corporate tax rates**

<b>Member State</b>	<b>GDP</b>	<b>Employment</b>	<b>Income</b>	<b>FDI</b>
Austria	-0.8%	-0.5%	-0.5%	-4.0%
Belgium	0.6	0.5	0.5	1.3
Bulgaria	-3.1	-0.8	-1.1	-12.1
Czech Republic	-1.2	-0.7	-0.8	-2.0
Denmark	-1.6	-1.3	-1.3	-2.6
Estonia	-0.4	-0.2	-0.2	-1.7
Finland	-1.0	-0.9	-0.8	-1.6
France	2.1	1.5	1.6	6.5
Germany	-1.0	-0.9	-0.8	-0.9
Greece	0.0	0.2	0.1	-2.3
Hungary	-0.6	-0.4	-0.6	-1.1
Ireland	-1.8	-1.6	-1.7	-4.5
Italy	-0.2	-0.1	-0.1	-0.9
Latvia	-1.9	-0.5	-1.1	-4.4
Lithuania	-0.9	-0.2	-0.3	-5.0
Luxembourg	-2.6	-1.4	-2.1	-0.3
Netherlands	-1.4	-1.3	-1.2	-1.8
Poland	-1.8	-1.0	-0.9	-8.9
Portugal	-0.8	-0.6	-0.4	-3.6
Romania	-2.3	-0.9	-1.5	-11.3
Slovak Rep.	-0.5	-0.1	-0.2	-2.1
Spain	0.9	0.6	0.6	1.8
Sweden	-0.3	-0.2	-0.2	-1.0
United Kingdom	0.0	0.0	0.0	-1.1
<b>EU Total</b>	<b>-0.1%</b>	<b>-0.2%</b>	<b>0.0%</b>	<b>-0.6%</b>

*Source: Ernst & Young calculations*

**Table 19 Net dynamic economic impacts of 27 Member State voluntary CCCTB balanced with changes in corporate tax rates**

<b>Member State</b>	<b>GDP</b>	<b>Employment</b>	<b>Income</b>	<b>FDI</b>
Austria	-0.6%	-0.4%	-0.4%	-2.5%
Belgium	-0.3	-0.2	-0.2	0.0
Bulgaria	-0.7	-0.1	-0.1	-0.7
Czech Republic	-1.0	-0.6	-0.7	-1.8
Denmark	-0.5	-0.3	-0.3	-1.0
Estonia	-0.2	-0.1	-0.1	-0.3
Finland	-0.5	-0.4	-0.4	-1.4
France	0.5	0.3	0.3	1.9
Germany	-1.6	-1.3	-1.2	-1.0
Greece	-0.1	-0.1	-0.1	-0.2
Hungary	-0.1	0.0	-0.3	-1.0
Ireland	-0.8	-0.5	-0.5	-1.4
Italy	-0.4	-0.3	-0.3	-0.3
Latvia	-1.4	-0.2	-0.9	-1.3
Lithuania	-0.4	0.0	-0.1	-1.9
Luxembourg	-2.9	-1.6	-2.4	-0.4
Netherlands	-0.2	-0.1	-0.2	-0.4
Poland	-0.7	-0.3	-0.4	-1.8
Portugal	-0.1	-0.1	0.1	-0.7
Romania	-1.1	-0.1	-0.5	-3.2
Slovak Rep.	0.0	0.1	0.1	-0.4
Spain	0.2	0.1	0.2	0.2
Sweden	-0.4	-0.3	-0.3	-0.6
United Kingdom	0.3	0.3	0.2	-0.7
<b>EU Total</b>	<b>-0.4%</b>	<b>-0.3%</b>	<b>-0.2%</b>	<b>-0.4%</b>

*Source: Ernst & Young calculations*

**Table 20 Net dynamic economic impacts of 9 Member State mandatory CCCTB balanced with changes in corporate tax rates**

<b>Member State</b>	<b>GDP</b>	<b>Employment</b>	<b>Income</b>	<b>FDI</b>
Austria	-1.0%	-0.6%	-0.6%	-6.5%
Belgium	-0.2	0.0	0.0	0.0
France	1.7	1.3	1.3	4.0
Germany	-1.2	-1.0	-0.9	-2.3
Hungary	-0.7	-0.5	-0.7	-2.7
Italy	-0.5	-0.4	-0.3	-2.5
Luxembourg	-2.6	-1.6	-2.1	-1.3
Netherlands	-1.8	-1.6	-1.5	-4.2
Spain	0.8	0.6	0.6	0.7
<b>Total</b>	<b>-0.2%</b>	<b>-0.2%</b>	<b>-0.1%</b>	<b>-1.8%</b>

*Source: Ernst & Young calculations*



## 5. Qualitative analysis

The preceding chapters have considered the quantitative impact of the CCCTB and identified a number of areas where further research and work would provide information to assist policy makers in determining the response to the introduction of CCCTB. This would then allow policy makers to evaluate the benefits in the long term of adopting a CCCTB.

However, the introduction of a new tax regime poses a number of practical and procedural challenges. Consequently, as well as considering the quantitative impact of the new regime, policy makers would need to address matters of practical design. The choices made here will impact the viability, attractiveness of the regime as a whole and whether it achieves its aims. In this respect, it is noted that the European Commission has consistently argued that:

*'...the implementation of a CCCTB could make a significant contribution to the success of the Internal Market, to improved growth and employment and to the enhanced competitiveness of EU business in the world in line with the renewed Lisbon Strategy.'*

In addition it is claimed that:

*'...the EU could become a more attractive market for investment and this would lead to increased intra-EU investment and foreign direct investment.'*

This chapter therefore outlines some of the, as yet unaddressed, policy design features that the new regime would need to address. These are described in relation to four key aspects that the regime would be expected to have, namely:

- ▶ Simplicity: reduced compliance costs;
- ▶ Competitiveness: aspects of design and risk of distortion;
- ▶ Administration;
- ▶ Transition.

These qualitative comments are based on the review of the prior literature, the US State taxes experience and the experience and expectations of Ernst & Young tax professionals across Europe.

### 5.1 Simplicity: reduced compliance costs

The Commission has consistently argued that a CCCTB would be simpler for companies to operate within and would, therefore, bring compliance cost savings. It said in 2001 that:

*'each Member State has its own set of rules, in particular laws and conventions on financial accounting, rules for determining taxable profit, arrangements for collection and administration of tax and its own network of tax treaties.'*

*The need to comply with a multiplicity of different rules entails a considerable compliance cost and represents in itself a significant barrier to cross-border economic activity. The costs and risks associated with complying with more than one system may in particular discourage small and medium-sized enterprises from engaging in cross-border activity<sup>31</sup>*

In a later 2004 Working Paper, the Commission attempted to quantify these costs. The conclusion was that

*'Weighted total absolute compliance costs are estimated at €1,460,000 for large companies. This corresponds to 1.9% of taxes paid and to 0.02% of sales,*

<sup>31</sup> Commission Staff Working Paper – Company Taxation in the Internal Market. (2001) COM(2001)58 final, 23.10.2001. SEC(2001) 1681 p.8.

respectively. The figures for large companies are consistent with figures presented in other studies. Weighted total absolute compliance costs are estimated at €203,000 for Small and Medium-sized Enterprises (SMEs). This amount corresponds to 30.9% of taxes paid and to 2.6% of sales, respectively. However, these ratios should be taken with great caution...<sup>32</sup>

Devereux<sup>33</sup> estimated that compliance costs across the EU are in the range of 2.7% to 4% of corporate tax revenues. Given these differences, it is not unexpected that, in seeking to estimate the benefits of CCCTB, Devereux and Loretz<sup>34</sup> ignored any compliance costs savings, arguing that:

*'compliance costs under both the current and the hypothetical new system cannot be credibly estimated from the data available.'*

In contrast, however, van der Horst et. al<sup>35</sup> builds savings from compliance costs into the model:

*'simulated compliance costs amount for 10% of the CIT [Corporate Income Tax] - revenues within the EU.'*

And crucially for their model

*'When simulating a switch to the FA [formula apportionment]-system, compliance costs are abolished for all subsidiaries.'*

However, there is a significant question over this assumption and the following sections identify areas where complexity will either continue or increase.

## 5.1.2 Cost savings?

The main compliance burden that would be removed under a CCCTB would be the requirement to prepare an annual tax computation and return for each company in a group. In seeking to estimate the savings, the Commission's 2004 report looked at:

*'all the costs related to complying with tax rules and obligations both within and outside the company (e.g. external consultants), in particular the costs of acquiring information on tax laws and practices, tax obligations (registering, declaration, invoicing, payments and refunds), tax accounting, including tax lawyers, consulting companies, tax audit and litigation. Compliance costs can include salaries... or non-personnel costs... The costs can be incurred within or outside your tax department.'* (page 21)

*Most compliance costs will remain*

These compliance costs included VAT compliance costs (which should not change under the new CCCTB system) and many other costs that would not change or may even get worse. For example, tax accounting costs and the costs of stripping out intra-group transactions on tax consolidation are likely to continue. The CCCTB could result in a significant additional complication in the corporate tax audit in any individual country or company, especially as an adjustment in one country would have necessary corollary effect in all other consolidated entities.

A proportion, if not most, of the costs of complying with tax legislation is outside of the annual tax filing requirement.<sup>36</sup> It could be argued that having to only comply with one corporate tax system across the EU would result in savings in these other costs. This is possible but, in practice, may be difficult to achieve. Every European country has its own legal system and commercial culture; even with the same tax system across the whole of the EU, these variances may require different solutions to the same problems and may still require

<sup>32</sup> European Commission Taxation Papers. European Tax Survey. Working Paper No 3 October 2004 p. 5

<sup>33</sup> Devereux. 2004. Debating proposed reforms of the taxation of corporate income in the EU. International Tax and Public Finance, 11(1), pp 71 -90.

<sup>34</sup> Op cit.

<sup>35</sup> Op cit.

<sup>36</sup> Henehan and Walsh. 2007. Global Tax Risk Management. Tottel; London. p. 8

considerable tax compliance costs for a company that undertakes cross-border activities within the EU.

### 5.1.3 Lack of common base or adjustments

The CCCTB was formulated on the basis of a common base of taxation, which would allow for a consolidation of profits calculated in an identical manner. The shift in the design of the CCCTB away from International Accounting Standards and to local GAAP as the starting point threatens to introduce a level of distortion within the system. Without further action, the same activities in different Member States would no longer produce the same level of profit for consolidation.

This can be accommodated by policy makers in two ways: either to build 'bridges' that address the differences in each Member State to IFRS or to accept that any difference will not be material in impact. Whichever of these options is chosen, the result will be a different calculation of the tax base for each country: if bridges are used, each country's results will need to be adjusted differently, whereas if local GAAP is used, the profits will need to be calculated under local rules rather than a common base.

Consequently, the lack of common starting point reinstates the complexities of different tax bases per Member State. The impact of this will depend on the extent of the differences between local GAAP and IFRS. It should be noted that the amount of compliance saving that would be foregone would be in relation to the number of differences and complexity of calculation rather than the ultimate quantum of any change: even if the result is only a small difference to the IFRS result, the calculations (and indeed audit of them) would be necessary.

To some extent, this could be expected to decline over time, as local GAAP moves more in line with CCCTB. However, this could be an extended process and may take many years to achieve alignment.

### 5.1.4 Divided by the same rules?

Even if there were an agreed intent to bring local GAAP more in line with IFRS, experience with the VAT legislation has shown that differences are likely to remain and compliance savings may be difficult to achieve. In this regard, the Commission's 2004 paper notes that the proportion of cross-border costs of VAT and corporation tax compliance are the same, noting that:

*Experience with VAT shows savings may be difficult to achieve*

*'At first sight this is a surprising finding. A priori one could have expected that the share of foreign compliance costs would be lower for VAT compliance given the large degree of harmonisation of VAT legislation already achieved within the EU. For a company that sells products and services abroad, VAT compliance costs abroad consist mainly of filling in and sending the returns.'*

The explanation behind this may lie with the fact that the VAT system functions in different legal systems and different commercial cultures; this would be similar to the position for the CCCTB. It is inevitable that every State participating in the CCCTB would, to a greater or lesser degree, interpret or implement the rules differently or where there are no explicit rules fill in the gaps differently. These differences may only be slight but, as with VAT legislation, may result in considerable distortions in the treatment between Member States. In fact, the Commission itself is seeking to reform VAT for financial services partly on the basis that the rules are not '*applied uniformly*' and there are differences in interpretation of the same rules among Member States<sup>37</sup>.

This problem arises, to a greater or lesser degree, with all pan-European legislation. Whilst this is not a reason to defer introduction of the CCCTB, it may indicate that compliance cost savings, even if we ignore transition costs, are unlikely to materialise.

<sup>37</sup> IP07/1782. 28 November 2007.

### 5.1.5 Sector specific rules

The Commission has recognised the need for specific rules for financial services sector<sup>38</sup>. A number of debates have also been held in relation to specifics of other sectors that need to be taken into account when defining the CCCTB, including shipping, airlines, oil and gas etc. There are, however, a number of significant questions over this approach. For example, to what extent specific rules are indeed necessary and what sectors should be covered by specific rules. Furthermore, should sector specific rules be included in the CCCTB, it is unclear what would happen to businesses that would fall within more than one sector, i.e. whether businesses would have to apportion its tax base according to different sector specific formulae or, depending of the business activities, one sector specific formula would be applied.

Furthermore, if the Commission adopts a sector specific approach, it is likely that governments would become involved in lobbying activities for inclusion of more sector specific rules into the CCCTB. This may result in increased complexity of the scenario and may potentially negate some of the compliance cost savings.

One of the problems with any type of formula apportionment is that the place that income is really earned within a group may not correlate to where the formula apportions it. This problem is particularly acute for the financial services industry where, for example, the most labor intensive parts of the industry are often the least profitable. There is general agreement that any formula for financial institutions would have to be different to the general formula, for example, including financial assets in the formula apportionment. Having a different formula for financial services would be consistent with the US State taxes experience.

In a report for the Commission prepared by PricewaterhouseCoopers and published in January 2008, a number of preliminary areas for further work were identified:

- ▶ firstly, the definition of what is a 'Financial Institution';
- ▶ secondly the treatment of unregulated 'Financial Institutions'; and
- ▶ thirdly, the treatment of groups with financial and non-financial activities.

The specific adjustments from the general tax base rules for banking, insurance, investment management, pension fund management, and private equity companies were also explored. Although a large number of possible issues have been discussed, no formal solution has yet been produced. In addition, it is clear that certain entities like collective investment vehicles, pension funds etc would not be eligible to opt for the CCCTB.

### 5.1.6 Optionality

*Optionality adds complexity*

A key aspect in the attractiveness of the CCCTB to business has been the principle that groups would be able to choose whether to be within the CCCTB or to continue to operate within domestic corporation tax systems. A side effect of this optionality is that groups would now be faced with the need to evaluate on a regular (currently three year) basis whether they should operate within the CCCTB or operate outside. Given the impact of the change, it is unlikely that groups would regularly move into and out of the regime, but there would be a fiduciary duty on the directors to evaluate whether it is in the best interest of the group.

Consequently, companies would need to undertake reviews on a regular basis and to maintain a basis for calculating the tax liabilities on a domestic base even once they have elected into the regime. This would add a further burden on companies.

### 5.1.7 Transfer pricing and inter-company intra-CCCTB transactions

*Transfer pricing will not disappear*

A key benefit of the introduction of CCCTB is the elimination of the need for the tax computations to recognise transactions between companies within the consolidated group on

<sup>38</sup> See PwC "Study on the possible adjustments for Financial Institutions of the general rules of the Common Consolidated Corporate Tax Base (CCCTB)".

an arm's length basis. Instead, those transactions would need to be eliminated upon the consolidation, which would need to limit taxable income to transactions with consumers or businesses outside of the group. Of course, the fiduciary duty of the directors of each company would remain and hence an element of monitoring would be necessary.

Although this could represent a significant saving for groups with all significant members within the Member States participating in CCCTB, the benefit to those with operations elsewhere would be more limited and such limitations would increase if fewer Member States participated. Transfer pricing would still be required between companies that are external to the consolidated group (including affiliated companies not included in a consolidated group due to less than 75% ownership). Therefore the rationale and the mechanism for determining the transfer price (e.g., the nature of the activities and the ownership and exploitation of intellectual property) may still be required. In addition, it may be assumed that the external transfer pricing would be based on the legal entity and not on the consolidated CCCTB group.

If, as considered above, the groups needed, from a commercial perspective, to monitor the likely tax liability in the domestic corporate tax systems, a limited transfer pricing study would be needed as part of the evaluation.

Consequently, while it is possible that the CCCTB would reduce the level of compliance costs relating to transfer pricing, a core level of work would remain.

### **5.1.8 Accounting for tax**

An additional complication would be the allocation of current and deferred tax liabilities of the consolidated group between the individual companies in the group. For example, the individual company accounts would need to include an amount of deferred tax charge which might be allocated by way of the current year's allocation key. However, if the income in the accounts was recognised for accounting purposes on an arms length basis, the tax liability could in the extreme exceed the total revenue. In such a case, the company could become technically insolvent and be unable to distribute profits under local law. This issue is further complicated in relation to the booking and release of deferred tax assets and liabilities, which could shift around the group as the allocation factors change.

Although methods may be designed to minimize this risk, these options may result in additional complexity and may need to vary as local GAAP rules change.

## **5.2 Competitiveness**

Any tax will, by its nature, reduce the competitiveness of the companies that are subject to that tax. A key concern for governments should, therefore, be to ensure that the tax system affecting companies in their States does not impose undue burdens and allows those companies to compete on a global basis. Taxation reflects the price for operating in a particular country and hence the level of burden that companies are able to bear will depend on the other facets of the country's commercial environment – e.g., infrastructure, skills etc.

The CCCTB allows the individual Member States to vary the tax rate, recognising this dynamic. However, a key element of the competitiveness of a tax system is the tax base, which would now be determined centrally. This raises the following concerns:

- ▶ Certainty;
- ▶ Responsiveness;
- ▶ Anti-abuse;
- ▶ Distortions.

### **5.2.1 Certainty**

A key element of a competitive tax regime is the ability for companies to determine in advance the tax treatment of a transaction with certainty. This requires that the tax base is

*System must be simple and certain*

clearly understood and simple, with little opportunity for interpretation. This will be even more important within the CCCTB where there could be different tax authorities looking at similar transactions.

Currently, the tax base and allocation key are still at an early stage and, therefore, it is not clear how certainty will be achieved.

A further element of certainty is the likelihood of future changes to the tax regime. A key factor here is the theoretical justification behind the key elements of the regime. In this regard, the lack of a theoretical justification for the apportionment formula may lead to instability. This concern is supported by the experience in the US, as discussed in section 6 below

### 5.2.2 Responsiveness

*Reduced responsiveness due to centralization*

The design of the tax system is, by its nature, based on the current and expected future environment and it is inevitable that changes will be necessary as the global economy develops. Given this, companies are used to engaging with their governments in relation to the changes necessary to maintain the competitiveness of the tax regime. Such interaction provides governments with clear and regular dialogue as to the aspects of the tax system which are impeding transactions and placing companies at a commercial disadvantage. Since the tax system is within the control of the Member State, this allows for swift responses where such action is called for.

The centralization of control over the definition of the tax base, in contrast to the subsidiarity seen elsewhere, is likely to reduce the responsiveness of the tax system to changes in the external environment.

### 5.2.3 Anti-abuse rules

One element of responsiveness is the ability to combat avoidance activity. A general anti-avoidance rule on its own would obviously not be sufficient to successfully tackle avoidance in a CCCTB context. Specific anti-avoidance rules would also be required but it would be important to strike a right balance so as not to impede genuine commercial transactions. There is a risk that complex anti-abuse rules would be needed which could adversely impact on European business.

### 5.2.4 Distortion

The apportionment formula allocates profits around the EU based on a fixed basis whereas actual profitability would be different; the CCCTB cannot differentiate between real economic differences among taxpayers. This could have unintended consequences for taxpayers, even in the absence of tax planning.

Formula apportionment based on labor, assets and sales would introduce opportunities for tax planning. In particular, the labor and asset factors could be expected to result in lower labor and asset investment in the EU countries with higher corporate tax rates.

*Unintended distortions*

For example, consider a group that has a research and development operation in Germany attached to a sophisticated plant that makes highly engineered products, with other, less-engineered, products manufactured in China. The company has sales and distribution operations in France, Italy and the UK (all of whom, for this example, are part of the CCCTB) and these operations handle sales in their own countries and for outside the EU. The group opts to be taxed under the CCCTB.

**Table 21 Example of potential distortion**

<b>Existing position</b>	<b>Germany</b>	<b>France</b>	<b>Italy</b>	<b>UK</b>	<b>China</b>	<b>Total</b>
Taxable profit	100	10	10	10	20	150
Tax rate (including local taxes)	40%	33%	40%	28%	25%	
Current law tax	40	3.3	4	2.8	5	55.1
<b>New position</b>						
Labor factor (while wages are higher in Germany, the number of staff is higher in the other locations)	60	40	35	15		150
Asset factor	60	10	10	10		90
Sales factor	60	50	50	50		210
New apportionment of profit	44%	21%	20%	15%		100%
CCCTB taxable profit	57.2	27.3	26	19.5	20	150
CCCTB law tax	22.9	9	10.4	5.5	5	52.8
Change in tax due to CCCTB	(17.1)	+5.7	+6.4	+2.7	0	(2.3)

*Source: Ernst & Young calculations*

Thus, despite the fact that Germany is the ‘engine’ of the whole group, the CCCTB results in less corporate tax in Germany (and less tax for the group overall); this is because the highly profitable ‘intellectual property’ in the German operation is diluted by the labor, asset and sales factors in the sales operations.

This example also demonstrates new tax planning opportunities that CCCTB can create. For example, there would be a greater incentive to shift labor and assets to France and the UK from Germany and Italy, as that would increase the weighting of the UK and French factors and reduce the overall tax liability of the group. There would continue to be an incentive to locate more income and real activities in China. Thus, the CCCTB would not eliminate tax distortions, but only change the type and degree of distortions.

### 5.3 Administrative costs

Although there may be savings (for example, with transfer pricing investigations), the CCCTB may result in additional administrative costs to governments of collecting CCCTB. Although the CCCTB would be a self-assessed system, all tax authorities would have additional costs – outside of any transitional costs of introducing the new tax system (training staff, IT costs etc). These additional costs may include:

- ▶ the costs of having two distinct corporate tax regimes running at the same time;
- ▶ the requirement to interact to a greater extent than hitherto with other tax authorities around Europe (including language difficulties), with the principal tax administrator on a particular taxpayer etc;
- ▶ tax audits may now require a cross-border element. For example, a corporate tax audit in Germany may require a visit to the group’s plant in France to ensure that the labor and property factors are being properly calculated.

*Additional costs likely*

Furthermore, the US State tax experience shows that formula apportionment can result in opportunities for disputes between tax authorities and taxpayers. For example, a number of taxpayers have sought relief from a State's apportionment formula by asserting that the formula does not accurately or fairly measure the extent of a taxpayer's activities in a State. There is a significant amount of debate over the correct measurement of sales in the apportionment formula, including how to determine where the sale of a service takes place, whether measured by location of use or where the service is performed. Another source of debate is the possible distortion in the apportionment of income arising due to the property factor excluding intangible property, but the income from intangibles being included in net income. In this situation, taxpayers have argued that the factors do not accurately represent where income is earned and the distribution of income among the States is distorted.

## 5.4 Transition

The above discussion has focused on the operation of a CCCTB, which is applicable for companies starting up. For companies already in existence that have a significant presence in the EU, there will be concerns over the transition to the CCCTB regime. Some elements of these concerns are set out below.

### 5.4.1 Historic intangible assets – unfair operation of allocation key

The Commission has argued that intangible assets are generated from factors such as personnel costs and research and development laboratories, and, therefore, the allocation key can operate to correctly allocate profits between companies, notwithstanding the lack of inclusion of intangible assets within the asset element of the formula. However, this does not address the situation where a participating company has long held intellectual property from which it generates an income. In such a situation, there would be a negligible contribution to the asset or payroll factor because of the limited additional personnel or assets required.

### 5.4.2 Tax treaties

*Potential treaty conflicts*

The current tax treaties operate on a bilateral basis between the two agreeing countries. Moving to a CCCTB would not alter the legal entity that is transacting with the non-CCCTB company and, therefore, the transaction would, if anything, default back to the treatment offered under the Member States' own treaty. This would undermine the flexibility of the CCCTB regime, requiring groups to monitor and transfer price transactions.

The Commission has acknowledged that existing bilateral tax treaties provisions will conflict with CCCTB rules. This will create considerable complexity and distortions that cannot be eliminated unless the treaties are renegotiated. This will inevitably not be achieved in the short-term.

### 5.4.3 Cost of transition

The empirical studies do not incorporate the transition costs that would occur from introduction of a CCCTB. Although these are one-time costs, they could be very significant during the first few years of the CCCTB. These transitional costs would not just relate to changes to the corporate tax compliance routines.

*Once-off costs in early years*

One of the key resources in any business enterprise is its organisational routine.<sup>39</sup> This is its standard operating procedures, the way it solves problems and serves customers, 'the way things are done around here'. For example, Mercedes' production process, Zara's design process or Ikea's logistical process are based around strong intangible, largely tacit, organisational capabilities that are applied consistently across the whole organisation. Currently the routines in any company that does business across Europe are based around nationally based corporate tax systems. A group that opts for CCCTB would find that the new system would incentivise it to change its organisational routines.

<sup>39</sup> Nelson and Winter. 1982. An Evolutionary Theory of Economic Change. Harvard.



Consider a group with a manufacturing operation in Poland and sales and distribution centres in Germany, Hungary, Austria, France, Italy and Switzerland serving their local markets. Currently, these sales and distribution operations are taxed on a cost-plus basis supported, for tax purposes, by a transfer pricing exercise. If the group was to expand any one of these operations or open a new one, there is a well established corporate routine in place. However, if the group opts for the CCCTB, this routine is now disrupted by the new tax system.

On the one hand the requirement to undertake transfer pricing work is much diminished, but not completely eliminated (because of the Swiss operation, and EU affiliates not in the group). On the other hand, the existing routine for resource allocation is changed. For example, if the company wants to increase the sales force in Germany, there is a new type of decision to be made: how does the increase in the German labor (and probably asset) factor change the overall corporate tax profile of the group? The CCCTB may provide an incentive to locate this new labor force in Poland or Switzerland and sell cross-border – with changes to selling, delivery, accounting, VAT and other routines. For this reason, in our view, many groups, even where there are ‘trapped’ losses or other obvious savings from opting for the CCCTB, may not, in the end, opt.

## 5.5 Considerations for policy makers

The above discussion has highlighted a number of key considerations for policy makers in any future developments of the CCCTB:

- ▶ The cost savings under CCCTB may be overestimated. For example, tax accounting costs and the costs of eliminating intra-group transactions on tax consolidation are likely to continue under CCCTB. In addition, the CCCTB is likely to result in a significant additional complication in the corporate tax audit in an individual country or entity;
- ▶ It is unclear as to what extent sector specific rules are necessary and what sectors should be covered by the specific rules. In addition, the current working papers do not provide for the case where businesses would fall within more than one sector. It is unclear whether businesses would have to apportion its tax base according to different sector specific formulae or, depending of the business activities, one sector specific formula would be applied;
- ▶ If the Commission adopts a sector specific approach, it is likely that there would be a strong lobby for more sector specific rules. This is likely to result in increased complexity of the scenario and may potentially negate some of the compliance cost savings;
- ▶ Even if there were an agreed intent to bring local GAAP more in line with IFRS, experience with VAT legislation has shown that differences are likely to remain and compliance savings may be difficult to achieve. In addition, it is inevitable that every Member State participating in the CCCTB would, to a greater or lesser degree, interpret or implement the rules differently or, where there are no explicit rules, fill in the gaps differently;
- ▶ A side effect of the voluntary scenario is that groups would be faced with the need to evaluate on a regular basis whether they should operate within the CCCTB or operate outside. As a result, this would add a further burden to the companies;
- ▶ While it is possible that the CCCTB would reduce the level of compliance costs relating to transfer pricing, a core level of work would remain. For example, transfer pricing would still be required between companies that are external to the consolidated group;
- ▶ An additional area of complication under CCCTB would be the allocation of current and deferred tax liabilities to the individual company accounts. This could cause difficulties in local company accounts, for example potentially changing the ability to pay dividends;
- ▶ The lack of a theoretical justification for the apportionment formula may lead to instability and increase uncertainty for taxpayers. In addition, the centralization of control over the definition of the tax base is likely to reduce the responsiveness of the tax system to changes in the external environment;

- ▶ Formula apportionment is likely to introduce opportunities for tax planning. In particular, the labor and asset factors could be expected to result in lower labor and asset investment in the EU countries with higher corporate tax rates;
- ▶ The CCCTB may result in additional administrative costs to governments of collecting CCCTB. These additional costs may include the costs of having two distinct corporate tax regimes running at the same time; the requirement to interact to a greater extent than hitherto with other tax authorities around Europe and tax audits may require a cross-border element under CCCTB. In addition, the US State tax experience shows that formula apportionment can result in opportunities for disputes between tax authorities and taxpayers and tax authorities;
- ▶ There will be concerns over the transition to the CCCTB regime. In particular, the transition in respect of the intangible assets and double taxation agreements. Consequently, the transition to the new CCCTB regime is likely to result in significant transitional costs.

## 6. Lessons from the US States' experience with income combination and apportionment

In considering the design of a CCCTB, the experience in the US, where a number of States require corporate income taxpayers to file under combined reporting of income using formula apportionment to determine the State's share of the group's income, is instructive. The overriding theme is that such a mechanism is unlikely to be either uniform or stable over time and the key concerns are discussed below.

In the US, individual US States can impose corporate income taxes. The rates vary from nil (where a State does not impose any such tax) to over 10%. US State taxes are considered a useful analogy for the CCCTB as State taxes are usually based on the federal tax base, thus providing, to some degree, a common base across the US. In addition, States, under combined reporting, commonly use apportionment formulae to attribute multi-state income to that State. However, this analogy should not be taken too far. US State taxes are considerably lower than corporate tax rates across the EU and the tax rate arbitrages available are also smaller: it is possible that these quantitative differences may have a qualitative effect. Furthermore, each US State imposes its own tax rules, with no formal central authority or even coordination with other States, and its base and formula may differ from other States.

Despite these differences between the US State taxes and the CCCTB, the following points are worth noting.

### 6.1 Combined reporting

Generally States use either combined reporting or separate filing to determine the quantum of income of a multistate corporation that is taxable in a State. Combined reporting treats affiliated companies as though they were operating as a single taxpayer for purposes of determining taxable income. Under this approach, the separate profits (or losses) of each affiliate are added together to determine the group's taxable income. The combined income is then distributed to a specific State using an apportionment formula based on one or more factors (payroll, property and sales) that measure the relative size of the group's economic activities in the State.

*US split between combined reporting and single filing*

The States are split on the question of the relative benefits of combined reporting. Twenty States use some form of mandatory combined reporting, while 31 States have separate filing systems. Before 2006, no State had adopted combined reporting in over two decades but, since then, four States with corporate income tax systems have adopted combined reporting. The new adoptions were aimed at reducing the perceived shifting of income among the States for tax planning purposes.

Proponents of combined reporting argue that it results in more uniform treatment of domestic and multistate corporations and increased State tax collections, while opponents argue that revenue impacts are very uncertain and are likely to have a negative impact on a State's competitiveness.<sup>40</sup> There is still sharp disagreement among the States over the desirability of adopting combined reporting. Similar disagreement within the EU will make it very difficult to adopt a uniform system among the Member States.

### 6.2 Variation in the apportionment formula

Among the States using combined reporting, there is substantial variation in the formulae used to apportion (allocate) among the States.

Over 50 years ago, representatives of selected States agreed to a uniform, equally-weighted, three-factor formula (payroll, real and tangible property, and destination sales) for

<sup>40</sup> These issues are discussed in detail in Robert Cline, "Understanding the Revenue and Competitive Effects of Combined Reporting", *State Tax Notes*, June 23, 2008 (pp. 959-980).

apportioning combined income.<sup>41</sup> However, this uniformity has not lasted. Driven primarily by interstate tax competition and economic development objectives, the majority of the States now have formulae with at least 50% weight on the sales factor. At least 19 States have adopted a sales factor only apportionment formula for all or a significant group of industries. In fact, State representatives are currently meeting to re-evaluate and revise the original model statute on apportionment.

This challenge supports the concern that it will be very difficult to defend a uniform apportionment formula for the CCCTB if the EU respects the tax sovereignty of individual Member States and the CCCTB increases corporate tax competition.

### 6.3 Business diversity

The more diverse the business activities among members of the group, the weaker the rationale for consolidation and apportionment of income and the greater the economic distortions caused by the CCCTB.

The fundamental argument for combined reporting in the US is that parents and subsidiaries are so interdependent and unified in terms of ownership, operation and shared use of services that income cannot be assigned to a specific subsidiary under separate accounting. This perspective also recognises that not all subsidiaries linked by ownership are 'unitary' in terms of their operations. In the US there are constitutional constraints that prohibit States from forcing non-unitary affiliates to be part of a combined group to prevent States from taxing extra-territorial income.<sup>42</sup>

The CCCTB rules to date have not included this unitary relationship constraint for determining which commonly owned affiliates are included in the consolidated group. As a consequence, the CCCTB system will likely result in a greater mismatch between where income is earned and where it is apportioned compared to the US system. There could be a substantial disconnect between the distribution of measureable apportionment factors and of the value-added activities that actually generate the income. In simple terms, the factor distribution does not line up with where the group earns its income.

Mechanically, consolidation of income and apportionment would result in the attribution of the group's average income per unit of factors to each subsidiary and in each country. If there is little or no economic interaction (beyond arm's-length transactions) between some of the affiliates, this average profitability per factor assumption would not be realistic and would not reflect economic reality. Given the increasing importance of intangible income in the corporate sector and the fact that intangible assets cannot practically be included in the apportionment formula (no 'factor representation'), this disconnect will become increasingly important over time. The greater this mismatch, the stronger will be the incentive for the group to shift the factors out of high-tax Member States. The incentive to shift factors to affect the group's overall tax burden will also be greater the larger the difference in tax rates among the Member States.

This experience shows that corporate taxpayers can be expected to challenge the CCCTB consolidation and apportionment rules as resulting in a distorted allocation of income to different Member States, including over allocating income to high-tax countries. This may lead to the interjection of a 'unitary' concept into the CCCTB. Politically, the larger the distortion, the less defensible will be the apportionment factors and weights adopted for the CCCTB and the greater will be the pressure to continuously adjust the formula. The debates over the formula will focus on the redistribution of taxes among the Member States.

<sup>41</sup> The agreement was the Uniform Division of Income for Tax Purposes Act (UDITPA) of 1957.

<sup>42</sup> See Walter Hellerstein and Charles McLure, Jr., 'The European Commission's Report on Company Income Taxation: What the EU Can Learn from the Experience of the US States,' *International Tax and Public Finance* (2004) for an evaluation of the desirability, from both a policy and administrative perspective, of requiring both an ownership and a economic relationship to be included in a consolidated group.

## 6.4 Sales throwback rule

The CCCTB throwback rule may be more controversial than the current discussion suggests. In the US, a number of States have adopted throwback provisions for the destination sales factors. These provisions reassign sales to other States to the home State if the home-state company is not taxable in the destination State. This provision is defended as needed to avoid 'no-where' income that is not taxed in any State. However, there are a number of States that reject the throwback concept as having a negative impact on a State's economic competitiveness. Member States may also differ in their perceptions of how the conflicting revenue and competitiveness objectives should be balanced.

## 6.5 State-by-state revenue impacts

The State-by-state revenue impacts of combination and apportionment are very uncertain and difficult to estimate reliably in the US, as they would be under a CCCTB.

State revenue estimators in separate filing States have very limited information to estimate the expected revenue impacts of adopting combined reporting. For example, they do not know which companies will satisfy the criteria used to determine affiliates in a group, they have limited information on accumulated losses and unused credits, and they may have no information about companies that are not current taxpayers but may be included in a group.

Even if the net income of a unitary group is measured accurately, it is difficult for estimators to measure the apportionment factors of members of the unitary group that are not currently State taxpayers. Mandatory combined reporting requires that the group's net income be apportioned to the combined filing State based on the State's share of the group's total factors (payroll, property and sales or only sales). Separate filing States are generally limited to knowing only the in-state share of factors for each separate filer. In addition, estimators do not have information on intercompany sales between members of the combined group that need to be eliminated under combined reporting.

As a result of these data limitations, there is a significant level of uncertainty in estimating the revenue impact of a State's adoption of combined reporting. In addition, the States' revenue estimating experience highlights the fact that the net impact of adopting combined reporting includes both tax increases and decreases for a large number of taxpayers. As a result, relatively small errors in estimating both tax increases and decreases can interact to produce much larger overall errors in the net impact figures.

## 6.6 Factor planning

The experience in the US suggests that the focus of corporate income tax controversy in the EU would switch from transfer pricing and income sourcing under separate accounting to sourcing of factors under CCCTB.

The US experience supports the concern raised in section 5.2.4 above, and suggests that the definition of the factors would become the focus of dispute between taxpayers and tax administrators under the CCCTB. This controversy will be in addition to the continuing transfer pricing disputes over transactions between affiliates in and outside of groups and EU and non-EU affiliates. In addition, it is very likely that the definition of factors would be changed legislatively over time. This is particularly true with sourcing the sales of services.

States are moving away from the traditional approach of assigning sales to the State where the largest portion of the costs of performing services occurs. Instead, States are switching to a market approach of assigning sales to the State where the customers reside. The lesson is that the market Member States will push for sourcing of the sales of services to market country. In addition, the sourcing of sales of intangibles is and will continue to be controversial.

In the US, the sales factor is the most 'mobile' factor and, in the EU, the one most likely to be initially adjusted to redistribute income across Member States in response to CCCTB. As a result, the sales factor is expected to create significant controversy regarding income apportionment. Any subsequent shifts in the other factors, payroll and property, would impact the level of investment and employment in the Member States.

The sourcing issues must be resolved at the EU-level if a uniform CCCTB is to be defended. However, the debate will most likely focus on economic competitiveness and the level of taxes that a Member State can raise at any fixed rate.

## 7. Conclusions

The purpose of this paper was to:

- ▶ review the more important of a series of prior quantitative analyses of the effects of a Common Consolidated Corporate Tax Base in the EU;
- ▶ carry out static analysis which presents estimates of the potential impact of the CCCTB on the Member State tax collections before consideration of behavioral effects and resulting changes in economic activity. In addition, carry out dynamic analysis which presents the estimates of the economic effects of the CCCTB due to behavioral effects of companies and the economy in each Member State;
- ▶ evaluate other features of the CCCTB not addressed in these analyses but which should also be considered by policy-makers; and
- ▶ consider lessons that may be relevant for the EU from US States' experience with income combination and apportionment (see Section 6).

The main conclusions resulting from the literature and the quantitative and qualitative analyses are as follows:

### The CCCTB is likely to be close to a zero-sum game

The one empirical study measuring the welfare effects of a CCCTB finds that it would have negligible effects on welfare (0.02% of GDP). The efficiency gains from assumed lower compliance costs and assumed elimination of transfer pricing would be offset by new tax distortions, particularly from formula apportionment. As noted in the study, new tax planning under formulary apportionment affecting decisions on labor and capital

*'is more distortive than with transfer pricing'<sup>43</sup>.*

As a result,

*'the European Union hardly benefits on average from such common consolidated base taxation'<sup>44</sup>.*

**Table 22 Comparison of results from empirical studies**

Study	Focus	Summary of Findings
Devereux & Loretz	Change in tax revenue  Static analysis of financial data	<ul style="list-style-type: none"> <li>▶ 2.4% decline in EU revenue under <u>optional</u> CCCTB</li> <li>▶ 2% increase in EU revenue under <u>mandatory</u> CCCTB</li> <li>▶ Significant differences in change in revenue across Member States.</li> </ul>
Fuest, Hemmelgarn & Ramb	Change in tax base  Static analysis of tax and financial data	<ul style="list-style-type: none"> <li>▶ 22% decline in tax base of German multinationals</li> <li>▶ Significant differences in change in revenue across MS.</li> </ul>
Van der Horst, Bettendorf & Rojas-Romagosa	Change in welfare  Behavioral analysis	<ul style="list-style-type: none"> <li>▶ Negligible change in economic welfare (0.02% of GDP) due to mandatory CCCTB</li> <li>▶ New distortions from CCCTB outweigh existing distortions from transfer pricing</li> <li>▶ CCCTB would increase tax competition</li> <li>▶ Significant differences across Member States in changes in corporate taxes, capital and welfare.</li> </ul>
Ernst & Young	Static analysis of change in tax base using financial data  Dynamic analysis of economic impacts	<ul style="list-style-type: none"> <li>▶ 0.2% decline in EU revenue under <u>optional</u> CCCTB</li> <li>▶ 0.6% increase in EU revenue under <u>mandatory</u> CCCTB</li> <li>▶ 0.2% decline in GDP due to CCCTB under <u>mandatory</u> CCCTB</li> <li>▶ 0.1% decline in GDP due to <u>optional</u> CCCTB</li> <li>▶ Differences across Member States in changes in income, GDP, FDI, and employment.</li> </ul>

<sup>43</sup> Van der Horst, p. 21.

<sup>44</sup> Van der Horst, p. 4.

Thus, the CCCTB would do little to increase the size of the overall economic 'pie'. With little change in efficiency, the debate focuses on the redistribution of the tax base among Member States, and the impact that the new system would have on business decisions on where to increase real investment or employment among the Member States.

### **There would be significant winners and losers among individual countries**

The effects of a CCCTB would depend on the coverage of the CCCTB, both in terms of the number of participating Member States and the number of companies opting in to the system. The empirical studies to date suggest that a CCCTB would create significant winners and losers, assuming no change in corporate tax rates, across Member States with respect to corporate tax revenues. The net impact on a Member State's corporate tax revenues, as well as on the tax liabilities of specific groups of taxpayers, would be determined by three major differences between current law corporate tax systems and the CCCTB:

- ▶ first, the CCCTB may change the definition of the tax base – an example would be a change in the calculation of depreciation allowances;
- ▶ second, the CCCTB would result in a reduced tax base for many taxpayers by allowing full offsets of cross-border losses among group members, and
- ▶ third, the CCCTB would redistribute the resulting tax base across Member States based on the distribution of measures of economic activity ('factors'). This can differ substantially from the current law distribution based on the use of separate accounting to determine the location of income.

Depending on the specific CCCTB scenario, some Member States would have significantly greater corporate tax revenues while other Member States would lose significant corporate tax revenues. Member States that would lose significant corporate tax revenues are less likely to be willing to participate in a CCCTB system.

Fewer participating Member States would reduce the potential positive effects of a CCCTB. From a company rather than a Member State perspective, the empirical studies to date also suggest that a non-optional CCCTB would create significant winners and losers among EU-resident groups of companies.

The estimated revenue effects for some countries are very sensitive to number of elements, including:

- ▶ the specific formula apportionment factors;
- ▶ whether the system is optional or mandatory;
- ▶ the specific Member States participating in the CCCTB; and
- ▶ the sample of companies included in the analysis.

Figure 25 brings together the two key CCCTB impacts that have been analysed in this study using the 27 Member State mandatory CCCTB system to compare the two impacts. The diagram ranks Member States by estimated static corporate income tax revenue changes on the vertical axis and dynamic employment changes along the horizontal axis. Member States in the "Common Losers" (southwest) quadrant, including Germany, Ireland, Denmark and the Netherlands, are Member States that lose both corporate income tax revenue and employment under the 27 Member State mandatory CCCTB system. Groups operating in these countries tend to face higher effective tax rates on new investments under the CCCTB. In addition, because they also lose corporate tax revenues, these Member States must either decrease transfers to households or increase corporate income tax rates to balance their budgets, there is an additional negative impact on their economies.

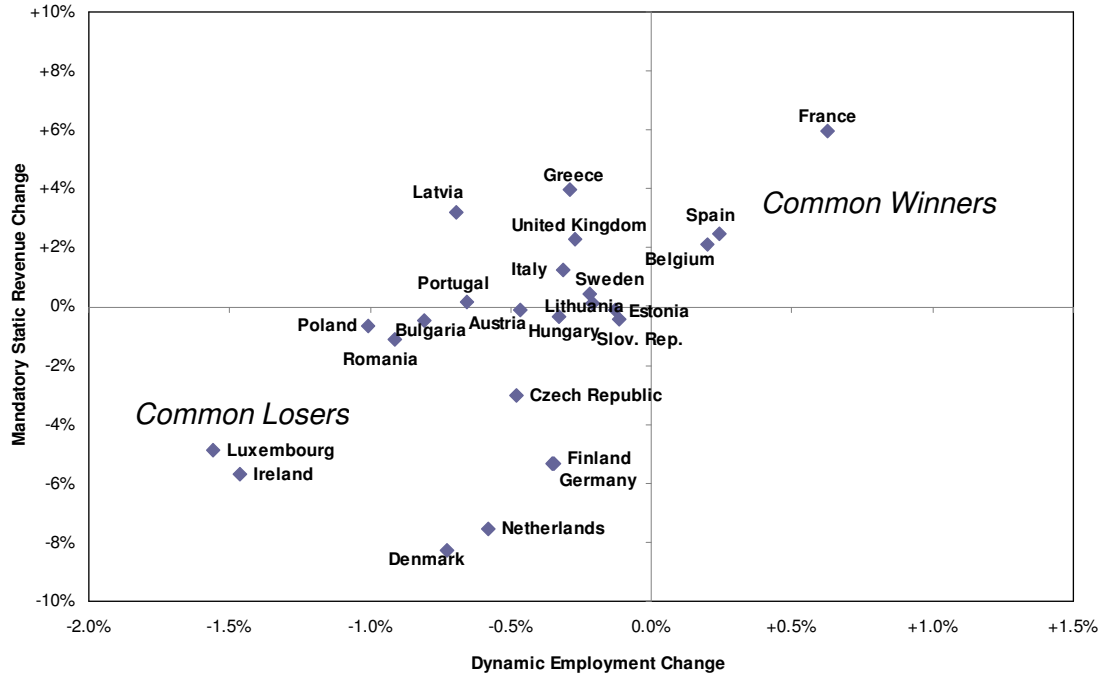
Countries in the "Common Winners" (northeast) quadrant – France, Spain and Belgium – benefit in terms of both higher revenues and lower effective tax rates on new investments. The lower effective tax rates generate more investments and jobs in these countries. Because of higher corporate income tax collections, these countries can either increase



transfers to households or reduce corporate income taxes. Both effects operate in the same direction to increase economic activity.

The remaining Member States in the northwest quadrant actually gain revenue under the 27 Member State mandatory CCCTB system. However, the increase in effective tax rates on new investments in these countries generates an overall negative impact on their economies.

**Figure 27 Comparison of revenue and economic impact results**



**There are severe limitations to the prior empirical analysis**

The empirical studies to date that provide country-by-country estimates of the change in corporate tax bases or revenues do not include a destination sales factor, a key component in the CCCTB system, in the apportionment options they evaluate. Given the demonstrated sensitivity of the impact estimates to the choice of factors and factor weighting, this could be a serious limitation.

Other important details such as specific industry apportionment factors and a throwback sales rule would affect Member State’s expected corporate tax revenues (and their economic effects) under CCCTB. These details have not been included in the analyses.

**Table 23 Comparison of key study findings**

	Focus	Includes Behavioral Effects	Includes Financial Detail	Includes Adjustment for Common Tax Base	Calibrated to Aggregate Member States’ Statistics	Includes Industry Level Detail	Includes Proposed Loss Offsets	Includes Proposed Destination Sales Factor	Optional vs. Mandatory CCCTB System
Devereux & Loretz	Change in Revenue	No	Yes	No	No	No	Yes	No	Both
Fuest, Hemmelgarn & Ramb	Change in Tax Base	No	Yes	No	No	No	Yes	No	Mandatory only
Van der Horst, Bettendorf & Rojas-Romagosa	Change in Welfare	Yes	No	Depreciation only	Yes	No	No	No	Mandatory Only
Ernst & Young Analysis	Change in Revenue and Economics	Yes	Yes	Yes; for five main types of adjustment	Yes	Yes	Yes	Yes	Both

The EY analysis, albeit with some limitations, attempts to improve and expand upon the prior empirical analysis.

The lesson from the US is that the CCCTB system should not be adopted without solid information about the winners and losers among the Member States. There could be a significant reduction in the aggregate EU tax base, as well as substantial redistributions of the base among Member States.

### **While reducing some current distortions, a CCCTB could result in new tax-induced economic distortions due to factor shifting**

The prospect of potential large tax changes for some companies would be likely to stimulate their consideration of relocating their property and labor, as well as outsourcing and in-sourcing of services. This is partly due to the fact that the formula used to apportion consolidated EU income would create interdependencies among the different Member States. In effect, changes in real factors, rather than shifts in income only (through transfer pricing and financial transfers), would result in redistributions of the base across participating Member States.

The experience from the US suggests that under CCCTB the focus of corporate income tax controversy in the EU would switch from transfer pricing and income sourcing under separate accounting to sourcing of factors under CCCTB.

### **Compliance cost savings may not materialise**

The use of local GAAP and 'bridges' will import greater complexity into the calculation of the profit and, depending on the mechanism of implementation, may undermine the commonality of the calculation. This lack of commonality is increased further by the prospect of sector specific rules.

An optional CCCTB would require Member States to operate two different corporate income tax systems: their current national system and a CCCTB. This would not reduce administrative or compliance costs.

A CCCTB would not eliminate transfer pricing outside the consolidated group. Arms'-length pricing between EU-resident companies and affiliated third-country resident affiliates, together with transactions between CCCTB companies and affiliated companies with less than 75% ownership, would still require transfer pricing. In addition, administration would be necessary to identify and eliminate transactions within the CCCTB group and the fiduciary duty of the directors of each company would remain, hence an element of monitoring would be necessary.

Although there may be some savings, the CCCTB may result in additional administrative costs to governments. These additional costs may include:

- ▶ the costs of having two distinct corporate tax regimes running at the same time;
- ▶ the requirement to interact to a greater extent than hitherto with other tax authorities around Europe (including language difficulties), with the principal tax administrator on a particular taxpayer etc; and
- ▶ tax audits may now require a cross-border element. For example, a corporate tax audit in Germany may require a visit to the group's plant in France to ensure that the labor and property factors are being properly calculated.

Furthermore, the US State tax experience shows that formula apportionment can result in opportunities for disputes between tax authorities and taxpayers and tax authorities.

Moving to a CCCTB will not alter the legal entity that is transacting with the non-CCCTB company and, therefore, the transaction will, if anything, default back to the treatment offered

under the Member States' own treaty. This will undermine the flexibility of the CCCTB regime, requiring groups to monitor transactions.

The empirical studies do not incorporate the transition costs that would occur from the introduction of a new CCCTB. Although these are one-time costs, they could be very significant during the first few years of the CCCTB. Furthermore, the transition into the CCCTB could result in unfairness in relation to the interaction of the apportionment formula and historic activity.

**Lessons from the US experience indicate that CCCTB is unlikely to be a stable tax system over time**

The US States are split on the question of the benefits vs. costs of combined reporting.

20 States use some form of mandatory combined reporting, while 31 States have separate filing systems. Before 2006, no State had adopted combined reporting in over two decades but, since then, four States with corporate income tax systems have adopted combined reporting. The new adoptions were aimed at reducing the perceived shifting of income among the States for tax planning purposes.

Over 50 years ago, representatives of selected US States agreed to a uniform, equally-weighted, three-factor formula (payroll, real and tangible property, and destination sales) for apportioning combined income.<sup>45</sup> However, this uniformity has not lasted. Driven primarily by interstate tax competition and economic development objectives, the majority of the States now have formulae with at least 50% weight on the sales factor. At least 19 States have adopted a sales factor only apportionment formula for all or a significant group of industries. Furthermore, State representatives are currently meeting to re-evaluate and revise the original model statute on apportionment.

The US experience shows that corporate taxpayers can be expected to challenge the CCCTB consolidation and apportionment rules on the basis that they result in a distorted allocation of income to different Member States, over allocating income to high-tax countries. This may lead to the interjection of a 'unitary' concept into the CCCTB. The larger the distortion, the greater will be the pressure to continuously adjust the formula. The debates over the formula will focus on the redistribution of taxes among the Member States.

<sup>45</sup> The agreement was the Uniform Division of Income for Tax Purposes Act (UDITPA) of 1957.

## Appendix A Common tax base effect of CCCTB

The impact of adopting a common tax base on the tax bases of EU Member States has been estimated based on an evaluation of broadly defined tax base items by the Ernst & Young EU Competency Group. Since the European Commission's working documents currently available are imprecise and yet to be finalised,<sup>46</sup> the potential effects represent educated predictions and estimates. Thus, given the incomplete details of the common tax base, the effects on Member States' tax bases are characterised into five levels of changes from current law: significant reduction, modest reduction, no significant change, modest increase and significant increase.

The impact for any particular company would be determined by the company's specific tax situation, but based on the experience of Ernst & Young tax professionals and their current understanding of the CCCTB rules; the adoption of CCCTB is expected generally to affect the tax base in each country as shown in Table 24.

**Table 24 Degree of change in corporate income tax base due to common tax base definition in the CCCTB system for 27 Member States**

	Significant decrease	Modest decrease	No significant change	Modest increase	Significant increase
Austria				✓	
Belgium					✓
Bulgaria		✓			
Czech Republic		✓			
Denmark			✓		
Estonia			✓		
Finland		✓			
France					✓
Germany			✓		
Greece			✓		
Hungary			✓		
Ireland		✓			
Italy			✓		
Latvia				✓	
Lithuania				✓	
Luxembourg				✓	
Netherlands			✓		
Poland		✓			
Portugal		✓			
Romania				✓	
Slovak Republic				✓	
Spain			✓		
Sweden					✓
United Kingdom			✓		

Three of the Member States are expected to have a significant increase (greater than 5%) in their tax base as a result of moving to the common tax base, six Member States would have a modest increase, nine Member States would not have a significant change in the tax base (less than 1%), while six Member States would have a modest decrease in their tax base.

<sup>46</sup> For example, several important common tax base issues have not been fully specified in the European Commission's working documents, including taxation of foreign income, financial sector taxation, tax depreciation and amortisation, thin capitalisation, and controlled foreign corporations.

In the course of the analysis, the following issues appear likely to give rise to the potential of significant changes in tax bases of EU Member States:

- ▶ controlled foreign corporation rules;
- ▶ participation exemption on dividends receivable and capital gains on sales of shares;
- ▶ loss carry forward limitations and lack of domestic tax consolidation;
- ▶ provisions;
- ▶ restrictive thin capitalisation rules;
- ▶ tax depreciation and amortisation; and
- ▶ tax favourable regimes.

In addition, the elimination of profits of intra-group transactions and changes in tax planning could also affect the tax base of all EU Member States, but have not been included in the characterisation of the potential change.

## Appendix B Description of data and calculations

The Amadeus database contains over 6m individual company financial records for 2005. Not all companies could be included in the analysis due to missing information critical to the analysis. Although imputations were made for many variables, companies were excluded if they did not report an amount for tax, or did not have sufficient asset or income information for the imputations. The screening process is shown in Table 25 for all EU companies.

Most of the 2.6m companies excluded due to missing information did not report tax information. A small number of parent companies reported only consolidated information, which could result in double counting if their subsidiaries are already included. Including consolidated information could also include taxes and income of non-EU subsidiaries that would not be subject to the CCCTB.

The remaining 4m companies are included in the Ernst & Young CCCTB model, and have €14.9 trillion of total fixed assets, being 70% of the total assets reported in the full Amadeus database. 3.8m of the companies are single company companies or subsidiaries that do not meet the 75% consolidation ownership threshold for inclusion in the CCCTB. The 197,247 companies are part of domestic and multinational groups that would potentially be affected by CCCTB legislation.

**Table 25 Description of screening the Amadeus database**

<b>Companies by type</b>	<b>Number of companies</b>	<b>Amount of total fixed assets</b> € bn
Companies in full Amadeus data base	6,601,772	21,620
Exclude records with significant missing information, including tax	2,578,972	2,750
Exclude potential double counting of consolidated parent company records	21,904	3,997
Single company companies or companies below group ownership threshold	3,803,649	9,063
Companies in groups affected by the potential CCCTB legislation	197,247	5,810

*Source: Amadeus and Ernst & Young calculations*

### Descriptive statistics from the CCCTB sample

Table 26 shows the 55,345 groups in the CCCTB model that would potentially be subject to the CCCTB by whether they are a single-country group or a multinational group, and by Member State. Multinational groups account for only 11% of the total groups affected by the CCCTB in the EU, but account for 58% of the groups' employees.

Table 26 Group and employee distribution across Member States

Member State	Single country groups		Multinational groups <sup>1</sup>	
	Number of groups	Number of employees	Number of groups	Number of employees
Austria	21	55,849	55	49,954
Belgium	3,398	302,428	1,644	490,112
Bulgaria	433	126,190	39	9,606
Czech Republic	35	25,388	251	160,633
Denmark	7,109	398,178	1,350	319,993
Estonia	219	31,915	318	46,967
Finland	1,171	152,929	716	329,831
France	8,109	1,314,857	2,523	2,997,139
Germany	1,375	631,523	963	1,424,148
Greece	408	148,939	209	61,256
Hungary	6	2,386	184	114,199
Ireland	78	14,125	277	29,578
Italy	2,752	892,627	1,436	614,428
Latvia	27	15,435	106	20,739
Lithuania	5	1,101	74	9,611
Luxembourg	2	338	39	2,332
Netherlands	647	110,096	821	147,479
Poland	444	557,467	656	286,814
Portugal	569	194,218	251	100,853
Romania	1,024	332,478	561	157,663
Slovak Republic	1	75	42	21,011
Spain	5,603	988,556	1,618	868,126
Sweden	10,749	658,907	1,503	657,501
United Kingdom	5,203	3,233,079	1,888	2,395,070
<b>EU27 Total</b>	<b>49,388</b>	<b>10,189,087</b>	<b>5,847<sup>2</sup></b>	<b>11,315,040</b>

<sup>1</sup>Group is added to country total if one or more employees work for a subsidiary or parent operating in that country.

<sup>2</sup>Equal to total number of multinational groups operating in one or more EU Member States.

Source: Ernst & Young calculations

The Amadeus database has different degrees of coverage of companies in different countries. Some countries may have higher or lower employment in group companies due to coverage differences or due to the form of company organisation. Extrapolation of the sample results to match reported total corporate income tax collections attempts to address these issues.

Table 27 shows the distribution of companies in the Ernst & Young CCCTB model by Member State. In addition, the table shows that 95% of the companies are single companies or subsidiaries that do not meet the 75% ownership requirement. The other 197,247 companies are part of domestic and multinational groups that would be subject to potential CCCTB legislation.

**Table 27 Company ownership information by Member State**

<b>Member State</b>	<b>Parents and subsidiaries at least 75% owned</b>	<b>Single company and less than 75% owned companies</b>
Austria	136	136
Belgium	14,319	289,704
Bulgaria	1,247	25,941
Czech Republic	391	48,787
Denmark	23,026	119,217
Estonia	975	51,857
Finland	4,863	70,642
France	39,219	781,932
Germany	5,956	38,704
Greece	1,321	24,428
Hungary	233	268,683
Ireland	547	6,104
Italy	11,065	528,091
Latvia	179	3,243
Lithuania	99	4,214
Luxembourg	47	493
Netherlands	3,160	10,047
Poland	2,143	26,501
Portugal	2,139	68,358
Romania	3,137	473,784
Slovak Republic	57	5,248
Spain	21,043	565,404
Sweden	35,420	201,783
United Kingdom	26,525	188,578
<b>EU 27 Total</b>	<b>197,247</b>	<b>3,803,649</b>

*Source: Ernst & Young calculations*

Table 28 shows the distribution of missing data necessary to be imputed for the companies subject to potential CCCTB legislation. A surprising high percentage of companies do not report sales, employees or employee compensation. In some countries, few companies report selected information, such as Greece and Ireland, for employee compensation.



Table 28 Percentage of missing data in CCCTB affected companies

Member State	Companies affected by CCCTB	Turnover	Operating revenue	EBIT	Employees	Cost of employees	Tangible fixed assets	Total fixed assets
Austria	136	18%	12%	0%	37%	10%	4%	7%
Belgium	14,319	54	42	0	37	33	8	8
Bulgaria	1,247	8	9	2	13	15	1	1
Czech Republic	391	5	4	0	6	5	1	1
Denmark	23,026	100	74	2	54	50	11	12
Estonia	975	5	5	0	17	34	0	0
Finland	4,863	7	6	1	23	16	7	7
France	39,219	11	9	0	25	19	0	0
Germany	5,956	15	7	0	67	19	8	11
Greece	1,321	5	2	0	18	100	0	0
Hungary	233	5	2	0	72	8	0	0
Ireland	547	98	38	10	61	98	20	22
Italy	11,065	5	1	0	35	14	0	0
Latvia	179	0	0	0	1	93	0	0
Lithuania	99	1	1	0	0	100	0	0
Luxembourg	47	23	15	0	98	19	4	4
Netherlands	3,160	59	51	3	17	44	10	13
Poland	2,143	1	1	0	14	35	2	4
Portugal	2,139	12	8	0	86	16	3	4
Romania	3,137	8	6	0	9	9	0	0
Slovak Republic	57	2	2	0	2	2	0	0
Spain	21,043	13	9	0	22	15	0	3
Sweden	35,420	21	18	4	39	38	7	13
United Kingdom	26,525	100	24	8	46	47	21	22
<b>EU27</b>	<b>197,190</b>	<b>25%</b>	<b>15%</b>	<b>1%</b>	<b>35%</b>	<b>36%</b>	<b>5%</b>	<b>6%</b>

Source: Amadeus Data and Ernst & Young calculations

## Computation of taxable income

Taxable income is computed as follows: when taxable income is not missing and not equal to zero, taxable income is defined as taxes grossed-up using country's statutory tax rates. When taxation is not reported, taxable income is replaced by zero. For companies that report zero tax amounts, taxable income is replaced by earnings before interests and taxes (EBIT).

$$\pi = \begin{cases} \frac{TAX_{it}}{\tau_t} & \text{if } TAX_{it} \neq 0 \\ EBIT_{it} & \text{if } TAX_{it} = 0 \\ 0 & \text{if } TAX_{it} \text{ is MISSING} \end{cases}$$

By contrast, Devereux & Loretz (2007) replaces negative amount of taxes by the lower of EBIT or reported tax.

## Estimating destination sales apportionment factors

For companies reporting export turnover, Amadeus entity-level financial information contains origin sales by entity and export turnover by entity for some companies. Export turnover reflects all exports from the entity's headquarters country.

The sales factor numerator for the headquarters country equals total revenue (turnover) less reported export sales.

The destination sales factor numerator for other EU Member States is estimated by allocating total reported export turnover from Amadeus to each other Member State and the rest of the

world. The numerator for each non-headquarters Member State equals export turnover multiplied by the ratio of exports to the Member State divided by total exports by industry.

Destination sales factors for companies not reporting export turnover by entity in Amadeus are estimated using origin sales reported in Amadeus multiplied by the ratio of industry exports to total output for the headquarters country to determine total company export sales.

$$\text{export turnover} \times \frac{\text{demand}_{(\text{commodity, country})}}{\text{demand}_{(\text{commodity, EU-HQ country})}}$$

The sales factor numerator equals total estimated export sales multiplied by each Member State's share of total trading partner commodity demand.

Companies reporting entity level employment are assumed to have permanent establishments and employees only in country of their headquarters.

## Estimating extrapolation factors

Table 29 shows the calculation of the extrapolation factor used calibrate the model results to the current law total corporate income tax collections in the Member States. Eurostat reports €304bn of total corporate income tax collections in the EU27 Member States in 2005. The 4m companies in the Ernst & Young CCCTB model reported €292bn corporate income taxes, or 96% of the total. In that case the extrapolation factor would be 1.04.

**Table 29 Tax of companies affected by CCCTB and extrapolation factor**

Member State	Official tax	Total tax reported by all companies in sample	Extrapolation factor
Austria	€5,695	€668	8.52
Belgium	10,223	11,540	0.89
Bulgaria	632	348	1.81
Czech Republic	4,482	3,011	1.49
Denmark	8,083	14,958	0.54
Estonia	160	643	0.25
Finland	5,248	4,667	1.12
France	39,885	43,383	0.92
Germany	38,565	38,958	0.99
Greece	6,402	2,120	3.02
Hungary	1,877	1,720	1.09
Ireland	5,701	2,308	2.47
Italy	33,629	46,506	0.72
Latvia	260	141	1.84
Lithuania	437	152	2.87
Luxembourg	1,753	209	8.37
Netherlands	18,735	14,147	1.32
Poland	6,069	4,113	1.48
Portugal	4,151	2,930	1.42
Romania	2,137	1,816	1.18
Slovak Republic	1,049	696	1.51
Spain	35,647	33,690	1.06
Sweden	10,703	11,743	0.91
United Kingdom	61,490	50,971	1.19
<b>EU 27 Total</b>	<b>€ 304,628</b>	<b>€ 292,094</b>	<b>1.04</b>

Source: Ernst & Young calculations

Extrapolation factors range from 0.25 in Estonia to 8.52 in Austria. Seven of the countries have extrapolation factors below one, where the government tax collections are smaller than those reported in financial statements by companies located in the country. Several reasons could explain this result. First, financial reported taxes include both current and deferred taxes; only current taxes would be reported as collections by the government. Second, taxes include amounts paid to the domicile government as well as to other countries where the companies have permanent establishments. To the extent that the domestic government provides an exemption of foreign source earnings or a foreign tax credit for taxes paid on

foreign earnings, the amount of taxes reported should not be fully allocated to the domicile country.

On the other hand, most countries report higher corporate tax collections than the financial reported taxes. This could be due to taxes paid by non-EU based countries with permanent establishments, but not subsidiaries in the EU. Also, a number of companies did not report tax information on their financial reports, yet may still pay corporate taxes. Other companies were excluded from the analysis because other financial information necessary for the analysis was not available. Finally, some companies paying corporate income taxes may not be included in the Amadeus database. Nonetheless, the extrapolation methodology is an attempt to calibrate the model to actual tax collections.

## Appendix C Methodology for estimating dynamic economic impacts of CCCTB

The following sections describe the methodology used to estimate the dynamic impacts of the CCCTB. Figure 28 provides an overview of the different steps involved.

### Group economic and tax data

The beginning point for the dynamic impact estimating process is the estimated distribution of the apportionment factors (payroll/employment, assets and sales) for all of the companies included in multinational groups that meet the ownership requirement for the CCCTB. The factor distribution is determined from the information in the Amadeus database, as adjusted and extended by Ernst & Young, used to simulate the static revenue impacts of the change in the corporate income tax system.

The dynamic impact model incorporates an industry-by-industry distribution of each factor in the Member States where they operate for groups that are taxpayers in a specific Member State. For example, the model has a distribution of the factors across all 27 Member States for companies in groups that are manufacturers. Each factor ratio (percentage of the total EU factor in a Member State) is multiplied by the apportionment formula factor weights (1/3 assets, 1/3 destination sales, 1/6 employees, and 1/6 payroll) to derive the overall apportionment percentage for each country in which groups in a specific industry operate. As described in the next section, the overall apportionment percentages by industry are then used to estimate 2008 effective corporate income tax rates.

### Estimating changes in effective tax rates

The first step in estimating CCCTB's impact on relative tax rates on new business investments is to determine the different weighted average tax rates that would apply under the three CCCTB scenarios. The starting point is the top current-law statutory tax rate in each affected Member State (shown in Table 11). The statutory tax rates are adjusted to recognize current tax-law differences in determining the tax base in each Member State.<sup>47</sup> The resulting effective tax rates (also shown in Table 11) are then used to calculate the weighted average CCCTB effective tax rates.<sup>48</sup>

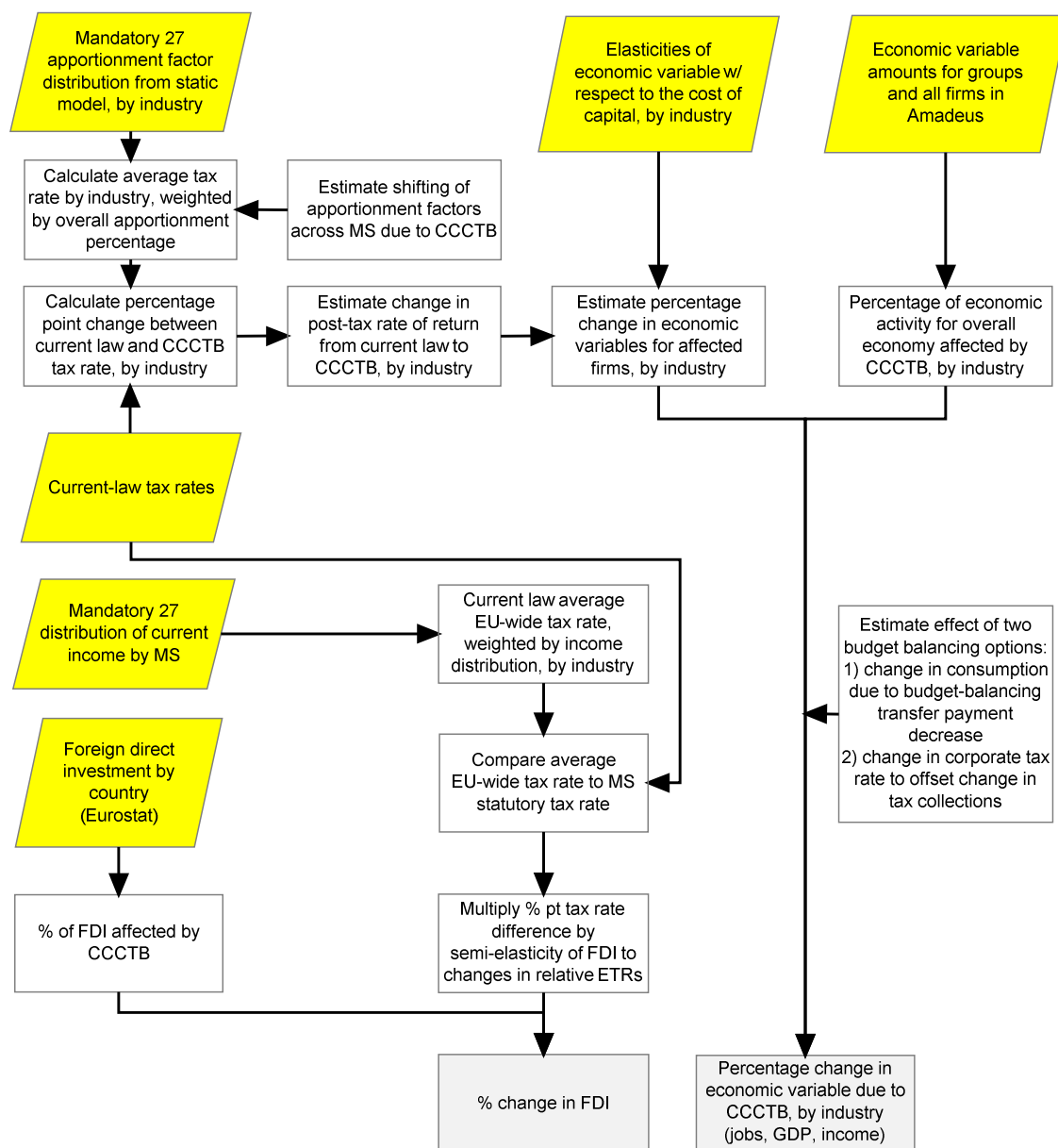
The key change from current law under the CCCTB is the fact that there is a single EU-wide tax rate that applies to changes in a group's EU-wide income generated by new investments. In other words, the individual Member State tax rates are replaced with a single, weighted consolidated average tax rate where the weights equal the percentage of EU-wide factors (payroll, jobs, assets and sales) for a group in each Member State where they operate. If a company expands investment and jobs in a low-tax rate Member State, the additional income is not taxed at the Member State's statutory tax rate under CCCTB; instead, it is taxed at the weighted average tax rate of all the Member States where the group operates, a tax rate that can be significantly higher than the rate in the Member State where the new investment occurs.<sup>49</sup>

<sup>47</sup> The adjustments to statutory tax rates are based on effective average tax rate estimates presented in Michael P. Devereux and Simon Loretz, "Increased Efficiency Through Consolidation and Formula Apportionment in the European Union?," Oxford University Centre for Business Taxation, WP 08/12 (June 2008). The adjustment ratios equal the paper's current system domestic investment effective average tax rates reported in Table 11 divided by the current system statutory tax rates reported in Table 10.

<sup>48</sup> The effective tax rates calculated in the dynamic analysis differ from those calculated in the static analysis because 2005 statutory tax rates were used to estimate the static impacts. Further, the rate used in the dynamic impact analysis assumes that companies will shift factors and will not have losses to offset positive net income.

<sup>49</sup> The CCCTB apportionment formula introduces an interdependency across the Member States where a group is operating. For example, a major investment in a low-rate Member State would increase the percentage of total EU factors in that country while simultaneously reducing the factor percentages in other, higher-rate countries. This creates a new incentive to shift factors from high- to low-tax Member States under the CCCTB.

Figure 28 Steps in estimating dynamic economic impacts of the CCCTB



As a result, the change in effective tax rate on new investments (compared to current law) depends upon the factor distributions of each group. In this analysis, the CCCTB effective tax rates are calculated assuming that corporations affected by CCCTB increase their investments proportionately in all of the participating Member States where they are currently operating. In this case, the new business investments do not change the apportionment formula weights used to calculate the effective tax rates.<sup>50</sup> The Ernst & Young database used to estimate the static revenue impacts of the CCCTB provides estimates of these factor distributions for affected companies operating in each Member State. For example, the data provides estimates of the percentage distribution of total EU factors by Member State for

<sup>50</sup> The assumption used in the first step of the estimation process that the factor weights are not changed with new investments is one of the two approaches used to estimate CCCTB average effective tax rates in Devereux and Loretz (2008). The second approach to estimating CCCTB effective tax rates discussed in their paper is to increase an investment in a single country. Under this approach, the distribution of a group's factors would change, along with the effective tax rates, when businesses expand investments in a single country. This second round feedback effect is not considered in the Ernst & Young analysis.

groups with factors in Ireland. These percentages (weights) are multiplied by the tax rates in each Member State to get the weighted average effective tax rate that applies to a new investment in Ireland under each CCCTB scenario. Similar calculations are made for each participating Member State.

These initial CCCTB effective tax rates are then adjusted to reflect the following factors:

- ▶ Under the CCCTB, the relative tax rates would rise in low-tax countries and decrease in high tax countries. This would create an incentive to shift factors from a high-tax Member State to a low-tax Member State; the size of the incentive depends upon the difference in statutory tax rates among Member States. This feedback effect would then alter the initial estimate of the effective tax rates on new investments. By increasing the relative weights on the tax rate in the low-tax Member State and decreasing the weight on the tax rate in the high-tax Member State, this factor shift would lower the overall CCCTB effective tax rate. The analysis includes an adjustment for the factor-shifting impact. The adjustments range from a 5% decrease in effective tax rates in Ireland to a 2% increase in Austria.<sup>51</sup>
- ▶ The CCCTB also allows cross-border loss offsets that reduce the overall effective tax rates for participating groups. The Ernst & Young data is used to estimate the country-by-country percentage reductions in the corporate income tax base (and effective tax rates) due to the unlocking of cross-border losses. The percentage reductions range from 0.3% to 10.7% with an average of almost 2%.
- ▶ The CCCTB scenarios impose a common corporate income tax base on companies affected by the new system. The Ernst & Young estimates of changes in the tax base reported in the static revenue impact analysis are used to adjust the effective tax rates to reflect the impact of increases or decreases in effective tax rates due to the base effect. For example, in a Member State where the CCCTB expands the tax base the effective tax rate is increased relative to current law.

## Changes in the cost of capital

The CCCTB effective tax rate is compared to the current law tax rate to determine the Member State industry-by-industry percentage change in effective tax rates. Assuming an after-tax target rate of return for investors (12 percent, for example), the change in effective tax rates is converted into percentage changes in the cost of capital for investments in each Member State. The percentage change is the difference in the before-tax rate of returns under the CCCTB and current law divided by the before-tax rate of return under current law. This percentage change becomes the denominator in the elasticity calculations that convert the percentage change in the cost of capital into percentage changes in the selected economic variables, including jobs, income and GDP.

## Economic responses to changes in the cost of capital

The changes in the cost of capital, by industry, triggered by the shift to CCCTB are multiplied by estimates of the elasticity of employment, income and GDP to percentage changes in the cost of capital derived from a number of EU and the US empirical studies. In addition, elasticities by industry are derived from Ernst & Young's experience in modelling the impacts of changes in corporate tax rates and the cost of capital on the economies of open-bordered States in the US.

By estimating the impacts by major industry groups, the dynamic impact model allows for significant variation in aggregate economic impacts across EU countries. In addition, a detailed input-output model for almost all countries was used to calibrate the elasticity

<sup>51</sup> The estimates of the factor shifting impact on average effective tax rates for selected countries is based on computable general equilibrium model CCCTB simulation results presented in Albert van der Horst, Leon Bettendorf, and Hugo Rojas-Romagosa, "Will Corporate Tax Consolidation Improve Efficiency in the EU?," Tinbergen Institute Discussion Paper, TI 2007-076/2 (September 2007). In their paper, the factor-shifting impact is described as the difference between the formula apportionment (ex ante) and formula apportionment (ex post) average tax rates of multinational groups.

impacts for differences in the composition of economic activities within each Member State. The elasticities tend to range between -0.5 and -1.0 for most industries and countries.

The input-output multipliers used in this step were created using country-level, input-output matrices for each Member State for which data is reported in Eurostat. The tables show the interaction of businesses and households in 53 sectors of the economy. Tables showing the use of commodities by industries, the making of commodities by industry, and the imports of commodities by industry are combined and used as input data in calculating output multipliers for each of 53 sectors of the Member State economies. The multipliers measure the total change in output for a Member State economy given a direct change in the output of an industry. These detailed multipliers are aggregated to the sectors reported in the results by using a weighted average of the economic activity for each industry included in the aggregated sector where the weights equal the level of output in each industry in a specific sector.

## **Budget balancing impacts**

The above steps provide estimates of the economic impacts of the CCCTB scenarios due to changes in the cost of capital due to changes in effective corporate income tax rates. In addition, Member States would be required to balance their budgets through offsetting changes in expenditure programs or corporate and other taxes. Two budget balancing changes are considered in this study:

1. a change in government transfers to households.
2. changes in corporate income tax rates.

To estimate the impact of balancing the budget through changes in transfers, it is assumed that transfers are reduced (increased) by the amount of the reduction (increase) in static corporate income tax revenues under each of the CCCTB scenarios. Changes in transfers to households change household income levels and consumption. The consumption changes are modelled by multiplying the percentage change in household income by income elasticities that measure the percentage change in consumption for major expenditure categories for a one percent change in income.<sup>52</sup> The resulting changes in consumption are then multiplied by each country's multipliers (described above) to get the budget-balancing impacts on jobs, GDP and personal income. The sum of the cost-of-capital and budget-balancing impacts gives the net impacts of CCCTB scenarios on a Member State's economy.

The elasticities are derived from a review of the economic literature, as well as results of the US State-level economic impact models used by Ernst & Young in a number of tax impact policy studies focused on apportionment taxation. The elasticities are adjusted for differences in the relative size of a country's economy. As explained in the Annex, changes in a country's foreign direct investment use a different methodology.

## **FDI Impacts**

The methodology for estimating the impact of the CCCTB on direct foreign investment (FDI) is somewhat different from that used to estimate the impact of CCCTB on employment, income and gross domestic product. The estimating steps begin with Ernst & Young's calculation of effective tax rates (described above, but calculated over all industries for a specific Member State) under CCCTB and current law. However, to use the estimated elasticity or responsiveness of FDI to corporate tax rate changes reported in Gorter and

<sup>52</sup> The country-by-country income elasticities of demand are based on the elasticities reported in Table 7 of the United States Department of Agriculture study by James Seale, Jr., Anita Regmi and Jason Bernstein, "International Evidence on Food Consumption Patterns," Technical Bulletin Number 1904 (October 2003). The country-by-country elasticities for nine aggregate expenditure categories are presented in Table 7 of the study. Ernst & Young adjusted these elasticities for several expenditure categories based on experience modelling the impact of tax changes on state economies in the US.

Parikh, the tax variable is calculated for each Member State as a difference between the Member State's tax rate and the average rate for all EU countries.<sup>53</sup>

The change in the tax rate difference under CCCTB is the variable that is then used to calculate the response of FDI under the new system. A semi-elasticity measure of -4 is then multiplied by the percentage point change in the tax rate difference to calculate the percentage change in FDI. In the final step, the resulting change is reduced to size to account for the fact that only a portion of corporate taxpayers (and their FDI) are affected by the CCCTB scenario.

For example, in France, a relatively high corporate income tax rate Member State, the difference between France's tax rate and the average falls by almost three percentage points in going from the current law tax system to a 27 Member State mandatory CCCTB system. This increases FDI into France. In contrast, in Ireland, a relatively low-rate Member State, shifting to the 27 Member State mandatory CCCTB would increase the tax rate difference by 13 percentage points. This would reduce FDI flows into Ireland.

In interpreting the impacts of the CCCTB scenarios on a Member State's real economy, it is important to understand the composition of FDI. FDI includes real investment in new and expanded plant and equipment. However, it also includes financial flows that are not directly related to real investment, such as mergers and acquisitions, retained earnings and net purchases of debt and other financial instruments. Financial flows related to mergers and acquisitions may account for more than 50% of FDI.<sup>54</sup>

<sup>53</sup> Gorter, Joeri and Ashok Parikh, "How Mobile is Capital in the European Union," CPB Netherland Bureau of Economic Analysis (November 2000). The -4 value of the semi-elasticity in this study roughly corresponds to an elasticity of FDI to changes in corporate tax rates of -1.0.

<sup>54</sup> Ruud A. De Mooij and Sjeff Ederveen, "Taxation and Foreign Direct Investment: A Synthesis of Empirical Research," International Tax and Public Finance (November 2003) estimate that the figure is 60%.



## Appendix D Glossary

The following terms and abbreviations are used in this report:

<b>Dynamic economic analysis</b>	Analysis of the economic effects of the CCCTB due to behavioral effects of companies and the economy in each Member State.
<b>Static revenue analysis</b>	Analysis of the impact of the CCCTB on Member State tax collections before consideration of behavioral effects and resulting changes in economic activity.
<b>ETR</b>	Average effective tax rate. For a Member State the ETR is the statutory tax rate adjusted for differences in the income tax base. For each group participating in the CCCTB, a weighed average effective tax rate is calculated using the country-by-country distribution of economic activity (measured by the apportionment factors) for the group as the weights on Member State's effective tax rates. The weighted average ETR is the tax rate that is assumed to apply to the income generated from additional investments in each Member State.
<b>FDI</b>	Foreign direct investment
<b>GDP</b>	Gross domestic product

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