Empirical Analyses of Compliance Costs and Client Advocacy in Germany

Von der Wirtschaftswissenschaftlichen Fakultät der
Gottfried Wilhelm Leibniz Universität Hannover
zur Erlangung des akademischen Grades

Doktorin der Wirtschaftswissenschaften
Dr. rer. pol.

genehmigte Dissertation

von

Dipl.-Vw. Franziska Christa Hoffmann

2021

Referenten

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Tag der Promotion

18. November 2021

Summary

Diese Dissertation beinhaltet drei Beiträge zu Steuerbefolgungskosten deutscher Unternehmen und zur Rolle deutscher Steuerberater als Interessenvertreter ihrer Mandanten. Die erste Studie untersucht die Auswirkung der Einnahmenüberschussrechnung auf die Befolgungskosten kleinerer Unternehmen in Deutschland. Die deskriptiven Ergebnisse zeigen, dass die Einnahmenüberschussrechnung den Zeitaufwand und die Befolgungskosten signifikant verringert. Allerdings sind die Ergebnisse der multivariaten Analyse nicht eindeutig und davon abhängig, welcher Proxy für die Unternehmensgröße verwendet wird. Die zweite Studie analysiert den Effekt der Einnahmenüberschussrechnung auf die externen Befolgungskosten. Eine Umfrage unter deutschen Steuerberatern deutet darauf hin, dass die Einnahmenüberschussrechnung die externen Befolgungskosten um ca. 30% reduziert. Die Höhe der Steuerberatergebühren wird durch Merkmale wie den Unternehmensstandort beeinflusst. Die dritte Studie befasst sich mit dem Einfluss des Konkurrenzdrucks auf das Ausmaß der Interessenvertretung deutscher Steuerberater. Ein hoher wahrgenommener Konkurrenzdruck und eine geringe Konzentration des Steuerberatermarktes sind mit einer stärkeren Interessenvertretung verbunden. Da die wahrgenommene Konkurrenz unternehmens-spezifische Faktoren erfasst, wird dieses Maß als der am besten geeignete Proxy für den Wettbewerbsdruck angesehen.

This thesis contains three papers on tax compliance costs of German businesses and the client advocacy of German tax advisors. The first paper investigates the effect of simplified cash accounting on the compliance cost burden of small businesses in Germany. The descriptive results indicate that simplified cash accounting significantly reduces the overall time and compliance cost burden. However, the results of the multivariate analysis are ambiguous depending on the proxy for firm size. The second paper examines the effect of simplified cash accounting on external compliance costs. Using a survey of German tax advisors, the results indicate that cash accounting reduces the external compliance costs by about 30%. The level of fees charged by the tax advisors is affected by characteristics such as the company location. The third paper deals with the effect of competitive pressure on the client advocacy of German tax advisors. High perceived competitive pressure and a low concentration of the tax advisor market is associated with higher client advocacy levels. As the perceived competition captures company-level factors it is considered the most suitable proxy for competitive pressure.

Keywords

Tax compliance costs - simplified cash accounting - SME - client advocate - competitive pressure

Schlagwörter

Steuerbefolgungskosten - Einnahmenüberschussrechnung - KMU - Interessenvertreter - Konkurrenzdruck

Acknowledgements

First of all, a very special thanks goes to my supervisor and co-author Prof. Dr. Kay Blaufus for his continuous support, enthusiasm for the research projects, encouragement, patience and constructive advice that has continuously improved my work. I also wish to thank the committee members Prof. Dr. Stefan Wielenberg, Prof. Dr. Jens Robert Schöndube and Dr. Michael Milde for their support.

Furthermore, I would like to thank my colleagues at the Institute of Business Taxation for the great collaboration. I am grateful to my family and friends for their support, especially my parents and parents-in-law. A special thank you goes to my mother Beate. Many thanks to my friend Heike for her emotional support and a different view on things.

Finally, I would like to express my deepest gratitude to my husband Christian for his love, confidence and encouragements. Without him continuously supporting me in the different stages of my doctoral thesis I could not have completed this dissertation. I also wish to thank my sons Hannes and Mathis for their cheerfulness and patience.

To Christian, Hannes and Mathis

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1 Introduction

1.1 Motivation

Compliance with tax rules is accompanied with a considerable cost burden for taxpayers. Besides the payment of taxes, they are obliged to a variety of compliance activities such as registration with the tax authorities, documentation, filing tax returns and litigation with fiscal authorities. The term compliance costs "[...] refers to all those costs incurred by taxpayers or by third parties in complying with the requirements of the tax system, over and above the tax payments themselves." (Slemrod and Sorum 1984, 2). This includes the time effort for all tax related activities and the monetary expenses (e.g., expenses for software and professional tax advice) of business and individual taxpayers. The effort of the taxpayer may be influenced by different factors, amongst others by the complexity and frequent changes of tax rules. There is a comprehensive literature focusing on the complexity and efficiency of tax systems (see for instance Alm 1996, Kaplow 1996, Slemrod 1996). The operating costs of taxation can be defined as sum of administrative costs of the tax authorities and compliance costs of the taxpayers (Sandford 1995, Evans 2001) whereas the social costs of a tax system are measured as sum of administrative costs, compliance costs and excess burdens (Slemrod and Yitzhaki 1996, Tran-Nam et al. 2000).

Measuring the compliance cost burden may be a proxy for the complexity of a tax system (e.g., Sandford et al. 1989). Slemrod (1983) identifies the sum of compliance costs, costs of tax administration and those of third parties as a measure of the tax system's complexity. Furthermore, the level of compliance costs might influence the tax compliance behavior of the taxpayer, i.e., the decision to avoid or evade taxes (see for instance Alm 1988, Erard and Ho 2003). Therefore, measuring compliance costs may give important insights about the economic costs of the German tax system.

The interest of researchers and governments in compliance costs has continuously risen over the last decades. Sandford (1995) identifies, amongst others, the increasing complexity of the tax system and the growing importance of small businesses (which are burdened with high compliance costs) as reasons for this development. Here, tax advisors play a central role. As intermediaries between taxpayer and fiscal authorities they act as advocate for their clients and help to comply with the requirements of the tax law (see OECD 2008). They represent their clients towards the fiscal authorities and help the taxpayers to understand the complex tax

regulations. However, tax advisors fulfill a dual role as they are also committed to the public good and obliged to high ethical standards. The influence of tax advisors on tax compliance has been subject to prior research. Klepper and Nagin (1989) find that depending on the ambiguity of the tax items, tax advisors might increase or decrease compliance of the taxpayers (enforcer or exploiter role, see also Klepper et al. 1991). However, the client advocacy level of the tax advisors may influence their decision making process and judgment (e.g., Davis and Mason 2003, Bobek et al. 2010). As tax advisors have to objectively evaluate all relevant information when advising the taxpayers, identifying factors which influence the tax advisors' client advocacy level might help to prevent overly aggressive tax planning strategies and to improve tax compliance.

1.2 Contribution and Main Findings

This thesis comprises three papers.[1] While the first two studies investigate compliance costs of German businesses the third study examines the client advocacy level of German tax advisors. The studies contribute to the literature as described below.

The first part of this thesis (chapter 2 and 3) focuses on the cost burden of German businesses to comply with taxes. While there is a comprehensive literature on measuring tax compliance costs, the effect of simplified cash accounting on the compliance cost burden has been rarely investigated. To the best of my knowledge only Eichfelder and Schorn (2012) investigate the effect of simplified cash accounting for German businesses. However, small, medium-sized and large businesses[2] are included in the sample. This research gap is addressed by designing two studies. The first study which is presented in chapter 2 investigates the compliance costs of small German businesses. This study focuses on the accounting method used for tax purposes of mainly micro businesses[3] and determines the resulting compliance costs. Micro businesses are in the focus of this study as they bear a disproportional high compliance cost burden. Therefore, tax simplifications are very important for this category of businesses. An advantage of this study is the large questionnaire which provides detailed information on time effort and monetary expenses for all tax related compliance activities of the businesses. Bookkeeping (in particular, collecting and sorting receipts and managing cashbook) is the most time-consuming

[1] The research paper that is the basis for chapter 2 and 3 was published as Blaufus and Hoffmann (2020). Chapter 3 and chapter 4 is a co-authored work with Prof. Dr. Kay Blaufus, Leibniz University Hannover.
[2] Size classes according to the European Commission (2003).
[3] Size class according to the European Commission (2003).

compliance activity of the survey participants. The descriptive results indicate that the overall time burden for businesses with accrual accounting is significantly higher than for those using simplified cash accounting. The demand for external professional advice is high in this sample of small businesses. However, regarding the effect of cash accounting on compliance costs, the results are ambiguous in the multivariate analysis. When controlling for firm size using the number of employees, the results suggest that simplified cash accounting significantly reduces compliance costs of about 29% to 34%. However, when using turnover as measure of firm size, simplified cash accounting has no significant effect on compliance costs. Therefore, a second study regarding the effect of simplified cash accounting on external compliance costs is designed.

The second study which is presented in chapter 3 is a survey of German tax advisors. Presenting two scenarios to the tax advisors (a fictitious client using simplified cash accounting and the same client using accrual accounting for tax purposes), the external compliance costs are measured as fee quotes. It is advantageous that the effect of simplified cash accounting on the compliance cost burden can be investigated directly as the scenarios differ only in the accounting method used. The results indicate that simplified cash accounting reduces the external compliance costs by about 30%. Characteristics of the tax advisors affect the compliance costs. In particular, tax advisors located in a highly populated area and tax advisors who sign separate fee agreements with their clients charge higher fees (on average).

Chapter 4 analyzes the effect of competitive pressure on the client advocacy level of German tax advisors. The client advocacy level of the survey participants is measured combining direct and indirect measures. As direct measure a question proposed by Mason and Levy (2001) is used. Furthermore, the tax advisor's recommendations in two fictitious client scenarios are used as indirect client advocacy measure. The results suggest that the tax advisors' perceived competition and the market competition measured by the Herfindahl index significantly increase their client advocacy level. However, the tax advisor density has no significant effect. Perceived competition is considered as most suitable proxy for competitive pressure as it captures company-level factors. This study complements prior research as it examines the concentration of the German tax advisor market using the Herfindahl index and investigates the effect of perceived competitive pressure on client advocacy.

2 The Effect of Simplified Cash Accounting on Tax Compliance Costs – Evidence of a Survey from German SMEs[4]

2.1 Introduction

According to the OECD (2015) small and medium-sized enterprises (SMEs) bear a disproportionate administrative burden in complying with tax rules. This is in line with the European Tax Survey (European Commission 2004a) stating that the relative burden, measured as ratio between total tax-related compliance costs and paid taxes or turnover, is significantly higher for European SMEs than for large companies. The European Commission (2007) identifies the complexity of the tax system and the frequent changes of tax laws as some of the main reasons for high compliance costs for small businesses. Furthermore, the OECD (2015) points out that the significant fixed costs tend to increase the relative compliance burden for SMEs compared to large businesses that benefit from economies of scale within the compliance process.

Far more than 90 percent of all companies operating in the EU are SMEs. Thus, reducing bureaucracy, especially for SMEs, is an important goal of fiscal policy.[5] In line with the European Charter for Small Enterprises, several EU countries provide simplifications in tax legislation for SMEs. Simplified methods for tax accounting are considered by the European Commission as important step to reduce tax complexity and thereby the compliance burden (European Commission 2007, 14). Several EU countries (e.g., Germany, Austria, Belgium, Sweden, Finland and Poland) have introduced rulings for cash accounting for non-corporate businesses (for an exemplary overview see for instance OECD 2015, 100, and European Commission 2007, 52). In Germany, members of liberal professions and under certain conditions small businesses, too, are entitled to use simplified cash accounting to determine

[4] The research paper that is the basis for chapter 2 and 3 was published as Blaufus and Hoffmann (2020).

[5] The European Charter for Small Enterprises was adopted in 2000 to improve the legislation and to simplify national and EU rules. In Germany, in 2014 the Federal Government adopted a Better Regulation programme and key points for a further reduction in the level of bureaucracy affecting SMEs. Furthermore, the Federal Government released "Guidelines on accounting for the needs of SMEs in regulatory impact assessment (SME test)" to improve the legislative process. A second Act to Reduce Bureaucracy ("BEG II") was adopted in 2017.

their taxable income. Within the scope of the first Act to Reduce Bureaucracy[6] adopted in 2015 the thresholds for using cash accounting have been raised in Germany.[7]

Therefore, a current issue is: How big are the benefits from simplified cash accounting? To investigate the effect of simplified cash accounting on the tax compliance cost burden a survey of small German businesses (sole proprietorships) is conducted. With this study, I investigate the internal compliance activities and resulting costs as well as compliance costs arising from external professional tax advice of 243 sole proprietorships and whether these depend on the accounting method used for tax purposes. Thus, the tax compliance costs of SMEs, in particular which compliance costs arise with respect to compliance activities of the business owner and the employees (time burden and monetary expenses), and the effect of simplified cash accounting can be examined.

My results indicate that bookkeeping is the most time-consuming compliance activity (over 90% of the total compliance time is spent on this activity). Both, businesses with accrual accounting and businesses using cash accounting demand external professional tax advice to a high extent. Furthermore, the outsourcing ratio (ratio of external to total compliance costs) does not depend on the accounting method. Business size is identified as a key driver of compliance costs. Regarding the effect of simplified cash accounting on compliance costs, the results are ambiguous depending on the proxy for firm size. Using the number of employees, my findings indicate that simplified cash accounting is associated with a reduction in compliance costs of about 29% to 34%. However, if instead turnover is used as alternative measure for firm size, the effect is insignificant.

The remainder of this paper is organized as follows: In Section 2 a literature review is presented and the hypotheses are formulated. The data set is described in Section 3. The multivariate analysis follows in Section 4. Section 5 concludes.

6 German: Bürokratieentlastungsgesetz (BEG).

7 For financial years starting after 31 December 2015 businesses with commercial income with annual turnover up to € 600,000 (previously € 500,000) and annual profit up to € 60,000 (previously € 50,000) are entitled, under certain conditions, to use cash accounting.

2.2 Literature Review and Hypotheses

Literature Review

There is a variety of studies on measuring tax compliance costs of individuals and businesses (e.g., early studies of Slemrod and Sorum 1984; Sandford et al. 1989 and Slemrod and Blumenthal 1996). For a comprehensive overview of further empirical research into taxation operating costs since 1980 see Evans (2003, 2008).

There are three major components of taxpayer compliance costs: (i) time effort of the taxpayer, unpaid help and employees, (ii) costs for external professional advice and (iii) non-labor costs such as accounting software, literature and occupancy costs. Further social compliance costs include psychological costs of taxpayers and cash flow costs of the private sector (see Tran-Nam et al. 2000, Pavel and Vitek 2014). Psychological costs of the taxpayers include "[...] the dissatisfaction, frustration, and anxiety of taxpayers caused by their interaction with the tax system." (Guyton et al. 2003, 675). As the measurement and quantification of psychological costs is difficult they are usually excluded (see Pavel and Vitek 2014).

Complying with the tax law may have beneficial effects for the taxpayer. Net tax compliance costs can be defined as gross tax compliance costs minus tax compliance benefits (Sandford 1995). These benefits are usually categorized as tax deductibility benefits (deductibility of compliance costs from the tax base as expenses), cash flow benefits (tax payment is later than the corresponding transaction) and managerial benefits (improved financial information and managerial decision making as a result of record keeping requirements for tax purposes).[8] As managerial benefits are difficult to measure, they are often omitted in empirical studies (Tran-Nam et al. 2000).[9] Furthermore, tax deductibility and cashflow benefits are often difficult to quantify.

There exist various empirical methodologies for measuring compliance costs. While surveys conducted via mail, email, phone, online surveys and personal interviews are predominant, some investigations use case studies or diary entries. In addition to these empirical approaches there are few studies estimating compliance costs with simulating techniques (see for instance Vaillancourt and Blais 1995, Guyton et al. 2003)[10]. Some studies focus on the cost burden for

[8] See for instance Tran-Nam et al. (2000).

[9] For a detailed analysis of the managerial benefits of tax compliance see Lignier (2009).

[10] Vaillancourt and Blais (1995) use cost estimates to simulate the compliance costs of later years for Canadian income tax. Guyton et al. (2003) make a simulation of the compliance burden (time and money) of individual US taxpayers.

a particular tax (e.g., Sandford et al. 1989 and Hasseldine and Hansford 2002 on value added tax) whereas many studies investigate different taxes and tax matters. Furthermore, the studies differentiate the type of taxpayers (businesses or individual taxpayers). A recent review of research on tax compliance costs with a focus on these sub-groups and the different cost components (internal time effort, expenses for external professional advice and further monetary expenses) can be found at Eichfelder and Vaillancourt (2014).

In survey-based studies, the reliability of the statements of the survey participants is an important issue. Potential overestimation and underestimation of costs is discussed in previous literature (see Eichfelder and Vaillancourt 2014 for more details). Furthermore, the valuation of time effort plays a key role in determining the compliance cost burden. While Slemrod and Sorum (1984) use post-tax earnings, Sandford et al. (1989) rely on subjective estimates whereas for instance Vaillancourt (2010) rely on the pre-tax earnings per working hour. In this thesis, post-tax earnings are used for the monetization of time effort.

Regarding the type of taxpayer, the cost burden for self-employed taxpayers is higher than for other individual taxpayers such as employees and retired. The available studies show that compliance costs increase with taxable income and business size as well as with tax complexity. Due to economies of scale in tax compliance processes the relative cost burden decreases with growing business size and taxable income. Recent studies confirm these findings (e.g., Eichfelder and Schorn 2012, Blaufus et al. 2014 and Lignier et al. 2014).[11]

Several studies concentrate on the compliance costs of SMEs (e.g., newer studies of Schoonjans et al. 2011 for Belgium, Hansford and Hasseldine 2012 for UK, Smulders et al. 2012 for South Africa, Lignier et al. 2014 for Australia, Eragbhe and Modugu 2014 for Nigeria and Evans et al. 2014 with a cross-country study for Australia, Canada, South Africa and UK). They find consistently that the compliance costs for the small business sector are burdensome in particular. However, the effect of simplified cash accounting on the compliance burden of SMEs is rarely examined. Eichfelder and Schorn (2012) investigate the use of simplified cash accounting as one of several strategies of German businesses to optimize their compliance cost burden. They measure the perceived internal and external compliance costs of small, medium and large businesses. In the descriptive analysis, there is no differentiation between businesses using cash accounting and businesses with accrual accounting. The multivariate regression

[11] The study of RWI (2003) also confirms the regressive nature of compliance costs. However, the study which is only available in German language does not provide a measurement of the overall compliance cost burden arising for businesses.

shows no significant effect of cash accounting on the level of compliance costs for small businesses. The regression coefficient of the dummy variable for using cash accounting is negative. However, the standard errors are very high. Eichfelder and Schorn (2012) find in their study that with increasing outsourcing of compliance activities the compliance cost burden decreases. This effect is stronger for small businesses than for medium and large-sized businesses. Rose et al. (2007) examine the compliance costs of German businesses depending on the accounting method using a survey among tax advising firms. However, the study does not control for internal costs and does not indicate if simplified cash accounting leads to reduced total compliance costs for partnerships/ sole proprietorships.

Bergner and Heckemeyer (2017) find that the availability of simplified cash accounting for non-corporate businesses influences the choice of legal form. Their results suggest that an increase of the eligibility threshold for simplified cash accounting by 100,000 EUR increases the non-corporate firm share by about 0.47% points. This could be interpreted as indirect evidence for a benefit of this simplified accounting method. However, according to Goncharov and Jacob (2014) defining taxable income on an accrual basis offers advantages such as lower volatility of taxable income. Therefore, prior research does not show a clear trend regarding the benefit of using simplified cash accounting.

Hypotheses

The few studies available have ambiguous results regarding the effect of using simplified cash accounting on the compliance cost burden. Using cash accounting for determining taxable income offers simplifications for the businesses. As transactions are recorded with payment, businesses do not have to deal with timing issues. Furthermore, the preparation of the annual accounts is easier as there are no year-end adjustments. Dealing with VAT is easier as well since the taxpayer can record VAT as revenue and expense with receipt of payment and outgoing payment, respectively. The businesses are faced with less documentation requirements than in case of accrual accounting. Compliance activities might be reduced (see European Commission 2007). Therefore, I formulate the following hypothesis:

H1: Businesses using simplified cash accounting for tax purposes have less compliance costs than businesses using accrual accounting.

Outsourcing of compliance activities is an option for taxpayers to reduce their internal compliance activities by increasing their expenses for professional external advice. The

relationship between the demand for external advice and compliance costs has been analyzed in previous literature (e.g., Eichfelder and Schorn 2012, Blaufus et al. 2014). However, to the best of my knowledge the effect of using simplified cash accounting on the extent of external support has not yet been investigated for German businesses. Therefore, in this study I gather detailed information on the outsourcing of compliance activities of German SMEs depending on the accounting method used for tax purposes. I make the assumption that businesses are rational taxpayers who choose outsourcing as strategy to optimize their compliance cost burden. The demand for professional external advice is assumed to increase with growing complexity of the tax obligations. Therefore, the outsourcing ratio can be interpreted as proxy for the complexity of the compliance activities (a similar approach can be found, amongst others, at Blaufus et al. 2014). As businesses with accrual accounting tend to be faced with more complex tax regulations and resulting compliance activities, I hypothesize that those businesses rely on external support to a higher extent than businesses with simplified cash accounting. Therefore, further hypotheses are:

H2: The outsourcing ratio positively correlates to the amount of overall compliance costs.

H3: Businesses with simplified cash accounting use professional external advice to a lower extent than businesses with accrual accounting.

2.3 Data

2.3.1 Cost Measurement

In this study I measure the annual overall tax compliance costs of German SMEs as sum of internal costs (monetized personnel costs and further monetary expenses) and external costs (expenses for tax-related external advice). The survey participants are asked to state the time effort for themselves, their employees and third parties helping free of charge (i.e., the spouse or a relative) as well as the monetary expenses for their employees for the following activities:

1. Bookkeeping (collecting and sorting receipts, managing cash book, payroll accounting and financial accounting)[12]
2. Periodic tax returns/ prepayments (periodic VAT return, income tax prepayments, local trade tax prepayments)

[12] The term "bookkeeping" is also used for businesses using simplified cash accounting as compliance activities such as collecting receipts are required as well.

3. Tax accounting (compiling financial statements/ annual accounts)[13]
4. Annual tax returns (preparation of income tax return, local trade tax return, annual VAT return)
5. Correspondence with tax authorities /fiscal court (checking assessments, litigation with fiscal authorities / fiscal court)

The cost estimates are on a monthly, quarterly and yearly basis for activity 1, activity 2 and activity 3 to 5, respectively. Finally, further internal monetary costs for materials like accounting software, technical literature and occupancy costs are estimated by the survey participants on a yearly basis.

While the expenses for external support are taken directly (i) from a specific form required for cash accounting which is filed with the annual income tax return[14] or (ii) from the commercial accounts, the time burden and expenses for the internal compliance activities are subjective estimates of the survey participant (see previous literature such as Sandford et al. 1989). My calculation of the labor costs of the business owner is based on the post-tax earnings per working hour. This approach is in line with other studies (e.g., Slemrod and Sorum 1984). The basis for determining post-tax earnings is the taxable income stated by the survey participant. The middle value of each income class is used to calculate the tax burden (income tax and solidarity surcharge) and resulting post-tax income.[15] The data on average working hours per week for self-employed persons (individuals and married couples) is obtained from the German Socioeconomic Panel (GSOEP). The resulting post-tax earnings per working hour are used to value the time effort of the business owner and his spouse. My assumption is that the term "third parties helping free of charge" in the questionnaire usually refers to the spouse of the entrepreneur.

As businesses using simplified cash accounting have no legal obligations for accounting all expenses in connection with the tax advisor (legal/ tax advice and bookkeeping) are assumed to be tax-related. For businesses with accrual accounting, costs for the tax advisor are extracted from the profit and loss accounts. I make the assumption that all expenses for bookkeeping and legal/ tax advice are tax-related. Expenses for auditing, however, are assumed to be accounting-

[13] The term "compiling financial statements/ annual accounts" includes determining the surplus of revenue via operating expenses in case of cash accounting.
[14] German: "Anlage EÜR".
[15] The income tax rate is calculated according to Paragraph 32a EStG (German Income Tax Act), in the version corresponding to the year of the annual income tax return. In case of joint filing the post-tax earnings for the married couple are calculated.

related as there is no obligation for auditing for tax purposes. Furthermore, I understand all tax-related costs as tax compliance costs. This means that potential costs for tax planning are included in the compliance costs measured with this study, although tax planning goes beyond the obligations of a taxpayer in complying with tax law.

In line with previous research, I investigate gross compliance costs (see Eichfelder and Vaillancourt 2014). Gross compliance costs means that tax benefits for the businesses resulting for instance from cash flow effects (tax payment is later than the corresponding transaction) and the deductibility of compliance costs as business expenses are not taken into account.

The main aim of this study is to investigate the benefit of simplified cash accounting rather than the level of tax compliance cost. Due to different approaches and survey designs, my estimated compliance cost burden might differ from other studies. However, as I suppose that a potential bias in the measuring of compliance costs in my study is independent of the accounting method used, the main results should not be distorted.

2.3.2 Data Set and Sample

This study is designed to collect detailed information on the activities and resulting compliance costs arising for small businesses with respect to their tax obligations. As only non-corporate businesses are eligible to use simplified cash accounting, exclusively sole proprietorships are used for the study. The survey was conducted in the years 2009 to 2012. In total 269 German businesses (sole proprietorship) participated in the survey. 9 subjects were excluded due to implausible answers.[16] Furthermore, subjects with missing values for relevant variables were removed from the sample (12 cases).[17] In addition, five extreme outliers were removed.[18] The final sample consists of 243 sole proprietorships. Thereof 154 subjects (63.4%) were interviewed face-to-face (mainly) or by telephone, 76 subjects (31.3%) were asked in written form and 13 subjects (5.3%) participated in an online version of the survey. All interviewers had a special training seminar.

The questionnaire which is presented in Appendix A is divided in three parts. In part I the survey participants are asked to state general information of their business such as legal form, accounting method used for tax purposes, number of employees and type of tax returns to be

[16] These participants filled out the sections of the questionnaire for simplified cash accounting *and* for accrual accounting.

[17] 11 subjects with missing values for operating turnover and expenses (cash accounting) or turnover and expenses for external advice (accrual accounting) and one with missing values for all internal costs.

[18] Internal hours or expenses extremely high (implausible).

filed[19]. Furthermore, they are questioned whether they use electronic data interchange with the authorities (ELSTER) or the professional support of a tax advisor. Part II of the questionnaire is designed to measure the internal (personnel and monetary) costs arising for all tax-related activities. With part III of the questionnaire I obtain detailed tax information extracted from the latest annual income tax return filed. Depending on the accounting method used for tax purposes further data is collected: for simplified cash accounting the sum of operating revenues and expenses and for accrual accounting turnover and total assets. Furthermore, I obtain information on the expenses for external professional advice (bookkeeping and tax/ legal advice). Detailed questions on different VAT rates and trading profits were excluded from the survey due to numerous missings.

2.3.3 Descriptive Statistics

As displayed in Table 2.1, from my final sample of 243 sole proprietorships 175 businesses (72%) use simplified cash accounting for tax purposes. Hereof only about 42% are members of a liberal profession (i.e., nearly 58% of the businesses have income from commercial activities). This could be an indication that small businesses with commercial income find simplified cash accounting beneficial for them. The distribution of the size classes based on the definition of SMEs according to the European Commission (2003) shows that more than 95% of the businesses in the sample are micro businesses and 4% businesses are small whereas only one business is medium-sized. From the businesses with accrual accounting only a small proportion (8.8%) are member of a liberal profession. This indicates that members of a liberal profession rarely voluntarily choose accrual accounting for determining taxable income. While less than 43% of all survey participants use electronic data interchange with the tax authorities more than 89% generally make use of the professional advice of a tax advisor. Businesses with accrual accounting tend to make use of a tax advisor slightly more frequent. This will be analyzed in more detail in Section 2.4. 41% of the businesses are located in Eastern Germany. More than 50% of all businesses have up to two employees while about 19% of all businesses do not have any employees. The percentages are even greater for businesses using simplified cash accounting; i.e., on average businesses with accrual accounting have more employees than businesses using simplified cash accounting. About 63% of all survey participants have taxable yearly income up to € 60,000. Business owner using accrual accounting for tax purposes have

[19] Possible tax returns: income tax return, local trade tax return and annual VAT return.

higher taxable income than in case of simplified cash accounting. Further descriptive statistics of business information are displayed in Table 2.1.

Table 2.1 Descriptive statistics of the survey participants' businesses

	Value	Total Observations (n = 243)	Simplified Cash Accounting (n = 175)	Accrual Accounting (n = 68)
Member of a liberal profession	No	163 (67.1)	101 (57.7)	62 (91.2)
	Yes	80 (32.9)	74 (42.3)	6 (8.8)
Size class (according to the European Commission 2003)	Micro (0 – 9 employees)	228 (95.4)	169 (98.8)	59 (86.8)
	Small (10 – 49 employees)	10 (4.2)	2 (1.2)	8 (11.8)
	Medium (50 – 249 employees)	1 (0.4)	0	1 (1.4)
Location	Eastern Germany	100 (41.2)	74 (42.3)	26 (38.2)
	West Germany	143 (58.8)	101 (57.7)	42 (61.8)
Electronic data interchange with the tax authorities (ELSTER)	No	140 (57.6)	105 (60.0)	35 (51.5)
	Yes	103 (42.4)	70 (40.0)	33 (48.5)
Professional tax advice	No	26 (10.7)	21 (12.0)	5 (7.4)
	Yes	217 (89.3)	154 (88.0)	63 (92.6)
Income tax return	No	0	0	0
	Yes	243 (100)	175 (100)	68 (100)
Local trade tax return	No	116 (47.7)	105 (60.0)	11 (16.2)
	Yes	127 (52.3)	70 (40.0)	57 (83.8)
VAT return	No	38 (15.6)	35 (20.0)	3 (4.4)
	Yes	205 (84.4)	140 (80.0)	65 (95.6)
Year of the annual income tax return	2007	75 (31.0)	53 (30.5)	22 (32.4)
	2008	118 (48.7)	86 (49.4)	32 (47.0)
	2009	27 (11.2)	16 (9.2)	11 (16.2)
	2010	22 (9.1)	19 (10.9)	3 (4.4)

Table 2.1 (*continued)*

	Value	Total Observations (n = 243)	Simplified Cash Accounting (n = 175)	Accrual Accounting (n = 68)
Foreign operations	No	227 (93.4)	162 (92.6)	65 (95.6)
	Yes	16 (6.6)	13 (7.4)	3 (4.4)
Number of employees	0	45 (18.8)	41 (24.0)	4 (5.9)
	1	47 (19.7)	39 (22.8)	8 (11.8)
	2	31 (13.0)	26 (15.2)	5 (7.3)
	3	41 (17.1)	27 (15.9)	14 (20.6)
	4	20 (8.4)	12 (7.0)	8 (11.8)
	5 – 9	44 (18.4)	24 (14.0)	20 (29.4)
	More than 9	11 (4.6)	2 (1.1)	9 (13.2)
Taxable income	€ 0 – 15,000	30 (12.7)	25 (14.6)	5 (7.6)
	€ 15,001 – 30,000	49 (20.7)	36 (21.1)	13 (19.7)
	€ 30,001 – 45,000	32 (13.5)	26 (15.2)	6 (9.1)
	€ 45,001 – 60,000	38 (16.0)	25 (14.6)	13 (19.7)
	€ 60,001 – 75,000	21 (8.9)	13 (7.6)	8 (12.1)
	€ 75,001 – 100,000	20 (8.4)	12 (7.0)	8 (12.1)
	€ 100,001 – 150,000	11 (4.6)	9 (5.3)	2 (3.0)
	€ 150,001 – 200,000	13 (5.5)	12 (7.0)	1 (1.5)
	€ 200,001 – 250,000	11 (4.6)	7 (4.1)	4 (6.1)
	> € 250,000	12 (5.1)	6 (3.5)	6 (9.1)

The table shows descriptive statistics of the survey participants' businesses. The number of observations is presented. Percentages are presented in brackets. The size classes are defined according to the European Commission (2003). Micro: less than 10 employees and turnover and/ or total assets up to max. EUR 2 million, small: less than 50 employees and turnover and/or total assets up to EUR 10 million, medium-sized: less than 250 employees and turnover up to EUR 50 million and/or total assets up to EUR 43 million. Businesses located in Berlin are included in the category "West Germany". In the category "2007" for year of the annual tax return one case with 2006 as year of the annual tax return is included. With respect to "taxable income" the number of total observations is 237.

Table 2.2 presents the time burden for the different internal compliance activities.

Table 2.2 Descriptive statistics of the time burden for internal compliance activities

Internal compliance activity	Total Observations (n = 243)	Simplified Cash Accounting (n = 175)	Accrual Accounting (n = 68)	Difference
	hours per year	hours per year	hours per year	
1. Bookkeeping (in total)	138.78	107.42	219.47	112.05 *** (32.55)
– Collecting receipts	47.16	37.70	71.51	
– Sorting receipts	44.27	34.51	69.37	
– Managing cash book	30.99	22.76	52.16	
– Payroll accounting	3.89	2.75	6.84	
– Financial accounting	12.47	9.70	19.59	
2. Periodic tax returns/prepayments	3.21	3.03	3.68	0.65 (1.56)
3. Financial statements/ annual accounts	2.50	2.43	2.68	0.25 (0.85)
4. Annual tax returns	2.99	3.00	2.99	-0.01 (1.33)
– Income tax	1.94	1.88	2.09	
– Local trade tax	0.18	0.08	0.43	
– VAT	0.88	1.04	0.47	
5. Correspondence with tax authorities /tax court	1.00	1.20	0.47	-0.73 * (0.39)
Total personnel effort	**148.48**	**117.08**	**229.28**	**112.20 *** (32.97)**

The table shows descriptive statistics of the time burden for internal compliance activities of the business owner and his employees. The mean values are presented. Two-sample t-test (two-sided, *** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

For activities related to bookkeeping (collecting and sorting receipts, managing cash book, payroll accounting and financial accounting) the time effort is far larger than for all other categories. The business owner, his employees and spouse spend over 90% of the overall time on these compliance activities. Here, payroll accounting and financial accounting play a minor role. Generally, the time burden for businesses with accrual accounting is bigger than for those using simplified cash accounting for the different categories. The large difference in compliance time is significant (two-sample t-test, $p < 0.01$). This could be an indication of a positive effect of the simplified accounting method on the compliance burden. Interestingly, the amount of hours for filing tax returns is equal for both accounting methods. This result could suggest that

the time effort for actual filing the tax return does not differ between the accounting methods. Solely the time burden for correspondence with fiscal authorities/ fiscal court is greater in case of cash accounting. However, as the time burden for this compliance activity is rather small, it is prone to outliers.

The average compliance costs per business are shown in Table 2.3. The overall compliance costs consist of the monetized time for the internal compliance activities (personnel costs), other monetary costs and expenses for external advice. The average overall compliance costs per business amount to € 5,917. They are considerably lower than in the survey of Eichfelder and Schorn (2012) who determine compliance costs of € 37,726 for small businesses on average (1 to 49 employees). A possible explanation for this difference is that in my sample more than 95% are micro businesses (up to 9 employees). Eichfelder and Schorn (2012) do not distinguish between micro and small businesses in their study. As compliance costs increase with growing business size the compliance burden will be substantially higher for larger small businesses.

The overall tax compliance burden (Table 2.3) is significantly lower in case of using simplified cash accounting for tax purposes with less than 50% of the value for accrual accounting (two-sample t-test, $p < 0.01$). This also holds true for the different cost categories (internal personnel costs, further monetary internal costs and external costs) which might indicate the beneficial effect of simplified cash accounting.

A large part of the overall compliance cost burden relates to external compliance costs. On average, the outsourcing ratio (the costs for external advice as percentage of all tax compliance related costs) is greater than 50%. My finding suggests that small businesses rely extensively on external professional support. With respect to the different accounting methods the mean values of the outsourcing ratio differ only slightly. The outsourcing ratio in case of cash accounting is 1.85 percent points smaller than in case of accrual accounting. The difference is not significant (two-sample t-test). Thus, regarding H3 I find no evidence that the extent of using professional external support depends on the accounting method.

Table 2.3 Average compliance costs per business and outsourcing ratio

	Total Observations (n = 243)	Simplified Cash Accounting (n = 175)	Accrual Accounting (n = 68)	Difference
	EUR per year	EUR per year	EUR per year	
Personnel costs (monetized time)	2,652.33	1,951.58	4,455.73	2,504.15 *** (856.11)
Hereof:				
– Bookkeeping	2,434.93	1,748.58	4,201.27	
– Periodic tax returns/ prepayments	92.11	78.57	126.95	
– Financial statements/ annual accounts	51.47	49.89	55.54	
– Annual tax returns	57.02	57.96	54.60	
– Correspondence with tax authorities /fiscal court	16.80	16.58	17.37	
Other monetary costs	504.98	352.68	896.91	544.23 * (294.74)
Total internal compliance costs	3,157.31	2,304.26	5,352.64	3,048.38 *** (970.78)
Expenses for external advice	2,760.16	2,101.02	4,456.50	2,355.48 *** (498.45)
Total compliance costs	**5,917.47**	**4,405.28**	**9,809.14**	**5,403.86** *** (1227.69)
Outsourcing ratio (%)	**52.05**	**51.53**	**53.38**	**1.85** (4.03)

The table shows descriptive statistics of the yearly compliance costs per business and the outsourcing ratio (the costs for external advice as percentage of overall compliance costs). The mean values are presented. Two-sample t-test (two-sided, *** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

Compared to other studies, the share of external costs is very high. Eichfelder and Vaillancourt (2014) calculate an unweighted average of cost estimates of several studies. According to this calculation, 65% of the compliance costs of businesses are internal personnel costs, 23% external costs and about 12% other monetary expenses. However, the ratios differ substantially between the studies. One explanation for this outcome may be that the definition of external compliance costs in my study differs from other studies. While I include all tax-related external advice (see Section 2.3.1. "Cost Measurement") in other studies the term might be limited to certain compliance activities of the tax advisor like filing of the tax return. Another explanation may be that the results of other studies partially include medium and large-sized businesses

while in my sample micro businesses are predominant. According to Eichfelder and Vaillancourt (2014) there might be evidence that the share of external costs decreases with growing business size.

The descriptive results presented above should be interpreted with caution as they may be biased due to missing control for business size. Therefore, in order to analyze the relative compliance cost burden, compliance costs per business size are investigated in the following. In this study there are three proxies used for business size: (i) number of employees, (ii) turnover[20] and (iii) taxable income of the business owner[21].

Table 2.4 presents descriptive statistics on the average compliance costs per employee (including the business owner).

Table 2.4 Average compliance costs per employee

	Total Observations (n = 239)	Simplified Cash Accounting (n = 171)[22]	Accrual Accounting (n = 68)	Difference
	EUR per year	EUR per year	EUR per year	
Personnel costs (monetized time)	827.98	667.71	1231.00	563.29 (553.32)
Other monetary costs	119.20	121.13	114.36	-6.77 (43.19)
Total internal compliance costs	947.18	788.84	1345.36	556.52 (556.79)
Expenses for external advice	731.07	733.34	725.37	-7.96 (79.17)
Total compliance costs	**1,678.25**	**1,522.18**	**2,070.73**	**548.56 (562.02)**

The table shows descriptive statistics of the yearly compliance costs per employee (including the business owner). The mean values are presented. Two-sample t-test (*** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

[20] The variable "turnover" is approximated as follows: For businesses using simplified cash accounting the value of "sum of operating revenues" (according to form "EÜR") is considered as turnover. For businesses with accrual accounting the value of "annual turnover" (according to the profit and loss account) adding VAT (in case the business is subject to VAT) is considered as turnover. I decided upon this approximation for a better comparability as in case of cash accounting the "sum of operating turnover" is inclusive VAT.

[21] In case of joint filing taxable income includes income of the business owner's spouse.

[22] Four cases were excluded due to missing information on number of employees.

For businesses using simplified cash accounting for tax purposes, the average compliance cost burden per employee is lower than for businesses with accrual accounting. However, the difference is not significant. The number of employees (including the business owner) for businesses with cash accounting with a mean value of 3.46 is much lower compared to businesses with accrual accounting with a mean value of 6.82. This might explain why the relative compliance costs do not differ significantly although the absolute compliance costs do differ significantly.

In Table 2.5 the average compliance costs per turnover are displayed. The amount of relative overall compliance costs per turnover with a value of 4.63% is comparable to other studies. For instance, Eichfelder and Schorn (2012) find compliance costs per turnover amounting to 3.27% for businesses with up to 49 employees. The relative overall compliance cost burden (per turnover) is significantly higher for the survey participants using simplified cash accounting ($p = 0.017$) with 5.26% of turnover compared to 3.01% for businesses with accrual accounting.

Table 2.5 Average compliance costs per turnover

	Total Observations (n = 242)	Simplified Cash Accounting (n = 174)	Accrual Accounting (n = 68)	Difference
	EUR per year	EUR per year	EUR per year	
Personnel costs (monetized time)	2.31	2.55	1.70	-0.85 (0.8209)
Other monetary costs	0.50	0.60	0.23	-0.37 * (0.2151)
Total internal compliance costs	2.81	3.15	1.93	-1.22 (0.8620)
Expenses for external advice	1.82	2.11	1.08	-1.03 *** (0.2448)
Total compliance costs	**4.63**	**5.26**	**3.01**	**-2.25** (0.9252)**

The table shows descriptive statistics of the yearly compliance costs per turnover. The mean values are presented. Two-sample t-test (*** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

While the internal compliance costs per turnover do not differ significantly, the external compliance costs per turnover are significantly higher in case of simplified cash accounting

($p < 0.01$). One reason for this might be that in my sample the businesses with accrual accounting are larger than those using simplified cash accounting (the descriptive results in Table 2.1 indicate this). Due to economies of scale of compliance activities the relative costs decrease with growing business size.

The third proxy for the relative cost burden of the businesses is the calculation of compliance costs per taxable income. The results are shown in Table 2.6. The average overall compliance costs per taxable income amount to 13.25%. For businesses with accrual accounting the relative cost burden is significantly higher (19.22%) than for businesses using simplified cash accounting (8.28%). Compared to Blaufus et al. (2014) the compliance cost burden is relatively high. One possible explanation for this outcome might be that Blaufus et al. (2014) analyze the compliance costs arising resulting solely from income tax. Furthermore, they calculate the ratio of mean compliance costs to mean taxable income for several income classes while I calculate the mean of ratios.

Table 2.6 Average compliance costs per taxable income

	Total Observations (n = 237)[23]	Simplified Cash Accounting (n = 171)	Accrual Accounting (n = 66)	Difference
	(%)	(%)	(%)	
Personnel costs (monetized time)	4.61	3.49	7.49	3.99 *** (1.37)
Other monetary costs	1.55	1.34	2.08	0.74 (0.80)
Total internal compliance costs	6.15	4.84	9.57	4.73 ** (1.90)
Expenses for external advice	7.10	6.11	9.65	3.55 ** (1.49)
Total compliance costs	**13.25**	**10.95**	**19.22**	**8.28 *** (2.88)**

The table shows descriptive statistics of the yearly compliance costs per taxable income. The mean values are presented (percentages). Two-sample t-test (*** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

As displayed in Table 2.7 the average compliance costs per income decrease with growing business size (taxable income). Whereas for the lowest income class the compliance cost burden

[23] Cases with missing information on income were excluded.

amounts to 19.7%, for the highest income class the burden amounts to only 4.43% on average. For businesses with accrual accounting the compliance costs per taxable income are higher than for businesses with cash accounting. However, the difference is only significant for three (out of seven) income classes.

Table 2.7 Average overall compliance costs per taxable income and income class

Taxable income (income class)	Total Observations (n = 237)[24]	Simplified Cash Accounting (n = 171)	Accrual Accounting (n = 66)	Difference
	(%)	(%)	(%)	
€ 0 – 30,000 (n = 79)	19.70	16.89	29.20	12.31 * (7.0502)
€ 30,001 – 60,000 (n = 70)	12.76	9.79	20.73	10.94 ** (4.9805)
€ 60,001 – 75,000 (n = 21)	12.70	9.19	18.39	9.20 (8.8700)
€ 75,001 – 100,000 (n = 20)	11.59	8.54	16.16	7.62 * (3.9991)
€ 100,001 – 150,000 (n = 11)	4.50	3.79	7.67	3.88 (4.1869)
€ 150,001 – 250,000 (n = 24)	3.74	3.40	5.05	1.65 (1.2168)
> € 250,000 (n = 12)	4.43	3.51	5.35	1.84 (1.9997)

The table shows descriptive statistics of the yearly compliance costs per taxable income and income class. The mean values for the overall compliance costs are presented (percentages). Two-sample t-test (*** p<0.01, ** p<0.05, * p<0.1) was performed (comparison of means). Standard errors are presented in brackets.

To sum up, while the compliance costs per employee hardly differ the compliance costs per turnover are significantly higher if a business uses simplified cash accounting for tax purposes whereas the compliance cost burden per taxable income is significantly lower in case of simplified cash accounting.

In the following section I examine if the findings of the bivariate analysis hold in a multivariate setting.

[24] Cases with missing information on income were excluded.

2.4 Multivariate Analysis

2.4.1 Estimation Approach

Using an OLS model, I examine the effect of simplified cash accounting on the tax compliance costs of German small and medium-sized businesses. The relationship between business size and compliance costs is non-linear due to economies of scale within the compliance process. To account for this, I use a linear logarithmic (log-log) model. A similar approach is used by Eichfelder and Schorn (2012) and Blaufus et al. (2014). The coefficient of the logarithm of the explanatory variable can be interpreted as elasticity, i.e., the coefficient is approximately the percentage effect on the dependent variable of a 1%-change in the explanatory variable (see for instance Benoit 2011). The regression equation generally can be described by:

$$
\begin{aligned}
COMPLIANCECOSTS_i = {} & \beta_0 + \beta_1 \cdot CASH_i + \beta_2 \cdot SIZE_i \\
& + \beta_3 \cdot LIBERAL\_PROFESSION_i \\
& + \beta_4 \cdot OUTSOURCING\_HIGH_i \\
& + \beta_5 \cdot CASH_i * OUTSOURCING\_HIGH_i \\
& + \beta_6 \cdot ELECTRONIC\_DATA_i \\
& + \beta_7 \cdot INTERNATIONAL_i \\
& + \beta_8 \cdot ENCLOSURES_i + \beta_9 \cdot PAYROLL_i + \varepsilon
\end{aligned}
\tag{1}
$$

The variables are defined as shown in Table 2.8. The main variable of interest is *CASH* (H1). The dummy variable equals one if the business uses simplified cash accounting for tax purposes. In line with the bivariate analysis, three different measurements are used for the business size (*SIZE*): (i) number of employees (actual number or dummy variable), (ii) turnover (metric or dummy variable) and (iii) taxable income (mean values of the income classes). I expect simplified cash accounting to have a significant negative and the size of the business to have a significant positive effect on the overall compliance costs. Furthermore, I control for members of a liberal profession (*LIBERAL_PROFESSION*). To investigate if the demand for professional external advice affects the compliance cost burden (H2) the variable *OUTSOURCING_HIGH* as well as the interaction term *CASH*OUTSOURCING_HIGH* are included in the regression. I expect that the use of electronic data interchange with the tax authorities (*ELECTRONIC_DATA*) decreases the compliance costs. The variables

INTERNATIONAL and *ENCLOSURES* are a measure of the complexity of the surveyed business. With higher complexity the compliance cost burden might increase. To account for potential higher compliance costs due to payroll accounting, the dummy variable *PAYROLL* is included in the regression.

Table 2.8 Variable Measurement

VARIABLE	Measurement
COMPLIANCECOSTS	Natural logarithm of the sum of internal personnel costs, further monetary costs and costs for external advice (overall compliance costs)
CASH	Dummy variable, equals one if the business applies simplified cash accounting method for tax purposes
SIZE	Business size, three measurements: (1) number of employees: natural logarithm of the number of employees (*NUMBER_EMPLOYEES*)[25] or dummy variable (*EMPLOYEES_HIGH*, equals one if the number of employees is at least 2, i.e., median), (2) turnover: natural logarithm of turnover (*TURNOVER*) or dummy variable (*TURNOVER_HIGH*, equals one if turnover is greater than 133,897, i.e., median), (3) natural logarithm of taxable income (*INCOME)*
LIBERAL_PROFESSION	Dummy variable, equals one if the entrepreneur is member of a liberal profession (e.g., physician or lawyer)
OUTSOURCING_HIGH	Dummy variable, equals one if the outsourcing ratio is at least 0.75 (i.e., 75% of the overall compliance costs are expenses for external professional advice)
*CASH*OUTSOURCING_HIGH*	Interaction term of *CASH* and *OUTSOURCING_HIGH*
ELECTRONIC_DATA	Dummy variable, equals one if the business uses electronic data interchange with the tax authorities (ELSTER)
INTERNATIONAL	Dummy variable, equals one if the business has foreign establishments or operates internationally (proxy for complexity)
ENCLOSURES	Natural logarithm of the number of enclosures filed with the annual income tax return (proxy for complexity)[26]
PAYROLL	Dummy variable, equals one if the business has at least one employee

[25] To prevent undefined logarithmic values, the number of employees is increased by one.
[26] To prevent undefined logarithmic values, the number of enclosures is increased by one.

2.4.2 Results

Table 2.9 shows the results of the OLS regressions. As proxy for business size, the number of employees (Model 1 to 4), turnover (Model 5 to 8) and income (Model 9 to 10) is used. The second specification of each model (Model 2, 4, 6, 8 and 10) additionally includes *OUTSOURCING_HIGH* and the interaction term *CASH*OUTSOURCING_HIGH.* In Models 1 to 6 and 9 to 10 *CASH* has a significant negative effect on the overall compliance cost burden. As dummy variables in logarithmic models can be interpreted as marginal effects, the absolute effects differ from the regression coefficients (see Kennedy 1981). Simplified cash accounting leads to a reduction of compliance costs of about 29% (Model 3) to 41% (Model 2).[27] This confirms the descriptive results indicating that using simplified cash accounting for tax purposes is beneficial for taxpayers.

In Model 3 and 4 *NUMBER_EMPLOYEES* is used as proxy for business size. Here the effect of simplified cash accounting amounts to a compliance costs reduction of 29% (Model 3) or 34% (Model 4). Model 7 and 8 includes *TURNOVER* as measurement for business size. In these models *CASH* has no significant effect on the compliance costs. The correlation of *CASH* and *TURNOVER* is high (r = -0.5295) while the correlation of *CASH* and *NUMBER_EMPLOYEES* (r = -0.3611) and *CASH* and *INCOME* (r = -0.1084) is moderate. The high correlation of *CASH* and *TURNOVER* might be a hint for multicollinearity. In Germany, businesses with commercial income are eligible to use cash accounting if - amongst others - turnover does not exceed a certain value. This might be one reason for the high negative correlation. Therefore, the results may be biased.

The business size influences the compliance cost burden positively. In Model 3 and 4 the business size is measured as number of employees. A 1% increase in number of employees leads to a 0.72% to 0.73% increase of the compliance cost burden. As the coefficient of *NUMBER_EMPLOYEES* is smaller than one, I can confirm the finding of previous literature regarding the regressive nature of compliance costs. An increase of 1% in turnover (Model 7 to 8) increases the compliance costs by 0.53% to 0.56%. A 1% increase in taxable income (Model 9 to 10) leads to a 0.50% to 0.51% increase of the compliance cost burden. Here, the economies of scale in the tax compliance process are confirmed as well.

[27] The calculation of the relative effect *g* of *CASH* on *COMPLIANCECOSTS* is: $g = e^{c-0.5V(c)} - 1$ where *c* is the regression coefficient of the dummy variable *CASH* and *V(c)* is the estimate of the variance of *c* (see Kennedy 1981, 801).

Table 2.9 Regression results (dependent variable *COMPLIANCECOSTS*)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CASH	-0.477***	-0.519***	-0.335**	-0.406***	-0.343**	-0.367**	0.0424	0.0729	-0.403***	-0.503***
	(0.136)	(0.154)	(0.133)	(0.148)	(0.151)	(0.169)	(0.137)	(0.151)	(0.128)	(0.142)
EMPLOYEES_HIGH	0.843***	0.829***								
	(0.147)	(0.148)								
NUMBER_EMPLOYEES			0.718***	0.730***						
			(0.102)	(0.102)						
TURNOVER_HIGH					0.621***	0.662***				
					(0.138)	(0.139)				
TURNOVER							0.528***	0.560***		
							(0.0529)	(0.0529)		
INCOME									0.497***	0.508***
									(0.0600)	(0.0616)
LIBERAL_PROFESSION	0.174	0.167	0.139	0.128	0.177	0.158	0.134	0.108	-0.206	-0.208
	(0.124)	(0.124)	(0.121)	(0.120)	(0.128)	(0.127)	(0.111)	(0.109)	(0.130)	(0.130)
OUTSOURCING_HIGH		-0.257		-0.426*		-0.390		-0.404**		-0.260
		(0.234)		(0.222)		(0.238)		(0.204)		(0.229)
*CASH*OUTSOURCING_HIGH*		0.133		0.270		0.134		-0.00943		0.462*
		(0.282)		(0.268)		(0.288)		(0.248)		(0.274)
ELECTRONIC_DATA	-0.0340	-0.0374	-0.0783	-0.0800	-0.0105	-0.00949	0.0168	0.0150	-0.151	-0.145
	(0.113)	(0.113)	(0.109)	(0.108)	(0.117)	(0.116)	(0.102)	(0.0993)	(0.107)	(0.107)
INTERNATIONAL	-0.0536	-0.0578	-0.0799	-0.0825	-0.144	-0.155	-0.222	-0.247	-0.0392	-0.0258
	(0.222)	(0.222)	(0.212)	(0.211)	(0.227)	(0.226)	(0.199)	(0.195)	(0.208)	(0.208)
ENCLOSURES	0.179	0.187	0.232**	0.241**	0.155	0.163	0.0518	0.0580	0.0831	0.0819
	(0.115)	(0.115)	(0.113)	(0.113)	(0.119)	(0.118)	(0.104)	(0.102)	(0.112)	(0.113)
PAYROLL	0.371**	0.379**	0.131	0.112	0.741***	0.724***	0.367***	0.326**	0.775***	0.774***
	(0.175)	(0.176)	(0.193)	(0.193)	(0.153)	(0.153)	(0.140)	(0.138)	(0.136)	(0.135)
Constant	7.488***	7.551***	7.215***	7.316***	7.320***	7.395***	1.578**	1.302**	2.593***	2.543***
	(0.218)	(0.225)	(0.217)	(0.222)	(0.230)	(0.235)	(0.634)	(0.633)	(0.631)	(0.653)
Observations	243	243	239	239	243	243	242	242	237	237
Adjusted R-squared	0.348	0.347	0.410	0.417	0.315	0.324	0.477	0.500	0.430	0.432

The table shows the results of the OLS regression analysis with the natural logarithm of the overall compliance costs as dependent variable. *ENCLOSURES* is measured as natural logarithm of number of enclosures filed. *NUMBER_EMPLOYEES* is measured as natural logarithm of number of employees. *TURNOVER* is measured as natural logarithm of turnover. *INCOME* is measured as natural logarithm of taxable income. All variables are described in Table 2.8. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The interpretation of Model 9 and 10 with income as proxy for business size should take into account that the variable *INCOME* does not necessarily reflect the size of the business. In case of joint filing taxable income includes the income of the business owner's spouse. Furthermore, also non-business income such as private rental income might be included.

Furthermore, large businesses (dummy variable *EMPLOYEES_HIGH* and *TURNOVER_HIGH* equals one in Model 1 to 2 and Model 5 to 6, respectively) are confronted with an increase in compliance costs of about 127% to 130% (models with *EMPLOYEES_HIGH*) and 84% to 92% (models with *TURNOVER_HIGH*). Using simplified cash accounting is associated with a reduction of compliance costs of 39% to 41% (Model 1 and 2, respectively) and 30% to 32% (Model 5 and 6, respectively).

The regression coefficient of *OUTSOURCING_HIGH* is negative. This could indicate that businesses with a high level of outsourcing of compliance activities have lower compliance costs. This result would be in line with Eichfelder and Schorn (2012) and Eichfelder and Kegels (2014), whereas Blaufus et al. (2014) find a significant positive effect of outsourcing on the compliance burden. However, the coefficient is only in Model 4 and 8 significantly different from zero. The results for Model 4 and 8 indicate that a high outsourcing ratio leads to a decrease of compliance costs of about 35% (Model 8) to 36% (Model 4). The interaction term *CASH*OUTSOURCING_HIGH* is only in Model 10 significantly different from zero. Therefore, I can conclude that the effect of *OUTSOURCING_HIGH* on compliance costs is not influenced by the accounting method used.

Furthermore, *ENCLOSURES* as proxy for the complexity of the tax returns has a slightly positive effect on the compliance burden in Model 3 and 4. Here a 1% increase in number of enclosures leads to a 0.23% to 0.24% increase in compliance costs. Businesses with at least one employee (*PAYROLL*) face higher compliance cost burden. The effect is significant in Model 1, 2 and 5 to 10 ($p < 0.05$). The increase in compliance costs is about 37% to 115% in these models.

The other variables seem to have no influence on overall compliance costs. Interestingly, using electronic data interchange with the tax authorities (*ELECTRONIC_DATA*) does not significantly decrease the compliance costs. This finding is in line with Eichfelder and Schorn (2012) and Blaufus et al. (2019). One explanation for this result might be that the (internal) compliance costs result mainly from bookkeeping so that activities such as electronic filing of tax returns will not significantly decrease the overall cost burden.

To control for multicollinearity I calculated variance inflation factors (VIFs). All VIFs are smaller than 3.50 (see Appendix B, Table 2.10).[28]

2.4.3 Robustness Analysis

To test the robustness of my results I rerun the multivariate analysis for two subsamples. In the first (second) subsample only businesses that are obligated to file local trade tax return (VAT return) are included. The results of the OLS regressions are shown in Appendix C. My results presented above generally are confirmed. I conclude that the overall compliance cost burden is not significantly influenced by compliance activities relating to the VAT or local trade tax return. Simplified cash accounting might still be beneficial for the businesses, depending on the proxy for business size.

2.5 Discussion and Conclusion

This study analyzes the tax compliance costs of German SMEs and the effect of simplified cash accounting on the compliance cost burden. Conducting a survey amongst small German businesses, I gather detailed information on the tax compliance activities and the resulting cost burden of these businesses. The method used for cost measurement is very important for the estimation of the tax compliance cost burden. As previous literature indicates, different methods and assumptions lead to differences in the estimated compliance cost burden. However, the main aim of this paper is to investigate the benefit of simplified cash accounting on the compliance burden. My assumption is that a potential measuring bias in my study is independent of the accounting method used. Therefore, my main results should not be distorted.

Bookkeeping is the most time-consuming compliance activity for the business owner and the employees (with more than 90% of the total compliance time). This could be explained by the fact that the businesses in my sample are mainly micro-sized firms, i.e., filing tax returns and correspondence with tax authorities is not that complex and time-consuming. My results suggest that small businesses demand external professional advice to a high extent. Furthermore, I find that outsourcing has a negative effect on the compliance burden. However,

[28] Furthermore, I conducted Shapiro-Wilk tests for the normality in the distribution of the residuals (see Appendix B, Table 2.11.). Only for Model 1, 2, 5 and 7 the assumption of normal distribution cannot be rejected (at 5% significance level). However, as the number of observations is rather large (n = 237 to n = 243) the parametric tests remain valid (central limit theorem).

the demand for external tax advice does not depend on the accounting method used for tax purposes. Regarding electronic data interchange with the tax authorities, I find no evidence for a significant reduction of compliance costs.

The descriptive results suggest that the time and cost burden is significantly higher for businesses with accrual accounting than for businesses using simplified cash accounting. This result is generally valid for all compliance activities. As found in previous literature business size is identified as a key driver of compliance costs. When controlling for business size in the multivariate analysis the results are ambiguous. If the number of employees is used as proxy for size, simplified cash accounting is associated with a reduction of compliance costs of about 29% to 34%. However, if turnover is used to control for firm size, the effect is insignificant. As shown in Section 2.4.2 it is difficult to perfectly control for business size. Therefore, measuring the effect of simplified cash accounting on compliance costs may be biased (e.g., in case of turnover as proxy for business size). To avoid this problem and measure solely the effect of simplified cash accounting on compliance costs another study was designed which is presented in chapter 3. In this study the effect of simplified cash accounting on external compliance costs can be measured directly.

My results indicate that tax simplifications for SMEs are necessary and strongly recommended. Thus, reducing tax complexity for small businesses, especially micro businesses, should be a central goal of tax policy. The tax simplifications offered by different countries vary widely. Therefore, further research is required, especially cross-country studies with comparable survey designs to investigate the compliance cost burden and evaluate the optimal strategies for tax simplifications.

2.6 APPENDIX A: Questionnaire

Translated questionnaire, original: German

Part I: Your business

1. Please state the year of the latest tax return.
2. Which legal form does your company have?

   □ Corporation (e.g., AG, GmbH) □ Partnership (e.g., OHG, KG, GmbH & Co. KG) □ Sole proprietorship

3. When is your company founded (Year)?
4. In which federal state is your company located?
5. In which industry operates your company?
6. How many employees do you have in your company? [29]
7. Do you have foreign operations?

   □ Yes, subsidiary abroad □ Yes, other foreign transactions □ No

8. Do you submit your tax returns electronically (ELSTER)?

   □ Yes □ No

9. Which of the following tax returns do you have to file?

   □ income tax □ corporate income tax □ VAT □ local trade tax

10. Do you make use of a tax advisor for your business?

    □ Yes □ No

11. If you use professional tax advice: Which of the following answers describes best why you have engaged a tax advisor?

    □ I want to pay taxes as little as possible.

    □ I want to be sure that the tax returns filed are correct.

    □ I want to save time. Therefore, I do not want to bother with tax.

    □ I am not able to file the tax returns by myself as this is too complicated for me.

12. If you use professional tax advice: How often do you consult your tax advisor about economic decisions (i.e., change of legal form, financing, investment, leasing)?

    Please tick a box on the scale, where the value 1 means `never' and the value 7 means `always'.

1	2	3	4	5	6	7
□	□	□	□	□	□	□

[29] There exist different versions of the questionnaire which differ slightly. In one version of the questionnaire, not the actual number of employees was surveyed but the subjects should choose between nine size classes: 1 (0 employees), 2 (one employee), 3 (2-4 employees), 4 (5-9 employees), 5 (10-49 employees), 6 (50-99 employees), 7 (100-250 employees), 8 (251-499 employees) and 9 (more than 500 employees).

Part II: Estimation of your internal costs for bookkeeping and preparation of tax returns

Now we ask you to estimate your time burden and monetary costs for the tax related activities presented below. Please estimate first the time effort in hours for your employees and the resulting monetary expenses for your employees. If you or a third party (working free of charge) carry out the activities, please estimate only the time effort.

13. Please estimate the time effort and the monetary expenses per month for the persons carrying out the activities stated below. If an activity is not necessary or is carried out by an external service provider/ tax advisor please mark the appropriate column with a tick.

Executing person / **Activity**	Employee		Business owner	Third party working free of charge (e.g., relatives)		External support/ tax advisor
	Time effort in hours per **month**	Expenses in € per **month**	Time effort in hours per **month**			
Collecting receipts						
Sorting receipts						
Managing cash book						
Payroll accounting						
Financial accounting						

14. Please estimate the time effort and the monetary expenses per quarter for the persons carrying out the activities stated below. If an activity is not necessary or is carried out by an external service provider/ tax advisor please mark the appropriate column with a tick.

Executing person / **Activity**	Employee		Business owner	Third party working free of charge (e.g., relatives)	Activity not necessary	External support/ tax advisor
	Time effort in hours per **quarter**	Expenses in € per **quarter**	Time effort in hours per **quarter**			
Periodic VAT return						
Income tax prepayments						
Local trade tax prepayments						

15. Please estimate the time effort and the monetary expenses per year for the persons carrying out the activities stated below. If an activity is not necessary or is carried out by an external service provider/ tax advisor please mark the appropriate column with a tick.

Executing person / **Activity**	Employee		Business owner	Third party working free of charge (e.g., relatives)	Activity not necessary	External support/ tax advisor
	Time effort in hours per **year**	Expenses in € per **year**	Time effort in hours per **year**			
Compiling financial statements/ annual accounts						
Income tax return						
Local trade tax return						
VAT return						
Checking tax assessments						

Litigation with fiscal authorities / fiscal court						

16. Do you have any other internal compliance costs?

E.g., further internal monetary costs for materials like accounting software, technical literature and occupancy costs for employees in charge of bookkeeping.

Materials: ☐ € per **year** Occupancy costs: ☐ € per **year**

Part C: Your annual tax return

In the following we need some information from your annual tax return. Please take your annual income tax return (including form "EÜR", if applicable), the corresponding income tax assessment and trade/ tax balance and profit and loss accounts (if applicable) for answering the following questions.

17. Did you file the tax return jointly with your spouse?
You can find this information on page one of the cover sheet of the income tax return.

18. Which enclosures did you file together with the annual income tax return?
You can find this information on page two of the cover sheet of the income tax return.

19. Please state your income class (in case of joint filing the income class of you and your spouse).
You can find information about your taxable income on your tax assessment notice.

□ 0 – 15.000 € □ 15.001 – 30.000 € □ 30.001 – 45.000 € □ 45.001 – 60.000 €
□ 60.001 – 75.000 € □ 75.001 – 100.000 € □ 100.001 – 150.000 € □ 150.001 – 200.000 €
□ 200.001 – 250.000 € □ > 250.000 €

In case of using **simplified cash accounting** please answer **question 20**. In case of **accrual accounting** please answer **questions 21 to 23**.

Simplified cash accounting (Form "EÜR")[30]

20. Please state the amount of operating turnover, expenses for professional advice and operating expenses.

Sum of operating turnover:	Legal/ tax advice, bookkeeping:	Sum of operating expenses:
☐ €	☐ €	☐ €
(Form "EÜR": Line no.: 20/ Box no.: 159)	(Form "EÜR": Line no.: 41/ Box no.: 194)	(Form "EÜR": Line no.: 57/ Box no.: 199)

[30] The line and box numbers of form "EÜR" presented here refer to the year 2010. They might differ slightly depending on the version of the questionnaire (year of the annual tax return).

Accrual accounting

21. Please state the expenses for professional advice.

You can gather information about the expenses shown below from the profit and loss accounts (details in the list of accounts, below some examples are presented in brackets).

Expenses for bookkeeping:	Expenses for legal/ tax advice:	Expenses for auditing:
€	€	€
(e.g., account 4955, 6830):	(e.g., account 4950, 6825):	(e.g., account 4957, 6827):

22. Please state the annual turnover.

You can find this information in the profit and loss accounts.

€

23. Please state the total assets.

You can find this information in the balance sheet.

Total assets (trade balance):	In case no trade balance is available, Total assets (tax balance):
€	€

2.7 APPENDIX B: Additions to the multivariate analysis

Table 2.10 Variance inflation factors (corresponding to Table 2.9)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CASH	1.25	1.61	1.31	1.64	1.48	1.87	1.60	2.02	1.24	1.54
EMPLOYEES_HIGH	1.74	1.76	-	-	-	-	-	-	-	-
NUMBER_EMPLOYEES	-	-	2.28	2.29	-	-	-	-	-	-
TURNOVER_HIGH	-	-	-	-	1.53	1.58	-	-	-	-
TURNOVER	-	-	-	-	-	-	1.83	1.91	-	-
INCOME	-	-	-	-	-	-	-	-	1.36	1.43
LIBERAL_PROFESSION	1.15	1.15	1.15	1.15	1.16	1.16	1.14	1.15	1.40	1.41
OUTSOURCING_HIGH	-	3.25	-	3.21	-	3.22	-	3.22	-	3.30
*CASH*OUTSOURCING_HIGH*	-	3.47	-	3.45	-	3.48	-	3.49	-	3.49
ELECTRONIC_DATA	1.06	1.06	1.05	1.05	1.08	1.08	1.06	1.06	1.06	1.06
INTERNATIONAL	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.02	1.02
ENCLOSURES	1.07	1.07	1.06	1.06	1.08	1.08	1.09	1.09	1.10	1.11
PAYROLL	1.67	1.67	2.07	2.08	1.22	1.22	1.33	1.34	1.13	1.13

The table shows the variance inflation factors for the OLS models.

Table 2.11 Shapiro-Wilk test results (corresponding to Table 2.9)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Z	0.778	1.363	3.100	3.502	1.299	1.903	1.345	2.352	3.244	3.141
Significance level	0.218	0.086	0.001	0.000	0.097	0.029	0.089	0.009	0.001	0.001

Shapiro-Wilk test results for normality of the residuals are presented.

2.8 APPENDIX C: Robustness analysis

Table 2.12 Regression results for the subsample local trade tax return (dependent variable *COMPLIANCECOSTS*)

MODEL	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES										
CASH	-0.505***	-0.602***	-0.394***	-0.510***	-0.374**	-0.480**	-0.0296	-0.0732	-0.503***	-0.632***
	(0.144)	(0.164)	(0.143)	(0.158)	(0.171)	(0.187)	(0.155)	(0.169)	(0.141)	(0.157)
EMPLOYEES_HIGH	0.905***	0.871***								
	(0.171)	(0.173)								
NUMBER_EMPLOYEES			0.729***	0.733***						
			(0.114)	(0.113)						
TURNOVER_HIGH					0.631***	0.638***				
					(0.173)	(0.172)				
TURNOVER							0.476***	0.492***		
							(0.0610)	(0.0603)		
INCOME									0.467***	0.466***
									(0.0757)	(0.0785)
OUTSOURCING_HIGH		-0.353		-0.517**		-0.503**		-0.488**		-0.383
		(0.236)		(0.224)		(0.242)		(0.211)		(0.241)
*CASH*OUTSOURCING_HIGH*		0.316		0.399		0.361		0.152		0.548*
		(0.307)		(0.294)		(0.317)		(0.278)		(0.310)
ELECTRONIC_DATA	0.0274	0.0262	0.0231	0.0229	0.0775	0.0786	0.0853	0.0939	-0.0427	-0.0490
	(0.132)	(0.132)	(0.128)	(0.126)	(0.138)	(0.137)	(0.122)	(0.119)	(0.132)	(0.131)
INTERNATIONAL	0.0854	0.0857	0.0266	0.0274	-0.0546	-0.0564	-0.112	-0.131	0.0681	0.0890
	(0.259)	(0.260)	(0.250)	(0.248)	(0.270)	(0.268)	(0.239)	(0.234)	(0.254)	(0.253)
ENCLOSURES	0.388***	0.389***	0.355**	0.348**	0.384**	0.375**	0.263*	0.231*	0.129	0.147
	(0.145)	(0.146)	(0.141)	(0.140)	(0.152)	(0.152)	(0.136)	(0.134)	(0.156)	(0.155)
PAYROLL	0.364*	0.384*	0.0224	0.00874	0.779***	0.766***	0.503***	0.460***	0.837***	0.851***
	(0.203)	(0.203)	(0.219)	(0.217)	(0.182)	(0.182)	(0.166)	(0.164)	(0.167)	(0.167)
Constant	7.169***	7.274***	7.113***	7.271***	6.963***	7.119***	1.819**	1.826**	2.806***	2.876***
	(0.262)	(0.273)	(0.254)	(0.260)	(0.286)	(0.293)	(0.741)	(0.731)	(0.770)	(0.813)
Observations	163	163	163	163	163	163	163	163	159	159
Adjusted R-squared	0.432	0.433	0.470	0.482	0.384	0.394	0.519	0.539	0.460	0.465

The table shows the results of the OLS regression analysis for the subsample local trade tax return with the natural logarithm of the overall compliance costs as dependent variable. *ENCLOSURES* is measured as natural logarithm of number of enclosures filed. *NUMBER_EMPLOYEES* is measured as natural logarithm of number of employees. *TURNOVER* is measured as natural logarithm of turnover. *INCOME* is measured as natural logarithm of taxable income. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2.13 Variance inflation factors (corresponding to Table 2.12)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CASH	1.18	1.53	1.24	1.56	1.53	1.86	1.60	2.00	1.15	1.44
EMPLOYEES_HIGH	1.71	1.75	-	-	-	-	-	-	-	-
NUMBER_EMPLOYEES	-	-	2.29	2.29	-	-	-	-	-	-
TURNOVER_HIGH	-	-	-	-	1.66	1.66	-	-	-	-
TURNOVER	-	-	-	-	-	-	1.89	1.94	-	-
INCOME	-	-	-	-	-	-	-	-	1.27	1.38
OUTSOURCING_HIGH	-	2.48	-	2.45	-	2.45	-	2.45	-	2.58
*CASH*OUTSOURCING_HIGH*	-	2.76	-	2.76	-	2.76	-	2.79	-	2.84
ELECTRONIC_DATA	1.05	1.05	1.05	1.05	1.05	1.06	1.05	1.05	1.06	1.07
INTERNATIONAL	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
ENCLOSURES	1.08	1.10	1.09	1.10	1.09	1.10	1.11	1.13	1.22	1.22
PAYROLL	1.60	1.61	2.01	2.02	1.19	1.20	1.26	1.29	1.12	1.13

The table shows the variance inflation factors for the OLS models of the subsample local trade tax return.

Table 2.14 Shapiro-Wilk test results (corresponding to Table 2.12)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Z	-0.553	-0.161	2.875	3.256	0.418	0.845	1.418	2.009	3.440	3.422
Significance level	0.710	0.564	0.002	0.001	0.338	0.199	0.078	0.022	0.000	0.000

Shapiro-Wilk test results for normality of the residuals are presented.

Table 2.15 Regression results for the subsample VAT return (dependent variable *COMPLIANCECOSTS*)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CASH	-0.480***	-0.508***	-0.313**	-0.367**	-0.336**	-0.341*	0.00466	0.0313	-0.423***	-0.519***
	(0.140)	(0.157)	(0.138)	(0.151)	(0.159)	(0.174)	(0.154)	(0.166)	(0.134)	(0.149)
EMPLOYEES_HIGH	0.819***	0.792***								
	(0.154)	(0.154)								
NUMBER_EMPLOYEES			0.726***	0.735***						
			(0.105)	(0.104)						
TURNOVER_HIGH					0.593***	0.639***				
					(0.148)	(0.147)				
TURNOVER							0.499***	0.526***		
							(0.0656)	(0.0647)		
INCOME									0.460***	0.464***
									(0.0650)	(0.0681)
LIBERAL_PROFESSION	0.247*	0.221	0.209	0.179	0.221	0.175	0.195	0.142	-0.190	-0.184
	(0.136)	(0.137)	(0.132)	(0.132)	(0.140)	(0.140)	(0.129)	(0.127)	(0.147)	(0.147)
OUTSOURCING_HIGH		-0.295		-0.463**		-0.443*		-0.440**		-0.310
		(0.239)		(0.225)		(0.242)		(0.219)		(0.238)
*CASH*OUTSOURCING_HIGH*		0.0649		0.198		0.0682		-0.0207		0.433
		(0.298)		(0.282)		(0.303)		(0.274)		(0.297)
ELECTRONIC_DATA	-0.132	-0.128	-0.160	-0.153	-0.0843	-0.0705	-0.0236	-0.00873	-0.187	-0.183
	(0.121)	(0.121)	(0.116)	(0.115)	(0.126)	(0.124)	(0.115)	(0.112)	(0.116)	(0.116)
INTERNATIONAL	-0.102	-0.107	-0.124	-0.126	-0.193	-0.199	-0.258	-0.271	-0.0756	-0.0688
	(0.229)	(0.228)	(0.218)	(0.215)	(0.235)	(0.232)	(0.215)	(0.210)	(0.217)	(0.218)
ENCLOSURES	0.196	0.202*	0.234*	0.240**	0.161	0.164	0.0834	0.0851	0.0960	0.101
	(0.122)	(0.122)	(0.120)	(0.118)	(0.126)	(0.124)	(0.116)	(0.113)	(0.121)	(0.121)
PAYROLL	0.152	0.170	-0.114	-0.127	0.548***	0.531***	0.311*	0.283*	0.623***	0.635***
	(0.192)	(0.193)	(0.210)	(0.208)	(0.170)	(0.168)	(0.159)	(0.156)	(0.153)	(0.154)
Constant	7.748***	7.823***	7.465***	7.574***	7.562***	7.646***	1.972**	1.764**	3.168***	3.176***
	(0.239)	(0.244)	(0.240)	(0.241)	(0.257)	(0.257)	(0.809)	(0.796)	(0.696)	(0.733)
Observations	205	205	201	201	205	205	204	204	200	200
Adjusted R-squared	0.295	0.299	0.371	0.386	0.254	0.274	0.376	0.405	0.362	0.362

The table shows the results of the OLS regression analysis for the subsample VAT return with the natural logarithm of the overall compliance costs as dependent variable. *ENCLOSURES* is measured as natural logarithm of number of enclosures filed. *NUMBER_EMPLOYEES* is measured as natural logarithm of number of employees. *TURNOVER* is measured as natural logarithm of turnover. *INCOME* is measured as natural logarithm of taxable income. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2.16 Variance inflation factors (corresponding to Table 2.15)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CASH	1.18	1.53	1.24	1.56	1.53	1.86	1.60	2.00	1.15	1.44
EMPLOYEES_HIGH	1.71	1.75	-	-	-	-	-	-	-	-
NUMBER_EMPLOYEES	-	-	2.29	2.29	-	-	-	-	-	-
TURNOVER_HIGH	-	-	-	-	1.66	1.66	-	-	-	-
TURNOVER	-	-	-	-	-	-	1.89	1.94	-	-
INCOME	-	-	-	-	-	-	-	-	1.27	1.38
OUTSOURCING_HIGH	-	2.48	-	2.45	-	2.45	-	2.45	-	2.58
*CASH*OUTSOURCING_HIGH*	-	2.76	-	2.76	-	2.76	-	2.79	-	2.84
ELECTRONIC_DATA	1.05	1.05	1.05	1.05	1.05	1.06	1.05	1.05	1.06	1.07
INTERNATIONAL	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
ENCLOSURES	1.08	1.10	1.09	1.10	1.09	1.10	1.11	1.13	1.22	1.22
PAYROLL	1.60	1.61	2.01	2.02	1.19	1.20	1.26	1.29	1.12	1.13

The table shows the variance inflation factors for the OLS models of the subsample VAT return.

Table 2.17 Shapiro-Wilk test results (corresponding to Table 2.15)

MODEL VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Z	2.105	2.854	3.764	4.289	2.194	3.026	1.325	2.547	3.454	3.399
Significance level	0.018	0.002	0.000	0.000	0.014	0.001	0.093	0.005	0.000	0.000

Shapiro-Wilk test results for normality of the residuals are presented.

3 The Effect of Simplified Cash Accounting on Tax Compliance Costs – Evidence of a Survey from German Tax Advisors[31]

3.1 Introduction

We are interested in investigating whether the use of simplified cash accounting is beneficial for businesses. As shown in chapter 2, it is difficult to specify the effect of simplified cash accounting on the tax compliance costs level when comparing businesses of different size and industry. For this purpose, we conducted a survey among German tax advisors. The tax advisors were faced with two scenarios: A client using cash accounting and a client with accrual accounting. They were asked for fee quotes for their professional tax advice (preparation of the income tax return and annual VAT return, including the bookkeeping). We can securely control for other factors which might influence the tax advisor's fee (e.g., size of client's business or location of the tax advisor's business) as the tax advisors make fee quotes for the same fictitious client: (i) client uses accrual accounting, (ii) client uses cash accounting. This has the advantage that we can measure directly the fee reduction (i.e., the benefit) resulting solely from simplified cash accounting.

The results of the analysis presented in chapter 2 can essentially be confirmed: Using a simplified cash accounting method is beneficial for businesses using professional external tax advice. Tax compliance costs are significantly lower in case of simplified cash accounting. To the best of our knowledge, we are the first to measure directly the benefit of simplified cash accounting as reduction of external compliance costs using the fee quotes of German tax advisors.

The structure of this paper is as follows: In Section 2 we formulate the research questions. In Section 3 the data set is presented. The bivariate and multivariate analyses follow in Section 4 and 5, respectively. Section 6 concludes.

[31] The research paper that is the basis for chapter 2 and 3 was published as Blaufus and Hoffmann (2020). This chapter is a co-authored work with Prof. Dr. Kay Blaufus, Leibniz University Hannover.

3.2 Research Questions

Using cash accounting for tax purposes might offer simplifications for the businesses (see Section 2.2 for more details). We hypothesize that these simplifications result in a reduced amount of fees in case a tax advisor is engaged. The benefit of using simplified cash accounting for tax purposes is defined as difference between fees (i.e., compliance costs) for businesses with accrual accounting (CC_{Acc}) and businesses using simplified cash accounting (CC_{Cash}).

The relative benefit is defined as:

$$BENEFIT_{rel} = \frac{CC_{Acc} - CC_{Cash}}{CC_{Acc}} \tag{2}$$

It can be interpreted as a percentage reduction of costs for the business in case of determining taxable income with simplified cash accounting instead of accrual accounting.[32] With this study we measure the relative benefit in case of outsourcing all compliance activities to a tax advisor. Our first research question is:

RQ1: How big is the reduction of tax compliance costs resulting from simplified cash accounting?

Furthermore, we are interested if the relative benefit of using cash accounting is influenced by the size of the business. Compliance costs *CC* consist of costs that arise independently of the size/ complexity of the business (CC^{fix}) and of variable costs (CC^{var}) which depend on the size of the business (*SIZE*). Therefore, equation (2) can be rewritten as:

$$BENEFIT_{rel} = \frac{CC_{Acc}^{fix} - CC_{Cash}^{fix} + SIZE \cdot (CC_{Acc}^{var} - CC_{Cash}^{var})}{CC_{Acc}^{fix} + SIZE \cdot CC_{Acc}^{var}} \tag{3}$$

We make the assumption that $CC_{Acc}^{fix} > CC_{Cash}^{fix}$ as businesses need special bookkeeping software and literature in case of accrual accounting. Furthermore, the employees need qualification for bookkeeping and compiling financial statements. For the variable (or

[32] E.g., $BENEFIT_{rel}$ of 0.1 equals a relative reduction of 10 percent.

fluctuating) compliance costs we make the assumption that $CC_{Acc}^{var} = CC_{Cash}^{var}$. Given this assumption, the equation can be rewritten as:

$$BENEFIT_{rel} = \frac{(CC_{Acc}^{fix} - CC_{Cash}^{fix})}{CC_{Acc}^{fix} + SIZE \cdot CC_{Acc}^{var}} \quad (4)$$

The first derivative of the relative benefit of using cash accounting with respect to the business size is:

$$\frac{\partial BENEFIT_{rel}}{\partial SIZE} = \frac{-(CC_{Acc}^{fix} - CC_{Cash}^{fix}) \cdot CC_{Acc}^{var}}{(CC_{Acc}^{fix} + SIZE \cdot CC_{Acc}^{var})^2} \quad (5)$$

Given our assumption ($CC_{Acc}^{fix} > CC_{Cash}^{fix}$) the first derivative $\frac{\partial BENEFIT_{rel}}{\partial SIZE} < 0$. We can conclude that the relative benefit of simplified cash accounting decreases with growing business size (i.e., the benefit of cash accounting is greater the smaller the business is). We investigate if this can be confirmed empirically. Possibly, there might be other factors, besides the business size, which influence the relative benefit of simplified cash accounting. Hence, our second research question is:

RQ2: Which factors influence the relative benefit of using cash accounting?

3.3 Data Set and Sample

We conducted a survey amongst German tax advisors. The online survey was carried out in cooperation with a large German business magazine which annually evaluates the quality of German tax advisors. In 2015 and 2016 (from 20 February to 15 March 2015 and from 24 February to 13 March 2016, respectively) about 10,000 tax advisors/ tax advising companies were asked via e-mail to participate in the online survey. In addition in the print version and at the homepage of the business magazine a reference to the survey was displayed. In 2015 (2016), 438 (466) tax advisors participated in the online survey. All subjects that did not / not completely answer the case study (59 in 2015 and 152 in 2016) or have been included multiply (6 in 2015 and 4 in 2016) were removed from the sample. Furthermore, we excluded subjects

from the sample due to implausible answers (10 in 2015 and 19 in 2016)[33]. In addition, one extreme outlier in 2016 was removed. The final 2015 and 2016 samples consist of 363 and 290 tax advisors, respectively. In addition to the samples described above, a matched sample (panel) was created containing all tax advisors which participated in the 2015 and 2016 survey. The final matched sample consists of 144 subjects (288 observations).

To determine the fees tax advisors charge depending on their client's accounting method used for tax purposes, we invited the tax advisors (self-employed individuals or partnerships/ corporations) to evaluate two scenarios for a fictitious client. The survey participants were asked to estimate the fees for the following tax compliance work: preparation of the annual VAT and income tax return for the client (sole proprietorship, three employees) based on (i) cash accounting including entering receipts, TF_{Cash} (Scenario a) and (ii) bookkeeping including the preparation of the balance sheet, TF_{Acc} (Scenario b). Finally, the calculation basis should be stated.[34]

The scenarios designed for the surveys conducted in 2015 and 2016 differ only in the business size of the client. The size of the client's business according to the European Commission (2003) is small in both surveys. However, compared to the 2015 survey the values for operating incomes, turnover and numbers of receipts are half as large in the 2016 survey. Therefore, in the following the terms "small" for the client of the 2016 survey and "large" for the client of the 2015 survey do not refer to a size class but indicate the difference in size within the category "small business". An extract of the questionnaire is shown in Appendix A. Besides the fee quote, the survey participants were asked to state a variety of statistical information and further detailed information on their specialization, technical knowledge, training, personnel development and clientele structure. In a separate section their knowledge of German tax law was tested (22 and 24 questions in the 2015 and 2016 survey, respectively).

[33] If TF_{Acc} is smaller than TF_{CA} the fee quote is considered as implausible as we expect TF_{Acc} to be at least as big as TF_{CA}.

[34] Calculation basis: (i) according to the German Tax Advisor Fee Act (German: Vergütungsverordnung für Steuerberater - StBVV) or (ii) other fee agreement.

3.4 Bivariate Analysis

Table 3.1 presents descriptive statistics of the tax advisors' fees for both scenarios and the resulting benefit for the client in case of using simplified cash accounting (*BENEFIT*). Descriptive statistics of control variables are shown in Appendix B (Table 3.6 and 3.7).

Table 3.1 Descriptive statistics of tax advisors' fees and resulting benefit for the client

	Observations	Mean	Std. dev.	Median	Min	Max
"Large" client						
$\boldsymbol{TF_{Cash}}$	363	€ 3,012.95	1180.591	2800	600	10000
$\boldsymbol{TF_{Acc}}$	363	€ 4,201.96	1346.216	4200	1000	10000
$\boldsymbol{BENEFIT}$	363	€ 1,189.01***	871.8991	900	0	3700
$\boldsymbol{BENEFIT_{rel}}$	363	0.2762	0.1623	0.2490	0	0.7097
Small client						
$\boldsymbol{TF_{Cash}}$	290	€ 1,930.15	764.4238	1805	580	5500
$\boldsymbol{TF_{Acc}}$	290	€ 2,862.02	1032.723	2800	1000	7500
$\boldsymbol{BENEFIT}$	290	€ 931.87***	705.9211	700	0	5500
$\boldsymbol{BENEFIT_{rel}}$	290	0.3080	0.1705	0.2857	0	0.7333
$\Delta\ \boldsymbol{BENEFIT_{rel}}$		-0.0318**				

The table shows descriptive statistics regarding the fees charged by the tax advisors and the resulting (absolute and relative) benefit for the client. One-sample t-test (two-sided, *** p<0.01, ** p<0.05, * p<0.1) was performed for $BENEFIT$. Two-sample t-test (two-sided, *** p<0.01, ** p<0.05, * p<0.1) was performed for $BENEFIT_{rel}$.

Evidently, the fees estimated by the tax advisors for the "large" client are higher than for the small client (for both, simplified cash accounting and accrual accounting). This is in line with previous literature stating that the compliance costs (in our study measured as external tax advisor fees) increase with growing size/ complexity of the (client's) business. However, while the business size of the "large" client is considered as twice the size of the small client the fees charged are not twice as high. Table 3.2 shows the compliance costs per turnover for the two scenarios. The relative compliance burden decreases with growing business size. Therefore, for our setting with two different sizes we can confirm the regressive nature of compliance costs.

Table 3.2 Compliance costs per turnover

	Observations	TF_{Cash} per turnover (%)	TF_{Acc} per turnover (%)
"Large" client	363	0.753	1.051
Small client	290	0.965	1.431

The mean values are presented.

Comparison of means (Table 3.1) show a significant difference between TF_{Cash} and TF_{Acc} in 2015 and 2016 ($BENEFIT > 0$; one-sample t-test, $p < 0.01$). As the same tax advisors quote fees for both cases, simplified cash accounting and accrual accounting, we can securely control for other factors which might influence the tax advisor's fee (e.g., size of client's business or location of the tax advisor's business). Therefore, the fee reduction resulting solely from simplified cash accounting for a certain client can be measured directly with this bivariate approach. Our results suggest that for taxpayers who rely on professional external tax advice (complete outsourcing) simplified cash accounting is beneficial compared to accrual accounting. The analysis of the matched sample confirms our result as we observe a significant positive difference as well (see Appendix C for more details).

The relative benefit $BENEFIT_{rel}$ with values of 27.6% and 30.8% (presented in Table 3.1) indicate a considerable reduction of the compliance cost burden resulting from simplified cash accounting. For the small client the relative benefit is 3.18 percent points greater than for the "large" client. The difference is significantly different from zero (two-sample t-test, $p = 0.015$). Therefore, we find evidence that the relative benefit of simplified cash accounting decreases with growing business size. However, it must be taken into account that the results are based on the specific tax compliance activities of the scenarios presented to the tax advisors.

In the following section, we examine if our findings hold in a multivariate setting.

3.5 Multivariate Analysis

3.5.1 Estimation Approach and Variable Measurement

We perform a linear panel analysis using a random-effects model to investigate which factors might influence the external compliance costs *CC_EXT* (fees charged).[35] We choose a random-effects-model instead of a fixed-effects-model because we aim at examining whether the different characteristics of the tax advisors (between variations) might influence the fees charged. In a fixed-effects-model, we could have examined only the effect of tax advisor's characteristics that change over time. However, characteristics of our survey participants (such as the number of locations or quality certifications) mostly did not change between 2015 and 2016. The random-effects panel regression can be written as:

$$CC\_EXT_{it} = \beta_0 + \beta_1 \cdot CASH_{it} + \beta_2 \cdot SIZE\_HIGH_{it} + \beta_3 \cdot CASH * SIZE\_HIGH_{it} + \sum_{j=1}^{k} (\beta_{j+3} \cdot CONTROLS_{it}) + \alpha_i + \varepsilon_{it} \quad (6)$$

All factors affecting the dependent variable but not being included as regressors are assumed to be random, independently and identically distributed over individuals. In Table 3.3 the measurements of the variables are shown.

The main variables of interest are *CASH*, *SIZE_HIGH* and the interaction term of them. These variables refer to the (fictitious) client using professional tax advice: the dummy variable *SIZE_HIGH* indicates that the client's business is relatively large (equals one if the data was conducted with the 2015 survey) and the dummy variable *CASH* states that the client uses simplified cash accounting for calculating taxable income. Furthermore, we include several control variables in the model which are characteristics of the tax advisor advising the client. The suffix *_TA* indicates that the characteristic refers to the tax advisor. We hypothesize *SIZE_HIGH* to have a positive effect on the compliance costs resulting from professional external tax advice. In line with the descriptive results, we expect *CASH* to have a negative effect on the compliance cost burden.

[35] Therefore, we reshape our data into a panel data set. We did not choose a log-log specification as the variable for business size (*SIZE_HIGH*) is a dummy variable. We alternatively used the natural logarithm of external compliance costs *CC_EXT* as dependent variable (log-level specification). As we obtained very similar results with equation (6), we have abstained from reporting these results.

Table 3.3 Variable measurement

VARIABLE	Measurement
CC_EXT	External compliance costs, measured as total fees charged by the tax advisor depending on the accounting method (TF_{Cash} or TF_{Acc})
BENEFIT_REL	Relative benefit of using simplified cash accounting, definition according to equation (2)
CASH	Dummy variable, equals one if the business (i.e., the client of the tax advisor) applies simplified cash accounting method for tax purposes
SIZE_HIGH	Dummy variable, equals one if the business size (of the client) is "large" (i.e., survey 2015)
*CASH*SIZE_HIGH*	Interaction term of *CASH* and *SIZE_HIGH*
NUMBERLOCATIONS_TA	Number of locations of the tax advising company
GROWTH_TA	Dummy variable, equals one if the number of employees has increased within the last two years before the survey was conducted
QUALITY_TA	Quality, measured as (1) dummy variable which equals one if the tax advisor has a quality certification[36] or (2) percentage of correct answers in the tax knowledge test (i.e., expertise equals 100 if the tax advisor achieved full score in the test)
AGREEMENT_TA	Dummy variable, equals one if a separate fee agreement was signed (i.e., calculation not according to the German Tax Advisor Fee Act)
POP_HIGH_TA	Dummy variable, equals one if the area where the tax advisor's business is located is densely populated according to the classification of Eurostat[37]
BIGCITY_TA	Dummy variable, equals one if the tax advisor's business is located in a big metropolis according to the classification of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)[38]

[36] Certification under the ISO 9000 quality standard (German: "Zertifizierung nach der Qualitätsnorm ISO 9000") or quality certificate of DStV (German:" Qualitätssiegel des DStV e.V.").

[37] According to the new degree of urbanization of Eurostat (2011) an area is densely populated if at least 50% lives in high-density clusters. High-density cluster is defined as contiguous grid cells of 1km² with a density of at least 1,500 inhabitants per km² and a minimum population of 50,000. We use the values from Statistisches Bundesamt (2017).

[38] According to BBSR (2015) cities with more than 500,000 inhabitants are a big metropolis.

Furthermore, we examine the effects of the client's business size and characteristics of the tax advisor on the relative benefit with the following random-effects panel regression:

$$BENEFIT\_REL_{it} = \beta_0 + \beta_1 \cdot SIZE\_HIGH_{it} + \sum_{j=1}^{k} (\beta_{j+1} \cdot CONTROLS_{it}) + \alpha_i + \varepsilon_{it} \qquad (7)$$

The assumptions with respect to equation (6) hold true.

3.5.2 Regression Results

Table 3.4 shows the results of the random-effects panel regressions (unbalanced panel) with external compliance costs *CC_EXT* (Model 1) and *BENEFIT_REL* (Model 2) as dependent variable.

Table 3.4 Linear panel analysis

Model	(1) Random-Effects Model	(2) Random-Effects Model
Dependent Variable	*CC_EXT*	*BENEFIT_REL*
CASH	-931.9***	
	(51.81)	
SIZE_HIGH	1,280***	-0.0351***
	(58.92)	(0.0116)
*CASH*SIZE_HIGH*	-257.1***	
	(69.50)	
NUMBERLOCATIONS_TA	-0.0162	0.000184
	(1.119)	(0.000177)
GROWTH_TA	-20.21	0.0172
	(72.00)	(0.0140)
QUALITY_TA	-59.01	-0.0383**
	(100.6)	(0.0157)
AGREEMENT_TA	218.0**	-0.0418**
	(87.97)	(0.0174)
BIGCITY_TA	325.5***	0.000582
	(101.7)	(0.0157)
Constant	2,783***	0.315***
	(88.04)	(0.0151)
R^2 (overall)	0.3649	0.0376
Cases	653	653

The table shows the results of the multivariate panel analysis with *CC_EXT* (Model 1) and *BENEFIT_REL* (Model 2) as dependent variable. Variables *CASH*, *SIZE_HIGH* and *CASH*SIZE_HIGH* refer to the client (dummy variable *SIZE_HIGH* indicates that the client's business is rather "large", i.e., 2015 survey). All other variables are control variables and refer to the tax advisor/ tax advising company. *QUALITY_TA* is a dummy variable which equals one if the tax advisor has a quality certification (certification under the ISO 9000 quality standard or quality certificate of DStV). All variables are defined in Table 3.3. Overall R^2 is presented. Within (between) R^2 is 0.6438 (0.2447) in Model 1 and 0.0129 (0.0389) in Model 2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

In Model 1, the coefficient of *CASH* is significantly negative ($p < 0.01$). This confirms the result of the bivariate analysis that applying a simplified cash accounting method ceteris paribus leads to a reduction of tax compliance costs. The benefit of using cash accounting amounts to EUR 932 on average for the small client. This equals a relative benefit of 32.56%. Furthermore, the analysis shows that the fees charged for the "large" client (*SIZE_HIGH* equals one) are significantly higher ($p < 0.01$). For the "large" client using accrual accounting the fees are on average EUR 1,280 higher than for the small client with accrual accounting. The interaction term *CASH*SIZE_HIGH* has a significant negative effect on the fee level *CC_EXT*. Interpretation: For the "large" client the benefit of simplified cash accounting is, in absolute terms, greater than for the small client as the level of fees is higher in case of a larger business.

Furthermore, in Model 1 we find a significant positive effect of *AGREEMENT_TA* on *CC_EXT*. Signing a separate fee agreement with the client leads to higher fees compared to the calculation of fees according to the German remuneration system for tax advisors. Furthermore, we find evidence of higher external compliance costs in case the tax advisor's business is located in a big metropolis (dummy variable *BIGCITY_TA* equals one). One explanation for this result is that the price level in general is higher in urban areas than in rural areas. Rational tax advisors being located in an area with a high price level will pass on their higher expenses to their clients which results in higher fees. However, we do not find evidence that the size of the tax advisor's business (measured as number of locations *NUMBERLOCATIONS_TA* and as increasing number of employees *GROWTH_TA*) or a quality certification (*QUALITY_TA*) influence the level of fees charged.

Model 2 is designed to investigate if the relative benefit of using simplified cash accounting depends on the size of the client's business or other factors. The coefficient of *SIZE_HIGH* is significantly negative ($p < 0.01$). The relative benefit is about 3.5 percent points smaller in case the "large" client is advised compared to the small client. Thus, we can confirm our theoretical approach that the relative benefit of using cash accounting decreases with growing business size. This might indicate that the fixed costs in case of accrual accounting exceed the fixed costs in case of simplified cash accounting.

Furthermore, in Model 2 we find a significantly negative effect of *QUALITY_TA* on the relative benefit of cash accounting. As shown in Table 3.8 (Appendix B), compared to the mean values presented in Table 3.1 tax advisors with high quality (*QUALITY_TA* = 1) charge lower fees TF_{Acc} (accrual accounting) than tax advisors without this qualification, whereas the values for

TF_{Cash} (simplified cash accounting) hardly differ. One possible explanation could be that highly qualified tax advisors might be more efficient with respect to the additional compliance activities related to accrual accounting (i.e., their additional effort for the activities is lower than for a tax advisor without high qualification). Their surcharge for a client with accrual accounting is smaller compared to other tax advisors (for achieving the same profit margin).

In case a separate fee agreement is signed with the client (dummy variable *AGREEMENT_TA* equals one) the fees charged are higher than the overall mean values for both cash accounting and accrual accounting (see Appendix B, Table 3.8). We find that the relative benefit of cash accounting is significantly lower in case *AGREEMENT_TA* equals one (Table 3.4, Model 2). A possible explanation for this outcome is that the higher level of fees charged with separate fee agreement equals an increase of the size of the client's business. The absolute amount of fees increases with growing business size. We find no evidence that other characteristics of the tax advisor's business (e.g., the population density of the area where the business is located) influence the relative price difference.

To sum up, we find a significant benefit of using simplified cash accounting for tax purposes of about 32.6% (RQ1). Furthermore, the size of the (client's) business has a significant influence on the compliance costs. While the external compliance costs increase with growing business size, the relative compliance cost burden decreases. Tax advisors with separate fee agreements and tax advisors being located in a big metropolis charge higher fees than other tax advisors. Furthermore, we find a significant negative effect of the client's business size on the relative benefit of simplified cash accounting (RQ2). Moreover, signing a separate fee agreement and engaging a high qualified tax advisor influences the relative benefit negatively as well (RQ2).

3.5.3 Robustness Analysis

The results presented in Table 3.4 include the variable *QUALITY_TA* as measurement for quality certifications. The results generally remain unchanged in case *QUALITY_TA* is measured as tax knowledge (percentage of correct answers in the tax knowledge test), see Appendix D, Table 3.10. Furthermore, if we include the variable *POP_HIGH_TA* (tax advisor's business is located in a densely populated area) instead of *BIGCITY_TA* (tax advisor's business

is located in a big metropolis) in the regression, the results of Model 1 and 2 generally remain unchanged. The results are presented in Appendix D, Table 3.11.

Furthermore, to test the robustness of our results we run the panel analysis for the matched sample as well. The descriptive results for the matched sample are presented in Appendix C. As shown in Table 3.5, our main findings are confirmed. However, the effect of *AGREEMENT_TA* (*QUALITY_TA*) in Model 1 (Model 2) is not significant although the regression coefficients correspond with our analysis of the total sample.

Table 3.5 Linear panel analysis (matched sample)

Model	(1) Random-Effects Model	(2) Random-Effects Model
Dependent Variable	*CC_EXT*	*BENEFIT_REL*
CASH	-913.1***	
	(77.97)	
SIZE_HIGH	1,234***	-0.0363**
	(78.89)	(0.0157)
*CASH*SIZE_HIGH*	-247.3**	
	(110.3)	
NUMBERLOCATIONS_TA	-3.313	0.000695
	(3.305)	(0.000510)
GROWTH_TA	4.165	0.0281
	(93.59)	(0.0209)
QUALITY_TA	-94.76	-0.0173
	(142.9)	(0.0230)
AGREEMENT_TA	122.3	-0.0475*
	(111.1)	(0.0250)
BIGCITY_TA	702.4***	0.0168
	(179.0)	(0.0275)
Constant	2,849***	0.285***
	(126.9)	(0.0220)
R^2 (overall)	0.3794	0.0550
Cases	288	288

The table shows the results of the multivariate panel analysis for the matched sample with *CC_EXT* (Model 1) and *BENEFIT_REL* (Model 2) as dependent variable. Variables *CASH*, *SIZE_HIGH* and *CASH*SIZE_HIGH* refer to the client (dummy variable *SIZE_HIGH* indicates that the client's business is rather "large", i.e., 2015 survey). All other variables are control variables and refer to the tax advisor/ tax advising company. The total number of observations is presented (i.e., 144 tax advisors are examined in the matched sample). Overall R^2 is presented. Within (between) R^2 is 0.6440 (0.1041) in Model 1 and 0.0138 (0.0878) in Model 2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

3.6 Conclusion

This study was designed to investigate external compliance costs using the fee quotes of German tax advisors. Tax advisors were asked to estimate fees for tax compliance work (preparing the annual accounts and filing tax returns) depending on the accounting method of their client. As the survey participants stated fee quotes for two fictitious scenarios (a client using simplified cash accounting and the same client with accrual accounting) the solely effect of using simplified cash accounting on the fees of the tax advisors could be determined with perfectly controlling for business size. The fee quotes can be interpreted as the external compliance costs. We find that simplified cash accounting is associated with a significant decrease of external compliance costs of small businesses. Furthermore, our results show that the relative benefit of simplified cash accounting tends to decrease with growing business size. This might indicate that simplified cash accounting is especially beneficial for small businesses. Characteristics of the tax advisors also affect the external compliance costs. Our results suggest that tax advisors who sign separate fee agreements with the client and tax advisors with business location in a big metropolis charge, on average, higher fees.

When interpreting the results, the limitations of this study should be considered. The external compliance costs are approximated by fee quotes of tax advisors for fictitious scenarios. Actual fees charged may differ from the estimates in this survey. Furthermore, we estimate external compliance costs with this survey amongst German tax advisors but have no data regarding the remaining internal compliance costs of the businesses. However, the main purpose of this study was to examine the effect of simplified cash accounting on the external compliance costs of small German businesses. The result of the beneficial effect of simplified cash accounting should not be distorted.

Our results suggest that in case taxpayers use the services of a tax advisor and outsource tax compliance activities, the compliance costs are significantly lower in case of using simplified cash accounting for tax purposes. This outcome complements the results of chapter 2. Therefore, possibly small businesses could benefit from using tax advisors more frequently. Further research could investigate the positive effect of outsourcing of compliance activities combined with the effect of tax simplifications.

3.7 APPENDIX A: Questionnaire

Translated extract from the German questionnaire (2015 version, deviations in 2016 in italics)

Part I: Statistical data (extract)

- At how many locations is your business represented?
- How many professionals do you have overall?
- How many professionals do you have at your location? Please specify their qualification.
- How many employees do you have in your company overall?
- How many persons did you employ at your location in the last three years?

  2012 */ 2013*: ..... 2013 / *2014*: ..... 2014 / *2015*: .....

- Annual turnover 2014 */ 2015:*

  □ up to € 400,000 □ € 401,000 to € 750,000 □ € 751,000 to € 1.5 million

  □ more than € 1.5 million

- Do you have a certification under the ISO 9000 quality standard?[39]
- Do you have a quality certificate of DStV?[40]

[39] German: "Zertifizierung nach der Qualitätsnorm ISO 9000".
[40] German: "Qualitätssiegel des DStV e.V.".

Part VII: Scenario a) and b)

In order to examine the average fees of tax advisory, please imagine the following setting and make a cost estimate.

a) A potential client (sole proprietorship, three employees) has only income from self-employment. He asks you for a cost estimate for the following tax advisory (total fee in €, net, without reimbursement of expenses), average complexity:

- Cash accounting: determining the surplus of revenue via operating expenses (sum of operating turnover: € 400 000 / *€ 200 000*, sum of operating expenses less), including entering receipts for the calendar year (approx. 50 / *25* receipts per month),
- Preparation of the income tax return
  (Sum of positive income: € 250 000 / *€ 125 000*) and
- Preparation of the annual VAT return
  (Total sum of payments: € 400 000 / *€ 200 000*).

Total fee: approximately €….....

b) What total fee would you charge (including income tax return and annual VAT return) if the setting differs as follows:

- Accounting (double-entry bookkeeping) including entering receipts for the calendar year, approx. 50 / *25* receipts per month (value of the object: € 400 000 / *€ 200 000*) and
- compiling financial statements (balance sheet with profit and loss accounts, no notes) (total assets: € 100 000 / *€ 50 000*, annual turnover: € 400 000 / *€ 200 000*, operating annual expenses less).

Total fee: approximately €….....

Please tell us how the fees for your professional services have been calculated (i.e., how the fees are usually calculated in your company):

a) individual remuneration according to the German Tax Advisor Fee Act (German remuneration system for tax advisors - StBVV)

b) fixed remuneration according to the German Tax Advisor Fee Act (German remuneration system for tax advisors - § 14 StBVV)

c) remuneration by agreement (separate fee agreement)

3.8 APPENDIX B: Further descriptive statistics

Table 3.6. Descriptive statistics of the tax advisors' businesses (*NUMBERLOCATIONS_TA* and *QUALITY_TA*)

	Observations	Mean	Std. dev.	Median	Min	Max
"Large" client						
NUMBERLOCATIONS_TA	363	11.176	47.006	1	1	740
QUALITY_TA	363	86.852	13.512	90.909	9.091	100
Small client						
NUMBERLOCATIONS_TA	290	5.738	19.659	1	1	138
QUALITY_TA	290	81.638	12.806	83.333	29.167	100
Matched Sample						
NUMBERLOCATIONS_TA	288	6.740	21.991	1	1	162
QUALITY_TA	288	87.223	10.586	90.909	29.167	100

The table shows descriptive statistics of the tax advisors' businesses. *QUALITY_TA* is measured as percentage of correct answers in the tax knowledge test. *NUMBERLOCATIONS_TA* measures the number of locations of the tax advisor. With respect to the matched sample, the total number of observations is presented (i.e., 144 tax advisors are examined in the matched sample).

Table 3.7 Descriptive statistics of the tax advisors' businesses (dummy variables)

		Observations "Large" client	Observations Small client	Observations Matched Sample
Total		363	290	288
GROWTH_TA	0	107 (29.48)	96 (33.10)	93 (32.29)
	1	256 (70.52)	194 (66.90)	195 (67.71)
QUALITY_TA	0	259 (71.35)	209 (72.07)	183 (63.54)
	1	104 (28.65)	81 (27.93)	105 (36.46)
AGREEMENT_TA	0	309 (85.12)	236 (81.38)	234 (81.25)
	1	54 (14.88)	54 (18.62)	54 (18.75)
POP_HIGH_TA	0	152 (41.87)	136 (46.90)	140 (48.61)
	1	211 (58.13)	154 (53.10)	148 (51.39)
BIGCITY_TA	0	260 (71.63)	218 (75.17)	226 (78.47)
	1	103 (28.37)	72 (24.83)	62 (21.53)

The table shows further descriptive statistics of the tax advisors' businesses. The number of observations is presented. Percentages are presented in brackets. *QUALITY_TA* is measured as dummy variable which equals one if the tax advisor has a quality certification. With respect to the matched sample, the total number of observations is presented (i.e., 144 tax advisors are examined in the matched sample). Variables are defined in Table 3.3.

Table 3.8 Mean values for compliance costs depending on *QUALITY_TA* and *AGREEMENT_TA*

	Total sample	*QUALITY_TA* = 0	*QUALITY_TA* = 1	*AGREEMENT_TA* = 0	*AGREEMENT_TA* = 1
"Large" client					
TF_{Cash}	€ 3012.95	€ 3017.65	€ 3001.231	€ 2934.294	€ 3463.00
TF_{Acc}	€ 4201.96	€ 4279.80	€ 4008.12	€ 4165.63	€ 4409.82
Small client					
TF_{Cash}	€ 1930.15	€ 1933.01	€ 1922.78	€ 1893.88	€ 2088.65
TF_{Acc}	€ 2862.02	€ 2908.09	€ 2743.14	€ 2836.77	€ 2972.35

The table shows the mean values for external compliance costs *TF* for the total sample and for tax advisors with low and high quality (dummy variable *QUALITY_TA* equals 0 and 1, respectively) and tax advisors that have no or have signed a separate fee agreement with the client (dummy variable *AGREEMENT_TA* equals 0 and 1, respectively).

3.9 APPENDIX C: Descriptive statistics (matched sample)

Table 3.9 Descriptive statistics of tax advisors' fees and resulting benefit for the client (matched sample)

	Observations	Mean	Std. dev.	Median	Min	Max
"Large" client						
TF_{Cash}	144	€ 3039.95	1090.2657	2809	1200	8000
TF_{Acc}	144	€ 4200.38	1356.3219	4118	1400	9500
$BENEFIT$	144	€ 1160.43***	878.7491	869	0	3700
$BENEFIT_{rel}$	144	0.2636	0.1549	0.2297	0	0.6520
Small client						
TF_{Cash}	144	€ 2059.19	820.5190	1925	750	5500
TF_{Acc}	144	€ 2972.32	1034.5941	2900	1200	7500
$BENEFIT$	144	€ 913.13***	655.3889	700	0	3000
$BENEFIT_{rel}$	144	0.2938	0.1730	0.2730	0	0.6787

The table shows the descriptive statistics for the matched sample regarding the fees charged by the tax advisors and the resulting (absolute and relative) benefit for the client. One-sample t-test (two-sided, *** p<0.01, ** p<0.05, * p<0.1) was performed for $BENEFIT$.

3.10 APPENDIX D: Further panel analysis

Table 3.10 Linear panel analysis (alternative *QUALITY_TA*)

Model	(1) Random-Effects Model	(2) Random-Effects Model
Dependent Variable	*CC_EXT*	*BENEFIT_REL*
CASH	-931.9***	
	(51.77)	
SIZE_HIGH	1,280***	-0.0373***
	(61.27)	(0.0118)
*CASH*SIZE_HIGH*	-257.1***	
	(69.43)	
NUMBERLOCATIONS_TA	-0.0758	0.000129
	(1.127)	(0.000180)
GROWTH_TA	-19.09	0.0167
	(72.03)	(0.0141)
QUALITY_TA	0.0598	0.000396
	(2.920)	(0.000509)
AGREEMENT_TA	217.2**	-0.0418**
	(88.28)	(0.0175)
BIGCITY_TA	335.6***	0.00633
	(100.4)	(0.0156)
Constant	2,760***	0.272***
	(245.2)	(0.0426)
R^2 (overall)	0.3646	0.0281
Cases	653	653

The table shows the results of the multivariate panel analysis with *CC_EXT* (Model 1) and *BENEFIT_REL* (Model 2) as dependent variable and an alternative measurement of *QUALITY_TA*. Variables *CASH*, *SIZE_HIGH* and *CASH*SIZE_HIGH* refer to the client (dummy variable *SIZE_HIGH* indicates that the client's business is rather "large", i.e., 2015 survey). All other variables are control variables and refer to the tax advisor/ tax advising company. *QUALITY_TA* is measured as percentage of correct answers in the tax knowledge test. Overall R^2 is presented. Within (between) R^2 is 0.6438 (0.2441) in model 1 and 0.0216 (0.0234) in model 2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3.11 Linear panel analysis (*POP_HIGH_TA* as independent variable)

Model	(2) Random-Effects Model	(4) Random-Effects Model
Dependent Variable	*CC_EXT*	*BENEFIT_REL*
CASH	-931.9***	
	(51.83)	
SIZE_HIGH	1,281***	-0.0350***
	(58.98)	(0.0116)
*CASH*SIZE_HIGH*	-257.1***	
	(69.51)	
NUMBERLOCATIONS_TA	-0.238	0.000186
	(1.131)	(0.000178)
GROWTH_TA	-20.65	0.0172
	(72.23)	(0.0140)
QUALITY_TA	-92.73	-0.0387**
	(100.4)	(0.0156)
AGREEMENT_TA	220.4**	-0.0417**
	(88.23)	(0.0174)
POP_HIGH_TA	170.4*	-0.00255
	(92.42)	(0.0141)
Constant	2,788***	0.317***
	(98.32)	(0.0164)
R^2 (overall)	0.3559	0.0375
Cases	653	653

The table shows the results of the multivariate panel analysis with *CC_EXT* (Model 1) and *BENEFIT_REL* (Model 2) as dependent variable. Variables *CASH*, *SIZE_HIGH* and *CASH*SIZE_HIGH* refer to the client (dummy variable *SIZE_HIGH* indicates that the client's business is rather "large", i.e., 2015 survey). All other variables are control variables and refer to the tax advisor/ tax advising company. *QUALITY_TA* is a dummy variable which equals one if the tax advisor has a quality certification (certification under the ISO 9000 quality standard or quality certificate of DStV). Overall R^2 is presented. Within (between) R^2 is 0.6438 (0.2355) in model 1 and 0.0128 (0.0391) in model 2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

4 Client Advocate or Gatekeeper? The Effect of Competitive Pressure on Tax Advisors' Client Advocacy[41]

4.1 Introduction

This study examines the effect of competitive pressure on tax advisors' client advocacy level. Competition is usually seen as something positive that improves social welfare by reducing prices and increasing productivity and product quality (e.g., Spence 1975, Syverson 2004). However, competition might also result in costs for society. Firms in competitive markets may perceive higher pressure to fulfill clients' interests even if these triggers unethical or illegal behavior. For example, competition among credit rating agencies may reduce market efficiency because it facilitates ratings shopping by clients (Bolton et al. 2012, Lee and Schantl 2019). Similar, competition in the vehicle emission testing market may lead to greater inspection leniency because firms aim to attract clients through greater leniency (Bennett et al. 2013). Against this background, we study whether competition among tax advisors and the perceived competitive pressure induces tax advisors to recommend tax planning strategies although the legal situation is unclear.

Tax advisors have a central role as intermediary between taxpayer and tax authority in the tax compliance process. However, tax advisors fulfill a dual role. On the one hand, tax advisors represent the interests of their clients; they act as clients' advocate. Similar to the US (AICPA 2018)[42], in Germany, the country where we conducted our study, the Federal Chamber of Tax Advisors declares: "We support our clients (…) with the aim of optimally representing their interests." (BStBK 2015, 21). Because taxpayers are interested in tax savings, tax advisors explain opportunities how to save taxes to their clients and may also be a driver of tax avoidance by designing and offering aggressive tax planning schemes (e.g., Lisowsky 2010, McGuire et al. 2012). On the other hand, tax advisors help to enforce the tax law as they help "taxpayers understand and comply with their tax obligations in an increasingly complex world." (OECD 2008, 5) and they are obliged to ethical standards which clarify that the tax advisor has not only a duty to the client but also a duty to the tax system (AICPA 2018, 7). According to German

[41] This chapter is a co-authored work with Prof. Dr. Kay Blaufus, Leibniz University Hannover.

[42] „When recommending a tax return position, a member has both the right and the responsibility to be an advocate for the taxpayer with respect to any position satisfying the aforementioned standards." (AICPA 2018, 6).

law, a tax advisor must act as an "independent body of tax law administration"[43]. Thus, tax advisors also have some fraud detection responsibility during their tax engagements (DeZoort et al. 2012).

The dual role of tax advisors may create a conflict between the loyalty to the client and the loyalty to the tax system. Prior research shows that tax advisors tend to enforce the tax law when tax law ambiguity is low but exploit ambiguity when tax law ambiguity is high (for the US: Klepper and Nagin 1989, for Germany: Kittl 2015, Blaufus et al. 2017). Under high tax law ambiguity, the tax advisors' loyalty to their clients seems to dominate their loyalty to the tax system. In line with Mason and Levy (2001, 127), we use the term *client advocacy* to refer to "a state of mind in which one feels one's primary loyalty belongs to the taxpayer." In this vein, we examine whether competition increases tax advisors' client advocacy.

We conducted an online-survey among more than 300 German tax advisors. The German market for tax advisors is highly regulated (Blaufus et al. 2017). Professional tax advice is only allowed for (i) certified professional tax advisors, many of whom have a university degree in economics or law, have passed a comprehensive exam and have at least two years of practical experience, (ii) lawyers and certified public accountants (CPAs), and (iii) local income tax help organizations. Moreover, price competition is reduced as price ranges are specified by a Fee Regulation Act. Thus, tax advisors compete primarily on their service quality which should increase the incentive to improve their service quality when competition increases. One way to improve the service quality (as perceived by the clients) is to recommend more tax savings strategies even if some of them are based on unclear legal situations.

To measure the tax advisors' client advocacy, we combine direct and indirect measures. As a direct measure, we use one of the proposed questions of Mason and Levy (2001) that directly asks whether the tax advisor always interprets unclear/ambiguous laws in favor of the client. As indirect measures, we use the tax advisor's recommendations in two fictitious client scenarios. Using factor analysis, we obtain a single factor that measures client advocacy. Measuring competition in the tax advisor market is challenging. Commonly, competitive pressure is estimated by using concentration measures such as the Herfindahl index. In addition to the Herfindahl index, we use the number of tax advisors divided by the number of companies at county level as proxy for competition. Usually, low market concentration is thought to exert

[43] Section 2 Para. 1 of the professional code of conduct for tax advisors (BOStB) and Section 32 Para. 2 S. 1 German Tax Advisory Act (StBerG).

high competitive pressure (e.g., Petersen and Rajan 1995, Penno and Walther 1996, Botosan and Standford 2005, Kallapur et al. 2010, Newton et al. 2013). However, this approach has been discussed controversially in the literature (see for instance Stiglitz 1987, Dedman and Lennox 2009, Boone et al. 2012). Therefore, we additionally measure perceived competitive pressure of tax advisors by using a subjective estimation whether the tax advisor's firm faces strong competition.

Our findings show a significant positive association between perceived competitive pressure and client advocacy. We find that the probability of an above-median client advocacy level increases by 18 percentage points if the tax advisor perceives high competitive pressure. Furthermore, we find a significant positive association between tax advisor competition (measured with Herfindahl index at county level) and client advocacy. However, we do not identify a significant effect in case the degree of competition is measured as the ratio between number of tax advising firms and companies in a county/ independent city. Furthermore, we find no significant correlation between this competition measure and the Herfindahl indices. We assume that the Herfindahl index as concentration measure is a better proxy for objective competitive pressure than the number of tax advisors divided by companies as the latter is a too general measurement (e.g., ratios of market shares or the threat of new rivals entering the market are not captured by the number of tax advisors). Furthermore, the Herfindahl index gives greater weight to larger companies.[44] Dedman and Lennox (2009) distinguish between industry-level competition (measured with concentration measures) and company-level competition (perceived competition). They argue that not all companies in an industry face the same level of competition. With our measurement of the tax advisors' perceived competition we get a good proxy for competitive pressure at the company-level. We assume that it is the individual competition perception that influences the behavior of the tax advisor and thus also the client advocacy level (this approach can be also find in Dedman and Lennox 2009, who find that managers withhold information about sales and costs if they *perceive* that competition is strong). Interestingly, we find no significant correlations between the perceived competition variable and the concentration variables. This result reinforces our assumption that there is no strong connection between the perceived competitive pressure and objective competition measures (this is in line with Dedman and Lennox 2009).

[44] According to Harris (1998) concentration ratios reflect competition for market share between large and small firms, but competition among large firms in a concentrated industry is not captured.

Our study makes several contributions. First, we add to research on the effect of competition on ethical conflicts in economic decision making. Prior experimental research shows that a market environment per se may reduce ethical behavior (e.g., Falk and Szech 2013). However, evidence on whether competition generally results in a lower weight of ethical considerations is ambiguous. For example, Boone et al. (2012) report that less competition in the audit market results in an increased auditor tolerance for earnings management by clients, whereas Newton et al. (2013) observe the opposite: higher auditor competition is associated with lower audit quality. To the best of our knowledge, we present the first study on the effects of perceived competitive pressure on tax advisors' services. Second, we contribute to research on tax professionals' decision making (Roberts 1998, Bobek and Hatfield 2004). Prior research shows that tax advisors' level of client advocacy depends on paid preparer status (CPA vs. Non-CPA, e.g., Ayres et al. 1989), preparer penalties (Newberry et al. 1993, Hansen and White 2012), the decision context (compliance vs. planning, Spilker et al. 1999), whether decisions are made individually or in groups (Carnes et al. 1996), ethical professional standards (Fatemi et al. 2020), client risk (Kadous and Magro 2001, Bobek et al. 2010), client importance (Bobek and Hatfield 2004, Bobek et al. 2010), professional experience and culture (Spilker et al. 2016). The effect of perceived competition among tax advisors has not yet been examined. Third, we complement prior research on the effect of competition on firms' tax avoidance. Because competition results usually in lower long-run profits, firms' incentive to reduce costs increases. In line with this, Cai and Liu (2009) and Gokalp et al. (2017) provide evidence for a positive effect of competition on tax avoidance and tax evasion, respectively. By contrast, Kubick et al. (2015) find that increased product market power (i.e., less competitive pressure) increases corporate tax avoidance which could be explained by the fact that increasing market power increases the firm's profitability and therefore increases the incentive to save taxes due to higher tax rates or a higher willingness to take risks. We add to this research stream an additional channel through which competition affects corporate tax avoidance. Because most corporate taxpayers rely on professional tax advice, competition among advisors should also affect corporate tax avoidance.

Our results are important for policy makers. Due to tax complexity many taxpayers use the help of professional tax advisors. In the US (Germany), more than 50% (36%) of individual tax returns are prepared with professional help (GAO 2019, Bransch and Gurr 2019). Thus, tax compliance behavior of tax advisors is highly relevant for a country's tax revenues. Moreover, there is an ongoing discussion about the regulation of the tax advisory market (e.g., De Widt et al. 2016). Our finding that increased perceived competitive pressure can increase the client

advocacy of tax advisors implies that the fiscal risk of the treasury increases with increased competition - an aspect that should be considered when discussing the pros and cons of regulating the tax advisor market.

The remainder of this paper is organized as follows: In Section 2 we present the research question. Description of the data follows in Section 3. The results are presented in Section 4. The last section discusses these results and concludes.

4.2 Research Question

The number of tax advisors in Germany is steadily increasing. From 49,291 in 1990 the number of tax advisors and tax advisory firms has doubled to 98,955 in 2020 (BStBK 2020). In combination with a decreasing role of small and medium-sized businesses, the increase in the number of tax advisors has led to a very competitive German market for tax advice (de Widt et al. 2016). According to a survey by the German Federal Chamber of Tax Advisors nearly two thirds of German tax advisors perceive a growing competition (BStBK 2013, 19).

In making tax advice recommendations, tax advisors have to consider both, their duty as client advocate and their duty as gatekeeper of the tax system. However, growing competition increases the pressure for tax advisors to retain existing clients and increases the difficulty of attracting new clients. One way to cope with increasing competitive pressure is to reduce prices. Yet, price competition is reduced in the German tax advisory market by law. The Fee Regulation Act specifies binding price ranges for all kind of tax advisory services. Thus, tax advisors compete primarily on their service quality and higher competition implies an increased need to improve service quality.

Prior research shows that the perceived client advocacy of tax advisors is significantly related to the motivation to hire a tax advisor (Fleischman and Stephenson 2012). One main motive to pay for tax advice is to obtain tax savings. Therefore, tax advisors have an incentive to increase their client advocacy in response to higher competition and recommend more aggressive tax planning strategies to please the clients' desire for tax savings. In line with this assumption, prior research shows that increased competition can lead to less strict inspections (Bennett et al. 2013) and lower audit quality (Newton et al. 2013). Thus, firms increase the perceived service quality by customers at the expense of the regulator. Similar, tax advisors may

recommend exploiting unclear legal situations more strongly when competitive pressure increases.

Note, however, that higher competition could also decrease client advocacy. Besides the objective to obtain tax savings, other objectives also motivate taxpayers to demand tax advice. Other motives include time savings, reduced uncertainty and enhancement of tax compliance (Frischmann and Frees 1999). Thus, tax advisors may also aim at increasing tax certainty for their clients to improve the perceived quality of their tax services which implies less aggressive advice. Moreover, Stephenson (2007) finds that the tax advisors' advocacy levels exceed the predicted values of the taxpayers and concludes that tax advisors should, generally, advice less aggressive. Furthermore, increasing competition decreases profitability that in turn may reduce willingness to take risks (if one assumes a decreasing absolute risk aversion of the advisor). Thus, tax advisors would make less risky recommendations. In addition, tax advisors may consider potential reputational risks. Klassen et al. (2016) find evidence indicating that a tax advisor gives less aggressive advice if the advisor jointly provides tax and audit services suggesting that tax advisors consider the higher reputation and litigation risk of an auditor-preparer. As reputational concerns should increase with increasing competition due to the higher risk of losing clients, this argument implies less risky tax advice in the presence of higher competitive pressure.

In sum, theory is ambiguous whether more competitive pressure increases or decreases tax advisors' client advocacy. As a result, it is an empirical question which we address in this paper and formulate as follows:

RQ: Does higher competitive pressure increase client advocacy of tax advisors?

4.3 Data

4.3.1 Survey Instrument and Sample Selection

We conducted a survey of German tax advisors in 2017 in cooperation with a large German business magazine that annually evaluates the quality of German tax advisors. From 3 March 2017 to 20 March 2017 about 10,000 tax advisors/tax advising companies were asked via e-mail to participate in the online survey. Furthermore, at the homepage and in the print version of the business magazine a reference to the survey was displayed. The comprehensive

questionnaire consists of 14 pages and is divided into seven sections. Statistical information (e.g., number of locations, number of employees, specialization) is recorded in section I. In section II, the professional qualification and further training are inquired about. Section III (section IV) of the questionnaire deals with accounting and business consultancy (personnel development). Section V includes questions regarding the tax advisors' clients. Section VI is composed of 22 tax knowledge questions (tax knowledge test). Finally, in section VII two scenarios are presented to the survey participants (final voluntary question). An extract of the translated questionnaire is displayed in Appendix A.

490 tax advisors participated in the survey.[45] As displayed in Table 4.1, in total 163 tax advisors were removed from the sample because of missings on the dependent variables and/or controls, double entries or inconsistent answers. Therefore, our final sample consists of 327 tax advisors.

Table 4.1 Exclusions

	Observations
Tax advisors participated in the online survey	490
Subjects with missings on the dependent variables and/or controls	125
Double entries[46]	24
Inconsistent answers[47]	14
Final sample	**327**

The table shows the sample selection of the client advocacy study. The number of observations is presented.

[45] We cannot provide an exact response rate. However, using the number of e-mails sent to tax advisors, the response rate is certainly below 4.9%. Participants did not receive financial incentives to participate.

[46] Some tax advisors participated in the survey more than once. Double entries were excluded. Moreover, in case that *different* tax advisors with the same address participated in the survey and they answered the tax knowledge questions (section VI) *and* client advocacy questions (section VII) identically, only one tax advisor was included in the final sample.

[47] Several questions in the questionnaire are reverse coded. Thus, we can control that questions are answered conscientiously. With respect to the client advocacy questions "scenario a" and "scenario b" (section VII) eight subjects answered inconsistently. Furthermore, six tax advisors answered inconsistently in section IV (number 7).

4.3.2 Variable Measurement

Client advocacy

To measure the client advocacy level of the tax advisors, we combine direct and indirect measures. First, as direct measure we included a question from the Mason-Levy client advocacy scale.[48] The survey participants were asked to evaluate the following statement on a five-point scale with endpoints of "does not apply at all" to "fully applies":

> *We always interpret unclear/ambiguous laws in favor of our clients.*

In the following, we refer to this first client advocacy question as *CA1*. Due to limitations in the very comprehensive questionnaire only one Mason-Levy question was included.[49]

Second, as indirect measures, we use the tax advisors' recommendation decisions in two fictitious scenarios. The tax law is ambiguous in both cases, but in the first case the potential tax benefit is temporary whereas it is permanent in the second case. The first scenario reads as follows:

> *a) Your client bought a production facility (fixed assets) amounting to € 100,000 (plus VAT). Hereof € 60,000 are indisputable acquisition costs according to § 255 (1) HGB (German Commercial Code), § 6 (1) No. 1 EStG (German Income Tax Act). Regarding the remaining € 40,000 the legal situation is unclear. While the fiscal authorities consider the total amount as acquisition costs according to recent case law these costs could also be treated as immediate expenses.*
>
> *Which advice would you give your client?*

The tax advisors should select on a ten-point scale how they would advise their client, whereby "1" is in accordance with the tax authorities and thereby riskless ("in any case treating € 40,000 as acquisition costs") and "10" is with a certain risk that tax authorities might find it unacceptable ("in any case treating € 40,000 as immediate expense"). From the perspective of the taxpayer selecting "10" means maximum tax benefit (temporary advantage). In the following, we denote this client advocacy measure *CA2*.

---

[48] Mason and Levy (2001), p. 130: "I always interpret unclear/ambiguous laws in favor of the taxpayers." German version in the questionnaire: „Unklare bzw. nicht eindeutige steuerrechtliche Vorschriften werden stets zugunsten unserer Mandanten interpretiert." See Appendix A, part V, question j).

[49] We chose Mason-Levy question number 6 ("interpretation of unclear tax law in favor of the taxpayers") because it best fits to the two the fictitious scenarios *CA2* and *CA3* where we present ambiguous tax positions and ask for the recommendations of the tax advisor.

The second scenario is as follows:

> *b) Your client A was chosen randomly to participate in a quiz show. He got prize money amounting to € 250,000. The legal situation is unclear regarding the question whether the prize is not taxable (such as a lottery win) or according to § 22 No. 3 EStG (German Income Tax Act) taxable other services.*
>
> *Which advice would you give your client?*

Compared to scenario a), the second scenario was reverse-coded (1: "in any case treating as not taxable" and 10:"in any case treating as taxable"). The maximum score "10" means riskless, according to the tax authorities, i.e., a non-advocacy position. For the ease of interpretation, however, we recode the answers such that 1 again means low advocacy level and 10 means high advocacy level. In the following, we denote the variable *CA3*.

CA2 and *CA3* measure the extent to which the *recommendations* of the tax advisors are tax-minimizing and thereby pro-client. Therefore, these variables measure client advocacy indirectly. Combining indirect and direct measures should increase the construct validity as we rely on both stated and revealed preferences.

The client advocacy level (*CA*) is measured with the variables *CA1*, *CA2* and *CA3*. To combine all three measures, we use principal factor analysis (PFA) to derive a factor for *CA1*, *CA2* and *CA3*.[50] Therefore, we first test the suitability of our data for factor analysis. The Bartlett test of sphericity (Bartlett 1950) indicates that there is a correlation between *CA1*, *CA2* and *CA3* ($p < 0.01$), see Table 4.6 (Appendix B). Furthermore, we run the Kaiser-Meyer-Olkin (KMO) test (measure of sampling adequacy)[51]. The overall value is 0.628, i.e., mediocre according to Kaiser and Rice (1974). Therefore, a principal factor analysis is suitable. The client advocacy variables *CA1*, *CA2* and *CA3* load on one factor (variable *ADVOCACY*) only.[52] Therefore, the factor loadings are not rotated. The factor loadings are just below 0.5, i.e., acceptable (see Appendix B for more details). *ADVOCACY* is a factor variable for client advocacy. *ADVOCACY_HIGH* is a dummy variable that indicates that the value for *ADVOCACY* exceeds the median value.

[50] We chose PFA as we assume that there is one latent construct for the three client advocacy variables *CA1*, *CA2* and *CA3*. The aim of the principal component analysis (PCA), on the other hand, is data reduction.

[51] See Kaiser (1970).

[52] The eigenvalue of the factor is smaller than 1.0 (0.735). However, the so-called Kaiser criterion (see Kaiser 1970) stating that eigenvalues should be greater than 1.0 applies for principal component analysis, but not necessarily for PFA (see for instance Fabrigar et al. 1999, Preacher and MacCallum 2003).

Competition

We measure competitive pressure with three measures: (1) perceived competition, (2) tax advisor concentration (Herfindahl index) and (3) tax advisor density.

First, the survey participants are asked to evaluate how they perceive the competition for their office.[53] They should select on a five-point scale to what extent the following statement applies to the tax advisor's office (endpoints again "does not apply at all" and "fully applies"):

Our firm is faced with strong competition.

With this question we derive a measure for the *perceived* competition of the tax advisors (variable *PERCEIVED*). The dummy variable *PERCEIVED_HIGH* equals one if the tax advisors answer that the above statement rather applies or fully applies. We assume that the perceived competition is a good measurement of competitive pressure as it captures other (company-specific) factors (such as the economic situation of the tax advisor's business, the fear of losing clients, difficulties in finding well-trained personnel or the threat of new rivals entering the market) than objective (industry-level) measures.

However, we aim to integrate also objective measures of competition in our analysis. In the accounting literature competition is often investigated in connection with market concentration. For audit firms (in particular the Big Four auditors) there are numerous studies regarding audit market concentration. As measure of concentration, commonly used is the Herfindahl-Hirschman index (syn. Herfindahl index) based on audit revenues or client size (assets or sales) (e.g., Francis et al. 2013, Boone et al. 2012, Kallapur et al. 2010). The European Commission also often uses the Herfindahl index to measure concentration levels (European Commission 2004b). For the US audit market, concentration measures are often calculated at the local MSA-level (e.g., Newton et al. 2013, Kallapur et al. 2010).[54] The underlying assumption is that audit markets are local (see for instance Penno and Walther 1996, Francis et al. 1999). We make the assumption that the tax advisory market is comparable to the audit market and thus also local. We assume that the clients mainly choose a tax advisor close to their place of residence or company headquarters. Germany consists of 294 counties and 107 independent cities. The smallest county has 34,193 inhabitants (Statistisches Bundesamt 2020). Therefore, the county level seems suitable as local level.

[53] See Appendix A, part V, question i).
[54] MSA are Metropolitan Statistical Areas in the USA. See for instance Newton et al. (2013).

To measure tax advisor concentration at local level, we obtained access to data from the German Federal and State Statistical Offices that allows us to calculate the Herfindahl index based on employees subject to social security contributions (variable *HERFINDAHL_EMPLOYEES*) and based on sales (variable *HERFINDAHL_SALES*) at the county level.[55] We included *HERFINDAHL_EMPLOYEES* additionally to the commonly used Herfindahl index based on sales as data for *HERFINDAHL_SALES* was only available at legal entity level. By contrast, for *HERFINDAHL_EMPLOYEES* we obtained data at branch level. Generally, higher values of the Herfindahl index indicate greater concentration. This is usually associated with less competition in this industry (e.g., Petersen and Rajan 1995, Penno and Walther 1996, Botosan and Standford 2005, Kallapur et al. 2010, Newton et al. 2013; for a contrary view see for instance Stiglitz 1987, Dedman and Lennox 2009, Boone et al. 2012). To simplify interpretation in the multivariate analysis, we multiplied the values by (-1), i.e., an increase in *HERFINDAHL_EMPLOYEES* or *HERFINDAHL_SALES* equals an increase in competition (less concentration). The data is for industry "Accounting, bookkeeping and auditing activities; tax consultancy" (industry code 69.20 according to the classification of economic activities).[56] To our knowledge, we are the first to investigate tax advisory market concentration in Germany.

Furthermore, as third measure, we determined the number of tax advisors and tax advising companies (in the following: tax advisors) for each county or independent city.[57] Furthermore, we retrieved data on the number of companies per county/ independent city from the German Federal and State Statistical Offices.[58] The ratio of tax advisors to companies is our measure for the density of tax advisors at local level (variable *TAXADVISOR_DENSITY*). We chose companies as divisor as we assume that tax advisors predominantly advice companies. For our sample we can confirm this assumption.[59] With this ratio we account for the demand side of tax advice. According to a survey of the German Federal Chamber of Tax Advisors, tax advisors perceive other tax advisors as strongest competitor.[60] Therefore, the variable

[55] The Herfindahl index is calculated as the sum of the squared market share (ratio of the firm's size to the total market size) of each tax advising firm.

[56] Classification of economic activities, issue 2008 (WZ 2008).

[57] This data is the result of an internet research in December 2017 using statistical information of the German Federal Chamber of Tax Advisors (www.bstbk.de). The official municipality codes for the survey participants' business locations were derived from the German Federal Statistical Office (Statistisches Bundesamt 2018).

[58] See Statistische Ämter des Bundes und der Länder (2019a). Please note that the values are from 2016 as statistical information on companies per county was not available for 2017 when creating the data set.

[59] In our sample of 327 tax advisors, on average only 14.64 percent of the tax advisors' sales are generated with advising private persons while 74.24 percent with advising SMEs and 11.12 percent with large companies (mean values).

[60] 81.9% of the participants of the survey 2012 perceive other tax advisors as strongest competitors, see BStBK (2013, 19).

TAXADVISOR_DENSITY serves as another proxy for competitive pressure. Additionally, we included the number of tax advisors, accountants and auditors (industry code 69.20 according to the classification of the economic activities of the German Federal and State Statistical Offices) divided by the number of companies per county/ independent city in the data set (variable *FIRM_DENSITY*). This data for the year 2017 was derived from the German Federal and State Statistical Offices. Auditors/ accountants often also act as tax accountants. Therefore, we included this additional density measurement in our analysis.

Controls

Besides the client advocacy and competition questions, other statistical information (such as number of locations, number of employees, annual sales) and further detailed information (e.g., tax advisor's specializations, technical knowledge, qualifications, personnel development) are included in the questionnaire. Furthermore, the knowledge of German tax law was tested in a separate section of the questionnaire with 22 knowledge questions (section VI of the questionnaire). All variables are defined in Table 4.2.

Variable *SALES* is an ordinal scaled variable with four categories for the annual sales of the tax advisor. *EMPLOYEES_HIGH* is a dummy variable that equals one if the number of employees exceeds 49, i.e., the tax advisor's business is medium-sized according to the European Commission (2003). *GROWTH* is a dummy variable that equals one if the number of employees has increased within the last two years, i.e., *GROWTH* indicates that the tax advisor's business is growing. *QUALITY* is also a dummy variable and indicates that the tax advisor has one or two quality certifications[61] (*QUALITY* = 1) or no quality certification (*QUALITY* = 0). Variable *COMMUNICATION* measures the digital communication paths of the survey participants to present their office and information to clients and public (such as email newsletter, facebook or other social media channels). *TAX_KNOWLEDGE* measures the number of correct answers in the tax knowledge test. *SHARE_PRIVATE* (*SHARE_SME*) measures the proportion of clients who are private persons (SMEs).

[61] Certification under the ISO 9000 quality standard (German: "Zertifizierung nach der Qualitätsnorm ISO 9000") and/ or quality certificate of DStV (German: "Qualitätssiegel des DStV e.V.").

Table 4.2 Variable measurement

VARIABLE	Measurement
CA	Client advocacy level, measured with three questions *CA1*, *CA2* and *CA3*
ADVOCACY	Factor of the three variables *CA1*, *CA2* and *CA3*
ADVOCACY_HIGH	Dummy variable, equals one if *ADVOCACY* exceeds the sample median
PERCEIVED_HIGH	Dummy variable, equals one if the tax advisors state that the following sentence rather applies or fully applies to them (five-point scale with endpoints "does not apply at all" and "fully applies"): *"Our firm is faced with strong competition."*
HERFINDAHL_EMPLOYEES	Tax advisor concentration, measured with Herfindahl index based on employees at local level (county/ independent city)
HERFINDAHL_SALES	Tax advisor concentration, measured with Herfindahl index based on sales at local level (county/ independent city)
TAXADVISOR_DENSITY	Density of tax advisors, measured as the ratio between number of tax advisors and number of companies at local level (county/ independent city)
FIRM_DENSITY	Density of tax advisors, accountants and auditors, measured as the ratio between number of tax advising/ audit firms and number of companies at local level (county/ independent city)
SALES	Annual sales of the tax advisor (categorical data, 4 categories), dummy variables *SALES1*, *SALES2* and *SALES3* (reference category: highest sales category *SALES4*)
EMPLOYEES_HIGH	Dummy variable, equals one if the number of employees exceeds 49 (i.e., medium-sized according to the European Commission 2003)
GROWTH	Dummy variable, equals one if the number of employees has increased within the last two years before the survey was conducted
QUALITY	Quality, measured as dummy variable which equals one if the tax advisor has a quality certification[62]

[62] Certification under the ISO 9000 quality standard (German: "Zertifizierung nach der Qualitätsnorm ISO 9000") or quality certificate of DStV (German: "Qualitätssiegel des DStV e.V.").

Table 4.2 *(continued)*

VARIABLE	Measurement
COMMUNICATION	Number of digital communication paths
TAX_KNOWLEDGE	Number of correct answers in the tax knowledge test
SHARE_PRIVATE	Clientel structure: Proportion of private persons (percent)
SHARE_SME	Clientel structure: Proportion of SMEs (percent)

4.4 Results

4.4.1 Descriptive Statistics

Table 4.3 shows descriptive statistics of the survey participants. In Panel A the client advocacy measures *CA1*, *CA2* and *CA3* and the proxies for competitive pressure (*PERCEIVED*, *HERFINDAHL_EMPLOYEES, HERFINDAHL_SALES, TAXADVISOR_DENSITY* and *FIRM_DENSITY*) are presented. These are the primary variables of interest. With mean values of 4.1 (min-max range: 1-5), 7.6 (min-max range: 1-10) and 7.2 (min-max range: 1-10) for *CA1*, *CA2* and *CA3*, respectively, the tax advisors in our sample tend to focus on their clients' interests. The mean value for *PERCEIVED* is 3.1 (min-max range: 1-5) indicating that the majority of the participants of our survey perceive moderate competition. The median values for *HERFINDAHL_EMPLOYEES* and *HERFINDAHL_SALES* are almost identical (in absolute terms 0.033 and 0.032, respectively). However, the maximum value (in absolute terms) is greatly larger for *HERFINDAHL_SALES*. The German tax advisor market appears to be low concentrated, i.e., competition is considered to be rather high. A Herfindahl index below 0.15 is considered as unconcentrated (U.S. Department of Justice and the Federal Trade Commission 2010).[63] The values of the Herfindahl indices in our study are much smaller than values for the audit market (e.g., Boone et al. 2012 identify median concentration values above 0.25, i.e., highly concentrated markets).[64] The number of tax advisors per company

[63] Values of the Herfindahl index below 1,500 (0.15): unconcentrated markets, values between 1,500 (0.15) and 2,500 (0.25): moderately concentrated markets, values above 2,500 (0.25): highly concentrated markets, see U.S. Department of Justice and the Federal Trade Commission (2010). The European Commission (2004) identifies markets with post-merger Herfindahl index below 0.1 as harmless with respect to horizontal competition concerns.

[64] Kallapur et al. (2010, 43) and GAO (2008, 101) find similar results for the audit market.

(*TAXADVISOR_DENSITY*) differs greatly depending on the county. Values for *FIRM_DENSITY* exceed *TAXADVISOR_DENSITY*.[65]

Surprisingly, our measure of perceived competitive pressure (*PERCEIVED*) does not correlate at all with the used proxies for competition *HERFINDAHL_EMPLOYEES, HERFINDAHL_SALES* and *FIRM_DENSITY*. This finding is in line with Dedman and Lennox (2009). Moreover, we find a statistically significant *negative* correlation between *PERCEIVED* and *TAXADVISOR_DENSITY* (Spearman's rank correlation coefficient: -0.1156, p = 0.037). We conclude that there is no connection between the perceived competitive pressure and the objective competition measures. Furthermore, the Herfindahl indices do not correlate with the density variables (*TAXADVISOR_DENSITY* and *FIRM_DENSITY).*

In Panel A also the secondary variables *COMMUNICATION* and *TAX_KNOWLEDGE* are displayed. Digital communication paths (*COMMUNICATION*) are used only to a small extent (median value 2 and mean value 2.4). The survey participants answered the tax knowledge questions conscientiously. On average 78.2% of the answers are correct (17.204 of 22 questions).

Panel B shows further descriptive results for the ordinal scaled variable *SALES* and the dummy variables *PERCEIVED_HIGH, GROWTH* and *QUALITY*. 33.33% of the tax advisors perceive strong competition. For a large part of the tax advisors in our survey the annual turnover (*SALES*) exceeds € 750,000 (68.81%).[66] 63.91% of the tax advisors' businesses have grown (*GROWTH* equals 1, i.e., the number of employees has increased within the last two years before the survey was conducted). About a quarter of the survey participants have a quality certification[67] (*QUALITY*).

[65] The calculation of *TAXADVISOR_DENSITY* and *FIRM_DENSITY* differs only in the numerator (tax advisors vs. tax advisors and auditors) while the denominator is identical (number of companies).

[66] Turnover values for 2016.

[67] Certification under the ISO 9000 quality standard (German: "Zertifizierung nach der Qualitätsnorm ISO 9000") or quality certificate of DStV (German:" Qualitätssiegel des DStV e.V.").

Table 4.3 Descriptive statistics of the tax advisors' businesses

Panel A	Observations	Mean	Std. dev.	Median	Min	Max
CA1	327	4.110	0.803	4	1	5
CA2	327	7.645	1.887	8	1	10
CA3	327	7.245	2.664	8	1	10
PERCEIVED	327	3.128	1.058	3	1	5
HERFINDAHL_EMPLOYEES	327	-0.040	0.036	-0.033	-0.310	-0.009
HERFINDAHL_SALES	327	-0.073	0.126	-0.032	-0.830	-0.007
TAXADVISOR_DENSITY (%)	327	0.928	0.263	0.909	0.336	1.550
FIRM_DENSITY (%)	327	1.932	0.339	1.973	0.955	2.778
COMMUNICATION	327	2.477	1.934	2	0	8
TAX_KNOWLEDGE	327	17.204	3.522	19	4	22
SHARE_PRIVATE	327	14.642	9.752	12	0	65
SHARE_SME	327	74.242	17.456	80	10	100

Panel B		N	%
PERCEIVED_HIGH	0	218	66.67
	1	109	33.33
SALES	1 (< €400,000)	39	11.93
	2 (€401,000 - 750,000)	63	19.26
	3 (€750,000 - 1.5 million)	101	30.89
	4 (> €1.5 million)	124	37.92
EMPLOYEES_HIGH	0	276	84.40
	1	51	15.60
GROWTH	0	118	36.09
	1	209	63.91
QUALITY	0	237	72.48
	1	90	27.52

The table shows descriptive statistics of the tax advisors' businesses. The variables *TAXADVISOR_DENSITY* and *FIRM_DENSITY* are displayed in percentages. Variables are defined in Table 4.2.

4.4.2 Multivariate Analysis

Our first approach is an OLS regression with *ADVOCACY* as dependent variable. We assign the independent variables in our study to different groups. The main group of interest is *COMPETITION* as it comprises the variables for (1) perceived competition (*PERCEIVED_HIGH*) and (2) objective competitive pressure (*HERFINDAHL_EMPLOYEES, HERFINDAHL_SALES, TAXADVISOR_DENSITY* and *FIRM_DENSITY*). The other groups include control variables.[68] The size of the tax advisor's business (*SIZE*) is approximated with *SALES* and *EMPLOYEES_HIGH*. *GROWTH* is a measure for the profitability of the tax advisor's business. The variables *QUALITY* and *COMMUNICATION* belong to the group *PUBLIC_IMAGE*. *QUALITY* indicates that the tax advisor has a quality certification. Facing the client with quality certification might have a marketing effect and improve the advisor's public image. As *COMMUNICATION* measures the number of digital communication paths with clients and the public, it has a marketing effect as well. *TAX_KNOWLEDGE* is a proxy for the knowledge of the survey participants. Finally, the variables *SHARE_PRIVATE* and *SHARE_SME* relate to the clientele structure of the tax advisor's business (*SHARE*). Therefore, in brief, the regression equation can be written as:

$$ADVOCACY_i = \beta_0 + \beta_1 \cdot COMPETITION_i + \beta_2 \cdot SIZE_i + \beta_3 \cdot GROWTH_i + \beta_4 \cdot PUBLIC\_IMAGE_i + \beta_5 \cdot TAX\_KNOWLEDGE_i + \beta_6 \cdot SHARE_i + \varepsilon \quad (8)$$

The results are displayed in Table 4.4. We estimated five models whereby each model includes one variable for competitive pressure. *COMPETITION* is measured by the following variables: *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5).

PERCEIVED_HIGH (Model 1) has a significant positive effect on the client advocacy level of the tax advisors. The perceived competition of the tax advisors appears to influence their behavior as client advocate. In case objective competitive pressure is approximated with concentration measures (*HERFINDAHL_EMPLOYEES* in Model 2 and *HERFINDAHL_SALES* in Model 3) the effect is significant as well.[69] Stronger competition

[68] All control variables are characteristics of the tax advisor's business. In robustness checks we control for regional factors. See Section 4.4.3 for more details.

[69] Please note that the Herfindahl indices were multiplied with (-1) before running the multivariate analysis. Therefore, an increase in *HERFINDAHL_EMPLOYEES* and *HERFINDAHL_SALES* means an increase in competition (decrease in concentration).

resulting from reduced concentration positively influences the client advocacy level. However, *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5) have no significant effect on *ADVOCACY*.[70] We conclude that *TAXADVISOR_DENSITY* and *FIRM_DENSITY* are not appropriate measures for the competitive pressure of the individual tax advisor. As these variables account only for the *number* of tax advisors or tax and accounting firms per county many factors influencing competitive pressure (such as ratios of market shares, threat of new rivals entering the market) are not captured.

Regarding the control variables, we find no evidence that the characteristics of the tax advisor's business and the clientele structure have an effect on the level of client advocacy. Only *TAX_KNOWLEDGE* significantly influences *ADVOCACY*. The effect is positive and strongly significant in all five models ($p < 0.01$). A possible explanation for this effect might be that tax advisors with very profound knowledge of tax law and recent case law are more confident to interpret ambiguous law for the benefit of their clients because they are better able to justify the legal positions they have taken.[71] Thereby, they can be more client advocate.

[70] We obtain similar results when dichotomizing *TAXADVISOR_DENSITY*. Therefore, we abstain from reporting these results here.

[71] A similar argumentation can be found in Ayres et al. (1989, 306) regarding the training and education of CPAs.

Table 4.4 Multivariate OLS regressions (dependent variable *ADVOCACY*)

VARIABLES	(1)	(2)	(3)	(4)	(5)
COMPETITION=	*PERCEIVED_ HIGH*	*HERFINDAHL_ EMPLOYEES*	*HERFINDAHL_ SALES*	*TAXADVISOR_ DENSITY*	*FIRM_ DENSITY*
COMPETITION	0.181**	1.868**	0.611**	-8.376	2.876
	(0.0818)	(0.853)	(0.250)	(15.02)	(11.39)
SALES1	0.125	0.103	0.115	0.143	0.141
	(0.141)	(0.145)	(0.145)	(0.145)	(0.145)
SALES2	-0.0199	-0.0489	-0.0526	-0.0431	-0.0405
	(0.127)	(0.124)	(0.124)	(0.126)	(0.125)
SALES3	-0.0601	-0.0952	-0.0913	-0.0747	-0.0753
	(0.0943)	(0.0927)	(0.0930)	(0.0928)	(0.0931)
EMPLOYEES_HIGH	-0.0691	-0.0632	-0.0658	-0.0602	-0.0574
	(0.0919)	(0.0927)	(0.0920)	(0.0927)	(0.0920)
GROWTH	-0.0453	-0.0596	-0.0505	-0.0591	-0.0570
	(0.0781)	(0.0775)	(0.0779)	(0.0781)	(0.0780)
QUALITY	0.0775	0.0808	0.0754	0.0954	0.0994
	(0.0853)	(0.0853)	(0.0864)	(0.0854)	(0.0857)
COMMUNICATION	0.0226	0.0178	0.0165	0.0230	0.0225
	(0.0196)	(0.0197)	(0.0196)	(0.0200)	(0.0198)
TAX_KNOWLEDGE	0.0301***	0.0308***	0.0316***	0.0307***	0.0304***
	(0.0105)	(0.0101)	(0.0102)	(0.0102)	(0.0101)
SHARE_PRIVATE	-0.00717	-0.00701	-0.00696	-0.00740*	-0.00744*
	(0.00440)	(0.00443)	(0.00446)	(0.00446)	(0.00444)
SHARE_SME	-0.00224	-0.00225	-0.00220	-0.00283	-0.00267
	(0.00244)	(0.00236)	(0.00239)	(0.00243)	(0.00244)
Constant	-0.336	-0.178	-0.229	-0.155	-0.294
	(0.300)	(0.296)	(0.294)	(0.345)	(0.385)
Observations	327	327	327	327	327
Adjusted R-squared	0.0450	0.0388	0.0420	0.0304	0.0296

The table shows the results of the OLS regressions with *ADVOCACY* as dependent variable. The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2. Robust standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Our second estimation approach consists of binary logistic regressions (Table 4.5) with *ADVOCACY_HIGH* as dependent variable. *ADVOCACY_HIGH* is a binary variable that equals one if *ADVOCACY* exceeds the median. This approach allows us to study which factors influence the probability of belonging to the group "high client advocacy level". The independent variables are the same as in the OLS regressions (Table 4.4).

The regression equation can be written as:[72]

$$Logit\big(P(ADVOCACY\_HIGH = 1)\big) = \beta_0 + \beta_1 \cdot COMPETITION_i + \beta_2 \cdot SIZE_i + \beta_3 \cdot GROWTH_i + \beta_4 \cdot PUBLIC\_IMAGE_i + \beta_5 \cdot TAX\_KNOWLEDGE_i + \beta_6 \cdot SHARE_i + \varepsilon \quad (9)$$

To make a quantitative valuation of the results, we calculate average marginal effects (AMEs), displayed in italics.[73] The AME is the average effect of increasing the independent variable by one unit, averaged over all observations. We find that the probability for high client advocacy increases by 17.8 percentage points if the perceived competition of the tax advisor is high (*PERCEIVED_HIGH* equals one, Model 1). The coefficients of *HERFINDAHL_EMPLOYEES* and *HERFINDAHL_SALES* are positive and significant at $p < 0.05$. The probability for a high client advocacy level increases by 29.76 (18.09) percentage points when going from the 1th to the 99th percentile value of *HERFINDAHL_EMPLOYEES* (*HERFINDAHL_SALES)*. Higher competition appears to positively influence the client advocacy level of the tax advisors. However, as shown already in the OLS model, *TAXADVISOR_DENSITY* and *FIRM_DENSITY* have no significant effect on *ADVOCACY_HIGH.* We conclude that the mere number of tax advisors does not affect competitive pressure as intense as the composition of the tax advisor market within a county which is reflected by concentration measures such as the Herfindahl index. The variable *PERCEIVED* is measured at company-level, while the objective competition variables are measured at industry-level. As outlined by Dedman and Lennox (2009), this is not the same (p. 222): "For example, a company that dominates its industry might perceive little threat of competition, while a competitive fringe of smaller companies in the same industry might perceive a high level of competition." Therefore, we conclude that the variable *PERCEIVED* best reflects the competitive pressure to which the individual tax advisor is exposed.

[72] See for instance Behnke (2014), p. 72.

[73] Furthermore, we calculated marginal effects at the means (MEMs). As we obtain similar results, we abstain from reporting the MEMs.

Table 4.5 Logistic regressions (dependent variable *ADVOCACY_HIGH*)

VARIABLES	(1)	*AME*	(2)	*AME*	(3)	*AME*	(4)	*AME*	(5)	*AME*
COMPETITION=	*PERCEIVED_HIGH*		*HERFINDAHL_EMPLOYEES*		*HERFINDAHL_SALES*		*TAXADVISOR_DENSITY*		*FIRM_DENSITY*	
COMPETITION	0.773***	*0.178****	7.713**	*1.800***	2.288**	*0.533***	-3.754	*-0.889*	21.38	*5.060*
	(0.253)	*(0.055)*	(3.711)	*(0.845)*	(1.065)	*(0.242)*	(43.81)	*(10.378)*	(33.99)	*(8.024)*
SALES1	0.143	*0.033*	0.0506	*0.012*	0.113	*0.026*	0.216	*0.051*	0.199	*0.047*
	(0.430)	*(0.099)*	(0.431)	*(0.100)*	(0.427)	*(0.099)*	(0.422)	*(0.100)*	(0.423)	*(0.100)*
SALES2	-0.0784	*-0.018*	-0.209	*-0.049*	-0.218	*-0.051*	-0.159	*-0.038*	-0.167	*-0.040*
	(0.364)	*(0.084)*	(0.362)	*(0.084)*	(0.362)	*(0.084)*	(0.357)	*(0.085)*	(0.357)	*(0.084)*
SALES3	-0.362	*-0.083*	-0.502*	*-0.117**	-0.480	*-0.112*	-0.413	*-0.098*	-0.418	*-0.099*
	(0.302)	*(0.069)*	(0.303)	*(0.070)*	(0.302)	*(0.069)*	(0.298)	*(0.070)*	(0.298)	*(0.070)*
EMPLOYEES_HIGH	-0.641*	*-0.148**	-0.605*	*-0.141**	-0.609*	*-0.142**	-0.573	*-0.136*	-0.579*	*-0.137**
	(0.355)	*(0.080)*	(0.353)	*(0.081)*	(0.352)	*(0.081)*	(0.351)	*(0.082)*	(0.352)	*(0.082)*
GROWTH	-0.0964	*-0.022*	-0.149	*-0.035*	-0.118	*-0.027*	-0.140	*-0.033*	-0.136	*-0.032*
	(0.249)	*(0.057)*	(0.246)	*(0.057)*	(0.246)	*(0.057)*	(0.244)	*(0.058)*	(0.244)	*(0.058)*
QUALITY	0.0734	*0.017*	0.0936	*0.022*	0.0763	*0.018*	0.159	*0.038*	0.165	*0.039*
	(0.278)	*(0.064)*	(0.275)	*(0.064)*	(0.277)	*(0.065)*	(0.273)	*(0.064)*	(0.272)	*(0.064)*
COMMUNICATION	0.00247	*0.001*	-0.0146	*-0.003*	-0.0173	*-0.004*	0.00273	*0.001*	0.00287	*0.001*
	(0.0629)	*(0.014)*	(0.0629)	*(0.015)*	(0.0629)	*(0.015)*	(0.0621)	*(0.015)*	(0.0621)	*(0.015)*
TAX_KNOWLEDGE	0.105***	*0.024****	0.104***	*0.024****	0.107***	*0.025****	0.104***	*0.025****	0.102***	*0.024****
	(0.0374)	*(0.008)*	(0.0366)	*(0.008)*	(0.0366)	*(0.008)*	(0.0366)	*(0.008)*	(0.0368)	*(0.008)*
SHARE_PRIVATE	-0.0158	*-0.004*	-0.0151	*-0.004*	-0.0152	*-0.004*	-0.0168	*-0.004*	-0.0167	*-0.004*
	(0.0139)	*(0.003)*	(0.0138)	*(0.003)*	(0.0138)	*(0.003)*	(0.0137)	*(0.003)*	(0.0137)	*(0.003)*
SHARE_SME	-0.00539	*-0.001*	-0.00549	*-0.001*	-0.00545	*-0.001*	-0.00733	*-0.002*	-0.00692	*-0.002*
	(0.00770)	*(0.002)*	(0.00767)	*(0.002)*	(0.00763)	*(0.002)*	(0.00762)	*(0.002)*	(0.00763)	*(0.002)*
Constant	-1.187		-0.463		-0.678		-0.697		-1.141	
	(0.998)		(0.984)		(0.972)		(1.068)		(1.168)	
Observations	327		327		327		327		327	

The table shows the results of the logistic regressions with the dummy variable *ADVOCACY_HIGH* as dependent variable. Also the average marginal effects (AME) are presented (italic). The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

4.4.3 Robustness Checks

We subject our results to a series of robustness tests. We included the unemployment rate[74] (see Statistische Ämter des Bundes und der Länder 2019b) and GDP per capita (see Statistische Ämter des Bundes und der Länder 2019c) as additional controls in our analyses. The reported results remain unchanged (see Appendix C). Furthermore, we included dummy variables for the federal states as additional controls. Again, all reported results remain unchanged. Finally, as robustness test regarding the factor analysis we repeated all regressions with a factor for client advocacy derived from principal component analysis (PCA).[75] We obtain similar results.

4.5 Discussion

In this study, we investigate the effect of competitive pressure on the client advocacy level of German tax advisors. We find that perceived competitive pressure increases client advocacy while the results for objective competition measures are ambiguous. Measuring tax advisor competition is difficult and complex. In prior research, competition is often estimated by determining the concentration of a market. Low concentration is thought to induce competition (e.g., Petersen and Rajan 1995, Penno and Walther 1996, Botosan and Standford 2005, Kallapur et al. 2010, Newton et al. 2013). However, this is under debate (see for instance Stiglitz 1987, Boone et al. 2012) and determining the perceived competitive pressure has been proposed to be a better proxy. While concentration measures such as the Herfindahl index are at industry-level, perceived competition is measured at company-level. Therefore, other (individual) aspects can be captured with the latter measurement (e.g., economic situation of the tax advisor's business, threat of entry of new rivals). Dedman and Lennox (2009) argue that companies within an industry might face completely different levels of competition.

To the best of our knowledge, concentration of the tax advisor market using the Herfindahl index and the perceived competitive pressure of tax advisors has not yet been studied. In our study we, additionally, used the density of tax advisors per county as proxy for competition. Most tax advisors in our sample perceive moderate competitive pressure. However, tax advisors perceiving rather high competitive pressure (about one third in our sample) show significantly higher client advocacy levels, i.e., perceived competition enhances the client advocacy level.

[74] We use the unemployment rate in relation to the entire civilian working population.
[75] The eigenvalue of the component is greater than 1.0, i.e., the Kaiser criterion (see Kaiser 1970) is fulfilled. However, PCA is primarily used for data reduction.

Additionally, low concentration of the tax advisor market in a county - measured with the Herfindahl index - is also associated with higher client advocacy level of the tax advisors in this county. However, when measuring competition with the number of tax advising firms divided by the companies per county, we find no significant effect. This might indicate that the composition of the tax advisor market is more relevant for competitive pressure than the mere number of tax advisors. However, we conclude in line with Dedman and Lennox (2009) that the perceived competition, measured at company-level, is most suitable to proxy competitive pressure as concentration measures also have limitations. We find no significant correlation between the perceived competition and the concentration measures. This confirms our presumption that objective industry-level measures do not reflect the perceived competitive pressure. Interestingly, our results suggest that tax advisors with profound tax knowledge tend to be more client advocate. A possible explanation is that better educated tax advisors might be more confident to interpret ambiguous tax law in favor of their clients and risk litigations with the fiscal authorities.

Our results have political implications. Competitive pressure has an effect on the client advocacy level of tax advisors and thus also on tax avoidance activities of taxpayers. While the objective level of competition might be influenced by the regulation of the tax advisor market, the subjective perception of competition is much more difficult to influence or control. Therefore, a focus on ethical principles should already be placed in the training to become a tax advisor. Prior research shows that ethics education improves ethical awareness and moral reasoning (Lau 2010), moral efficacy and moral courage (May et al. 2014) and influences the perceptions of the connection between organizational ethical practices and business outcomes (Luthar and Karri 2005). Tax advisors who are more aware of their ethical responsibilities might more often act as enforcer of the tax law.

4.6 APPENDIX A: Questionnaire

Translated extract from the German questionnaire

Part I: Statistical data (extract)

- At how many locations is your business represented?
- How many professionals do you have overall?
- How many professionals do you have at your location? Please specify their qualification.
- How many employees do you have in your company overall?
- How many persons did you employ at your location in the last three years?
  2014: ..... 2015: ..... 2016: .....
- Annual turnover 2016*:*
  □ up to € 400,000 □ € 401,000 to € 750,000 □ € 751,000 to € 1.5 million
  □ more than € 1.5 million
- Do you have a certification under the ISO 9000 quality standard?[76]
- Do you have a quality certificate of DStV?[77]
- With which client group do you generate most revenues?

  a) private persons

  b) small and medium-sized enterprises (SMEs)

  c) large enterprises

[76] German: "Zertifizierung nach der Qualitätsnorm ISO 9000".
[77] German: "Qualitätssiegel des DStV e.V.".

Part V: Clients (extract)

1. To what extent are the following statements true?

Please tick a box on the scale, where the value 1 means `does not apply at all' and the value 5 means 'fully applies'.

1	2	3	4	5
□	□	□	□	□

a) Through regular feedback we are aware of what each client thinks of our services.

b) The employees of our office play an important role in the communication with the clients.

c) In meetings with clients, a pleasant conversational situation is a given.

d) Our clients appreciate our informational events very much.

e) Clients are informed regularly about new services.

f) On a regular basis we gain new clients through the recommendations of existing clients.

g) Our office organizes lectures and seminars.

h) Our office publishes in specialized / business press.

i) Our office is faced with strong competition.

j) We always interpret unclear/ambiguous laws in favor of our clients.

Part VII: Scenario a) and b)

For your client A (e. K., full VAT deduction, advising since three years) you prepare the balance sheets and income tax return for the year 2015.

a) Your client bought a production facility (fixed assets) amounting to € 100,000 (plus VAT). Hereof € 60,000 are indisputable acquisition costs according to § 255 (1) HGB (German Commercial Code), § 6 (1) No. 1 EStG (German Income Tax Act). Regarding the remaining € 40,000 the legal situation is unclear. While the fiscal authorities consider the total amount as acquisition costs according to recent case law these costs could also be treated as immediate expenses.

Which advice would you give your client?

Please tick a box on the scale, where the value 1 means `in any case treating € 40,000 as acquisition costs' and the value 10 means `in any case treating € 40,000 as immediate expenses'.

1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

b) Your client A was chosen randomly to participate in a quiz show. He got prize money amounting to € 250,000. The legal situation is unclear regarding the question whether the prize is not taxable (such as a lottery win) or according to § 22 No. 3 EStG (German Income Tax Act) taxable other services.

Which advice would you give your client?

Please tick a box on the scale, where the value 1 means `in any case treating as not taxable' and the value 10 means `in any case treating as taxable'.

1	2	3	4	5	6	7	8	9	10
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

4.7 APPENDIX B: Principal factor analysis

Table 4.6 Bartlett test of sphericity

Chi-square	78.292
Degrees of freedom	3
p-value	0.000

The table shows the results of the Bartlett test of sphericity.

Table 4.7 Principal factor analysis

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	0.735	0.892	1.782	1.782
Factor2	-0.157	0.010	-0.379	1.402
Factor3	-0.166	0.000	-0.402	1.000

The table shows the results of the principal factor analysis (unrotated).

Table 4.8 Factor loadings and uniqueness

Variable	Factor1	Uniqueness
CA1	0.4968	0.7532
CA2	0.4989	0.7511
CA3	0.4893	0.7606

The table shows the factor loadings and uniqueness for *Factor1*.

4.8 APPENDIX C: Robustness analysis (additional control variables)

Table 4.9 Multivariate OLS regressions with *UNEMPLOYMENT* (dependent variable *ADVOCACY*)

VARIABLES	(1)	(2)	(3)	(4)	(5)
COMPETITION=	*PERCEIVED_ HIGH*	*HERFINDAHL_ EMPLOYEES*	*HERFINDAHL_ SALES*	*TAXADVISOR_ DENSITY*	*FIRM_ DENSITY*
COMPETITION	0.185**	1.878**	0.604**	-9.251	3.289
	(0.0822)	(0.862)	(0.250)	(15.00)	(11.48)
SALES1	0.129	0.107	0.118	0.147	0.145
	(0.141)	(0.145)	(0.146)	(0.145)	(0.145)
SALES2	-0.0183	-0.0480	-0.0518	-0.0424	-0.0398
	(0.127)	(0.124)	(0.124)	(0.126)	(0.125)
SALES3	-0.0588	-0.0945	-0.0905	-0.0738	-0.0745
	(0.0941)	(0.0925)	(0.0930)	(0.0927)	(0.0930)
EMPLOYEES_HIGH	-0.0642	-0.0591	-0.0629	-0.0560	-0.0535
	(0.0922)	(0.0931)	(0.0923)	(0.0930)	(0.0923)
GROWTH	-0.0467	-0.0609	-0.0514	-0.0607	-0.0583
	(0.0779)	(0.0773)	(0.0778)	(0.0779)	(0.0778)
QUALITY	0.0755	0.0794	0.0748	0.0937	0.0982
	(0.0852)	(0.0852)	(0.0864)	(0.0852)	(0.0856)
COMMUNICATION	0.0228	0.0179	0.0167	0.0232	0.0227
	(0.0195)	(0.0197)	(0.0196)	(0.0199)	(0.0198)
TAX_KNOWLEDGE	0.0296***	0.0304***	0.0313***	0.0303***	0.0299***
	(0.0105)	(0.0101)	(0.0102)	(0.0102)	(0.0101)
SHARE_PRIVATE	-0.00744*	-0.00723	-0.00711	-0.00763*	-0.00765*
	(0.00442)	(0.00445)	(0.00450)	(0.00448)	(0.00447)
SHARE_SME	-0.00236	-0.00235	-0.00227	-0.00295	-0.00276
	(0.00244)	(0.00236)	(0.00240)	(0.00243)	(0.00244)
UNEMPLOYMENT	-0.0100	-0.00810	-0.00540	-0.00868	-0.00791
	(0.0137)	(0.0143)	(0.0140)	(0.0141)	(0.0143)
Constant	-0.259	-0.114	-0.186	-0.0769	-0.240
	(0.318)	(0.319)	(0.316)	(0.364)	(0.395)
Observations	327	327	327	327	327
Adjusted R-squared	0.0432	0.0366	0.0393	0.0283	0.0273

The table shows the results of the OLS regressions with *ADVOCACY* as dependent variable and *UNEMPLOYMENT* as additional independent variable. The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2, Section 4.3.2. Robust standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4.10 Logistic regressions with *UNEMPLOYMENT* (dependent variable *ADVOCACY_HIGH*)

VARIABLES	(1)	(2)	(3)	(4)	(5)
COMPETITION=	*PERCEIVED_ HIGH*	*HERFINDAHL_ EMPLOYEES*	*HERFINDAHL_ SALES*	*TAXADVISOR_ DENSITY*	*FIRM_ DENSITY*
COMPETITION	0.801***	7.753**	2.218**	-9.502	24.01
	(0.255)	(3.688)	(1.060)	(44.14)	(34.15)
SALES1	0.165	0.0698	0.134	0.235	0.218
	(0.432)	(0.431)	(0.428)	(0.422)	(0.423)
SALES2	-0.0715	-0.206	-0.213	-0.159	-0.166
	(0.365)	(0.363)	(0.362)	(0.358)	(0.358)
SALES3	-0.354	-0.498	-0.474	-0.408	-0.413
	(0.303)	(0.304)	(0.303)	(0.298)	(0.299)
EMPLOYEES_HIGH	-0.614*	-0.578	-0.586*	-0.549	-0.552
	(0.355)	(0.354)	(0.353)	(0.352)	(0.352)
GROWTH	-0.109	-0.159	-0.127	-0.150	-0.145
	(0.250)	(0.247)	(0.247)	(0.245)	(0.245)
QUALITY	0.0592	0.0834	0.0691	0.147	0.156
	(0.279)	(0.276)	(0.278)	(0.274)	(0.273)
COMMUNICATION	0.00414	-0.0139	-0.0159	0.00406	0.00400
	(0.0631)	(0.0631)	(0.0630)	(0.0622)	(0.0623)
TAX_KNOWLEDGE	0.102***	0.101***	0.104***	0.101***	0.0983***
	(0.0374)	(0.0366)	(0.0366)	(0.0366)	(0.0368)
SHARE_PRIVATE	-0.0176	-0.0166	-0.0165	-0.0181	-0.0181
	(0.0140)	(0.0138)	(0.0138)	(0.0138)	(0.0138)
SHARE_SME	-0.00625	-0.00620	-0.00611	-0.00813	-0.00761
	(0.00775)	(0.00772)	(0.00768)	(0.00769)	(0.00768)
UNEMPLOYMENT	-0.0647	-0.0546	-0.0453	-0.0534	-0.0545
	(0.0487)	(0.0481)	(0.0482)	(0.0482)	(0.0481)
Constant	-0.668	-0.0212	-0.313	-0.204	-0.748
	(1.070)	(1.057)	(1.046)	(1.157)	(1.220)
Observations	327	327	327	327	327

The table shows the results of the logistic regressions with *ADVOCACY_HIGH* as dependent variable and *UNEMPLOYMENT* as additional independent variable. The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2, Section 4.3.2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4.11 Multivariate OLS regressions with *GDP_CAPITA* (dependent variable *ADVOCACY*)

VARIABLES	(1)	(2)	(3)	(4)	(5)
COMPETITION=	*PERCEIVED_HIGH*	*HERFINDAHL_EMPLOYEES*	*HERFINDAHL_SALES*	*TAXADVISOR_DENSITY*	*FIRM_DENSITY*
COMPETITION	0.186**	2.137**	0.736***	-15.42	-0.834
	(0.0823)	(0.879)	(0.260)	(16.00)	(12.19)
SALES1	0.129	0.104	0.118	0.149	0.149
	(0.140)	(0.143)	(0.143)	(0.144)	(0.145)
SALES2	-0.0168	-0.0468	-0.0509	-0.0427	-0.0366
	(0.127)	(0.124)	(0.124)	(0.126)	(0.126)
SALES3	-0.0559	-0.0929	-0.0882	-0.0692	-0.0716
	(0.0954)	(0.0934)	(0.0937)	(0.0942)	(0.0944)
EMPLOYEES_HIGH	-0.0712	-0.0666	-0.0706	-0.0656	-0.0578
	(0.0922)	(0.0933)	(0.0927)	(0.0932)	(0.0925)
GROWTH	-0.0410	-0.0545	-0.0423	-0.0550	-0.0541
	(0.0775)	(0.0769)	(0.0773)	(0.0775)	(0.0775)
QUALITY	0.0798	0.0819	0.0752	0.0963	0.101
	(0.0854)	(0.0855)	(0.0865)	(0.0855)	(0.0857)
COMMUNICATION	0.0222	0.0165	0.0147	0.0228	0.0222
	(0.0195)	(0.0197)	(0.0196)	(0.0199)	(0.0197)
TAX_KNOWLEDGE	0.0297***	0.0303***	0.0312***	0.0303***	0.0304***
	(0.0104)	(0.00996)	(0.0100)	(0.0102)	(0.0101)
SHARE_PRIVATE	-0.00709	-0.00684	-0.00673	-0.00723	-0.00742*
	(0.00441)	(0.00443)	(0.00446)	(0.00446)	(0.00444)
SHARE_SME	-0.00196	-0.00182	-0.00165	-0.00256	-0.00250
	(0.00249)	(0.00241)	(0.00246)	(0.00246)	(0.00246)
GDP_CAPITA	1.82e-06	2.44e-06	3.03e-06	2.48e-06	1.56e-06
	(2.05e-06)	(2.13e-06)	(2.17e-06)	(2.20e-06)	(2.19e-06)
Constant	-0.441	-0.306	-0.396	-0.222	-0.312
	(0.332)	(0.326)	(0.331)	(0.354)	(0.388)
Observations	327	327	327	327	327
Adjusted R-squared	0.0442	0.0395	0.0446	0.0307	0.0277

The table shows the results of the OLS regressions with *ADVOCACY* as dependent variable and *GDP_CAPITA* as additional independent variable. The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2, Section 4.3.2. Robust standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4.12 Logistic regressions with *GDP_CAPITA* (dependent variable *ADVOCACY_HIGH*)

VARIABLES	(1)	(2)	(3)	(4)	(5)
COMPETITION=	*PERCEIVED_HIGH*	*HERFINDAHL_EMPLOYEES*	*HERFINDAHL_SALES*	*TAXADVISOR_DENSITY*	*FIRM_DENSITY*
COMPETITION	0.794***	8.944**	2.715**	-22.89	11.51
	(0.254)	(3.939)	(1.107)	(48.67)	(38.30)
SALES1	0.163	0.0545	0.129	0.234	0.219
	(0.432)	(0.431)	(0.428)	(0.423)	(0.424)
SALES2	-0.0665	-0.204	-0.213	-0.157	-0.157
	(0.364)	(0.363)	(0.363)	(0.358)	(0.358)
SALES3	-0.349	-0.497	-0.470	-0.400	-0.409
	(0.303)	(0.304)	(0.303)	(0.298)	(0.299)
EMPLOYEES_HIGH	-0.651*	-0.620*	-0.630*	-0.589*	-0.581*
	(0.355)	(0.355)	(0.354)	(0.352)	(0.352)
GROWTH	-0.0797	-0.127	-0.0879	-0.128	-0.128
	(0.250)	(0.247)	(0.248)	(0.245)	(0.245)
QUALITY	0.0815	0.0973	0.0757	0.160	0.169
	(0.278)	(0.276)	(0.278)	(0.273)	(0.273)
COMMUNICATION	0.000927	-0.0197	-0.0236	0.00223	0.00185
	(0.0631)	(0.0635)	(0.0635)	(0.0622)	(0.0622)
TAX_KNOWLEDGE	0.105***	0.103***	0.106***	0.103***	0.102***
	(0.0376)	(0.0369)	(0.0369)	(0.0368)	(0.0369)
SHARE_PRIVATE	-0.0158	-0.0147	-0.0147	-0.0164	-0.0166
	(0.0139)	(0.0138)	(0.0139)	(0.0138)	(0.0138)
SHARE_SME	-0.00435	-0.00390	-0.00359	-0.00662	-0.00649
	(0.00779)	(0.00778)	(0.00775)	(0.00769)	(0.00767)
GDP_CAPITA	6.89e-06	9.23e-06	1.06e-05	6.68e-06	4.17e-06
	(6.74e-06)	(6.95e-06)	(7.07e-06)	(7.33e-06)	(7.45e-06)
Constant	-1.595	-0.944	-1.270	-0.889	-1.193
	(1.080)	(1.055)	(1.057)	(1.093)	(1.174)
Observations	327	327	327	327	327

The table shows the results of the logistic regressions with *ADVOCACY_HIGH* as dependent variable and *GDP_CAPITA* as additional independent variable. The variable *COMPETITION* is measured by *PERCEIVED_HIGH* (Model 1), *HERFINDAHL_EMPLOYEES* (Model 2), *HERFINDAHL_SALES* (Model 3), *TAXADVISOR_DENSITY* (Model 4) and *FIRM_DENSITY* (Model 5). All variables are described in Table 4.2, Section 4.3.2. Standard errors are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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