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IAS/IFRS in Belgium: Quantitative Analysis of the Impact on the Tax Burden of Companies

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Quantitative Analysis of the Impact
on the Tax Burden of Companies**

Jacqueline Haverals

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Wirtschaftsforschung GmbH

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Non Technical Summary

The aim of this study is to assess the impact of an IAS/IFRS-based tax accounting on the tax burden of Belgian companies. In a broader context, it wants to analyze the tax competitive position of Belgium against other member states and determine if taking IAS/IFRS as an initial starting point for tax purposes will change Belgium's position. The member states that are being analyzed are the Czech Republic, France, Germany, the Netherlands, Poland and the United Kingdom.

The calculations of the tax burdens are based on the *European Tax Analyzer* which derives the effective average tax burden by simulating the development of a German manufacturing medium-sized corporation over a period of ten years. The rules for the computation of the profit cover: depreciation (methods and tax periods for all assets considered, extraordinary depreciation), inventory valuation (LIFO, FIFO, HIFO and weighted average costs), production costs (full and partial costs), development costs (immediate expensing or capitalization) and the elimination and mitigation of double taxation on foreign source income (exemption, foreign tax credit, deduction of foreign taxes). The original version of the program took into account provisions for bad debt, loss relief and contributions to employee pension schemes. The simulation process takes into account the IAS/IFRS that reveal significance differences in the area of expenses. Indeed this analysis relies on the tax principle of realization. This means that differences regarding the realization of revenues (fair value valuation, percentage of completion method...) are disregarded since the use of IAS/IFRS for tax purposes in conformity with the realization principle does not involve any differences in earnings. As regards expenses, the four following methods apply. Firstly, the depreciation method: depreciation of intangibles, buildings and tangible fixed assets is only allowed on a straight-line basis based on the asset's useful life (IAS 16). Secondly, the tax depreciation periods for buildings: production buildings are depreciated over forty years and office buildings over fifty years. Thirdly, the production costs: IAS/IFRS require accounting for full costs excluding production overheads. Fourthly, the inventory valuation method: IAS/IFRS prescribe the FIFO method as benchmark.

The results of using IAS/IFRS for tax purposes show that the tax burden of Belgian companies will be broadened by 3.8% to 14.6% depending on the sector's financial and accounting characteristics. These consequences are mainly attributable to the favourable regime of *amortissements dégressifs* which is not accepted by IAS/IFRS.

From a European perspective, it appears that when the tax burden is determined by national GAAP then Belgium has the fifth lowest tax burden, just after the Netherlands and before Germany and France. IAS/IFRS-based tax accounting should not change the current tax competitive ranking of countries. Since the use of IAS/IFRS broadens the tax base, a reduction of the Belgian corporate income tax rate could be done to help companies to switch to IAS/IFRS and improve the attractiveness of Belgium.

IAS/IFRS In Belgium: Quantitative Analysis Of The Impact On The Tax Burden Of Companies¹

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Abstract:

The adoption of IAS/IFRS in the European Union is part of the European Commission's global tax policy whose aim is to establish a coordinated corporate tax base. The paper examines the impact of an IAS/IFRS- based tax accounting on the effective tax burden of Belgian companies for eleven different sectors. The use of IAS/IFRS as a starting point for tax purposes affects differently each sector, depending on its accounting and financial characteristics. Some sectors like construction and automotive vehicles see much larger increases in effective tax burdens than others but the impact remains in general relatively important.

JEL-Classification: H21, H25

Key words: IAS/IFRS, tax law, tax burden

¹ The author has stayed at the ZEW in November 2004 to conduct research in the field of international taxation and tax burden comparisons. This paper summarises the results of the research. The author thanks Professor Dr. Christoph Spengel, Professor Dr. Dr. h.c. mult. Otto Jacobs, Thorsten Stetter and Carsten Wendt of the Department of *Corporate taxation and public finance* of the Centre for European Economic Research (ZEW) for their help in conducting this analysis.

1. Introduction

In October 2001², the European Commission made the proposal to use IAS/IFRS for tax purposes in order to create a coordinated corporate tax base in the European Union. The expected advantages are³: an increased transparency within tax accounting, the opportunity for a further development of an EU-wide tax base, the decrease of tax compliance costs resulting from the coexistence of twenty five different tax systems and the reduction of obstacles in connection with cross-border activities.

In Belgium the adoption of IAS/IFRS has already raised several questions and concerns regarding their impact on the tax burden of companies.

Since Belgium does not apply any tax consolidation mechanism, adopting IAS/IFRS will only have an influence if our State uses the option to require or permit IAS/IFRS in the annual accounts of companies. This paper sets the perspective of the implementation of this option.

The paper is divided into four sections. The first section consists of an introduction to the *European Tax Analyzer* and the model-firm used in this study. The aim of the second section is twofold: determining the current tax burden of companies as it is computed by Belgian tax accounting rules and assessing the importance of the impact on the tax burden of companies when IAS/IFRS are used as a starting point for determining the taxable income. The third section examines if taking IAS/IFRS as an initial starting point for tax purposes will change the current tax competitive position of Belgium against other member states. Finally the fourth section draws some conclusions.

2. The *European Tax Analyzer* program

2.1. Methodological approaches to compute tax burdens

Measuring effective tax burden can be accomplished using several methodological approaches. However, it has been established that the best indicators for the effective levels of

2 European Commission, COM (2001) 582 final, pp. 19 and SEC (2001), pp.373-383

taxation are derived from forward-looking models⁴. These models refer to hypothetical future projects when backward-looking approaches consider data accumulated in the past and derived either from individual financial statements of companies as from macro-economic accounts⁵.

Depending on the type of investment and its return respectively, we can distinguish between the *effective marginal tax rate* (EMTR) and the *effective average tax rate* (EATR). While the first one measures the extra tax of an additional project that is worthwhile (i.e. the presumed rate of return equals the cost of capital), the second one measures the effective tax burden of projects that earn more than the capital costs (i.e. projects generating economic revenues or positive net present values of the firm/investment)^{6 7}.

One method to compute the EATR is the model-firm approach which can be simply characterised as a firm-specific combination of several investments (assets) and sources of finance taking into account at the same time all relevant interrelations between sales, investment, profit distribution, etc... This method has been used several years ago by the OECD but only on a one period basis⁸.

The analysis conducted in this paper is based on the *European Tax Analyzer* which is a multi-period forward looking computer programme that has been evaluated by the European Commission in 2001.

2.2. Methodological concepts of the *European Tax Analyzer*

The *European Tax Analyzer* has been jointly developed by the Centre for European Economic Research (ZEW) and the University of Mannheim⁹. It calculates and compares effective average tax burdens for companies located in different countries of the European Union. The

3 European Commission, COM (2001) 582 final, pp. 18

4 OECD (2000) quoted in Jacobs, O. and Spengel, C., (2000), pp. 6

5 European Commission (2003)

6 Jacobs, O. and Spengel, C., (2002), pp. 6

7 Schreiber *et al.* (2002)

8 OECD (1985) quoted in Jacobs, O. and Spengel, C., (2002), pp. 6

countries that are considered are: Germany, France, the Netherlands, United Kingdom, United States, Austria, Poland, Czech Republic, Slovak Republic, Latvia and Hungary. Because the model-firm is designed as a corporation, the tax burden can be calculated at the level of the corporation and at the level of the shareholders.

The effective average tax burden is derived by simulating the development of a manufacturing medium-sized corporation over a period of ten years. Data of the asset equipment and funding as well as business plans (taken from German statistics) serve as initial data for the tax calculations. Business plans include variable estimates about production, sale, procurement, number of staff, staff costs, investment, financing and distribution schemes. Besides, economic data such as different lending and borrowing interest rates and inflation rates are taken into account. As regards the financing, the company is funded with shareholders' equity and debt. Concerning the use of the profit, the company may distribute dividends to its shareholders or invest in property, plant and equipment and financial assets in addition to retaining profits.

The tax liabilities in each country are derived from the assessment of the company over a ten-year period under the rules of the country. The effective average tax burden is expressed as the difference between the pre-tax and the post-tax value of the firm at the end of the ten years¹⁰.

2.3. The computation of tax burdens

The computation of the total tax burden and the EATR takes four steps¹¹. In the first step, the pre-tax value of the firm at the end of the simulation period is calculated. The pre-tax value of the firm is derived from the estimated cash flows and the value of the net assets at the end of the ten years. The cash flows are derived from estimates in the corporate planning for the cash receipts (sales and other receipts, gains upon the disposal of assets, interest and dividend income) and expenses (wages, expenses for material, energy consumption, new investments,

9 See Spengel, C.,(1995); Jacobs, O. and Spengel, C., (1996); Meyer, R., (1996)

10 An equivalent expression of the effective average tax burden is the effective average tax rate which is the difference between the pre-tax and the post-tax return on the equity capital invested in the corporation divided by the pre-tax return.

11 The following description of the four steps is taken from Jacobs, O. and Spengel, C., (2002), pp. 9- 12

interests expenses and distributed profits). The cash flow is derived from financial planning and calculated every period. It is assumed that any given amount of surplus cash flow at the end of a single period can be invested at a given interest rate and any given deficit can be covered by borrowing money at a given debit rate. This is then considered for the computation of the cash flow in the next period.

The value of the net assets at the end of the ten years is calculated by deducting the liabilities of the corporation (and, if relevant of the shareholders) from the assets. The assets are valued at their replacement prices and the liabilities at their nominal values.

Pre-tax cash flow at the end of the simulation period

+ value of the net assets at the end of the simulation period (= assets in the capital stock at replacement prices – liabilities in the capital stock at nominal values) (1)

= pre-tax value of the firm at the end of the simulation period

All relevant taxes that may be influenced by investment and financing are taken into account. The current model¹² allows a choice to be made between several accounting options (tax electives) enabling a company to influence its taxable income. The rules for the computation of the profit cover: depreciation (methods and tax periods for all assets considered, extraordinary depreciation), inventory valuation (LIFO, FIFO, HIFO and weighted average costs), production costs (full and partial costs), development costs (immediate expensing or capitalization) and the elimination and mitigation of double taxation on foreign source income (exemption, foreign tax credit, deduction of foreign taxes).

12 The original version took into account provisions for bad debt, loss relief and contributions to employee pension schemes

In the second step, the post-tax value of the firm at the end of the ten years is calculated. The determination of the post-tax value of the firm has only cash flow effects and has no impact on the value of the net assets. The post-tax cash flow is derived in each period by deducting the tax liabilities from the pre-tax cash flow. The tax liabilities are derived by transforming the receipts and expenses into items of the tax bases (i.e. on the one hand assets and liabilities and on the other hand profits and losses/charges) in respect of the depreciation allowances determined by the relevant national rules and then applying the tax rates. By taking into account the tax-induced effects on the interest income or expense of each period, the deferral of tax payments is integrated into the model.

Due to the specific tax valuation rules applied by each country, the tax value of the company's assets and liabilities may differ from the economic value of the corresponding assets and liabilities. These differences result in the constitution of *hidden reserves* or *hidden liabilities* which are not only taken into account all over the ten-year period but also for the periods thereafter. The hidden reserves or liabilities of periods after the tenth are first weighted in accordance with the remaining useful lifetime of the respective asset or liability and then included in the taxable income of the tenth period.

Pre-tax cash flow at the end of the simulation period

- tax liabilities in each period

= post-tax cash flow at the end of the simulation period

(2)

+ value of the net assets at the end of the simulation period (= assets in the capital stock at replacement prices – liabilities in the capital stock at nominal values)

= post-tax value of the firm at the end of the simulation period

Pre-tax value of the firm at the end of the simulation period

- post-tax value of the firm at the end of the simulation period

= total average tax burden in currency units

In contrast to models which compute tax burdens solely based on pre-tax returns (yield), calculations based on cash receipts and cash expenses allow the entire computation of all tax bases at any time during the period of simulation (because all relevant income and assets have been entered into the tax base). Consequently, the model can include complicated tax provisions such as progressive tax rates without any difficulty.

In the third step, both the pre-tax and the post-tax value of the firm at the end of the simulation period are transformed into the pre-tax and post-tax return respectively:

$$r = \left(\frac{V_f(T)}{V_i(0)} \right)^{\frac{1}{T}} - 1 \quad (3)$$

$$r_s = \left(\frac{V_{fs}(T)}{V_i(0)} \right)^{\frac{1}{T}} - 1 \quad (4)$$

r = pre-tax return

r_s = post-tax return

V_i = value of the firm at the beginning of the simulation period

V_f = pre-tax value of the firm at the end of the simulation period

V_{fs} = post-tax value of the firm at the end of the simulation period

T = simulation period

The return r (r_s) represents the internal rate of growth of the value of the firm during the simulation period before taxes (after taxes) taking into account all the assumptions about the investment, financing and distribution policy at the beginning of the simulation.

In the fourth step, the effective average tax rate (EATR) is computed by deducting the post-tax return from the pre-tax return and dividing this difference by the pre-tax return.

$$\frac{(r - r_s)}{r} = EATR \quad (5)$$

As the EATR is the difference between the pre-tax and the post-tax value of the firm or the return derived from the changes of the value of the firm, the higher EATR indicates that taxation takes away a higher share of the pre-tax value of the firm (or the return). As a result, the countries with a higher EATR will be less attractive as a location for the firm than a country with a lower EATR.

2.4. Structure of the model-firm and other assumptions

In order to conduct the analysis, several assumptions were made. Concerning depreciation, the straight-line method based on the expected economic lifetime of the assets was used. It was assumed that the economic lifetime was fifty years for production buildings, fifty years for office buildings, five years for patents and licenses, five to ten years for machinery (five different types of machines), nine years for office equipment and four years for fixtures. As regards financial assets, the firm has domestic and European debt as well as shares of domestic and European companies. The weighted average cost method was used for the valuation of inventory. For the rates of price increase which are relevant for different earnings and expenditures, 2.3% was taken for the consumer price index, 1.4% for the price index for basic material (relevant for production), 2.5% for the price index for wages (relevant for salaries), 2.5% for the price index for investment goods (relevant for machinery) and 2.5% for the price index for land and buildings. Concerning the interest rates for creditors and debtors, 3.0% and 7.0% were taken for the short term while 5.0% and 6.0% were assumed for the long term. These

figures were taken from the *Deutsche Bundesbank*. The last assumption concerns the shareholders: the medium-sized company includes two shareholders (natural persons) who own each 50% of the company.

3. Impact of IAS/IFRS on the tax burdens

3.1. Introduction

The assessment of the impact of adopting IAS/IFRS as a starting point for determining the taxable income has been made in two steps. The first step aimed at examining the tax burden based on the current tax law. The second step assessed the effects on the tax burden of companies when there is an IAS/IFRS-based tax accounting.

The simulation process takes into account the IAS/IFRS that reveal significance differences in the area of expenses. Indeed this analysis relies on the tax principle of realization. This means that differences regarding the realization of revenues (fair value valuation, percentage of completion method...) are disregarded since the use of IAS/IFRS for tax purposes in conformity with the realization principle does not involve any differences in earnings¹³. As regards expenses, the four following methods apply. Firstly, the depreciation method: depreciation of intangibles, buildings and tangible fixed assets is only allowed on a straight-line basis based on the asset's useful life (IAS 16). Secondly, the tax depreciation periods for buildings: production buildings are depreciated over forty years and office buildings over fifty years. Thirdly, the production costs: IAS/IFRS require accounting for full costs excluding production overheads. Fourthly, the inventory valuation method: IAS/IFRS prescribe the FIFO method as benchmark.

3.2. Assumptions for the tax treatment of the company

In addition to the general assumptions that have been made for the model-firm and the economic environment, specific assumptions concerning the Belgian tax treatment of the firm were made¹⁴. In order to determine the greatest impact possible, only those Belgian tax rules that differ significantly from IAS/IFRS were applied. For instance, instead of using straight-line depreciation, the declining balance method was applied to machinery. Besides, LIFO was

¹³ See Spengel, C., (2003)

¹⁴ See appendices, figure 1

preferred to FIFO. For the purpose of the analysis, the shareholder level is not taken into account.

The data's of the company were based on those of the *Deutsche Bundesbank* concerning a typical German manufacturing company¹⁵. The following table contains important financial ratios for the sixth year.

Table 1: Financial ratios of the company in year six

Tangible fixed assets intensity (tangible fixed assets to total balance sheet)	24.8%
Inventory to total balance sheet	26.6%
Equity capital to total balance sheet	28.3%
Return on equity (after taxes)	14.7%
Return on total capital (after taxes)	5.1%
Return on sales (after taxes)	2.6%
Personnel expenditure (in €)	2,029,260
Personnel expenditure to sales	25.1%

It is important to have in mind that these figures relate specifically to the manufacturing sector. Section 3.5 will address the case of ten other sectors so that all the types of non-financial companies are analyzed.

3.3. Comparison of tax burdens for IAS/IFRS-based tax accounting

When measuring the impact of adopting IAS/IFRS as a starting point for tax purposes, the only period that should be taken into consideration is the tenth period. Indeed the first periods

¹⁵ See appendices, figure 2 and 3 for the balance sheet and the profit and loss account of the company in year six (mid-point of the ten-year period) in case Belgian taxation applies.

are not relevant since the company is starting its activity and faces a lot of investments and related depreciation which influence the tax burden¹⁶.

The table below shows the change in the tax burden of the model-firm when IAS/IFRS-based tax accounting is applied. The impact is relatively important (+ 8.0%). This impact has been lowered by the valuation of the hidden reserves¹⁷ in the tenth year since these are much higher under Belgian GAAP (€ 586,809) than under IAS/IFRS (€ 19,422).

Table 2: Changes in tax burden in case of IAS/IFRS- based tax accounting

	Tax burdens (in €)
Belgian GAAP	2,114,646
IAS/IFRS based	2,282,906
Difference in €	168,260
Difference in %	+ 8.0%

The important role of hidden reserves is confirmed when looking at the taxable income of the company¹⁸. Indeed, while the tax burden of the tenth year is lower under Belgian GAAP, the taxable income under Belgian GAAP appears to be higher than under IAS/IFRS. The explanation lies on the one hand, in the existence and valuation of hidden reserves and on the other hand, in the Belgian company's higher liquidity¹⁹.

In the tenth year, the company under Belgian GAAP faces lower depreciation and lower production costs than under IAS/IFRS. This explains why the taxable income is higher. However, the tax burden will be lower because in the last year the liquidity of the company under Bel-

¹⁶ See appendices, table 1 for the evolution over the ten-year period

¹⁷ See 2.3

¹⁸ See appendices, figure 4

¹⁹ See appendices, figure 5 and 6

gian GAAP is higher than under IAS/IFRS. A higher liquidity increases the post-tax value of the firm and thus reduces the tax burden of the company.

Under Belgian GAAP, the company had a higher liquidity for two reasons. Firstly, since the company under IAS/IFRS faced almost always a higher taxable income, it had also higher tax payments and these were made with the company's liquidity. Secondly, the higher liquidity permitted the company under Belgian GAAP to obtain more interests on it.

3.4. Analysis of the factors influencing the impact

There are mainly two factors that differ between Belgian GAAP and IAS/IFRS: the depreciation and the inventory valuation methods. As regards production costs, their valuation is the same under both referential (full costs) but their amounts will differ as these costs include depreciation of assets. The differences between production costs are thus derived from the choice of the method of depreciation.

Depreciation

While Belgian GAAP allows declining-balance depreciation of machinery whose rate is maximum equal to the double of the straight-line rate and limited to 40% of the acquisition cost²⁰, IAS 16 recommend depreciation to be made over the asset's useful life. As a result Belgian GAAP offer much better depreciation allowances in the early years of the assets²¹. The differences between the amounts of depreciation tend however to shrink over the assets life.

Figure 8 in appendices illustrates the differences existing between the depreciation operated for machinery under Belgian GAAP and IAS/IFRS. In year 5, thanks to the declining-balance method, most of the assets are depreciated under current Belgian rules. This explains while from year 4 to year 5, the difference of tax burdens decreases from + 44.5% to + 23.6%. Starting from year 6, some of the old assets are being replaced and new depreciation takes place. At the end of the tenth year period, the difference between tax burdens is small (+ 8.0%) on

20 Article 64 of ITA 1992

21 See appendices, figure 7

the one hand because of the valuation of the hidden reserves and on the other hand because almost all the machines have been depreciated under Belgian GAAP²².

In order to determine the impact of the Belgian favourable regime of declining-balance depreciation, the same analysis has been conducted using the straight-line method for the office equipment and machines.

As shown in table 3, the impact of adopting IAS/IFRS on the tax burden of Belgian companies would be reduced if these could only apply straight-line depreciation. In this case, the highest impacts would be encountered in the first years and would only be equal to + 4.9% at the end of the tenth year.

The use of the declining balance method is thus an important factor in explaining the differences in tax burdens.

Table 3: Changes in tax burden in case of straight-line depreciation

	Tax burdens (in €)
Belgian GAAP	2,176,905
IAS/IFRS based	2,282,906
Difference in €	106,001
Difference in %	+ 4.9%

Production costs

From figure 10 in appendices it appears clearly that the company under Belgian GAAP faces almost always higher production costs. These production costs are calculated under the same method (full costs) in both referential but follow the trend of the depreciation applied: part of

22 See appendices, figure 9

the depreciation amounts enter production costs. Since some depreciation gets into the value of production costs (and thus inventory), there is no immediate expensing. Therefore the effect of adopting IAS/IFRS would increase if all costs were expensed immediately.

Inventory valuation

While Belgian GAAP allow LIFO valuation, IAS 2 does not allow it anymore and recommends the FIFO method or the weighted average cost method for items that are interchangeable. This part analyses if the choice between LIFO and FIFO has a real impact on the tax burden of companies.

It appears that the use of LIFO instead of FIFO would have an impact on the tax burden mainly in the last years, starting from year six²³. This influence is due to the fact that under the FIFO method, the valuation of inventory reflects more the effect of inflation while the LIFO method does not take this effect into account.

This is confirmed by table 4 which compares the tax burden of companies when FIFO is used in both cases. If Belgian companies applied FIFO, the impact of IAS/IFRS would be smaller (+ 6.8% compared to + 8.0%).

Table 4: Changes in tax burden in case of FIFO valuation

	Tax burdens (in €)
Belgian GAAP	2,136,844
IAS/IFRS based	2,282,906
Difference in €	146,062
Difference in %	+ 6.8%

23 See appendices, figure 11

3.5. Analysis of the impact of an IAS/IFRS- based tax accounting in other sectors

This part investigates if the results obtained for the manufacturing sector are confirmed for other sectors.

From the analysis conducted for the manufacturing company, it appears that the impact of IAS/IFRS on the tax burden of one or another sector can be predicted and explained by three factors: depreciation (revealed by the tangible fixed assets intensity ratio), inventory valuation (revealed by the inventory/balance sheet ratio), and profitability (revealed by the return on sales and on equity ratio).

The two first factors are interrelated. Indeed while the importance of the first ratio has an impact on depreciation which decreases the tax burden, the second ratio operates a compensating effect. Since part of depreciation enters production costs, a higher inventory/balance sheet ratio leads to a higher capitalization of depreciation and thus the diminishing effect of depreciation is compensated. The third factor reveals that the less profitable the company is, the more the change of referential will have an impact.

The table below presents the most important financial ratios of companies belonging to the different sectors at the end of year six.

Table 5: Financial ratios of companies of different sectors

	Return on sales (%)	Inventory/balance sheet (%)	Tangible fixed assets intensity (%)	Personnel expenditure to sales (%)	Equity capital to total balance sheet (%)	Return on eq- uity (%)
Manufacturing (base case)	2.6%	26.6%	24.8%	25.1%	28.3%	14.7%
Construction	1.2%	44.1%	16.8%	29.3%	12.5%	12.7%
Chemical en- gineering	2.9%	22.7%	28.0%	21.9%	35.2%	13.8%
Service trade	8.9%	7.7%	13.3%	34.6%	33.7%	8.6%
Electrical en- gineering	2.8%	29.4%	15.5%	26.4%	35.0%	13.9%
Food & Bever- age	1.8%	16.7%	26.4%	15.2%	26.8%	12.4%
Commerce	1.4%	32.5%	18.3%	11.4%	19.0%	20.3%
Automotive vehicles	2.5%	26.1%	21.9%	26.0%	27.7%	17.0%
Engineering	3.1%	32.0%	17.0%	31.4%	31.8%	15.1%
Metal produc- tion	2.9%	26.6%	24.4%	25.1%	35.0%	14.4%
Transport	-6.3%	2.1%	50.4%	41.5%	29.6%	-14.2%

The table below illustrates the changes in the tax burdens for the eleven sectors.

Table 6: Changes in tax burdens in case of IAS/IFRS-based tax accounting

	Belgian GAAP Tax burden (in €)	IAS/IFRS- based Tax burden (in €)	Difference in %
Manufacturing	2,114,646	2,282,906	+ 8.0%
Construction	942,778	1,080,835	+ 14.6%
Chemical engineer- ing	2,691,631	2,901,931	+ 7.8%
Service trade	4,113,385	4,268,881	+ 3.8%
Electrical engineer- ing	2,781,382	2,914,030	+ 4.8%
Food & Beverage	1,992,192	2,167,994	+ 8.8%
Commerce	798,372	861,591	+ 7.9%
Automotive vehicles	1,899,415	2,067,236	+ 8.8%
Engineering	2,667,250	2,793,183	+ 4.7%
Metal production	2,999,287	3,174,890	+ 5.9%
Transport	3,186,939	3,406,034	+ 6.9%

Construction is the sector which is expected to undergo the highest impact (+ 14.6%). Indeed a low profitability combined with a high inventory/balance sheet ratio (44.1%) explains this important impact.

The transport sector which faces a negative profitability (return on sales ratio of -6.3% and return on equity ratio of -14.2%) and very high tangible fixed assets intensity ratio (50.4%) will suffer a higher tax burden of + 6.9%.

This section has highlighted the fact that the sector in which the business operates has a decisive influence on the amount by which the overall tax burden will differ. However the trend shown for the manufacturing company is, on the whole, confirmed for the other sectors.

In order to support the sectors that are the most affected in case of IAS/IFRS-based tax accounting, one could imagine that the government gives some fiscal aids to these in the first years.

4. The tax competitive position of Belgium in the European Union

4.1. Introduction

The aim of this section is twofold: determining the current tax position of Belgium against five other member states and examining if taking IAS/IFRS as an initial starting point for tax purposes will change Belgium's position. The member states that are being analyzed are: the Czech Republic, France, Germany, the Netherlands, Poland and the United Kingdom. The following results have been based on a company with a structure typical for a German manufacturing business. Therefore the differentials in tax burdens should not be generalized. The conclusions depend on the extent to which the factors decisive for the application of the individual tax systems, the types of tax, the basis of assessment and the rates are relevant to the given business.

4.2. Overview of the different corporate tax regimes

Table 3 in appendices shows the different tax structures that are adopted by the selected European countries. The Belgian corporate income tax rate appears to be in line with those applied in other member states. In Belgium the tax burden is essentially influenced by the corporate tax (*impôt des sociétés*) as it does not include any non-profit based tax except the immovable withholding tax (*précompte immobilier*) which is entirely deductible as a professional expense. A similar pattern prevails in the other countries except France where the overall tax burden is determined by three non-profit-based taxes (*taxe foncière*, *taxe professionnelle* and *taxe assise sur les salaires*) with a share of 30%. The German overall tax burden is determined at 99% by profit taxes (*Gewerbeertragsteuer*, *Körperschaftsteuer*, *Solidaritätszuschlag*) and the share of real estate tax (*Grundsteuer*) is insignificant. Figure 12 in appendices exhibits the effect of particular tax categories on the effective tax burden without taking into account their eventual deductibility.

4.3. Comparison of tax burdens in the European Union

Table 7 illustrates the change in tax burden when IAS/IFRS are used for tax purposes. It appears that when the tax burden is determined by national GAAP then Belgium has the fifth lowest tax burden, just after the Netherlands and before Germany and France. Poland reveals the lowest tax burden. Overall the differences in effective tax burdens are not that significant. Indeed while on average the use of IAS/IFRS yields higher effective levels of taxation, the main differences are noticed in the Czech Republic (+ 8.4%) and Belgium (+ 8.0%). The high increase of the tax burden in both countries can be explained by the fact that national tax rules concerning depreciation are more favourable than the corresponding IAS/IFRS. The other countries' depreciation tax rules are more in line with IAS/IFRS and this explains the lesser impact.

Table 7: Comparison of tax burdens in the European Union

	Belgium	Czech Republic	France	Germany	Netherlands	Poland	United Kingdom
National GAAP (in €)	2,114,646	1,595,496	2,972,692	2,276,045	1,977,252	1,171,568	1,497,858
IAS/IFRS based	2,282,906	1,729,031	3,099,164	2,374,630	2,076,352	1,223,960	1,539,642
Difference in %	+ 8.0%	+ 8.4%	+ 4.3%	+ 4.3%	+ 5.0%	+ 4.5%	+ 2.8%

It appears clearly that the use of IAS/IFRS to determine the taxable income will not change Belgium's current tax position against other member states. When comparing Belgium to other countries, one could say that its tax position could still²⁴ be improved and, for instance, be closer to the Netherlands and the United Kingdom's situation. Since the use of IAS/IFRS will broaden the tax base, the improvement of Belgium's competitive tax position could be realised by a reduction of the nominal tax rate. This would increase the attractiveness of Bel-

24 The law of December, 24th, 2002 reduced the corporate income tax rate from 39% to 33%

gium since the choice of location made by multinational investors reveals a significant empirically provable correlation with the nominal tax burden²⁵.

With respect to the results of table 7, the differences in effective tax burdens between the European countries are still too big for the European Union area which is growing closer at an ever faster rate. Indeed even if a closer coordination of the tax bases is realised through the use of IAS/IFRS, differences still arise because of the different national tax systems, tax rates and tax categories. Thus the convergence of the tax competitive position of companies in the European Union should be based on the nominal tax rates.

25 See Devereux, M.P. and Griffith, R. (1998), p. 335-367 and Spengel, C., (1999), pp. 445-459 for the effective tax burdens of US investors within the European Union

5. Conclusion

The use of IAS/IFRS for tax purposes in the respect of the tax principles will broaden the tax burdens of Belgian companies by 3.8% to 14.6% depending on the sector. The sectors that would face the highest impacts are construction, automotive vehicles and food & beverage. These consequences are mainly attributable to the favourable regime of *amortissements dégressifs* which is not accepted by IAS/IFRS. The inventory valuation method (LIFO vs. FIFO) also impacts the tax burdens.

From a European perspective, IAS/IFRS-based tax accounting should not change the current tax position of Belgium. And, even if Belgium does not present the highest effective tax burden, it seems that its tax position could be improved. Indeed with the introduction of the new Eastern member states which present lower corporate income tax rates, Belgium is facing fierce tax competition.

As the use of IAS/IFRS broadens the tax base, a reduction of the corporate income tax rate could be done to help companies to switch to IAS/IFRS and improve the attractiveness of Belgium. But the implementation of such a reduction of the corporate tax rate would require that the Belgian legislator is conscious of the impacts of IAS/IFRS on the tax burdens of companies. Until now, the Belgian State has not taken any action or research on the adoption of IAS/IFRS for the statutory accounts.

Appendices

Figure 1: Assumptions

Basis year for tax rules	2004
Location of the company²⁶	Brussels
Considered taxes	
Taxes on corporate income	<p>- corporate income tax:</p> <p><i>basic rate: 33%</i></p> <p><i>reduced rate:</i></p> <p>€ 0 up to € 25,000: 24.25%</p> <p>€ 25,001 up to € 90,000: 31%</p> <p>€ 90,001 up to € 322,500: 34.5%</p> <p>- surtax: 3%</p>
Non-profit based tax	<p>- immovable withholding tax (100% deductible as a business expense):</p> <ul style="list-style-type: none"> ○ cadastral revenue: 5.3% of the replacement cost ○ immovable withholding tax: 1.25% of the cadastral revenue ○ additional municipal centimes: 2600 ○ additional provincial centimes: 1825
Inventory valuation method used in the simulation	LIFO
Production costs	direct and indirect costs related to production
Treatment of dividends received from a company resident in the European Union	these dividends are presumed to benefit of the regime of the “revenus définitivement

²⁶ Relevant for the computation of the immovable withholding tax

	taxés” which means that they are 95% tax exempt
Depreciation method used in the simulation²⁷	
Production buildings	straight-line on twenty years
Office buildings	straight-line on thirty-three years
Patents	straight-line on five years
Licenses	straight-line on five years
Machinery	declining-balance on 4 to 8 years
Office equipment	declining-balance on 6 years
Fixtures	straight-line on three years

27 Unlike accounting law which requires depreciation to be made over the asset’s useful life (article 45 of the Royal Decree of the new Company Act), tax law is presumed to allow depreciation on shorter periods so as to benefit of higher reductions of the taxable income. Indeed article 61 of ITA 1992 does not stipulate that depreciation has to be made over the asset’s useful life, as long as the applied depreciation was necessary and really took place.

Figure 2: Balance sheet in year six

Assets	€	Liabilities	€
<i>A. Fixed assets</i>		<i>A. Shareholder equity</i>	
I. Intangible assets		I. Nominal capital	350,000
1. Patents	9,052	II. Profit re-serves/accumulated losses	1,086,022
2. Licenses	9,052	III. Distribution	-75,000
II. Tangible assets		IV. Net profit/net loss	210,488
1. Undeveloped land	309,000	<i>B. Provisions</i>	
2. Developed land	577,180	1. Provisions for pensions	0
3. Machines	523,197	2. Sundry accruals	0
4. Office equipment and fixtures	29,436	<i>C. Liabilities</i>	
III. Financial assets		1. Loans from third parties	550,000
1. Participations, equity interests	40,000	2. Loans from shareholders	720,000
2. Long term claims	30,000	3. Trade accounts payable	809,463
<i>B. Current assets</i>		4. Short term liabilities	2,160,000
I. Inventories			
1. Finished goods	1,546,654		
II. Claims and other assets			

1. Trade accounts receivables	1,453,156		
2. Short term receivables	0		
IV. Cash	1,284,246		
Total	5,810,973	Total	5,810,973

Figure 3: Profit and loss account in year six:

	Position	€
	Net sales or revenues	8,073,091
-	Cost of goods sold	7,274,896
=	Gross profit	798,195
-	Selling expenses	469,925
-	Research and development expenses	492,858
+	Other revenues	566,612
-	Other expenses	69,572
=	Operating income	332,452
+	Investment earnings (dividends)	350
+	Interest income	54,576
-	Interest expenses	76,200
=	Profit on ordinary activities	313,178
-	Other taxes (précompte immobilier)	2,701
=	Taxable income	308,477

Table 1: Changes in tax burden in case of IAS/IFRS- based tax accounting

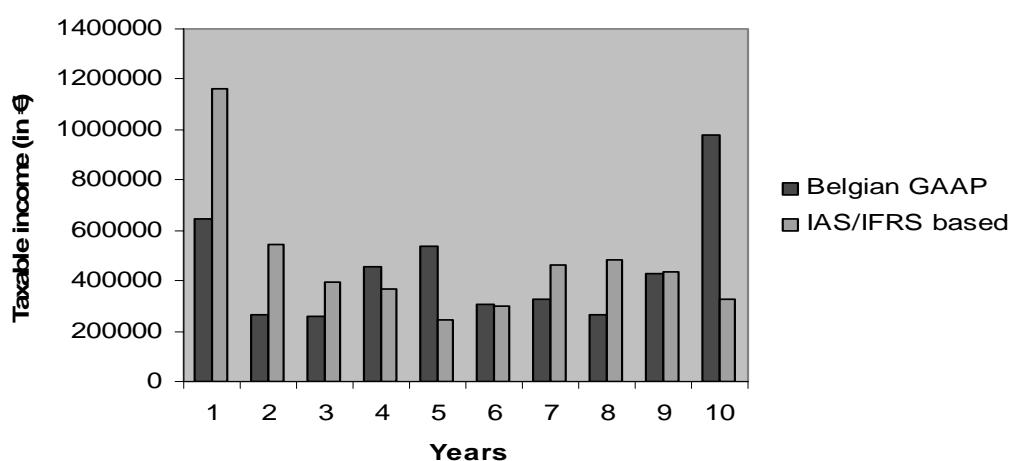
	1	2	3	4	5	6	7	8	9	10
Belgian GAAP	249,665	379,117	509,134	711,907	950,537	1,118,702	1,300,098	1,465,596	1,692,676	2,114,646
IAS/IFRS based	426,808	657,953	844,692	1,028,913	1,175,156	1,346,676	1,580,188	1,829,267	2,070,420	2,282,906
Difference in € (in %)	177,143 (+71.0%)	278,836 (+73.5%)	335,558 (+65.9%)	317,006 (+44.5%)	224,619 (+23.6%)	227,974 (+20.4%)	280,090 (+21.5%)	363,671 (24.8%)	377,744 (22.3%)	168,260 (8.0%)

The table below shows the main causes of the changes in the tax burdens over the ten-year period.

Table 2: Main causes of changes in the tax burdens

Years	Main causes
1-3	Investment cycle (see point 3.1)
4-6	
7-9	
10	Valuation of hidden reserves

Figure 4: Comparison of taxable incomes with hidden reserves



The figure below reveals that when hidden reserves are not taken into account, the differences between the taxable income under Belgian GAAP and IAS/IFRS have lowered in the tenth year.

Figure 5: Comparison of taxable incomes without hidden reserves

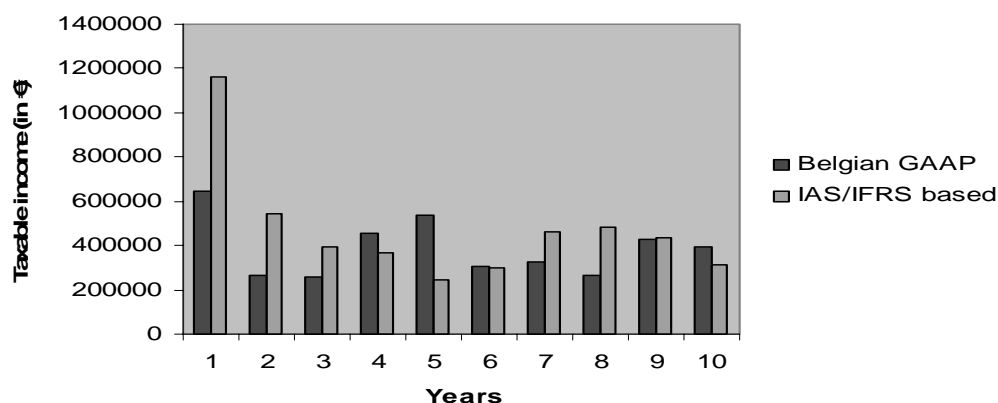


Figure 6: Comparison of the liquidity over the ten-year period

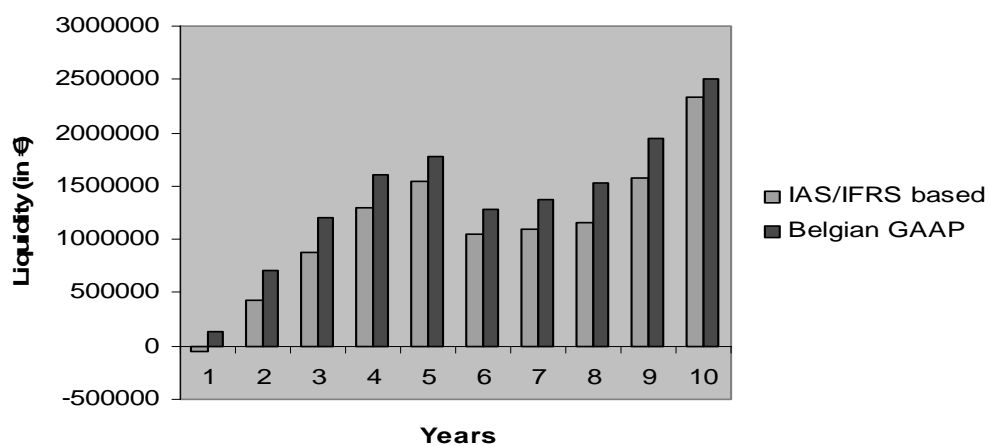


Figure 7: Comparison of total depreciation amounts over the ten-year period

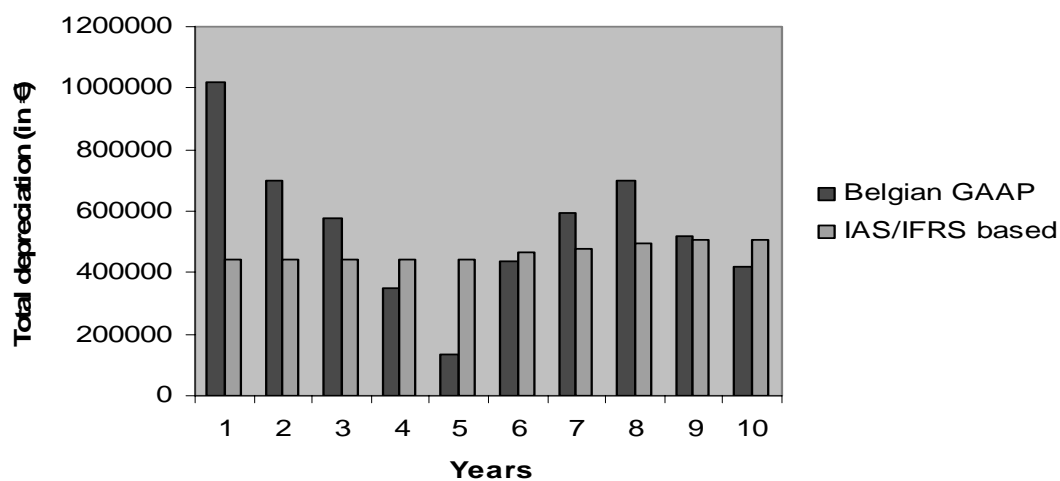


Figure 8: Comparison of depreciation amounts for machinery over the ten-year period

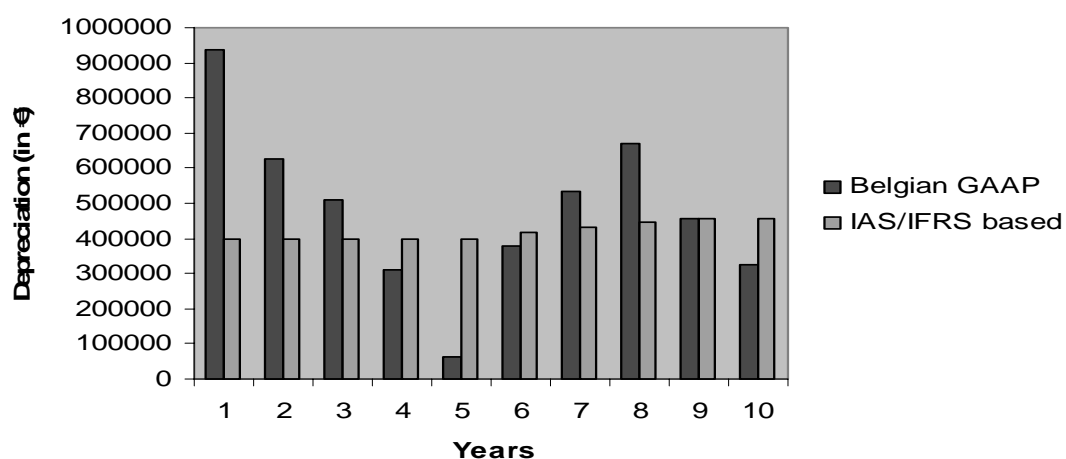


Figure 9: Evolution of cumulated depreciation plus hidden reserves in the tenth year

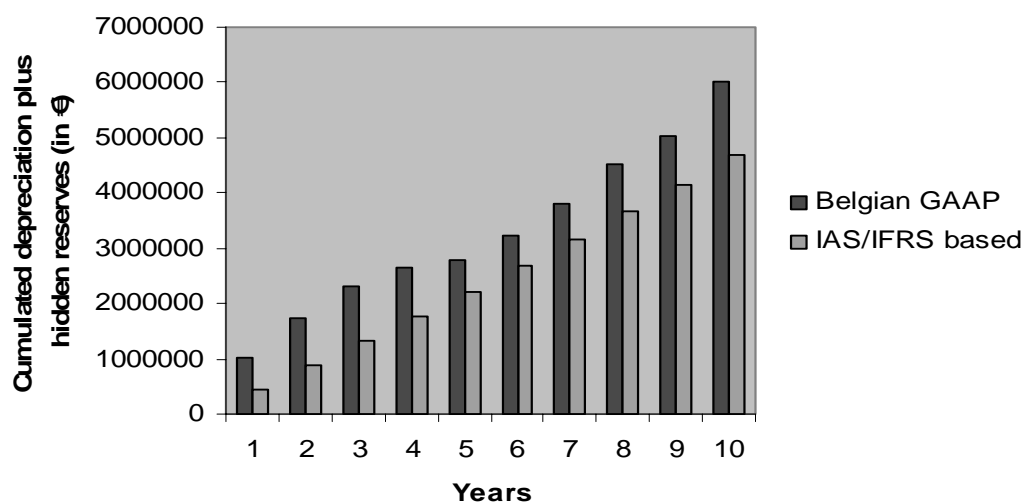


Figure 10: Comparison of production costs over the ten-year period

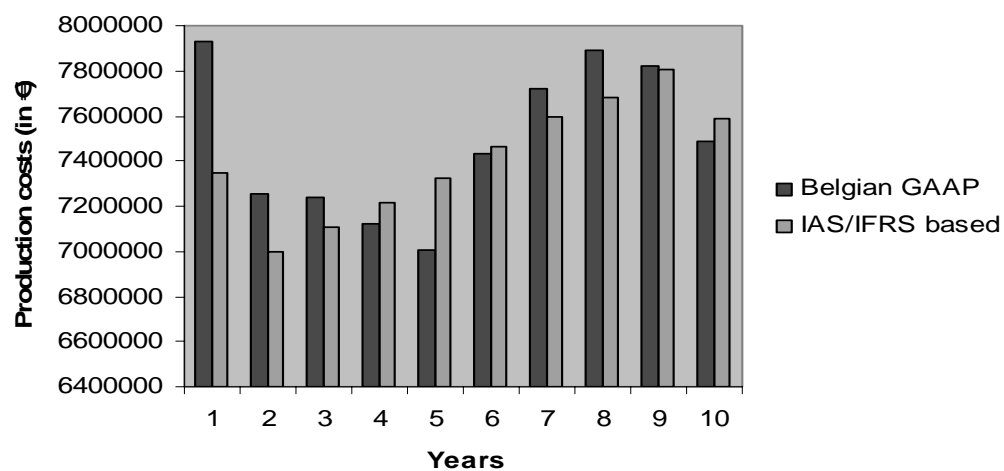


Figure 11: Comparison of inventory valuation over the ten-year period (LIFO vs. FIFO)

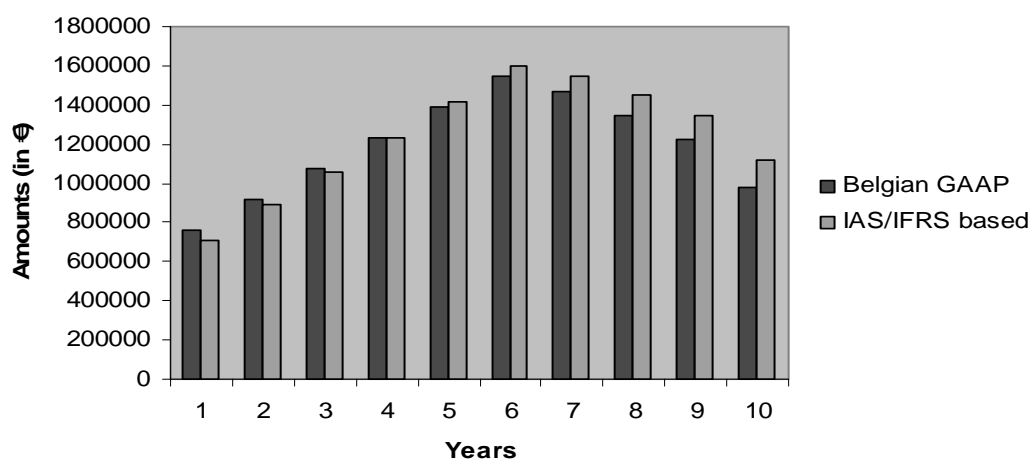


Table 3: Comparison of different corporate tax regimes

	Belgium	Czech Re- public	France	Germany	Netherlands	Poland	United King- dom
Taxes on corpo- rate income	- corporate income tax: basic rate: 33% reduced rate: € 0 up to € 25,000: 24.25% € 25,001 up to € 90,000: 31% € 90,001 up to € 322,500: 34.5% - surtax: 3%	- corporate income tax rate: 31%	- corporate income tax rate: 33.33% - surtax: 3%	- corporate income tax rate: 25% - surtax: 5.5% - trade tax: rate depends on the loca- tion (de- ductible), average: 17.7%	- corporate income tax rate: 34.5% but the first € 22,689 are taxed at 29%	- corporate income tax rate: 27%	- corporate income tax rate: 30% - sliding scale of tax rates: for tax- adjusted prof- its between £300,000 and £1,500,000
Non-profit based taxes	- immovable withhold- ing tax (deductible as a	- real estate tax (deducti-	- taxe profes- sionnelle	- real estate tax (de-	- real estate tax (deducti-	- real estate tax (de-	- real estate tax (deducti-

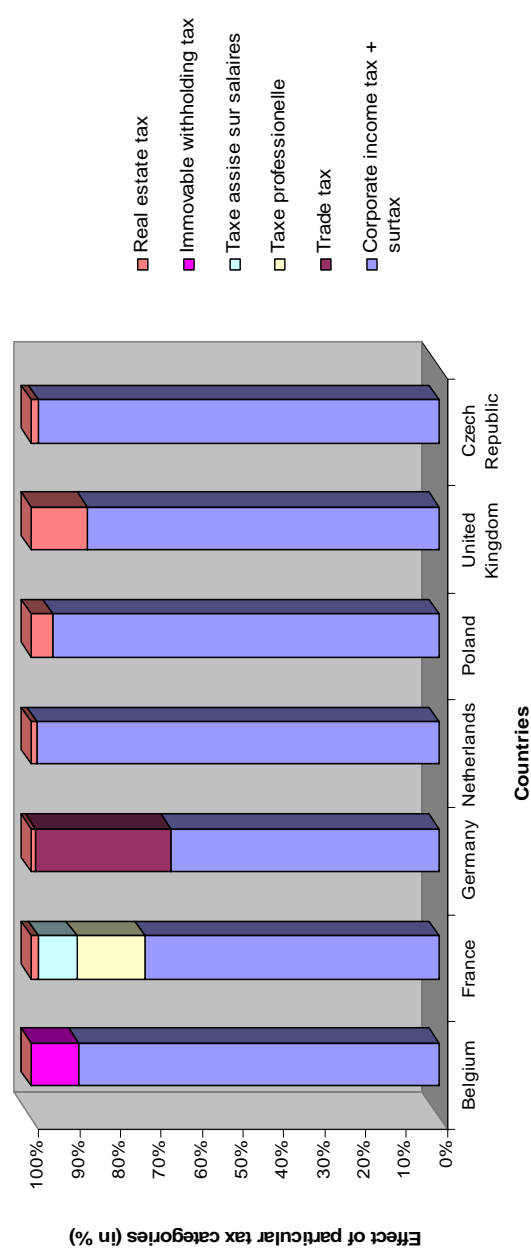
	business expense)	ble as a business expense)	- taxe assise sur salaires - real estate tax (deductible as a business expense)	ductible as a business expense)	ble as a business expense)	ductible as a business expense)	ble as a business expense)
Inventory valuation methods allowed for tax purposes	LIFO, FIFO, average costs	FIFO, average costs	FIFO, average costs	LIFO, average costs	LIFO, FIFO, HIFO, base stock	LIFO, FIFO, average costs, standard cost	FIFO
Inventory valuation method used in the simulation	LIFO	average costs	average costs	LIFO	LIFO	LIFO	FIFO
Depreciation methods	- straight-line - declining-balance	- straight-line or accelerated depreciation calculated on an asset-by-asset basis	- straight-line - declining-balance	- straight-line - declining-balance	- straight-line - declining balance or in accordance of any other sound business	- straight-line - declining-balance	- straight-line - pool (capital allowances)

		- all assets are classified into 6 groups which determine the number of years over which the asset will be written off			ness practice on the basis of historical cost		
Depreciation method used in the simulation							
Patent	straight-line on 5 years	straight-line on 4 years	straight-line on 4 years	straight-line on 4 years	straight-line on 4 years	straight-line on 3 years	pool 25%
License	straight-line on 5 years	straight-line on 4 years	straight-line on 4 years	straight-line on 4 years	straight-line on 4 years	straight-line on 3 years	pool 25%
Office building	straight-line on 33 years	accelerated depreciation on 20 years	straight-line on 25 years	straight-line on 33 years	straight-line on 35 years	straight-line on 40 years	no capital allowances available

Production building	straight-line on 20 years	accelerated depreciation on 20 years	straight-line on 20 years	straight-line on 33 years	straight-line on 35 years	straight-line on 40 years	straight-line on 25 years
Office equipment	declining-balance on 6 years	accelerated depreciation on 6 years	declining-balance on 7 years	declining-balance on 7 years	straight-line on 7 years	reducing balance on 7 years	pool 25%
Fixtures	straight-line on 3 years	accelerated depreciation on 4 years	declining-balance on 3 years	declining-balance on 3 years	straight-line on 3 years	reducing balance on 4 years	pool 25%
Machines	declining-balance on 4 to 8 years	accelerated depreciation on 4 to 6 years	declining-balance on 4 to 8 years	declining-balance on 4 to 8 years	straight-line on 4 to 8 years	reducing balance on 5 to 7 years	pool 25%

Source: IBFD(2003), European Tax Handbook 2003

Figure 12: Effect of particular tax categories on the effective tax burden



References

- Devereux, M.P. and Griffith, R., (1998), "Taxes and the location of production: evidence from a panel of US multinationals", *Journal of Public Economics*, n.68, pp.335-367
- European Commission, Communication from the Commission to the Council, the European Parliament and the Economic and Social Committee, "*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), n. 582
- European Commission, "Company taxation in the internal market", SEC (2001), n. 1681
- European Commission (2003), Structures of the taxation systems in the European Union, Luxembourg
- Jacobs, O. and Spengel, C., (2002), "Effective tax burden in Europe – current situation, past developments and simulations of reforms using the European Tax Analyzer", Heidelberg
- Jacobs, O. and Spengel, C., (1996), "European Tax Analyzer", Baden-Baden
- Meyer, R., (1996), "Computergestützte Simulation von Steuerbelastungen", Baden-Baden
- OECD (1985), "Two reports by the Committee on fiscal affairs on quantitative aspects of corporate taxation", Paris
- OECD (2000), "Tax burdens: Alternative measures", OECD Tax Policies Studies Series, n. 2, Paris
- Schreiber et al. (2002), "Measuring the impact of taxation on investment and financing decisions", Schmalenbachs Business Review, S. 2-23
- Spengel, C., (1995), "Europäische Steuerbelastungsvergleiche", Düsseldorf
- Spengel, C., (1999), "Taxation of US cross-border investment in Germany and Europe", Intertax, n. 27, pp.445-459
- Spengel, C., (2003), "International accounting standards, tax accounting and effective levels of company tax burdens in the European Union", European Taxation, International Bureau of Fiscal Documentation, July/August, pp. 253-260