GHENT UNIVERSITY

FACULTY OF ECONOMICS AND BUSINESS

ACADEMIC 2009 – 2010

How high are the tax compliance costs for Belgian SMEs

Master dissertation presented to obtain the degree of
Master in applied economics

Catherine Reekmans
Gudrun Simoens

Under the guidance of

Prof. Dr. Philippe Van Cauwenberge
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 PERMISSION

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Catherine Reekmans
Gudrun Simoens
Foreword

This master thesis was written to acquire the degree of Master in Applied Economics.

We gratefully acknowledge the support during the work on this dissertation from:

- Prof. dr. P. VAN CAUWENBERGE, who was found willing to promote this work and for his professional advice;
- Ms. B. SCHOONJANS for being a great help during the development of this thesis;
- Mr. J. DE VOS, Ms. K. GELTMeyer and Mr. T. VAN NIEUWERBURGH from VOKA, for their ideas and support during the set up of our questionnaire and for sending the survey to the members of VOKA;
- Mr. R. VAN IMPE, auditor and correspondent of the survey ‘doing business’, for his technical advice concerning audit of tax matters;
- Ms. T. SMESSAERT, accountant of Titeca Accountancy; Mr. J. GHEKIERE, financial manager of Jademo and Mr. G. CACKEBEKE, owner of the accountancy company GEMA, for their technical advice concerning fiscal matters and their help during the evaluation of our questionnaire;
- Mr. P. FRANCO, functional consultant at Financial Architects; Mr. D. VERHAERT, Analyst at Dunnhumby and Mr. DELAMEILLEURE, auditor at Deloitte, for their support during the development of this thesis.

Special thanks go out to all family members and other people who have contributed to the realization of this work and not in the least to Brecht who made the web-application that was used by the participants to complete the questionnaire.
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List of abbreviations

TCC= tax compliance costs

TCCPGVA= tax compliance costs, as a percentage of gross value added

TCCPGVAvat= tax compliance costs of VAT as a percentage of gross value added

Total assets= the total assets of the company

Ln_assets= natural logarithm of the total assets of the company

Number employees= number of employees in a company

Lifetime = business length of a company

Export= the extent of foreign operations of a company

Outsourcing= the extent to which a company outsources his tax related activities

Industry= the main business activity of the company

Workers= the percentage of workers in the company
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1. Introduction

SMEs daily face the high tax burden that exists in Belgium. As a result, extensive research has been conducted and comparative studies, with the situation in other countries, have been made. On top of the tax payments, companies are confronted with costs they have to make to comply with the current tax law. In comparison with the extensive research on the high tax burden, these compliance costs have been studied less intensively. The complex Belgian tax system suggests that SMEs should make relatively high efforts to comply with all these regulations.

For this reason it seems appropriate to conduct research on compliance costs for Flemish SMEs. These costs are often considered as inevitable and irreducible (Tran-Nam, Evans, Walpole and Ritchie, 2000). As these costs are difficult to calculate in detail, they remain hidden between the other administrative costs (Tran-Nam et al., 2000). The first aim of this study is to determine the magnitude of these costs both in absolute and relative terms. Secondly, it is ascertained which compliancy costs are the most expensive. This thesis ends with a comparison of these costs between types of companies and industry. The results of this study should help SMEs to be informed about these costs in order to minimize them. Up to now, it is assumed that companies are not aware that these compliance costs could be a significant cost for their company and could decrease their profitability. The results can also be used as documentation to convince the authorities to review the complexity of the system in order to lower the compliance costs of all companies.

A number of evolutions raised the interest of academics and resulted in a number of studies on the measurement of compliance costs and their economic effects.

First of all, one of the main reasons why companies should investigate compliance costs is the assumption that high compliance costs are an inhibiting factor for foreign investors. The Belgian situation reveals that a complex tax system is bound to be modified more often. This results again in new compliance costs, because of initial learning costs (Holtzman, 2007). This evolution is counterproductive for attracting new investments as studies have concluded that a certain degree of stability in the tax environment is vital to business (Charron, Chow and Halbesma, 2008). A study, by the World Bank group and Price Waterhouse Coopers (2008), shows that tax levels and the accompanying administration are the greatest barriers for a company to settle in a particular country. Multinationals will often base their investment decision on the applicable tax regimes of the different countries. Taxation systems are an important element in the competition for external investment between
different countries. Sweden, for instance, has only 5 different taxes\(^1\) in contrast to the 78 different taxes in Belgium\(^2\). Consequently, the lack of external investments can slow down economic growth, innovation and technological progress (World Bank Group and PWC, 2008).

Another argument to investigate these compliance costs is that high tax rates and complex tax legislations can induce fraud. Earlier research (Franzoni, 1998) concluded that companies will create a kind of resentment against authorities who impose too high levies and too complex tax systems. This will incentivize (illegal) tax avoiding systems because of the high financial advantages and the low condemnation rates (Franzoni, 1998). In addition, because of the complexity of the system, the companies often need to rely on external tax professionals who by means of sophisticated tax avoidance engineering will minimize tax payments (Franzoni, 1998).

Finally, the general introduction of the VAT regime in almost all countries has raised interest in identifying and quantifying the impact of the new system on tax compliance costs (Evans, 2003). Acknowledging the fact that high compliance costs diminish competitiveness of the country in terms of taxation attractiveness, public services have become increasingly interested in ways to simplify their tax legislation systems.

Research on this topic has been conducted in several countries around the world. The public interest in reducing the compliance costs has resulted in publications in the U.S., Australia, UK, Singapore, Hong Kong, Croatia, South Africa, Canada, Malaysia, The Netherlands, India and New Zealand\(^3\) (Evans, 2003). This topic has also been studied in Belgium (PWC, 2008; PWC, 2009; PWC, 2010).

\section*{1.1. Content of this study}

This study focuses on the tax compliance costs of the SMEs in the Flanders’ region. Small and medium businesses are increasingly important in the economy of a country, especially in terms of employment. They are regarded as the driving force of the economy. In Belgium 99.4\% of the companies are SMEs and they generate more than 70\% of the GDP.

This study starts with the comparison of several definitions of compliance costs. The relevant existing literature on the topic is summarized in the next section. The hypotheses are constructed based on this earlier research that has been conducted both abroad and in Belgium.

\footnote{Corporate income tax, payroll taxes, VAT, punktskatter and other tax burden.}

\footnote{Appendix C}

The following section contains the research design. It describes the methodology, the questionnaire design, the data and the variables. In the section on research findings, we will empirically test the hypotheses that are composed in the previous section.

Afterwards, the results are framed and interpreted within the context of the cited earlier research. Finally, the conclusions and assumptions of the study are listed and opportunities for further research are given.
2. Literature review and subsequent testable hypotheses

2.1. The Tax Compliance Cost

2.1.1. The definition of tax compliance cost

Although the interest in the level and the effects of compliance costs seem to emerge only in recent decades, economists have always shown attention to the costs taxpayers have to incur to comply correctly with the tax laws. Even Smith commented on this subject: “Every tax ought to be levied at the time, or in the manner, in which it is most convenient for the contributor to pay it.” (Smith, 1776, book 5, chapter 2, part 2) He indicates that compliance costs should be minimized and that the tax legislation should not cause unnecessary costs to the taxpayer. Smith even gives a view of the impact high compliance costs can have on the economy: “…may obstruct the industry of the people, and discourage them from applying to certain branches of business which might give maintenance and employment to great multitudes.” (Smith, 1776, book 5, chapter 2, part 2) He also cited that “every tax ought to be so contrived as both to take out and to keep out of the pockets of the people as little as possible over and above what it brings to the treasury of the state.” (Smith, 1776, book 5, chapter 2, part 2).

Based on the literature review, no univocal calculation of tax compliance cost can be found. Compliance cost is a broad concept. Although the definition is quite similar across countries, the calculation will not always be the same and will depend on the differences in applicable tax laws.

The following definition of compliance costs is often cited in the literature as one of the first and most used. Sandford (1995), who is considered one of the leading experts when it comes to identification and measurement of compliance costs, defines them as follows:

“Tax compliance costs are the costs incurred by taxpayers in meeting the requirements laid on them by the tax law and the revenue authorities. There are costs over and above the actual payment of tax and over and above any distortion costs inherent in the nature of the tax. These costs would disappear if the tax was abolished. They include the costs of collecting, remitting and accounting for tax on the products and profits of the business and on the wages and salaries of its employees, and also the costs of acquiring and updating the knowledge to enable this work to be done, including knowledge or legal obligations and penalties.” (Sandford, 1995, pp 1)
2.1.2. The different categories of compliance costs

Slemrod en Yithaki (1996) identified compliance costs as one of the three components of the social costs of taxation. These social costs can be paraphrased as costs incurred by society in the process of transferring purchasing power from the taxpayers to the government. The other elements are administrative costs and deadweight efficiency loss from taxation.

Administrative costs are the costs that exist besides the occurrence of compliance costs that are borne by the companies. These costs are cited as costs that the government must also take into account as a public cost to ensure that the tax legislation is obeyed. For example, it obtains the costs to collect taxes and to maintain the system to collect the taxes. These are to some extent substitutable, for example when a country transfers from a system where the tax office calculates the tax owed, to a self-assessment system. As a consequence an increased burden arises on the company. Together, the compliance costs and administrative costs are defined as the operating cost of taxation (Sandford, 1998; Evans, 2001).

Deadweight efficiency loss from taxation can be defined as opportunity costs. If the compliance costs were no longer necessary, they could be used to recruit more staff, acquire additional assets or introduce higher wages for employees (Sandford, Godwin, Hardwick and Slemrod, 1989).

In general, there are several possible ways to interpret compliance costs.

Firstly, compliance costs can be divided into three parts: time spent, cash expenses and psychological costs. The total time spent contains employee costs (in-house staff) and external costs (fees paid to outside accountants and other advisors). Hours by internal staff can be converted in expenses by means of an average hour rate. The psychological costs refer to the effects upon a taxpayer having to deal with tax affairs, for example mental stress. However, these costs are difficult to measure. Therefore, they are disregarded in most investigations. These compliance costs include costs that are incurred by a company, but are beyond the control of its management (Chan et al., 1999; Bhatnagar et al., 2002; Hijattulah and Pope, 2008).

Secondly, another distinction can be made between internal and external costs (Blumenthal and Slemrod, 1996). Internal costs are generated by the accounting and administration department of the company. Internal staff will prepare all information and documents for the fiscal authorities and consult external advisors when necessary. External costs are generated by the services from lawyers, consultants and other advisors. These external costs are much easier to identify and to quantify. Internal costs are more difficult to quantify since it involves subjective estimations of the time spent on different tax activities. Some studies have revealed that in most companies the internal compliance costs are
substantially more important than the external (Tran-Nam et al., 2000; Hanefah, Ariff and Kaspillai, 2002; Hijattulah and Pope, 2008).

Thirdly, a distinction was made between gross compliance costs and net compliance costs (Sandford, 1995; Tran-Nam et al., 2000; Tran-Nam and Glover, 2005; Lignier, 2006; Lignier, 2009). The net compliance costs are obtained by the following calculation:

\[
\text{Net tax compliance costs} = \text{gross tax compliance cost} - (\text{tax deductibility benefits} + \text{cash flow benefits} + \text{managerial benefits})
\]

Tax deductibility benefits result from a lower taxable amount after deduction of the compliance costs (Lignier, 2006).

Cash flow benefits exist because of the time interval. Time interval occurs between the moment when the taxpayer collects taxes and the moment that the tax authority will cash the taxes. It is a transfer of costs between the taxpayer and the tax authority. Another denomination for these benefits are cash flow losses to tax authorities (Tran-Nam et al., 2000).

Managerial benefits refer to the creation of a better knowledge concerning financial tasks and an improved way to make decisions because of the more stringent manner of record keeping, required by the tax authorities. The accounting systems of smaller businesses are often undeveloped which implies that the managerial benefits could be significant (Lignier, 2006; Lignier, 2009). The managerial benefits that result from the tax compliance activities will mainly benefit the smaller companies given their lower level of accounting practices. It should be noted that these managerial benefits are difficult to quantify. This is the reason that they are often ignored by researchers (Tran-Nam and Glover, 2005).

Fourthly, a distinction is made between computation costs and planning costs. The first ones are inevitable as for example the costs necessary to have a proper accounting system that already prepares the necessary information and calculates the amounts due for tax purposes. They are considered as recurrent administrative costs which cannot be avoided by the company, which only can try to fulfill this duty as efficient as possible (Ariff, Ismail and Loh, 1997; Hanfah et al., 2002). A company is however not obliged to make planning costs. They occur when a company tries to lower or avoid tax payments in a legal manner. This activity is part of their good management practices as it optimizes the profitability of the company (as long as the avoidable planning costs are less than the obtained tax savings) (Ariff et al., 1997; Tran-Nam et al., 2000). These avoidance costs contain planning and research costs and are considered as voluntary costs (Bhatnagar et al., 2002). They are considered as additional expenditures to
increase the opportunities for avoidance. In the study of Mills, the hypothesis that firms, who are spending more on tax research and planning, pay less tax than other firms is proven (Mills, 1996).

Finally, compliance costs can be separated in pre-filling, filling and post-filling costs (Blumenthal and Slemrod, 1992; Slemrod and Venkatesh, 2002). Pre-filling costs can include the follow-up of new fiscal legislation and the consultancy needed to comply with it at the lowest costs and the forecasting of the tax payments in order to efficiently execute prepayments. Also the gathering of the necessary information and documents to complete the tax application forms are a part of these pre-filling costs. The filling costs are mostly considered as the biggest costs. They emerge as the company starts to report (on paper, by internet ...) its figures and information to the fiscal and VAT authorities and towards the social security. The filling costs continue to rise as the company calculates the amounts of corporate income tax, VAT and social security contributions due and executes the necessary payments, the so called payment-time. Several studies revealed that the time and effort spent on preparing and computing the VAT-calculations are responsible for the largest part of the compliance costs (Blazic, 2002; Smulders and Stiglingh, 2008). Most of the post-filling costs consist of control and auditing services. For example the services performed by the auditing company, in order to prepare their statement on the tax compliance of the company (Slemrod and Venkatesh, 2002).

Figure 1: the different categories of tax compliance costs

An overview of the existing literature according to these classifications can be found in Appendix A.
2.2. Findings from international research and resulting hypotheses.

The research in this field can be divided into three main time periods. Despite the importance attached to the tax compliance costs by Adam Smith, this topic was largely neglected until the 1930s.

Since the 1930’s, several studies started to realize the significance of tax compliance costs. One of the first studies conducted on tax compliance costs was published by Haig in 1935 in the US. The pioneering and challenging task to estimate recurrent tax compliance costs was carried out in North-America from 1930 until 1960.

After this first period, exhaustive studies were conducted in Europe, which was initiated by the important work Sandford (1995) delivered about this topic in the UK. Since that period, a large number of studies were published. (Evans, 2001) In 1994 a new series of studies were made and compiled into scientific articles (Sandford, 1995).

During the last couple of years, research was performed in several countries. In Australia, pioneering work on the compliance costs of taxes was conducted by Pope, Evans and Tran-Nam. From the 1990’s, a large flow of investigations spread out all over the world (supra, pp 2) (Evans, 2003).

However, no official data on compliance costs, published by national or European governmental organizations, could be found (Charron et al., 2008). There is no standardized method available to determine compliance cost. This is to a large extent caused by the huge differences that exist between the tax legislations of the different countries.

There exists a large diversity in the research of tax compliance costs, which makes it difficult to extrapolate the trends in that research. In the next sections, the more obvious features of the research will be described.

2.2.1. Comparison of internal and external compliance costs

It was already mentioned that internal costs have in general a larger attribution in the total compliance costs. Especially in large companies, research has indicated that most activities that are necessary to comply with the fiscal legislation are performed by internal departments. Additionally, external consultants are hired to a limited extent for advice or document completion (Blumenthal and Slemrod, 1996). Most of the routine tasks, such as general accounting, preparations for VAT-calculation, can be treated internally. More complex tasks were often outsourced to external accountants.

455% internal personnel costs, 30% internal non-personnel costs, 15% external costs
Earlier research (Coolidge, Ilic, Kisunko, 2009) showed that companies that apply partial outsourcing will in some extent provide duplicated work. They concluded that partial outsourcing is not efficient as they cause more work, for example preparatory work, done by an internal staff member of the company, is often supervised once again by the external accountant. Therefore, if a company starts outsourcing, it is better to fully outsource the compliance activities according to taxes (Coolidge, Ilic, Kisunko, 2009).

H1: Companies that fulfill their tax obligations by means of internal or external resources will have lower compliance costs compared to companies who depend on partial outsourcing.5

2.2.2. Compliance costs in relation to company size

Research was also conducted on the relationship between the size of the company and the level of the compliance costs. It was stated that smaller businesses have relatively higher tax compliance costs expressed as a percentage of their turnover. The bigger companies seem to have economies of scale in this matter. Several studies concluded that the relation between company size and the ratio compliance costs/turnover is negatively correlated. It can be concluded that the bigger the company, the lower the compliance costs (Vaillancourt, 1986; Sandford et al., 1989; Blumenthal and Slemrod, 1992; Pope, 1993; Pope, 1995; Sandford, 1998; Pope, 2001; Hanefah et al., 2002; Pope, 2002; Slemrod and Venkatesh, 2002; Lignier, 2006; Charron et al., 2008). Despite the differences in tax legislation between countries, the specific procedures installed by local tax authorities and the non-conformity of research methods, it can be concluded from the literature that compliance costs are a relatively higher burden for small businesses.

This negative relation between company size and relative compliance costs is not only applicable in case of the corporate income tax, but even with more amplitude when considering VAT-administration costs. Cnossen, who made a comprehensive review of administrative and compliance costs of the GST (goods and services taxes) in the UK, New Zealand and Canada, indicated that compliance costs of the GST, as a percentage of sales, predominantly fall on small business (Cnossen, 1994).

Evolution or comparison of compliance costs is mostly measured by means of the relation between the absolute costs and the size of the business. There are however different parameters to estimate the size of a company. Beside the often mentioned turnover, total assets (Blumenthal and Slemrod, 1996; Slemrod and Venkatesh, 2002) and the number of employees (Charron et al., 2008) are considered as good indicators for company size. It can be stated that nothing can be concluded when using the absolute tax compliance costs. To make some comparisons or determine trends, the relative compliance costs are mostly used, which are calculated as the level of the compliance costs expressed as a percentage of turnover or total assets.

5This hypothesis, as all subsequent, is formulated as an alternative hypothesis. The null hypothesis would read as: Companies that fulfill their tax obligations by means of internal or external resources will have equal compliance costs compared to companies who depend on partial outsourcing.
costs should used, as a percentage of an indicator for the size of a company. Otherwise, the results could be distorted by the size of a company. During this research, only the relative tax compliance cost will be used.

It could be interesting to investigate which parameters in Belgium give the highest indication of the relation between compliance costs and company size.

**H2: Compliance costs are a relatively higher burden for smaller companies**

### 2.2.3. Compliance costs according to VAT

Since the introduction of VAT in most countries, the compliance costs have significantly increased. They represent an additional burden on taxpayers, which are acting as unpaid tax collectors, especially in the case of VAT/GST compliance costs (Pope, 2001). These compliance costs compass mainly record keeping for VAT-purposes only, preparation and filling of VAT returns, checking accounts, obtaining information about new procedures for filling VAT returns, changes in the law and other relevant information (Cléroux, 1992; Klun, 2004; O’Keefe and O’Hare, 2008).

Research revealed that relative compliance costs according to VAT, are a relatively higher burden for small business (Cnossen, 1994; Pope and Rametse, 2001). Although in absolute terms compliance costs according to VAT were rising consistently between companies of different sizes, the ratio compliance costs/turnover evolved quite different. The percentage that represents the compliance costs in terms of the turnover appeared to be 30 to 40 times higher at companies in the UK with a turnover of less than 20,000 £ compared to businesses with a turnover of 1 million £ and more. (Godwin and Sandford, 1983). Another, study was recently conducted in New Zealand. The results revealed that the mean VAT compliance costs for the smallest companies represented 2,7% of their turnover, compared to only 0,005% for the largest companies (Massey, 2003).

It was also shown that sales taxes are the biggest source of tax compliance costs. Vaillancourt, who made a review of the literature on compliance costs for businesses, already indicated that taxes levied on transactions (sales taxes, VAT, ...) have higher compliance costs than the other types of taxes (Vaillancourt, 1986). VAT was also cited as the largest source of tax compliance costs in 8 out of 11 OECD countries that were surveyed (Pope, 2001). It could be investigated whether the same results could be found for the Flemish SMEs.

**H 3: The VAT-administration is the compliance activity with the highest cost**
2.2.4. Compliance costs in relation to industries

In a number of countries, studies were undertaken to examine the impact of industries on the compliance costs (Blumenthal and Slemrod, 1996; Chan et al., 1999; Slemrod and Venkatesh, 2002). In general, tax compliance costs research shows that there exist a wide variation in tax compliance costs by industry. From all these studies there were no univocal conclusions that certain industries are penalized by the application of the tax system in their specific industry circumstances. In Hong Kong differences were found, but only by using the absolute compliance costs. No significant differences could be discovered when using the compliance cost relatively to sales (Chan et al., 1999). The only existing research that showed significant differences between industries is from Blumenthal and Slemrod (1996). In this research was shown that firms in the retail or wholesale industry have significantly lower tax compliance costs and firms in the primary industry have significantly higher than average tax compliance costs. Findings could be obtained with regard to the different industries in Belgium.

H 4: Compliance costs differ between companies situated in different industries

2.3. Compliance costs in Belgium

2.3.1. The complex Belgian tax system

In Belgium, the interest in compliance costs research has recently risen to a large extent due to the increasing complexity of the Belgian tax system. Price Waterhouse Coopers examined, in cooperation with FEB, 61 large companies (who employ together 100,000 people) from all major industries in Belgium. They concluded that Belgium imposes 63 taxes borne and 32 taxes collected (The World Bank Group and PWC, 2009). No companies use all these applicable taxes. On average 10 out of the 63 different taxes borne are used and only 5.5 out of 32 taxes collected were applied (FEB and PWC, 2007). It is also noted that increasingly new taxes are introduced and that existing charges are often adjusted (FEB and PWC, 2007). These findings were obtained from research on large companies, and although this research was not repeated on SMEs, one can assume that the same trend may be found for SMEs.

The taxes borne are a major cost to companies because they have a direct impact on the results of a company (such as corporate tax and employer social security contributions) and on top they entail compliance costs. The taxes collected (for example VAT, taxes on wages,...) will not directly affect the results of the company because they need to be paid to the government and are not paid by the company but by their suppliers and employees. It must be however emphasized that the taxes collected generate the most part of the compliance cost of the companies. In other words, companies are not only financing the government, they are also subcontractors for the collection of taxes without the

6Appendix C
possibility to charge any fee for these services. These costs cannot be underestimated as the amount of
taxes collected in Belgium is 2,08 times higher than the total of the taxes borne compared to 1,83 in the
UK and only 1,35 in Australia. As the Belgian companies are the largest collection agent, they will
probably have also the highest compliance costs (FEB and PWC, 2007).

It can be concluded that this dual mandate is a significant burden which include large administration
costs (FEB and PWC, 2007). Some taxes are accounted for in both the 63 taxes borne and the 32 taxes
collected. The final count sums up to a total of 78 different charges\(^7\) levied by the Belgian authorities.
This is a very high number compared to other countries where similar research was conducted. For
example in the UK only 22 charges exist and in Australia 56 different taxes are levied (FEB and PWC,
2007).

The most significant taxes borne for large companies are the corporate tax and the employer social
security contributions. These taxes constitute 84.17% of the total taxes borne paid to the government.
This means that 61 taxes only make up 15,83% of the total taxes paid to the government. Some taxes
seem to have a relatively small impact, but keep provoking a large compliance burden for the companies
(FEB and PWC, 2007).

Besides the collecting of withholding tax on professional income, employee social security contributions
and the payments of employers’ social security contributions, there are several other employee related
taxes (FEB and PWC, 2007). Especially the calculation of employee benefits and the taxation on company
cars as the CO2 solidarity contribution are employee related compliance costs that causes intensive
administrative work. These considerations let us assume that the relative compliance cost of a company
is related to the number of personnel employed.

| H5: The (to gross value related) compliance costs will rise as the company is more labour intensive |

\(^7\)Appendix C

2.3.2. Model-based comparison of compliance costs between different countries

In recent years the World Bank Group has conducted several studies to compare business regulations
and their enforcement across 183 economies. One of the categories they investigated were the efforts
that mid-sized local companies have to make to pay their taxes. To measure the difference between the
countries, a case scenario was used. Information was compiled on the time taken to comply with tax
laws of a specific country. More in detail, they measured the time that is required to prepare the
payment, complete the declaration form and to perform the actual payment of the three main types of
taxes and contributions (corporate income tax, social security contribution and VAT) (Macmillan, IFC and World Bank Group, 2010).

In Belgium, they found that the time it takes on average to prepare, file and pay these taxes is 156 hours a year. This figure is moderate compared with an average of 194 hours for the group of all OECD countries. It must however bear in mind that Belgium has one of the highest numbers of different taxes applied (supra, pp 12) which causes a high burden of compliance costs besides these 3 most important taxes. Tables can be found in Appendix B.

The average of 156 hours per year is divided between social security (25.6%), corporate income tax (13%) and VAT returns (61.5%) (IFC and the World Bank Group, 2009). As stated earlier, when presenting other research results, VAT administration appears again as the most important activity to induce compliance costs. It would be interesting to examine whether this is the case for the Flemish SMEs.

Although literature on the Belgian taxation system is largely in favor of simplifying the taxation system, one can find a counter-current in the field of environmental taxes. The government wishes to encourage the evolution towards an endurable economy. Two examples are investment incentives regarding R&D and environmental taxes. The impact of these incentives may be limited, because the taxpayers may conclude that the financial encouragement or penalization is not worth the effort to change their policies. The government needs to make a trade-off between tax simplification and the continuous introductions of new tax regulations targeting on reforming the economy (Gunz, Macnaughton and Wensley, 1995). Clear examples are the recent evolution to impose new environmental taxes and most definitely the new ruled concerning company cars. Research should be made if the high costs of these complex tax systems outweigh the effect of the incentive to conduct more sustainable company policies.

**H6: Environmental taxes provide an incentive to introduce more sustainable company policies**

### 2.4. Actions to lower the compliance costs

Most of the countries, where research was done on the level and the effects of compliance costs, already took action to lower these costs. In 1994 the New Zealand Inland Revenue Department launched a Compliance Cost Reduction Strategic Plan. A task force, specifically created for this purpose, the Compliance Cost Reduction Unit, was instructed to implement this plan (Cullen, Swain and Wright, 2001).
In the same year the Australian government announced a tax legislation reform by means of Tax Impact Statements (TIS). One of the main objectives of this reform was to cope with the issue of increasing compliance costs for the taxpayer (Evans and Walpole, 1999).

In 1986 the Tax Reform Act was adopted in the United States, which was followed by a Taxpayers Bill of Rights in 1988 in order to have a legal framework to defend the interest of the taxpayers (including the avoidance of exaggerated compliance costs) (Hall, 1993; Sandford, 1998).

Due to the British pay-as-you-earn system compliance costs are rather low in the UK. The majority of the employees only pay taxes every 5 years. The compliance costs for companies are also moderated because calculations are made by the Inland Revenue Services (Sandford et al., 1989; Collard et al., 1998).
3. Research Design

This chapter will start with an outline of the methodology followed by the description of the questionnaire design. The next section will take a closer look at how the data were obtained. Finally, an overview of the selected variables is given.

3.1. Methodology

In line with most studies in this field, data were obtained by using an online survey (Blumenthal and Slemrod, 1996; Erard, 1997; Bhatnagar et al., 2002; Slemrod and Venkatesh, 2002; Hanefah et al., 2002). The survey was preceded by a pilot study. Firstly, accountants and business managers were interviewed to get a better understanding of the different taxations of the Belgian fiscal system. Based on these interviews and a study of the Belgian tax system (Tiberghien, 2009), an initial survey was drafted. This version was presented to a group of managers of SMEs who gave feedback and advice. Adjustments were made based on their visions.

Afterwards, a pilot study was conducted with accountants in order to measure the comprehensibility of the survey. Earlier research had revealed that the estimation of these costs could be hard for (general) managers (Sandford, 1995). In companies who make use of internal accountants for settling their fiscal matters, management is not always aware of the number of hours or costs that have been spent on compliance activities (Erard, 1997). The survey was therefore specifically aimed at people within the company who have sufficient knowledge of accounting practices, VAT administration and the preparations needed in order to comply with all fiscal regulations. This is the reason why these companies were asked to pass the questionnaire to their internal accountant.

Likewise, companies who externalize their accounting and fiscal administration do not have always accurate information about tax compliance costs. They were asked to transfer the survey to their external accountant.

A covering letter, which explained the objective of the research and the benefits that could be provided to the taxpayers, was attached to the survey. Some instructions on how to complete the questionnaire were added and the time needed to finish this work was estimated. Because the completion of the survey proved to be time consuming, the participants were stimulated by an incentive. To increase the involvement of the respondents, a web application has been developed that

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8 Only in exceptional cases studies tried to directly address tax consultants because this method is time-consuming and it is difficult to cover the whole population. (Sandford, 1998)

9 Appendix D
after completion immediately showed the total tax compliance costs of the participant. Another reason for the instantly calculation of the TCC was to increase the accuracy of the data as participants would question if the presented result was realistic. The covering letter can be found in Appendix D.

In order to further stimulate participation, the companies were informed that when the study will be completed, the participants will receive the average compliance cost per industry and size. With the help of this information they can compare their own compliance cost with the average compliance cost of companies with the same size and within the same line of business. It was also mentioned that all individual information would be kept confidential and results would not be reported on individual data.

3.2. Questionnaire design

The web application\textsuperscript{10} contains twelve pages (including the cover page) with general questions and pages where participants could enter time and costs estimated per type of compliance activity. A table of content was added to the questionnaire to give an overview of the different parts of the survey. This facilitated the completing of the questionnaire as people were aware of which topics still had to be covered.

The survey is divided into three groups. The first part of the questionnaire gathered identification data of the participating company as main business activity, number of employees, years operational, whether the company exports or not, assets and gross value added.

An additional question was asked in order to know who completed the survey. As mentioned earlier (supra, pp 16), it is possible that the questionnaire is filled out by an external accountant or an internal staff member according to whom is accomplishing most of the tax related activities for the company. Another possibility is that an external accountant completes the questionnaire, but part of the tax related activities are also done by an internal accountant or vice-versa. According to this choice the questionnaire was adapted.

The second part of the questionnaire collected data on internal and external compliance costs\textsuperscript{11} according to the tax levies in Belgium. Respondents were asked to give their best estimate on how much time they spend on a certain tax or the cost they have to make to comply with these taxes.

Although most studies ask a direct estimation of the tax compliance cost, the pre-research showed that Belgian companies have difficulties to correctly estimate these costs. Therefore, a control procedure

\textsuperscript{10} Appendix E
\textsuperscript{11} External costs are costs made for an external accountant or fees paid to tax advisors. Internal costs include the time or costs that the in-house staff and accountant spend on complying with legislation.
was used in which 10 accountants (both internal and external) were interviewed and asked to enter the estimation of their compliance cost into the survey. This control step showed that more detailed questions gave more accurate answers. In order to realize this detailed questioning more taxes were split into separate items and the procedure was divided into different steps in order to prevent the underestimation of costs and the overlooking of certain taxes. By means of comments on each page, the survey tries to explain in a clear and structured manner the specific activity for which the interviewee has to estimate the costs.

These detailed interrogation method also causes disadvantages. When more questions are asked, the time needed to complete the survey rises. This will result in a lower rate of response. Taking these considerations into account, a balance had to be found between gathering a sufficient number of respondents and the accuracy of the delivered data. Finally, the proper completion of the survey required about 10 minutes which seemed to be the absolute maximum. After making the survey as short as possible, there were still companies who opened the web application but stopped participating after the first page.

The survey tries to cover all the charges applied in Belgium. The other costs related to taxation which were included in the questionnaire are the costs and time a company has to spend on dealing with fiscal or VAT controls by the authorities, the cost to comply with provincial and municipal taxes and tax prepayments. On the basis of the pilot study and the literature review (FEB and PWC, 2007; Beghin, 2009; Tiberghien, 2009-2010) the survey was subdivided into the following categories:

- VAT, customs and excise duties (listings, returns, ...)
- Corporate income tax
  - Disallowed expenses
  - Exempt income
  - Others
- Withholding and property taxes
- Environmental taxes
  - Levies on waste water, ground water and water collecting
  - Levies on packaging materials
  - Levies on high voltage electricity consumption
  - Environmental taxes
  - Levies on CO2 emission of company cars
  - Levies concerning the food safety control
- Social security contributions
- Other
  - AOIF-control
  - VAT-control
  - Provincial and municipal taxes
Prepayments

In order to confront the respondent directly with all possible costs, the activities were subdivided in pre-filling, filling and post-filling activities. A few examples of the types of activities that belong to each category were cited. In this research, pre-filling is the time that a respondent spends on preparing the different tax applications, gathering information on new tax regulations and the study of this information and initiating the collection of necessary data. Filling costs are all activities connected with the completion of all tax, levies and VAT application documents. Post-filling includes the control needed to approve the tax and VAT-calculations in order to complete correctly the yearly company results and balance sheet.

Beside time estimation and costs made by external or internal accountants to comply with the tax legislation, questions were also asked about the fees that have to be paid to social security, auditors and fiscal lawyers in relation to tax compliance activities. These external costs were not recorded in total because only a certain percentage is related to tax compliance. A percentage of 90% was used for social security activities; an average percentage of 10% was used for fees concerning auditors. The part of consulting fees aimed to advice on tax (compliance) issues is difficult to estimate and no relations to company size or industry were found.\(^{12}\)

In order to calculate the total compliance costs all hours and costs entered by the replying companies were added. The rate used to value the hours of external services was based on an estimated market price of services of external accountants, which is 70 euro. For internal accounting staff a lower rate was applied. In this case 50 euro was used.

\(^{12}\) In the survey the question was posed to determine this percentage
The calculation of the total compliance cost (TCC) is reported as follows:

| Pre-filling, filling and post-filling costs of VAT, customs and excise duties + pre-filling, filling en post-filling costs of corporate income tax + pre-filling, filling en post-filling cost for withholding and property taxes + pre-filling, filling en post-filling costs of environmental taxes + the tax compliance component of the management fees of the social security contributions + consulting and lawyer costs concerning fiscal items + the tax compliance component of the auditing costs + preparation and execution of prepayments + costs related to AOIF-control and general tax controls + costs related to VAT-control + costs related to comply with provincial and municipal taxes |

**Total tax compliance cost (TCC)**

In the third and final point, a more intuitive question was asked whether the environmental taxes have an influence on the way of doing business.

The final questionnaire can be found in Appendix E.

### 3.3. Data

#### 3.3.1. Sources

The survey population was taken from the customer list of VOKA\textsuperscript{13} and Belfirst\textsuperscript{14}. The NACEBEL\textsuperscript{15} coding system was used to split the companies into different industries.

#### 3.3.2. Population and sample

The target group was defined as the Flemish SMEs with a workforce up to 250 employees. This upper limit was based on the European definition of SMEs\textsuperscript{16}.

Non-profit organizations were not taken into account because different fiscal regulations are applied for these organizations. Also bank and insurance companies were excluded from the survey because most of these companies are too large in size and they also have to apply to specific fiscal regulations. Finally,

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\textsuperscript{13} Voka is a Flemish employers’ organization. As a network of companies, it accounts for more than 16 000 companies and represents 62% of value added in Flanders and 60% of private employment.

\textsuperscript{14} Belfirst contains filed annual accounts of Belgian companies. This includes the balance sheet, income statement, notes and eventual a social balance sheet.

\textsuperscript{15} NACE code is a digit by the European Union and its members assigned to a particular class of economic activity (whether or not commercial) This is intended to assist in the preparation of economic statistics and surveys.

\textsuperscript{16} The category of small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro.
public services were excluded as they again have different accounting rules to follow. These exclusions were also made in other studies concerning compliance costs (Blumenthal and Slemrod, 1996).

The questionnaire was sent to 10,300 companies. After two weeks, a follow-up mail was sent to all companies that were obtained from Belfirst. Taking into account the number of companies that received an invitation to participate; a response rate of 1.8%\(^{17}\) was obtained. 33 returned questionnaires could not be used as the information provided was unreliable. After exclusion of these answers a final sample of 151 acceptable responses were withheld in the survey.

Companies obtained through the customer base of VOKA (companies fit the previously mentioned requirements)
- East Flanders
- part of West Flanders
- part of Flemish Brabant

+ Companies from Belfirst (companies that fit the previously mentioned requirements)
  - Antwerp
  - Limburg
  - West Flanders
  - Flemish Brabant

<table>
<thead>
<tr>
<th>Total of SMEs that received the questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Non responding companies</td>
</tr>
<tr>
<td>- Incomplete and unreliable answers</td>
</tr>
</tbody>
</table>

| final sample                        |

A reason for the low response rate could be that the questionnaire was sent at the end of the reporting period. To calculate an accurate response rate, it is important to note that this as an inhibiting factor. The low response rate may also be partly due to the fact that the companies were asked to pass the questionnaire to their accountant and that completing the survey was time consuming.

To address the geographical representativeness of the companies responding to the survey, it was investigated whether each province of Flanders was properly represented in this sample. 12.8% of the companies were based in Flemish Brabant, 15.4% of the companies in Antwerp, 32.4% of the companies operated out of West Flanders, 26.8% out of East Flanders and 10.7% out of Limburg.

\(^{17}\) More than 10% of the companies started to fulfill the questionnaire. Only 1.8% of the respondents completed all the steps in the questionnaire.
3.4. Variables

3.4.1. Dependent variable

As dependent variable tax compliance costs (abbreviated TCC) was chosen. These costs were more specifically defined as the labour costs necessary to completely and correctly comply with the Belgian fiscal regime. Intellectual and psychological costs have not been taken into consideration. Non-labour costs (for example copies, IT-system, software,...) were also disregarded. As mentioned by several researchers these costs are difficult to estimate and often leave room for subjective interpretation (Smulders and Stiglingh, 2008; Charron et al., 2008). Labour is widely considered as the dominant part of TCC and the straightforward determination of these costs assures that estimation errors remain limited (Blazic, 2002)\(^\text{18}\).

The calculation of the total compliance costs was earlier mentioned (supra, pp 19). Consistent with other studies, only measurable costs such as time spent, wages or payments for (external) services were taken into consideration when calculating the tax compliance costs. Lost opportunity costs on the capital spent on compliance costs, which for this reason cannot be reinvested, have not been taken into account. Managerial and cash flow benefits are also not included in the TCC calculation. Considering these remarks it should be noted that when calculating only the easy measurable costs, some degree of underestimation of the compliance costs could be possible in this survey.

The definition of the compliance cost used in this study is the gross TCC. Costs not directly related to tax compliance activities, such as keeping an accurate accounting and management reporting system, have not been taken into account. Auditing costs, used to represent a correct and approved balance sheet and result figures, are disregarded. This means that managerial benefits, which mostly resort from a good reporting system, are negligible in consideration to the tax compliance activities as the most important costs to acquire these benefits have not been taken up in the definition of the gross TCC.

In the statistical analysis of the results, the ratio of TCC in regard to the gross value of the company (TCCPGVA = tax compliance cost / gross value added) was used, in order to make comparisons between organizations. Several researchers have found that tax compliance costs are largely dependent on company size (Vaillancourt, 1986; Sandford et al., 1989; Blumenthal and Slemrod, 1992; Pope, 1993; Pope, 1995; Sandford, 1998; Pope, 2001; Hanefah et al., 2002; Pope, 2002; Slemrod and Venkatesh, 2002; Lignier, 2006; Charron et al., 2008). It is necessary to filter this size component out off the results to acquire a representative parameter that can be used to compare the compliance costs of the companies of the total population of SMEs (Ariff et al., 1997; Chan et al., 1999).

\(^\text{18}\) In this research, labour cost proved to be the dominant cost after investigating several other hypotheses that proved to be invalid.
As a second dependent variable the compliance cost to all VAT regulations (abbreviated TCCVAT) was chosen. Again, in this regard only labour cost or fees from internal or external accounting services were considered in determining this TCCVAT. No consulting or auditing costs for VAT-purposes were taken into account.

### 3.4.2. Independent variables

As an independent variable, the size of a company was measured. In Belgium, some attention should be given to the specific characteristics of SMEs. Belgian SMEs\(^\text{19}\) have the possibility to submit abbreviated financial statements in which the turnover or profit after taxes does not have to be mentioned. Because of this, the size of a company was measured by total assets, gross value added and the number of employees.

The total assets and gross value added of the companies are expressed in absolute value (continuous variables). The number of employees is a categorical variable, which was divided into seven categories: 0-4, 5-20, 21-50, 51-100, 101-150, 151-200 and 201-250.\(^\text{20}\)

A second categorical variable was measured for industry. This variable has eight different categories, based on the NACEBEL code. The following breakdown was used:

1. Agriculture, hunting, forestry, mining and quarrying, electricity, gas and water supply (NACE code 01-14, 40-41)
2. Manufacturing (NACE code 15-37)
3. Construction (NACE code 45)
4. Wholesale and retail (NACE code 50-52)
5. Hotels and restaurants (NACE code 55)
6. Transport and storage (NACE code 60-63)
7. Real estate (NACE code 70-71)
8. Computer and related activities, R & D, other business activities (NACE code 72-74)

These 8 categories\(^\text{21}\) can be summarized into two industries, the manufacturing and service sector, which makes it possible to use this variable as a dummy variable (Everaert, Sarens and Rommel, 2007). According to this subdivision 70% of the companies in this survey are situated within the manufacturing industry and 30% of the companies belong to the service sector.

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\(^\text{19}\) The Belgian definition of SMEs: Companies that doesn’t exceed more than one of the following criteria: Total assets of 3 650 000 euro, turnover of 7 300 000 euro and total number of employees of 50.

\(^\text{20}\) Appendix F shows the frequency and the percentages of response per category according to the number of employees.

\(^\text{21}\) Appendix F shows the frequency and the percentages of response per category of industry.
The number of years in business was also requested in the survey and respondents had to classify their company into one of three different classes: 0-5 years, 6-10 years, and > 10 years. Results revealed that 5.3% of the companies were found in the first group, 8.7% in the second group and 86% of the respondents were already for more than 10 years into business. Because of the low number of companies in the first and second group, these respondents were combined into one group.

As exporting can have an incidence on TCC, companies were divided according to international business activities. Participants could file for non-exporting (39.3%) and for exporting (60.7%)

Respondents were asked to split the personnel of the company into the number of workers and the number of employees. This question was added in order to determine whether or not the employee/worker ratio has an influence on the level of compliance costs.

A last independent variable to be examined is the origin of the staff performing the compliance activities. In this sample, 23.2% of the companies handle all the activities relating to tax solely with internal staff, while 20.2% of the companies completely outsource these tasks. The remaining part of 56.3% of the respondents makes use of both internal and external resources to administer their fiscal obligations (Everaert et al., 2007).

The profile of the respondents is shown in appendix F.
4. Research findings

The aim of this study is to test the eight hypotheses resulting from the literature review on the base of the responses on the survey. In this chapter the results are summarized. First, the descriptive statistics will be presented. Secondly, the statistical analyses of the responses will be explained by use of univariate statistics and analyses of variance\textsuperscript{22}. Additionally, a linear regression analyses will be used, in order to examine if the independent variables (supra, pp 23) are related to the dependent variable (tax compliance costs as a percentage of gross value added)\textsuperscript{23}.

4.1. Descriptive statistics

Figure 2 presents a breakdown of the compliance cost in the different types of taxes that were questioned in the survey. This chart shows that VAT, social security and corporate income tax are the main causes for the emerging of compliance costs. They represent 82.3% of the total tax compliance costs with VAT (50%) being the main contributor. These figures are consistent with conclusions from earlier research conducted by the World Bank group (IFC and the World Bank Group, 2009). In this study, it was stated that 61.5% of the compliance costs were caused by VAT, 25.6% are due to social security contributions and 13% are caused by the corporate income tax. In this research, respondents were explicitly asked to estimate the compliance costs of control (6.58% of TCC), consulting (5.70%), environmental taxes (1.91%), auditor (1.85%), withholding and property taxes (0.91%) and prepayment (0.75%). From the responses it can be deducted that these taxes generates in Flemish SMEs significant compliance costs. This may explain why the percentages of VAT (50.2%), social security contribution (21%) and corporate income tax (11%) are slightly lower than the results of the research undertaken by IFC and the world bank group.

Different studies have in the past concluded that the VAT-administration is causing the largest part of the compliance costs (Vaillancourt, 1986; Pope, 2001; Blazic, 2002; Smulders and Stiglingh, 2008). These high costs can be partly explained by the fact that VAT returns must be calculated by most companies on a monthly basis. Also the complex rules for VAT-application of exported services and the obligation for exporting companies to provide via the monthly intrastat declaration information about their intercommunity (intra-EU) flows of goods make the compliance costs of VAT more time consuming (Cnossen and Verwaal, 2002). Research showed that firms with quarterly (and annual) filing frequencies have lower compliance costs than firms with monthly filing frequencies (Cnossen and Verwaal, 2002).

\textsuperscript{22} performed to analyze relations of continuous and categorical variables

\textsuperscript{23} For this research, Marketing Research with SPSS (Janssens et al., 2008), Onderzoeksmethodiek (De pelsmacker and Van Kenhove, 2008) and Basic Econometrics (Gujarati and Porter, 2009) were used.
Hypothesis 3, which states that the VAT-administration is the compliance activity with the highest cost, can be validated.

Figure 2: different compliance costs: a relative break down

The average total tax compliance cost of the companies, which participated in this survey, is €27,457. The total tax compliance costs divided by gross value added obtained an average of 5.07%. This means that the Flemish SMEs must reserve a surprisingly high 5% of the value added they produce to comply with the tax regulations. Throughout this study, these relative figures will be mostly used as an indicator of TCC instead of the absolute value of TCC.

Table 1 shows a breakdown between companies according to the number of employees. It seems evident that the absolute tax compliance costs go up if the number of employees increases. When using the relative compliance costs (TCCPGVA), the TCCPGVA decrease if the number of employees increases. This suggests that economies of scale exist within tax compliance. In other words, the results presented in table 1 give an indication that small corporations bear a relatively larger compliance cost burden.
<table>
<thead>
<tr>
<th>Number Employees</th>
<th>Mean TCC</th>
<th>Mean TCCPGVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>12524,23</td>
<td>10,47%</td>
</tr>
<tr>
<td>5-20</td>
<td>19269,38</td>
<td>4,42%</td>
</tr>
<tr>
<td>21-50</td>
<td>32604,83</td>
<td>3,65%</td>
</tr>
<tr>
<td>51-100</td>
<td>45603,16</td>
<td>0,86%</td>
</tr>
<tr>
<td>&gt;100</td>
<td>60678,59</td>
<td>0,67%</td>
</tr>
<tr>
<td>Total</td>
<td>27457,54</td>
<td>5,07%</td>
</tr>
</tbody>
</table>

Table 1: break down of TCC and TCCPGVA according to the number of employees

Because of the low rate of response in certain categories of number of employees\textsuperscript{24}, the groups were redistributed into a category with up to 50 employees and one with more than 50 employees. The TCCPGVA of the group with 0 to 50 employees has an average relative compliance cost of 6.44%, while the group with more than 50 employees has an average TCCPGVA of 0.75%. This result gives a further indication that tax compliance costs bear a higher burden on smaller companies.

Table 2 shows the absolute and relative compliance costs (TCCPGVA) based on the industry category. As can be seen, tax compliance costs vary widely across industries. Firms in the ‘hotels and restaurants’ industry have the highest relative compliance costs while the construction industry has the lowest.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Mean TCC</th>
<th>Mean TCCPGVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary industry</td>
<td>33637</td>
<td>6,2%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>35515</td>
<td>2,6%</td>
</tr>
<tr>
<td>Construction</td>
<td>31046</td>
<td>2,5%</td>
</tr>
<tr>
<td>Wholesale and retail</td>
<td>30007</td>
<td>6,6%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>19638</td>
<td>19,0%</td>
</tr>
<tr>
<td>Transport and storage</td>
<td>16491</td>
<td>3,8%</td>
</tr>
<tr>
<td>Real estate</td>
<td>8948</td>
<td>3,4%</td>
</tr>
<tr>
<td>Computer and related activities</td>
<td>16642</td>
<td>7,0%</td>
</tr>
</tbody>
</table>

Table 2: break down of TCC and TCCPGVA according to the industries

Because of the low number of responses in certain industries, these eight industries were reduced into two groups (supra, pp 23). The mean TCCPGVA of the production sector is 4.48% compared to 6.73% in the service sector.

Another distinction is made according to the age of a company. Table 3 indicates that the group of companies that exist fewer than 10 years have the lowest tax compliance costs (an average of € 13.253). The firms, that are more than 10 years in business, have an average absolute compliance cost of €

\textsuperscript{24} Appendix F
29.752. This is probably due to the fact that companies, with a lifetime of more than 10 years, are usually bigger companies. When using the TCCPGVA, the average relative compliance cost is higher for the firms that have a lifetime less than 10 years. Again the size of the companies can be a determining factor in this result. However other factors can play a role in the higher TCCPGVA of young businesses as the learning-effect that older companies have acquired in complying for many years to tax regulations.

<table>
<thead>
<tr>
<th>Lifetime</th>
<th>Mean TCC</th>
<th>Mean TCCPGVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 years</td>
<td>13253</td>
<td>7,6%</td>
</tr>
<tr>
<td>&gt; 10 years</td>
<td>29752</td>
<td>4,7%</td>
</tr>
</tbody>
</table>

Table 3: break down of TCC and TCCPGVA according to the years operational

Analysis is made between companies that do not export and companies that export within Europe and worldwide. As table 4 shows, exporting companies have an average tax compliance cost of € 33.155. When the sales of a company are solely situated in Belgium, the average tax compliance cost is € 18 572. Again, this can partly be due to the fact that exporting companies are the largest companies in this survey. Although an opposite trend can be found when using TCCPGVA. This could be an indication that the relative tax compliance cost increases when a company exports. This will be tested in the regression analysis.

<table>
<thead>
<tr>
<th></th>
<th>Mean TCC</th>
<th>Mean TCCPGVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export</td>
<td>33155</td>
<td>6,9%</td>
</tr>
<tr>
<td>No export</td>
<td>18572</td>
<td>4,7%</td>
</tr>
</tbody>
</table>

Table 4: break down of TCC and TCCPGVA according to export

The mean absolute and relative compliance costs made by companies that make exclusively use of internal or external accounting staff, and by companies that apply both resources, are summarized in table 5. The first group shows that companies that handle all their tax related services completely internally or externally, has an average relative compliance cost of 4,9%. Firms that made use of an internal and external account to comply with the tax regulations have an average relative compliance cost of 5,1%. As showed in table 5, the relative and absolute compliance costs of the firms making use of partial outsourcing are the highest. This could be an indication that the compliance costs bear a higher burden on the companies that make use of partial outsourcing.

<table>
<thead>
<tr>
<th></th>
<th>Mean TCC</th>
<th>Mean TCCPGVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>No partial outsourcing</td>
<td>21122</td>
<td>4,9%</td>
</tr>
<tr>
<td>Partial outsourcing</td>
<td>32372</td>
<td>5,1%</td>
</tr>
</tbody>
</table>

Table 5: break down of TCC and TCCPGVA according to outsourcing
Although companies have higher compliance costs because of environmental taxes, only 32.7% responded that these levies have a positive influence on the evolution towards a more sustainable economy. Therefore it can be assumed that the introduction of these environmental taxes has little influence on the way of doing business of the companies. Despite the rise in compliance costs, the government doesn’t seem to succeed in encouraging the companies to evolve towards greener policies. This gives an indication that hypothesis 6, which states that environmental taxes provide an incentive to introduce more sustainable company policies, could be rejected. Further research on this topic could be interesting.

4.2. Statististical analysis

4.2.1. Regressivity

The two tables below show the absolute and relative compliance costs according to the number of employees and the total assets. These two variables were used as a proxy for the size of a company.

In table 6, a positive relationship can be seen between the absolute tax compliance costs and the size of the company, measured by the number of employees. However, relative tax compliance costs (expressed as a percentage of GVA) show that tax compliance has a relatively higher burden on smaller companies. As the participants in some categories were limited, two breakdowns were taken according the size of the workforce: one division based upon the limit of 20 employees and a second one with companies with up to 50 or more than 50 members of personnel. For both breakdowns, significant evidence was found that the relative compliance costs are higher for smaller companies (p-value=0.00<0.05). For firms with less than 20 employees the average TCCPGVA is 7.44% while companies with more than 20 employees have an average relative compliance cost of 2.05%. Likewise, firms with less than 50 employees have an TCCPGVA of 6.44% while companies with more than 50 employees have an average TCCPGVA of 0.75%. This shows that the relative tax compliance costs of the smallest companies (up to 20 employees) are 3.7 times higher than those of the firms with more employees. When using 50 employees as the separating value the multiplication factor is 8.6.
Table 6: independent sample t-test of TCC and TCCPGVA in according to the number of employees

Table 7 presents that the same pattern occurs when size is measured by assets, which is a ratio-scaled variable divided into 3 categories. Firms with assets valued less than €300,000 have an average TCCPGVA of 13,2%, companies with assets valued from € 300,000 up to €1,000,000 have a TCCPGVA of 6,9% and firms with assets valued more than €1,000,000 have a relative compliance cost of 4,2%. When using an analysis of variance with the dependent variable TCCPGVA, an F-statistic of 30,77 was found. (p-value = 0,00 < 0,05) This states that there are significant differences between the groups of assets. The multiple comparisons showed that the TCCPGVA between all three groups of assets significantly differ. (p-value =0,00<0,05; p-value= 0,00< 0,05; p-value=0,02<0,05) Therefore, it can be concluded that the breakdown of companies with total assets valued less than € 300,000, from € 300,000up to €1,000,000 and with assets valued over more than €1,000,000, also shows that the relative compliance costs systematically decrease with increasing firm size, measured by total assets.

Table 7: Anova of TCC and TCCPGVA in according to total assets

When plotting out the average of TCCPGVA of all categories of workforce size investigated in the survey, the graph below is obtained. It shows that the relation between compliance costs per unit of gross value and the company size according to workforce can be described as a declining function. Again this graph indicates that the tax burden of compliance costs is relatively higher for the smallest companies (the so called, micro-enterprises). No conclusions can be made on the shape of the curve (and thus on how fast relative TCCs drop as workforce size is increasing) as the number of employees is brought together in categories with increasing interval sizes.
Exactly the same observations can be made when plotting a graph on the basis of a company size measured by total assets. The declining shape of the graph is even more pronounced, but again no conclusion can be made because the companies are classified by asset size by means of categories.

As expected from previous research, the relative compliance costs proved to be regressive to company size. This can be caused by economies of scale, whereby average costs fall as business size increases. This causes tax compliance costs to weigh proportionally heavier on small firms, especially on micro-enterprises (Vaillancourt, 1986; Sandford et al., 1989; Blumenthal and Slemrod, 1992; Pope, 1993; Pope,
1995; Sandford, 1998; Pope, 2001; Hanefah et al., 2002; Pope, 2002; Slemrod and Venkatesh, 2002; Lignier, 2006; Charron et al., 2008). This can also be caused by the fact that there is an inherent fixed element in the tax compliance costs of a company.

These observations support strongly Hypothesis 2 and confirm that compliance costs are regressive in relation to company size.

4.2.2. Comparison of compliance costs according to industry

When using the absolute TCC, the tax compliance costs of the production industry shows a significant higher average than those of the service industry. When using TCCPGVA, a reverse trend can be ascertained. The production industry noticed a TCCPGVA of 4.39%, compared to 6.72% for the service industry. No significant evidence was however found when using the relative compliance cost (TCCPGVA) (p-value =0.086>0.05). This is in line with earlier research (Allers, 1994; Chan et al, 1999; Cnossen and Verwaal, 2002; Slemrod and Venkatesh, 2002).

These findings let us conclude that this research cannot prove hypothesis 4, which states that compliance costs differ between companies situated in different industries. Studies on a larger scale (with more participants from different industries) will be necessary to control if this hypothesis proves to be right.

4.3. Regression analysis

This section explores the explanatory power of the regression model. To identify the determinants of the compliance costs, as a percentage of gross value added, a linear functional form is set up.

The dependent variable is TCCPGVA, which is defined as the tax compliance cost divided by the gross value added of the company. Export, years in operation (lifetime), level of externalization of compliance activities (outsourcing) and industry are dummy variables. Ln_assets (as a proxy for size) and workers are ratio-scaled variables. The variable workers is defined as the percentage of workers in a company compared to the total of workers and employees.

\[
TCCPGVA_i = \alpha_0 + \alpha_1 Export_i + \alpha_2 Lifetime_i + \alpha_3 Ln_{assets} + \alpha_4 Outsourcing_i + \alpha_5 Industry_i + \alpha_6 Workers_i + \epsilon_i
\]
Dependent variable TCCPGVA

White Heteroskedasticity-Consistent Standard Errors & Covariance

<table>
<thead>
<tr>
<th>Expected sign</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>+</td>
<td>0.210510</td>
<td>0.027366</td>
<td>7.692467</td>
</tr>
<tr>
<td>Export</td>
<td>+</td>
<td>0.001308</td>
<td>0.006980</td>
<td>0.187335</td>
</tr>
<tr>
<td>Lifetime</td>
<td>+</td>
<td>0.008246</td>
<td>0.009510</td>
<td>0.867032</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>+</td>
<td>0.010302</td>
<td>0.004943</td>
<td>2.084199</td>
</tr>
<tr>
<td>Industry</td>
<td>+</td>
<td>0.011101</td>
<td>0.006118</td>
<td>1.814381</td>
</tr>
<tr>
<td>Workers</td>
<td>-</td>
<td>-0.000189</td>
<td>7.85E-05</td>
<td>-2.403806</td>
</tr>
<tr>
<td>Ln_assets</td>
<td>-</td>
<td>-0.012952</td>
<td>0.002021</td>
<td>-6.409354</td>
</tr>
</tbody>
</table>

Table 8: linear regression analyze; dependent variable TCCPGVA

The assumptions of the regression model were tested. To detect multicollinearity, a correlation matrix was set up\(^{25}\). Only the correlation between Ln_assets and the number of employees (0.678) was higher than 0.6. This is as expected, since both variables were used as a proxy for size. However, this correlation does not cause a problem because only ln_asset was used in the regression model. The values of the variation inflation factors are in each case smaller than 10, which again prove the assumption of non-multicollinearity. Because the data in this sample are cross-sectional, there would be no autocorrelation. Therefore, a Durbin Watson Statistic of 2.30 can be observed.

To detect heteroskedasticity, a White test was used. It can be seen that the p-value of the chi-square was significant. Therefore the White Heteroskedasticity-Consistent Standard Errors & Covariance was used.

The results of the multiple regression analysis are presented in table 8. The F statistic of 11.85 is significantly above the critical F value of a 95% confidence interval. Therefore, the regression equation is statistically significant. The R squared suggests that 40% of the variation around the average of the

\(^{25}\) Appendix G
dependent variable can be explained by the regression equation. This is quite high, knowing that the data in this model are cross-sectional. The full regression analysis and the assumptions of the regression analysis can be found in Appendix G.

The findings of this regression indicate that all signs are as expected. The only variables that have a significant impact on the dependent variable, are ln_assets (p-value=0.00 < 0.05), workers (p-value=0.0180<0.05) and outsourcing (p-value=0.0396<0.05). The other independent variables (export, lifetime and industry) are not significant, which is in line with the results of the bivariate analysis.26

Not surprisingly, ln_assets is the most important factor to declare the compliance costs. The sign of the coefficient means that if the size of a company rises, the compliance costs, as a percentage of gross value added decline. This means that the tax compliance costs are a higher burden for small companies. Once again, this revalidates hypothesis 2 regarding regressivity. (supra, pp 29)

The findings in accordance to the variable workers let us conclude that when a company employs more workers, this has an influence on the dependent variable (p-value=0.018<0.05). On the basis of the sign this means that if the percentage of workers in a company goes up the TCCPGVA decreases. This is in line with the assumption that a company which employs more employees than workers has higher compliance costs because employees make more use of extra-legal advantages (as company cars) which causes considerable compliance costs. However, this study does not contain enough information to determine the real cause, so further research is necessary on this topic. Although hypothesis 5, which states that the tax compliance costs per unit of gross value added will rise as the company is more labour intensive, is statistically confirmed, further research is needed to exactly define the cause for the high compliance costs related to employees.

In order to test if companies, that fulfill their tax obligations exclusively by means of internal or external resources, will have lower compliance costs compared to companies who depend on partial outsourcing, this dummy variable has been investigated. The first group contains all the companies that make use of partial outsourcing, the second group contains all the companies that exclusively make use of an external or internal accountant. Knowing that the variable outsourcing exerts a significant influence on the tax compliance costs, it can be concluded that when a company uses partial outsourcing, the tax compliance costs per unit of gross value added, are higher. This is consistent with earlier research (Cooldige, Ilic, Kisunko, 2009). Partial outsourcing is not efficient, regardless of company size, industry or any other variable. The overall conclusion is that if a firm started to outsource, it is better to fully outsource as much of the tax compliance work as it can. It can be assumed that partial

26 No significant differences were found when using TCCPGVA for this variables
outsourcing causes double work in administering or controlling of tax compliance activities. Based on these findings Hypothesis 1 can be accepted and confirmed.

When analyzing which type of compliance costs is most responsible for the higher TCC when only a part of the tasks are externalized, a regression model is constituted in which different types of TCC\textsuperscript{27} are used as the dependent variable. Only when the tax compliance costs of VAT per unit of gross value added is used as dependent variable, the variable outsourcing proves to be significant. Therefore, it can be concluded that the compliance activity of VAT is the main cause of inefficiency, when companies resort to partial outsourcing.

Dependent variable TCCPGVAvat
White Heteroskedasticity-Consistent Standard Errors & Covariance

<table>
<thead>
<tr>
<th>Expected sign</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.104306</td>
<td>0.018462</td>
<td>5.649760</td>
<td>0.0000</td>
</tr>
<tr>
<td>Export</td>
<td>+</td>
<td>-0.000379</td>
<td>0.005008</td>
<td>0.075697</td>
</tr>
<tr>
<td>Lifetime</td>
<td>+</td>
<td>0.006055</td>
<td>0.004815</td>
<td>1.257427</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>+</td>
<td>0.009879</td>
<td>0.001578</td>
<td>3.032916</td>
</tr>
<tr>
<td>Industry</td>
<td>+</td>
<td>0.006934</td>
<td>0.003257</td>
<td>1.863274</td>
</tr>
<tr>
<td>Workers</td>
<td>-</td>
<td>-7.27E-05</td>
<td>0.003721</td>
<td>-1.409354</td>
</tr>
<tr>
<td>Ln_assets</td>
<td>-</td>
<td>-0.006778</td>
<td>5.16E-05</td>
<td>-4.295810</td>
</tr>
</tbody>
</table>

Table 9: linear regression analyze; dependent variable TCCPGVAvat

\textsuperscript{27} Compliance cost caused by VAT, corporate income tax, social security, control by government, regional and environmental taxes
5. Conclusion

The aim of this study was to investigate the magnitude and determinants of the total tax compliance cost of Flemish SMEs. The complex Belgian tax system suggests that the SMEs should make relatively high efforts to comply with all the 78 different tax rules (VBO and PWC, 2007). With the help of professional consultants a questionnaire was put together, which was verified by a pilot study. A letter, containing a link to a self-developed web-based application, was sent by e-mail to more than 10.000 SMEs. With the help of VOKA almost 2% of these companies responded to the electronic survey.

The most obvious conclusion of this study is the confirmation that the complex Belgian tax system penalizes the Flemish SMEs with high compliance costs. The participating companies have reported on average a total tax compliance cost of € 27.457 which represents more than 5% of their gross value added.

The results clearly show that this high burden is even more outspoken for the smallest companies. Consistent with earlier research (Vaillancourt, 1986; Sandford et al., 1989; Blumenthal and Slemrod, 1992; Pope, 1993; Pope, 1995; Sandford, 1998; Pope, 2001; Hanefah et al., 2002; Pope, 2002; Slemrod and Venkatesh, 2002; Lignier, 2006; Charron et al., 2008), this study confirms with statistical significance the negative relationship between tax compliance costs and company size. For firms with less than 20 employees the average percentage of compliance cost in relation to gross added value (TCCPGVA) is an astonishing 7,44%. For all companies with less than 50 employees on average a TCCPGVA of still 6,44% was reported, while companies with more than 50 employees only reached an average TCCPGVA of 0,75%.

The study could also identify the compliance activities that cause the highest costs to the Flemish SMEs. The study reveals that 82.3% of the tax compliance costs are caused by three tax constructions (corporate income tax, social contribution and VAT), where VAT alone already accounts for more than 50%. These conclusions are in line with earlier research (VBO and PWC, 2007). However, due to the large number of different taxes in Belgium (78) and the detailed questioning on other types of compliance costs in the survey, the amplitude of these 3 main costs is lower than those found in similar research in other countries. This confirms the earlier findings of Price Waterhouse Coopers and VBO, who revealed that in Belgium some relatively small taxes with regard to tax revenues constitute a heavy compliance burden on companies (61 different taxes contribute to less than 16% of total tax revenues).
A regression model could produce significant evidence for the impact of the level of outsourcing of the compliance activities, the total assets and the proportion between employees and workers of the personnel. A company with small assets, a partial externalization of the tax compliance activities and a high proportion of employees in their workforce will have a higher percentage of compliance costs in relation to gross added value. The determinant which in this analysis did not prove to be significant is the company’s industry. However, these finding are consistent with previous research (Chan et al., 1999).
6. Limitations and assumptions for further research

Despite the excellent cooperation with Voka and an intensive mailing campaign and follow-up, it proved to be hard to motivate the SMEs to participate in the study. Although, compared to other of these types of studies, the rate of response finally did not turn out to be disappointing. The number of participating companies in the survey proved to be a limiting factor in making some interesting analysis. With the collected sample it was hard to investigate some determinants of excessive compliance costs as for example the impact of the industry.

Most of the companies reacted very positive to the idea of investigating the exaggerated compliance costs in Belgium. In a meeting with some Voka members it however turned out to be difficult to convince especially the small companies to put some effort in completing the questionnaire. The problem does not seem to be the relevancy of the subject, but the cost or time involved to fill in the survey. As in small companies management does not has the demanded information, mostly external accountants have to assist them. Micro businesses are not willing to invest in these charges for a general survey.

However, the competitive position of the SMEs, the social cost of high compliance cost and the negative impact on economic development urge for a simplification of the tax regulations for SMEs. This study indicates that an extensive survey, with a large participation of Flemish SMEs, can indicate which tax regulations to which companies of which industry are the most penalizing in this regard (and thus the most urgent to reform!).

Although it was carefully considered to find a trade off between the length of the questionnaire and the needed detailed of response, a lot of companies opened the survey (proving their interest in the topic) but did not finish the questionnaire. It remains however difficult to obtain correct data from the companies as compliance cost are often ‘hidden’ cost that are not well known in size and appearance to the management. A rather detailed (and thus time consuming) questionnaire appears to be the only method to prevent companies from underestimating their total compliance cost.

When such a broad survey could be conducted, from the results of this study it is easy to deduct several suggestions for further research. Some examples are:

- Both in absolute and relative terms the compliance costs for small companies (micro enterprises) appear to be extremely high. It is not unrealistic to suggest that for a large part
of these firms the compliance costs (> 7% of gross margin in companies with less than 20 employees!) are larger than the total of corporate income taxes paid to the government. If this is the case – these companies make more costs to comply with and avoid tax regulations than they actually pay taxes- what is the social value of such a tax system for small businesses? As the proportion of these micro-businesses and their economic importance in Flanders must not be underestimated, the considerable economic impact of these unproductive compliance costs should be investigated.

• The results indicate that compliance costs are larger in companies with a high proportion of employees in their workforce. It seems reasonable to suppose that, in contrary with expressed employment policies in Flanders, the tax system is heavily penalizing the knowledge based industries as IT, consulting and R&D. More detailed research could prove that the compliance costs (for example to set up and maintain an extensive package of extra-legal advantages) are a limiting factor in attracting high quality personnel.

• In these difficult economic circumstances, the competitive position of the SMEs will in Flanders be of crucial importance. Also this group of companies is working increasingly in an international context. A comparative study with their main competitors (the neighbouring countries) could reveal if the Belgian (and Flemish) tax system constitutes a competitive barrier. Although some comparative studies are available on differences in taxation between EC countries, no specific research is readily available to compare the height of the compliance costs with for example the German, Dutch and French SMEs.

• Is the proportion between taxes borne and taxes collected not too much in disfavour of the companies who do not only have to pay high level of taxes, but also make the costs of collecting them for the government?
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### Appendices

#### 8.1. Appendix A

| The different categories of compliance costs of businesses | - Time spent | - 1994: Pope, Fayle and Chen  
- 1999: Chan et al.  
- 2002: Bhatnagar et al.  
- Cash expenses  
- Psychological costs  
- Internal costs  
- External costs  
- Gross compliance costs  
Net compliance costs = gross compliance costs \[-(tax\,\text{deductibility} + \text{cash flow benefits} + \text{managerial benefits})\]  
- 1993: Blumenthal and Slemrod  
- 1997: Ariff, Ismaël, and Loh  
- 1997: Erard  
- 1999: Chan et al.  
- 2000: Tran-Nam et al.  
- 2002: Bhatnagar et al.  
- 2002: Hanefah, Ariff and Kaspillai  
- 2002: Blazic  
Computation costs  
- 1989: Sandford, Goodwin and Hardwick  
Planning costs  
- 1989: Sandford, Goodwin and Hardwick  
- 1996: Mills  
- 1997: Ariff, Ismaël and Loh  
- 1999: Chan et al.  
- 2000: Tran-Nam et al.  
- 2002: Bhatnagar et al. |
8.2. Appendix B

### Paying Taxes

The data below shows the tax that a medium-size company must pay or withhold in a given year, as well as measures of the administrative burden in paying taxes. These measures include the number of payments an entrepreneur must make; the number of hours spent preparing, filing, and paying, and the percentage of their profits they must pay in taxes.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Belgium</th>
<th>OECD</th>
<th>OECD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments (number per year)</td>
<td>11</td>
<td>-</td>
<td>12.8</td>
</tr>
<tr>
<td>Time (hours per year)</td>
<td>156</td>
<td>-</td>
<td>194.1</td>
</tr>
<tr>
<td>Profit tax (%)</td>
<td>5.3</td>
<td>-</td>
<td>16.1</td>
</tr>
<tr>
<td>Labor tax and contributions (%)</td>
<td>50.2</td>
<td>-</td>
<td>24.3</td>
</tr>
<tr>
<td>Other taxes (%)</td>
<td>1.8</td>
<td>-</td>
<td>4.1</td>
</tr>
<tr>
<td>Tax rate (% profit)</td>
<td>57.3</td>
<td>-</td>
<td>44.5</td>
</tr>
</tbody>
</table>

**DB10 rank:** 73  **DB09 rank:** 66  **Change in rank:** -7

**Resources:**
- Details
- Compare All Economies
- Methodology
Paying Taxes in Belgium

The table below addresses the taxes and mandatory contributions that a medium-size company must pay or withhold in a given year in Belgium, as well as measures of administrative burden in paying taxes.

<table>
<thead>
<tr>
<th>Tax or mandatory contribution</th>
<th>Payments (number)</th>
<th>Notes on Payments</th>
<th>Time (hours)</th>
<th>Statutory tax rate</th>
<th>Tax base</th>
<th>Total tax rate (% profit)</th>
<th>Notes on TTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social security contributions</td>
<td>1</td>
<td>online filing</td>
<td>40</td>
<td>varies</td>
<td>gross salaries or 108% of gross salaries</td>
<td>50.2</td>
<td></td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>1</td>
<td>online filing</td>
<td>20</td>
<td>34%</td>
<td>taxable profits</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Fuel tax</td>
<td>1</td>
<td>-</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property tax</td>
<td>1</td>
<td>-</td>
<td></td>
<td>fixed fee (EUR 9,000)</td>
<td>cadastral revenue</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Tax on interest</td>
<td>0</td>
<td>-</td>
<td></td>
<td>15%</td>
<td>interest income</td>
<td>0.4</td>
<td>included in other taxes</td>
</tr>
<tr>
<td>Transport tax</td>
<td>1</td>
<td>-</td>
<td></td>
<td>fixed fee (EUR 1,500)</td>
<td>0</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Municipal tax</td>
<td>1</td>
<td>-</td>
<td></td>
<td>fixed fee (EUR 750)</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Provincial tax</td>
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<td>-</td>
<td></td>
<td>fixed fee (EUR 750)</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td>Regional tax</td>
<td>1</td>
<td>-</td>
<td></td>
<td>fixed fee (EUR 630)</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Stamps duty</td>
<td>1</td>
<td>-</td>
<td></td>
<td>EUR 7.5 per page</td>
<td>small amount</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Employer holiday social security contributions</td>
<td>1</td>
<td>online filing</td>
<td>-</td>
<td>varies</td>
<td>106% of gross salaries</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Value added tax (VAT)</td>
<td>1</td>
<td>online filing</td>
<td>96</td>
<td>21%</td>
<td>value added</td>
<td>57.3</td>
<td>not included</td>
</tr>
</tbody>
</table>

**Totals:** 11 156 57.3

Notes:
Name of taxes have been standardized. For instance income tax, profit tax, tax on company’s income are all named corporate income tax in this table.
The hours for VAT include all the VAT and sales taxes applicable.
The hours for Social Security include all the hours for labor taxes and mandatory contributions in general.
### 8.3. Appendix C

<table>
<thead>
<tr>
<th>Direct Taxes</th>
<th>Borne</th>
<th>Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Yearly company contribution</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Withholding tax on income from investments</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Country of residence tax withheld at source</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Property tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pharma levy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Regional tax on companies</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment taxes</th>
<th>Borne</th>
<th>Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employer social security contribution</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Withholding tax on professional income</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Employee social security contributions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Special social security contribution</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pension solidarity contribution</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>INAMI/RIZIV contributions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on employee equity participation and employee participation in profits and corporate results</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental taxes</th>
<th>Borne</th>
<th>Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 solidarity contribution on company cars</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ecotaxes (a.o. on batteries, disposable cameras, etc.)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Environmental contribution</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tax on industrial packaging</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tax on waste/waste contribution</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sewerage tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on printed advertising materials</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on wastewater effluent</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Levy on surface water catchments</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on underground water</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax to combat and prevent empty and abandoned business premises and the decay of buildings and homes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on hazardous, insalubrious and impracticable establishments</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Urban development levy: Planbatenheffing (Flanders only)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Food safety tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Major accident hazard levy for certain industrial activities</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ionising radiation levy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hazardous substances levy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fixed tank tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Tax on distribution apparatus for liquid or gaseous fuels</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on scrap metal and scrap vehicle dumps</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gravel tax</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Indirect Taxes</strong></th>
<th>Borne</th>
<th>Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net VAT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrecoverable VAT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on stock exchange transactions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on carry-over transactions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on delivery of bearer securities</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Annual tax on insurance transactions (9,25% or 4,4%)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Annual tax on credit institutions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Annual tax on coordination centres</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Special tax on bearer bonds held by financial intermediaries</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Stamp duty</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Special tax on the retained profits of certain credit institutions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Annual tax on profit sharing (9,25%)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Annual estate tax for pension funds only (0,17%)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on long-term savings</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Income tax withheld by pension institutions on income derived from occupational benefit schemes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Registration duties</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Customs duty</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Excise duties on mineral oil (excise duties, special excise duties and energy contributions)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Federal contribution on energy (electricity)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Excise duty on tobacco products</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Excise duty on alcoholic products</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Excise duties on other beverages (non-alcoholic beverages and coffee)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Packaging contribution</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Car registration tax</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Road tax</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Additional road tax</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Compensatory excise tax</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Road tolls (Eurovignette)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Betting and gaming taxes</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gaming machine licence duty</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Horseracing betting shop tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bill-posting taxes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Advertising hoardings tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>License Type</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Tax on motor power</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on computer screens</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on banks and financial institutions</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>ATM tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on trading areas</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Car park tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vending machine tax</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Tax on liquor store openings (Wallonia only)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Patent tax</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Subject: Advocacy file on the cost of your taxes

Dear manager, accountant,

Daily, you are confronted with the high tax burden in Belgium. The complex Belgian taxation system suggests that it requires relatively high effort from the SMEs to settle these requirements. For this reason, the University of Ghent in collaboration with Voka has chosen to conduct an investigation on the compliance costs of the Flemish SMEs.

Participation of your company in this survey is important because the results could make it possible to reduce the compliance costs in the future. With this information, recommendations can be made to the government towards adjustment to the existing tax laws. These adjustments could reduce the compliance costs for all business, and these results will be used by VOKA in advocacy.

You can find our survey in the link below. This survey can be completed anonymously. We can also assure that this data is only used for our research and will not be passed on to third parties. The intention is that this survey is completed by the internal or external accountant of your business, depending on the person who is most responsible for the compliance of the tax laws. You can forward this inquiry to the appropriate person by sending the following link or e-mail to the accountant. Completing the survey will only take 10 minutes of your time.

After completing the survey, the calculation of your compliance costs immediately appears on your screen. If our investigation is completed, you will be redirected to the final results, so you can compare your costs to the prevailing rates in your industry.

Questionnaire: http://www.tax-compliance.be

Thank you for your cooperation, for additional questions, please contact tom.vannieuwerburgh@voka.be or 09/266 14 45.

Kind regards,

Prof. Dr. Philippe Van Cauwenberge
Department of accountancy and corporate finance
Ghent University

Tom Van Nieuwerburgh
Regional director and manager interests
8.5. Appendix E

Hoe hoog zijn de 'tax-compliance' kosten van Belgische KMO's?

Beste boekhouder,

De bedoeling van deze enquête is dat u probeert in te schatten in welke mate u tijd besteedt aan bepaalde hervingen. Indien u een externe boekhouder bent dient u dit te doen voor uw klant waarvan u deze hulp heeft ontvangen.

Bedankt voor uw medewerking!

Vlaams netwerk van ondernemingen

Algemeen

Tot welke sector behoort uw bedrijf?

☐ Landbouw, jacht, bosbouw, mijnbouw, elektriciteit, gas en water
☐ Productie/vervaardiging
☐ Bouwwerken, installatie bouwwerken, afbouw van gebouwen, verhuur van bouw- of sloopmachines
☐ Groothandel en verkoop
☐ Horeca
☐ Transport en opslag
☐ Vastgoedactiviteiten, verhuur van machines, verhuur van werktuigen, verhuur van persoonlijke en huishoudelijke goederen
☐ Computer en gerelateerde activiteiten, R&D, architecturale en ingenieursactiviteiten, opsporing- en veiligheidsdiensten, reclame, personeelsaanwerving, industriële reiniging, diverso zakelijke activiteiten

Volgende vraag >
**algemeen**

Aantal werknemers in uw bedrijf?
- 0-5
- 5-20
- 21-50
- 51-100
- 101-150
- 151-200
- 201-250

Arbeiders: 0%

Bedienden: 0%

Hoeveel jaar is uw bedrijf reeds operationeel?
- 0-5 jaar
- 6-10 jaar
- > 10 jaar

Exporteert uw bedrijf?
- Nee
- Ja, enkel binnen de EU
- Ja, enkel buiten de EU
- Ja, buiten en binnen de EU

Wat is de postcode van de gemeente waarin uw bedrijf is gevestigd?

[Input field]

Volgende vraag >
**Algemeen (Gegevens uit boekhouding)**

Totale activa van het vorige boekjaar:

- Bruto toegevoegde waarde van het vorige boekjaar (70-60/61):

Wat zijn uw jaarlijkse kosten met betrekking tot volgende diensten?
Kan u procentueel inschatten in welke mate deze betrekking hebben tot belastingen?

<table>
<thead>
<tr>
<th>DIENST</th>
<th>KOST</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beheerskosten sociaal secretariaat</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Bedrijfsschade / auditor</td>
<td>☐</td>
<td>☐ %</td>
</tr>
<tr>
<td>Advocaten en consultancy</td>
<td>☐</td>
<td>☐ %</td>
</tr>
</tbody>
</table>

(kosten externe boekhouder zijn hier niet van toepassing)

**Wie?**

Doet dit bedrijf zowel beroep op een externe als interne boekhouder?

- Ja
- Nee

U bent een:

- interne boekhouder
- externe boekhouder
### BTW-aangifte, douane en accijnzen

**Algemeen**

Bij de volgende vragen dient u in te schatten hoeveel uren er aan een bepaalde heffing worden besteed per jaar.

**Of**

U kunt de jaarlijkse financiële kost invullen die voor deze type belastingen nodig is. Telkens is slechts één van beide invangen mogelijk.

<table>
<thead>
<tr>
<th>Pre-filling (berekenen te betalen bedrag, de nodige documentatie verzamelen, veranderingen in wetgeving bijhouden,...)</th>
<th>O Uren per jaar:</th>
<th>O Kosten per jaar:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling (invullen van de aangifte, opstellen van de BTW-listing,...)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
<tr>
<td>Post-filling (controle)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
</tbody>
</table>

---

### Vennootschapsbelasting: verworpen uitgaven

**Algemeen**

Verworpen uitgaven (niet afrekenbare autokosten, niet afrekenbare restaurantkosten, overdreven interessent, sociale voordelen,...)

<table>
<thead>
<tr>
<th>Pre-filling (voorbereiding zoals berekeningen, kosten die worden gemaakt om meer informatie in te winnen omtrent wetgeving,...)</th>
<th>O Uren per jaar:</th>
<th>O Kosten per jaar:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling (douter invullen van de verworpen uitgaven, de berekeningen beheren toe tot de pre-filling)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
<tr>
<td>Post-filling (controle)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
</tbody>
</table>

---

### Vennootschapsbelasting: vrijgestelde inkomsten

**Algemeen**

Voorzieningen voor risico's en kosten, waardeverminderingen, meerwaarden, investeringsreserve, werk in uitvoering,...

<table>
<thead>
<tr>
<th>Pre-filling (voorbereiding, inschatten van een voorziening,...)</th>
<th>O Uren per jaar:</th>
<th>O Kosten per jaar:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling (douter invullen van aangifte)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
<tr>
<td>Post-filling (controle)</td>
<td>O Uren per jaar:</td>
<td>O Kosten per jaar:</td>
</tr>
</tbody>
</table>
### Vennootschapsbelasting: overige

|----------|----------------------------------|------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|

**Pre-filling** (voorbereiding, berekeningen,...)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0

**Filling** (louter invullen van aangifte)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0

**Post-filling** (controle)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0

---

### Roerende en onroerende voorheffing

|----------|----------------------------------|------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|

**Pre-filling** (lat voorbereiden van aangiften, formaliteiten,...)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0

**Filling** (louter invullen van aangifte)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0

**Post-filling** (controle)
- Uren per jaar: 0 uren
- Kosten per jaar: € 0
## Milieutaksen

Klik aan indien van toepassing voor uw bedrijf

<table>
<thead>
<tr>
<th>Heffing op afvalwater, watervang en grondwaterwinning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JA</strong></td>
</tr>
<tr>
<td><img src="image" alt="Ja" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intergre voorheffing</th>
<th>Externe voorheffing</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Ja" /></td>
<td><img src="image" alt="Nee" /></td>
</tr>
</tbody>
</table>

**Alle voorbereidingen die nodig zijn om het antwoordformulier te kunnen invullen, het invullen van het formulier, ...

| Heffing op verpakking (industriële producten, ...
| Heffing met betrekking tot motoren / drievlucht |
| CO₂-uitstoot bedrijfswagens |
| Heffing met betrekking tot voedselwijkstraaltheid |
| Milieuhoeving (op platen, velten, folie, stroken, strippen, bladaluminium) |
| ![Ja](image) | ![Nee](image) |

Volgende vragen >>
**Overige**

**Sociaal secretariaat**

Maakt u gebruik van een sociaal secretariaat?

- Ja
- Nee

**Indien u in de laatste 3 jaar een controle gehad heeft door de overheid (AOIF-controle / Algemene controle)**

Hoeveel tijd hebt u besteed aan het voorbereiden van de laatste controle (onder meer het invullen van de gekregen vragenlijst)?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>

Hoeveel tijd heeft de controle ter plaatse in beslag genomen?

| 0 uren |

Indien u in de laatste 3 jaar een BTW-controle gehad heeft door de overheid, hoeveel tijd hebt u besteed aan het voorbereiden van de laatste controle?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>

Hoeveel tijd besteedt u aan het voldoen aan de heffing betreffende 'openhouden na sluitingstijd' van uw horeca-zaak (indien niet van toepassing=0)?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>
Hoeveel tijd besteedt u aan het voldoen aan de heffing betreffende ‘openhouden na sluitingstijd’ van uw horeca-zaak (indien niet van toepassing=0)?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>

Hoeveel tijd wordt er jaarlijks besteed aan de voorbereidingen en het afhandelen van de voorafbetalingen (indien u geen voorafbetaling doet = 0)?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>

Hoeveel tijd wordt er jaarlijks besteed aan de voorbereidingen en het afhandelen van uw gemeentelijke en provinciale belastingen?

<table>
<thead>
<tr>
<th>INTERN</th>
<th>EXTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 uren</td>
<td>0 uren</td>
</tr>
</tbody>
</table>

Hebben milieutaksen een invloed op uw manier van ondernemen? Vindt u dat zij aanzetten tot een milieubewustere bedrijfsvoering?

- Ja
- Nee

Vorige vraag >
**Uw tax-compliance kost**

**Uw tax-compliance kost: € 0**

Deze kost werd berekend op basis van volgende kostprijzen:

- € 70 per uur voor een externe boekhouder
- € 50 euro per uur voor een interne boekhouder

Bedankt voor uw medewerking! Indien u geïnteresseerd bent in de resultaten van dit onderzoek, kan u hier uw e-mailadres achterlaten.

**Email:**

[Enquête afsluiten.]
### Appendix F

#### Number of employees

<table>
<thead>
<tr>
<th>Number of employees</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>47</td>
<td>31.1%</td>
</tr>
<tr>
<td>5-20</td>
<td>41</td>
<td>27.2%</td>
</tr>
<tr>
<td>21-50</td>
<td>29</td>
<td>19.2%</td>
</tr>
<tr>
<td>51-100</td>
<td>16</td>
<td>10.6%</td>
</tr>
<tr>
<td>101-150</td>
<td>11</td>
<td>7.3%</td>
</tr>
<tr>
<td>151-200</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>201-250</td>
<td>5</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

#### Industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary industry</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>38</td>
<td>25.1%</td>
</tr>
<tr>
<td>Construction</td>
<td>18</td>
<td>12%</td>
</tr>
<tr>
<td>Wholesale and retail</td>
<td>44</td>
<td>29.1%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>Transport and storage</td>
<td>6</td>
<td>4%</td>
</tr>
<tr>
<td>Real estate</td>
<td>5</td>
<td>3.3%</td>
</tr>
<tr>
<td>Computer and related activities</td>
<td>32</td>
<td>21.2%</td>
</tr>
</tbody>
</table>

#### Business length

<table>
<thead>
<tr>
<th>Business length</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>8</td>
<td>5.3%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>13</td>
<td>8.7%</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>130</td>
<td>86%</td>
</tr>
</tbody>
</table>

#### Export

<table>
<thead>
<tr>
<th>Export</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No export</td>
<td>59</td>
<td>39.3%</td>
</tr>
<tr>
<td>Export within Europe</td>
<td>36</td>
<td>24%</td>
</tr>
<tr>
<td>Export worldwide</td>
<td>56</td>
<td>36.7%</td>
</tr>
</tbody>
</table>

#### Outsourcing

<table>
<thead>
<tr>
<th>Outsourcing</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internally</td>
<td>35</td>
<td>23.2%</td>
</tr>
<tr>
<td>Externally</td>
<td>31</td>
<td>20.2%</td>
</tr>
<tr>
<td>Partial outsourcing</td>
<td>85</td>
<td>56.3%</td>
</tr>
</tbody>
</table>
8.7. Appendix G

\[
\text{TCCPGVA}_i = \alpha_0 + \alpha_1 \text{Export}_i + \alpha_2 \text{Lifetime}_i + \alpha_3 \ln \text{assets}_i + \alpha_4 \text{Outsourcing}_i + \alpha_5 \text{Industry}_i + \alpha_6 \text{Workers}_i + \epsilon_i
\]

Dependent Variable: TCCPGVA
White Heteroskedasticity-Consistent Standard Errors & Covariance

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.210510</td>
<td>0.027366</td>
<td>7.692467</td>
</tr>
<tr>
<td>EXPORT</td>
<td>0.001308</td>
<td>0.006980</td>
<td>0.187335</td>
</tr>
<tr>
<td>LIFETIME</td>
<td>0.008246</td>
<td>0.009510</td>
<td>0.867032</td>
</tr>
<tr>
<td>OUTSOURCING</td>
<td>0.010302</td>
<td>0.004943</td>
<td>2.084199</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>0.011101</td>
<td>0.006118</td>
<td>1.814381</td>
</tr>
<tr>
<td>WORKERS</td>
<td>-0.000189</td>
<td>7.85E-05</td>
<td>-2.403806</td>
</tr>
<tr>
<td>LN_ASSETS</td>
<td>-0.012952</td>
<td>0.002021</td>
<td>-6.409354</td>
</tr>
</tbody>
</table>

R-squared 0.403762
Adjusted R-squared 0.369691
F-statistic 11.85067
Durbin-Watson stat 2.303094
Prob(F-statistic) 0.000000

\[
\text{TCCVATPGVA}_i = \alpha_0 + \alpha_1 \text{Export}_i + \alpha_2 \text{Lifetime}_i + \alpha_3 \ln \text{assets}_i + \alpha_4 \text{Outsourcing}_i + \alpha_5 \text{Industry}_i + \alpha_6 \text{Workers}_i + \epsilon_i
\]

Dependent Variable: TCCPGVAVAT
White Heteroskedasticity-Consistent Standard Errors & Covariance

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.104306</td>
<td>0.018462</td>
<td>5.649760</td>
</tr>
<tr>
<td>EXPORT</td>
<td>-0.000379</td>
<td>0.005008</td>
<td>-0.075697</td>
</tr>
<tr>
<td>LIFETIME</td>
<td>0.006055</td>
<td>0.004815</td>
<td>1.257427</td>
</tr>
<tr>
<td>LN_ASSETS</td>
<td>-0.006778</td>
<td>0.001578</td>
<td>-4.299810</td>
</tr>
<tr>
<td>OUTSOURCING</td>
<td>0.009879</td>
<td>0.003257</td>
<td>3.032916</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>0.006934</td>
<td>0.003721</td>
<td>1.863274</td>
</tr>
<tr>
<td>WORKERS</td>
<td>-7.27E-05</td>
<td>5.16E-05</td>
<td>-1.409354</td>
</tr>
</tbody>
</table>

R-squared 0.281284
Adjusted R-squared 0.240214
F-statistic 6.848968
Durbin-Watson stat 2.321688
Prob(F-statistic) 0.000004
The assumptions of the regression model were tested.

**Multicollinearity**

A few p-values are significant (<0.05), which states that there exist correlation between some dependent variables. According to a rule of thumb, correlation is only a problem when the correlation value is higher than 0.6. The highest value of correlation is 0.678. This is as expected because ln_assets and number of employees are both proxies for size. This correlation does not cause a problem because only ln_asset was used in the regression model as proxy for size.

Covariance Analysis:

Sample (adjusted): 1149
Balanced sample (listwise missing value deletion)

<table>
<thead>
<tr>
<th></th>
<th>OUTSOURCING</th>
<th>SECTOR</th>
<th>NUMBER</th>
<th>WORKERS</th>
<th>LIFETIME</th>
<th>EXPORT</th>
<th>Ln_ASSET</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>OUTSOURCING</td>
<td>SECTOR</td>
<td>NUMBER</td>
<td>WORKERS</td>
<td>LIFETIME</td>
<td>EXPORT</td>
<td>Ln_ASSET</td>
</tr>
<tr>
<td>OUTSOURCING</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECTOR</td>
<td>0.158203</td>
<td>1.000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0957</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NUMBER</td>
<td>0.081209</td>
<td>0.111173</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMPLOYEES</td>
<td>0.3947</td>
<td>0.2432</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORKERS</td>
<td>0.170638</td>
<td>0.268413</td>
<td>0.282811</td>
<td>1.00000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0720</td>
<td>0.0042</td>
<td>0.0025</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIFETIME</td>
<td>0.030763</td>
<td>0.167608</td>
<td>0.231793</td>
<td>-0.007414</td>
<td>1.00000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.7475</td>
<td>0.0773</td>
<td>0.0139</td>
<td>0.9382</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPORT</td>
<td>0.056669</td>
<td>0.234865</td>
<td>0.361538</td>
<td>0.050877</td>
<td>-0.017462</td>
<td>1.00000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.5529</td>
<td>0.0127</td>
<td>0.0001</td>
<td>0.5942</td>
<td>0.8550</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln_ASSETS</td>
<td>0.178024</td>
<td>0.311019</td>
<td><strong>0.680087</strong></td>
<td>0.247606</td>
<td>0.348408</td>
<td>0.440123</td>
<td>1.000000</td>
</tr>
<tr>
<td></td>
<td>0.0604</td>
<td>0.0008</td>
<td><strong>0.0000</strong></td>
<td>0.0085</td>
<td>0.0002</td>
<td>0.0000</td>
<td>-----</td>
</tr>
</tbody>
</table>
The variance inflation factor:

<table>
<thead>
<tr>
<th></th>
<th>export</th>
<th>Lifetime</th>
<th>Ln_assets</th>
<th>Outsourcing</th>
<th>Industry</th>
<th>Number employees</th>
<th>workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIF</td>
<td>1.320</td>
<td>1.189</td>
<td>2.351</td>
<td>1.041</td>
<td>1.334</td>
<td>2.005</td>
<td>1.256</td>
</tr>
</tbody>
</table>

The values of VIF of the independent variables are in each case smaller than 10, which is the indicated rule of thumb. The assumption of non-multicollinearity is therefore fulfilled.

**Heteroskedasticity**
To detect heteroskedasticity, we used a White test. We see that the p-value of the chi-square was significant. Therefore we use the White Heteroskedasticity-Consistent Standard Errors & Covariance.

**Autocorrelation**
Because the data in this sample are cross-sectional, there would not be autocorrelation. The Durbin Watson Statistic has a value of 2.28, which proves that there exist no autocorrelation.

---

28 The variance inflation factor quantifies the severity of multicollinearity. The VIF is an index that measures how much the variance of an estimated regression coefficient increases because of collinearity.