Research Article

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Effective Tax Rates and Firm Size under Turnover Tax: Evidence from a Natural Experiment on SMEs

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Abstract: Taking advantage of Romania's compulsory and unique presumptive tax system (turnover tax) for the smallest of the small- and medium-sized enterprises (SMEs), which unequivocally allows grouping the companies into two subsamples according to their tax status (the smallest of the SMEs, i.e. micro-companies for tax purposes, subject to alternative turnover tax vs larger SMEs subject to regular profit tax), the papers compute and compare three versions of firm-specific effective tax rates and brings first-time empirical evidence on the effects of turnover taxation on corporate tax burden. The results show not only that in Romania, the turnover tax is now the prevailing tax system, massively displacing the profit tax, but also it is more burdensome in terms of taxes actually paid relative to the firm size. Moreover, turnover taxation means that taxes are due irrespective of the profitability of a company, making the share of companies who paid taxes despite having losses much higher for micro-companies than for larger SMEs, which translates into higher public finance receipts, at the cost of lower tax equity. Since the corporate tax burden triggered by turnover taxation remains under the radar of even the most qualified policy reports, the results offer relevant lessons for other jurisdictions and have valuable policy implications.

Keywords: effective tax rates, small and medium-sized enterprises, micro-companies, turnover tax

JEL codes: H25, M48

1 Introduction

The matter of (taxing the) small- and medium-sized enterprises (SMEs) receives a lot of interest from policy makers, entrepreneurs, and the general public alike. The role of SMEs in the economy and society is well-known and widely acknowledged (Drucker, 2009), mainly consisting in value added and jobs creation, innovation, and capital accumulation as main drivers of economic growth and welfare. At the same time, SMEs are dealing with specific disadvantages compared to the larger companies, among which higher funding constraints, lower economies of scale, higher entry barriers, and bigger administrative costs/burden (Jousten, 2007) may justify a preferential tax treatment. The most recent pre-pandemic report on European Union (EU) SMEs documented that in 2018, there were slightly more than 25 million SMEs in the EU-28, of which 93% were micro-SMEs. SMEs accounted for 99.8% of all enterprises in the EU-28 non-financial business sector, generating 56.4% of value added and 66.6% of employment (European Commission, 2019).

Given their importance, any tax policy specifically targeted to SMEs should address their inherent characteristics in a manner that not only mitigates their comparative disadvantages but also promotes their role for the benefit of the whole society. Moreover, considering the typically high degree of concentration of the tax payments, i.e. less than 1% of taxpayers pays more than 70% of the amount of taxes, while the smallest two thirds of them contribute less than 10% of tax revenues (Jousten, 2007), governments (should) have a keen interest in designing tax policies that simultaneously reduce compliance costs/burden for SMEs, on one hand, and enforcement/administrative cost for tax authorities, on the other hand.

Against this backdrop, the issue of the so-called presumptive taxation came into action. Presumptive taxes are simplification tax measures that use different tax bases than the standard ones (i.e. taxable income), which are easier to assess, to comply with and to enforce. In other words, the tax liability is no longer assessed by direct observation of the relevant tax base, but by indirect

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methods that reasonably ascertain the tax obligation. The term presumptive means that "there is a legal presumption that the taxpayer's income is no less than the amount resulting from the application of the indirect method" (Thuronyi, 1996). Presumptive taxes may be lump-sum taxes, indicator-based taxes (number of employees, floor space, electricity consumption, number of beds, etc.), and turnover taxes (gross revenues) (OECD, 2015, pp. 94–96). A survey among SMEs for using presumptive instead of standard taxation (where the case) revealed the following motivations: simpler bookkeeping and simplified processing of tax returns, improved tax compliance, reduced tax avoidance, and a more equitable taxation (Weichenrieder, 2007). Surprisingly, none of the respondents indicated lower tax burden (lower amounts of taxes to be paid). Moreover, I did not find any source claiming that presumptive taxes could indeed mean a lower amount of taxes to be paid,[1] which is perfectly justified by the very definition of the term "presumptive" (see above). This raises the following research question: Does presumptive taxation translate into a lower tax burden compared to the standard taxation or not?

Answering this question is important for several reasons. First, looking on the past data should help every taxpayer to better justify his or her own choice between the two tax systems, because they get to know the amount of taxes to be paid under the two tax regimens (standard vs presumptive) in relation to the corresponding compliance costs. Second, even if the presumptive tax system would be compulsory to follow, knowing its actual tax burden might further shape the debates around its future reforms, which may translate into lower tax burden, if the case. Third, knowing the effective tax burden under both tax systems brings fair play on tax policy debate between governments and business executives, in the sense that the former could not claim more that really is the case (i.e. lower tax burden plus lower compliance costs, when in fact only the latter represents an indisputable advantage for targeted firms).

The corporate tax burden triggered by a different corporate tax system other than profit tax remained completely uncovered by the existing literature. My article aims at filling that void, by taking advantage of the Romania particular policy of taxing SMEs and disclosing the results to the world in an attempt to foster the always hot debate about corporate taxation in a less conventional way, albeit only for SMEs, which nevertheless represent that largest number of firms in any country. Romania has a long history of presumptive taxation for SMEs, more specifically for micro-companies that started in 2001 when a turnover tax was introduced. Only in 2013, the tax became compulsory; therefore, to properly assess the tax burden for each tax system (turnover vs profit) by unequivocally grouping the companies into the corresponding tax system subgroups, my investigation covers 2013–2019 period. During this period, the turnover tax rate varied between 1 and 3%, while the threshold for qualifying companies also varied between 65,000 EUR and 1,000,000 EUR (details in next section). In the same period (2013–19), the profit tax rate was 16%, one of the lowest in Europe. Consequently, there is a 7-year period in which qualifying SMEs (micro-companies for tax purposes) had to pay turnover tax, while the rest had to pay the standard profit tax.

It is worth noting that the turnover tax regimen applies only to incorporated SMEs, thus leaving aside sole proprietorships and partnerships. More specifically, the companies covered by this study are separately taxable entities (and not pass-through entities), which means that the company itself is a subject to tax. In my opinion, this is a crucial detail that any reader should bear in mind because it makes Romania the only EU country in which the quasi-totality of the companies does not pay profit tax, but turnover tax, and this may serve as valuable lessons for other tax jurisdictions and help policy makers in designing better corporate tax reforms.

Although presumptive taxes are quite common in the EU, in most of the cases, they refer especially to unincorporated small businesses or to certain industries or regions (OECD, 2015). Generally, the most popular tax relief for the incorporated SMEs consist in reduced profit tax rates, i.e. 50–80% of the large-sized enterprises rate (VVA & ZEW, 2015, p. 63), while all other instruments like accelerated depreciation, investment deductions, capitalization of R&D expenses, tax credits, and so on, which shape the tax base are very limited in their scope of application (VVA & ZEW, 2015, pp. 63–66).

The particular case of Romania creates an unique opportunity for straightforward comparisons between profit taxation and turnover taxation. Having turnover as a presumptive tax base has several advantages compared to other presumptive taxes, among which the most important is the direct relation with the size and performance of the company, thus avoiding the competitive distortions of entirely

1 For the purpose of this article, the distinction between tax compliance cost and effective tax burden should be clarified from the beginning. By compliance costs, I mean all costs related by complying with tax rules and obligations, similar to the definition of European Commission (2018). It does not include the actual amount of taxes paid to the tax authority. By effective tax burden, I mean the amount of taxes paid to the government, which when scaled over different denominators (profit before taxes, turnover) gives firm-specific efective tax rates (ETRs).

profit-insensitive taxes (OECD, 2015). On the other hand, turnover taxes impose a relatively high effective tax burden on companies that have lower profit margins relatively to sales (OECD, 2015). Other than that, on a larger scale, leaving SMEs aside, turnover taxes tend to come in the spotlight of international taxation reforms, since given the digitalization and the ever increasing share of intangible assets in corporate balance sheets that create greater profit shifting-opportunities by multinational companies (World Economic Forum, 2019), countries start to experiment with revenue-based taxes (World Economic Forum, 2019; Zucman, 2014), which makes profit-shifting less relevant (see for instance UK's Digital Services Tax).

My research design has several advantages. First, it exploits the compulsory character of turnover taxation for Romanian micro-companies from 2013 onwards. This casts no doubts when splitting the sample into companies subject to turnover taxation and companies subject to profit taxation. It is like a natural experiment, which is a rare opportunity in social sciences, and consequently deserves investigation. Second, the data sample includes all population of Romanian SMEs covered by Orbis database, thus providing meaningful and robust results, since the potential selection bias is kept as low as possible. Therefore, the main contribution of the article resides in the fact that it is the first that comprehensively and comparatively assesses the tax burden for all the SMEs in a country under both existing tax systems, namely, profit taxation and turnover taxation, using the micro backward-looking methodology.[2] Another contribution is that the article brings into the debate corporate presumptive taxation, which often remains undetected by even the most qualified policy reports. For instance, a recent report (European Commission, 2018) could not isolate the tax compliance costs for the Romanian SMEs presumptive (turnover) taxpayers, but merely for the profit taxpayers. Therefore, given the increased complexity of profit tax rules, the results for tax compliance costs for Romanian SMEs are likely to be overstated. The same goes with another study on SMEs effective tax burden (VVA & ZEW, 2015), which despite acknowledging the turnover taxation in Romania (p. 63), it did not take it into account when computing firm-level effective tax burden. In that respect, bringing the turnover tax burden into the spotlight and teaching the Romania's lesson to the world are another contributions of the article.

In that context, I comparatively assess the tax burden of micro-incorporated businesses and of the rest of Romanian SMEs to see if micro-enterprises consistently experience a lower tax burden than their larger SME counterparts. The rest of the article develops as follows: Section 2 presents a brief review on SME taxation, Section 3 describes data and methodology, Section 4 presents the results, Section 5 develops implications for government revenues, and Section 6 concludes this study.

2 Literature Review

The relation between taxes and firm size has a long history in tax research, dating back to the '80s. The taxes paid by companies were proxied by the firm-specific effective tax rates (ETRs), usually computed as tax expense (current or total) over pre-tax book income ratio, while their size was proxied primarily by total assets or secondarily by market value or sales (Belz et al., 2019). Using firm-specific ETRs as a proxy for taxes paid by firms allowed for scaling the companies' tax bill and thus provide comparative meaningful insights on how much taxes did companies really paid in relation to their financial outcomes.

Over time, two opposing theories emerged: the political power theory (Becker, 1983; Stigler, 1971) which states that given higher possibilities of larger firms to promote tax provisions that are in their favour, these firms pay lower taxes, and the political costs theory (Watts, 1986; Zimmerman, 1983), which states that given the increased public opinion scrutiny on larger firms, triggered by their visibility and success, these are the target of tax provisions that impact more aggressively on them, thus triggering a higher tax bill. More recently, a comprehensive literature review and a meta-regression on the relation between taxes and firm size can be found in the study by Belz et al. (2019). The results are mixed: from 56 primary studies, 20 support political cost theory, 11 support political power theory, 11 studies provide evidence for both theories, while 14 show no clear preference towards either. However, none of these studies did not target SME taxation, particularly micro-enterprises.

Although undeniably important, the literature that specifically targets SME taxation is surprisingly scarce. The importance of SMEs in general and of SME taxation in particular is advocated by countless Internet resources on SMEs, all trying to facilitate their existence and their growth. EU has an Internet portal dedicated to SMEs (https://ec.europa.eu/growth/smes_is), the US has it too (https://www.usa.gov/business), almost every developed country has it. Consequently, the research on SME taxation mostly consists in policy reports and assessments, while academic research is lagging behind.

2 For a discussion on ETRs methodologies, see Nicodeme (2007).

The most comprehensive up-to-date study for SME taxation in Europe is of VVA and ZEW (2015), commissioned by the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs of European Commission. Using European Tax Analyzer (Jacobs & Spengel, 2000), the report ranks 20 selected EU member states according to their effective tax burden for micro-, small-, and medium-sized companies. Based on a model company, the study fails to isolate the effect of taxes on Romania's micro-enterprises tax burden, mainly because it does not consider the most important tax provisions, namely, the taxation of turnover (not of profits) at a very low tax rate (1–3%), but only the regular profit tax of 16%.

Another policy study that deals with SME taxation is OECD (2015). It contains a very detailed and comprehensive tax practices for 39 countries, of which 19 are EU member states (Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain). Even though Romania is not covered, the study provides a comprehensive picture of SME taxation in the countries surveyed.

The only study that captured the specificity of Romanian SME taxation is that by Blažić (2012), who correctly identifies Romania as the single EU member state which taxes SMEs on their revenues (turnover) rather than on net income, without any further investigation on the tax burden effects.

This scarcity of research with respect to the distributional effects of special targeted tax policies on SME tax burden is not in line with the widely acclaimed interest on the importance of SMEs in today's economy and given that taxes play a key role in small businesses which anyway are less oriented to aggressive tax planning than larger companies, knowing the actual tax burden on the most vulnerable businesses entities should be a matter of interest for policy makers worldwide.

3 Data and Methodology

To comparatively assess the firm-specific ETRs, I followed the following steps:

1. Creating the sample of SMEs by collecting and filtering corporate data for all Romanian SMEs from Orbis Database.
2. Creating two subsets of companies based on their tax status: turnover tax group (presumptive/alternative tax system applied to so-called micro-companies for tax purposes, i.e. the smallest of the SMEs) vs profit tax group (standard/regular tax system applied to SMEs other than micro-companies, i.e. the remaining larger SMEs).
3. Computing firm-specific ETRs for both subsets of companies using the standard approach in the field, i.e. taxes over pre-tax book income (ETR1).
4. Computing alternative versions of firm-specific corporate ETRs for both subsets of companies as taxes over turnover ratio (ETR2) and taxes over total assets ratio (ETR3).

For the purpose of this article, corporate data were collected from Orbis Database of Bureau vanDijk. I started with the entire population of Romanian firms available on Orbis which displays data in each of the years spanning from 2011 to 2019 and for which both turnover and total assets for the last year (2019) was above 1000 EUR. I did that to eliminate companies with potential data reporting errors or with irregular and/or occasional operations. Then, I apply SME criteria in accordance with EU definition: turnover *or* balance sheet assets less than 50 *or* 43 million EUR, respectively, and no more than 250 employees. Since turnover better reflects the ups and downs of a business than total assets, I decided to apply the SME size restriction considering the threshold for turnover, which is 50 million EUR. As a consequence, 4018 firm-years were eliminated. Then, I eliminated firms with more than 250 employees (8006 firm-years). At this point, when the sample comprises only SMEs, I proceeded with the filtering procedure by eliminating those records that do not have any meaning from the economic standpoint (negative total assets and negative turnover). Since corporate tax law in Romania does not provide any loss-carryback provisions, I also eliminate records firms that display negative figures for taxes paid. Given that firms qualify for turnover tax based on the previous year turnover figure, for which there were no data, I eliminated all the records for the year 2011. Then, to keep the data only for the period in which presumptive taxation was compulsory (firms could not opt-out), I eliminated all the records for year 2012.[3] By collecting and then eliminating data for the years 2011 and 2012, I was able to keep in the sample only firms with regular activities, which were not start-ups anymore, thus having a greater homogeneity of the sample in terms of firm characteristics (i.e., age), which allows for a better isolation of tax system effects on firm-specific ETRs. Finally, I dropped the 1% extreme values for all

3 Presumptive taxation became compulsory for qualifying firms starting from 2013 onward. Until then, companies might choose between presumptive tax system (turnover tax) and standard tax system (profit tax).

Table 1: Sample size selection

Initial number of firm-years	1,980,117
(–) Firm-years with turnover over 50 mil. EUR	−4,018
(–) Firm-years with more than 250 employees	−8,006
(–) Firm-years with negative balance sheet assets	−2,924
(–) Firm-years with negative turnover	−47,028
(–) Firm-years with negative taxes	−1,353
(–) Year 2011 firms	−207,178
(–) Year2012 firms	−211,034
(–) Firm-years with 1% extreme ETR1 values	−29,598
(–) Firm-years with 1% extreme ETR2 values	−14,835
(–) Firm-years with 1% extreme ETR3 values	−14,985
(–) Firm-years with turnover missing data	−19.795
Final number of firm-years	1,419,363

three versions of ETRs. A detailed picture of data treatment is presented in Table 1.

After refining the dataset, I grouped the firms into two subsets according to their tax status. In Romania, firms are subject to a 16% profit tax (regular tax regime), with the exception of micro-companies who are subject to 1 or 3% turnover tax rate (presumptive tax regime), depending on the number of employees. A company may qualify for turnover tax if it had sales below a certain ceiling in the previous year (Table 2).

After grouping the companies into two subsets, I proceeded to firm-specific tax burden calculation.

First, I computed the firm-specific ETRs for both subgroups of companies using the standard procedure in the field as taxes over pre-tax book income ratio (ETR1). By comparing ETR1 between the two subsets of companies, I provided empirical evidence on the distributional effects of the two corporate tax systems in Romania, and I was able to empirically check if the presumptive tax system is indeed more "tax-friendly" for the smallest of Romanian companies, as compared to the rest of the SMEs. Moreover, by comparing each group' ETR1 to the statutory tax rate (STR) of 16%, I am able to assess whether there are differences between the two tax systems when compared to STR. For instance, if the average ETR1 for the regular taxpayer is above 16%, then I can reasonably argue that the profit tax has an adverse effect on business (since the companies pay taxes more than 16% of their profits as required by tax law), mainly because of tax-induced effects on taxable income (e.g. limited tax deductions). One must consider that the population of my study consists only in SMEs, which are less inclined for aggressive tax planning strategies because of the lack of the necessary resources and of the gravity of the possible sanctions (relative to their size), and therefore, I can reasonably assume that the results for ETR1 are mainly driven by tax law provisions and less by aggressive tax planning strategies.

Secondly, I computed two alternative firm-specific ETRs: ETR2 as taxes to turnover ratio and ETR3 as taxes-to-total assets ratio. By doing so, I was able to better scale the tax burden in relation to the firm size, as turnover and assets are the most widely used proxies for firm size. Scaling to the pre-tax book income only (ETR1) may not tell the full story of firm-specific tax burden for SME companies, since many of them may have negative values for pre-tax book income and yet paying taxes (because of the differences between tax rules and accounting rules).

4 Results

First, I looked into the size distribution of Romanian SMEs and then I proceeded to tax burden analysis.

If I look into the distribution of SMEs over turnover, I find that turnover below 1 million EUR was highly dominant (91.20% of total companies), while only a very small number of firms displayed turnover above 10 mil EUR (10,002 or 0.7% of total) (Table 3).

Further disentangling between companies with turnover below 1 mil EUR reveals that almost 60% of the total sample (846,244 firms) display turnover below 100,000 EUR, 25% (355,335 firms) have turnover between 100,000 and 500,000 EUR, while only 6.54% have a turnover that lies in 500,000–1,000,000 EUR interval. This means that the majority of Romanian SMEs are indeed very small companies (60% below 100,000 EUR ceiling and 91.2% below 1,000,000 EUR).

In terms of taxes paid, almost half of the total amount (47.87%) belongs to 1 mil EUR – 10 mil EUR tier, which

Table 2: Criteria for qualifying for turnover tax and the corresponding tax rate

Year	2012	2013	2014	2015	2016	2017	2018	2019
Turnover ceiling (EUR)	100,000	65,000	65,000	65,000	100,000	500,000	1,000,000	1,000,000
Tax rate (no. of employees)	3%	3%	3%	3%	3% (0) 2% (1) 1% (≥2)	3% (0) 1% (≥1)	3% (0) 1% (≥1)	3% (0) 1% (≥1)

Table 3: The distribution of companies over turnover and taxes paid by firm size

Turnover	No. of firm-years	Frequency (%)	Taxes paid (thou EUR)	Taxes paid (% of total)
Below 1 mil EUR	1,294,422	91.20	2,423,688	32.07
1 mil EUR–10 mil EUR	114,939	8.10	3,618,366	47.87
10 mil EUR–20 mil EUR	7,157	0.50	894,498	11.83
20 mil EUR–30 mil EUR	1,878	0.13	362,196	4.79
30 mil EUR–40 mil EUR	693	0.05	166,886	2.21
40 mil EUR–50 mil EUR	274	0.02	92,496	1.22
Total	1,419,363	100.00	7,558,131	100

represent 8.1% of total companies, while the most populous group of the companies (91.2%) accounts for the 32.07% of total taxes paid. The remaining of 20% of taxes are paid by the largest SMEs (with turnover between 10 mil EUR and 50 mil EUR, i.e. 0.7% of total companies). The average annual tax bill per company lies between 1,872 EUR for the smallest of the SMEs and 337,576 EUR for the largest of the SMEs.

Tax burden analysis starts with ETR1 defined as taxes over pre-tax book income ratio which is the standard approach in the field (Hanlon & Heitzman, 2010). I grouped the company into two categories, based on the previous year turnover. The first category is subject to standard profit tax, while the second is subject to alternative turnover tax. The results are presented in Table 4.

Firstly, *the number of companies subject to profit tax declined* over the course of the period because of the increasing qualifying threshold for turnover taxation. If, at the beginning of the period (2013), the distribution between the profit tax payers and turnover tax payers was almost balanced (47 to 53%), in 2019, the number of companies subject to regular tax regime was below 10% (20,817 companies or 9.88% from total). This means that currently in Romania, the overwhelming majority of SMEs is subject to turnover tax and not to profit tax. Consequently, one can reasonably argue that, in Romania, *the prevailing corporate taxation system consists in turnover tax*, which is unique in EU, and certainly something that has to be further scrutinized for subsequent learnings.

Secondly, the mean ETR1 for the larger SMEs (subject to standard profit taxation) was slightly below the STR of 16%, ranging from 14.13% in 2014 to 15.54% in 2017. The differences from 1 year to another do not reveal anything spectacular, being in line with the profit tax law provisions which did not change significantly over the period. The median is 16% in 4 of the 7 years of the period, which suggest an extremely balanced distribution between the firms who pays more than 16% and those who pays less

Table 4: ETR1 summary statistics

	2013	2014	2015	2016	2017	2018	2019	Total
SMEs other than micro-companies (profit tax group)								
No. of firms	92,075	91,226	94,493	83,631	32,944	19,571	20,817	434,757
Mean	14.27	14.13	14.23	14.69	15.54	15.30	15.04	14.49
Std. dev.	17.96	16.80	15.39	14.97	14.43	13.75	13.37	15.97
Median	16.00	16.00	16.00	16.00	15.64	15.34	15.30	16.00
Min	−134.65	−136.42	−135.82	−135.89	−127.59	−132.17	−130.07	−136.42
p5	0	0	0	0	0	0	0	0
p95	45.52	41.36	36.80	36.43	37.79	35.26	33.61	39.40
Max	144.46	144.65	144.58	143.05	144.73	137.87	142.68	144.73
Micro-companies (turnover tax group)								
No. of firms	104,969	106,301	103,921	119,279	172,209	188,057	189,870	984,606
Mean	6.91	7.71	9.29	7.97	8.69	9.03	8.80	8.46
Std. dev.	32.36	32.14	31.06	26.21	24.83	24.71	23.68	27.23
Median	4.81	5.48	6.93	4.86	4.77	4.66	4.63	4.97
Min	−136.51	−136.56	−136.56	−136.51	−136.56	−136.44	−136.47	−136.56
p5	−40.26	−39.35	−36.41	−24.46	−19.91	−18.62	−16.93	−26.24
p95	71.13	70.98	69.23	57.12	57.13	58.50	55.08	61.57
Max	144.44	144.64	144.66	144.72	144.61	144.64	144.70	144.72

Table 5: ETR2 summary statistics

	2013	2014	2015	2016	2017	2018	2019	Total
SMEs other than micro-companies (profit tax group)								
No. of firms	92,075	91,226	94,493	83,631	32,944	19,571	20,817	434,757
Mean	1.03	1.08	1.25	1.28	1.16	1.09	1.08	1.15
Std. dev.	1.47	1.51	1.58	1.56	1.33	1.27	1.24	1.50
Median	0.38	0.45	0.64	0.72	0.74	0.69	0.71	0.58
Min	0	0	0	0	0	0	0	0
p5	0	0	0	0	0	0	0	0
p95	4.23	4.43	4.78	4.77	4.01	3.76	3.69	4.45
Max	7.92	7.91	7.92	7.91	7.91	7.92	7.91	7.92
Micro-companies (turnover tax group)								
No. of firms	104,969	106,301	103,921	119,279	172,209	188,057	189,870	984,606
Mean	2.72	2.79	2.82	1.95	1.47	1.38	1.40	1.92
Std. dev.	0.89	0.89	0.85	1.02	0.97	0.86	0.90	1.10
Median	2.93	3.00	3.00	2.00	1.00	1.00	1.00	1.59
Min	0	0	0	0	0	0	0	0
p5	0.21	0.09	0.38	0.62	0.38	0.57	0.51	0.47
p95	3.50	3.18	3.17	3.02	3.00	3.00	3.00	3.04
Max	7.90	7.91	7.91	7.92	7.91	7.91	7.87	7.92

than 16%. Consequently, there is *no first-hand evidence than Romanian SMEs profit taxpayers are engaged in aggressive tax planning strategies* meant to lower their ETR well below the STR.[4]

Thirdly, Table 4 shows that micro-companies have a lower ETR1 than larger SMEs. Their tax bill is well below the STR of 16%, being around 7–9%. The median is much lower than the mean (skewed to the right), suggesting that at least half of the companies firms paid below the average taxes. But, Table 4 also reveals that the distribution of ETR1 has more negative values in micro-companies group, which can be explained only by companies who pay taxes in spite of making losses.[5] Negative ETR1s make the mean for ETR1 for the entire period goes down, suggesting a lower tax burden for micro-companies. However, since loss-carryback is not available in Romania, negative ETR1s are rather the expression of a higher tax burden (loss-making companies who still pay taxes[6]), and therefore, that conclusion may be wrong. I addressed this issue by investigating alternative measures of firm-specific ETRs.

Consequently, I further computed an alternative version of firm-specific ETR, namely, ETR2 defined as taxes to turnover ratio. This construct provides a better image of taxes paid in relation to firm size, and since this is a positive number in all scenarios (both numerator and denominator are always positive), it allows for a much informative scaling of taxes paid and for a more straightforward analysis of the results, thus avoiding tricky interpretation of ETR1 induced by negative values.

The numbers from Table 5 show that ETR2 for micro-companies is higher than for the larger SMEs. If at the beginning of the period, the difference was more than double, the reduction of the turnover tax rate from 3 to 1% from 2016 onwards (Table 2) determined a drop in that difference, providing more tax equity among the two categories of taxpayers. Nevertheless, the ETR2 still remained higher for the smallest of the SMEs (1.40% vs 1.08% in 2019), which is in total opposition with the findings on ETR1, where the tax burden was lower for micro-companies (8.46% vs 14.49% over the entire period). The distribution of ETR1 for SMEs other than micro-companies (Table 4) suggests that the reason for such a twist of results may reside in the ETR1 design, which is built around a

4 Turnover taxpayers (micro-companies) are even less inclined to aggressive tax planning strategies, since the tax base (turnover) does not imply deductions and the tax rate is extremely low (1%). In general, SMEs are less inclined to aggressive tax avoidance practices since the associated costs and risks are higher relative to their size.

5 I have already eliminated companies with negative taxes (numerator) because there is no loss-carryback mechanism in Romania. Negative taxes at numerator were more probably the results of data errors. At the level of the overall sample, the number of records eliminated is very small (1353).

6 Under profit tax system, loss-making companies still pay taxes only if taxable income is positive, as a result of nondeductible items. But this is rather a rare scenario, compared to the turnover tax system where loss-making companies pay taxes anyway, irrespective of the taxable income being positive or not.

Table 6: Loss-making firms by category of taxpayer

	SMEs other than micro-companies (profit tax group)		Micro-companies (turnover tax group)	
		% of total		% of total
No. of firms with losses, of which:	75,716	17.41	294,878	29.95
No. of firms with losses who paid taxes	11,462	2.63	276,864	28.12
Total no. of firms	434,757	100	984,606	100

denominator (profit before taxes) that may take negative values. In contrast to ETR2, ETR1 may also display negative values, when companies paid taxes despite its losses. For profit taxpayers, this is possible when the non-deductible items render the taxable income positive, and hence, profit tax liabilities appear. While negative ETR1s have no relevant interpretation, they reduce the mean ETR1 over the total sample, creating a false image of a lower average tax burden over the total sample. Having a loss-making company paying taxes means in fact higher tax burden rather than lower tax burden, and this is reflected differently by ETR1 compared to ETR2. The mean over the total sample for ETR1 is going down, falsely suggesting a lower tax burden, while the mean for ETR2 is not going down simply because there are no negative ETR2 values in the sample. In other words, by design, ETR1 underestimates the true firm-specific true tax burden. Against this backdrop, it is important to see how many companies pay taxes even though they were in a loss position at the end of the year (Table 6).

The difference between the two subgroups is significant. Not only that loss-making firms are far less in profit tax subgroup than in turnover tax subgroup, in both absolute (75,716 vs 294,878) and relative terms (17.41% vs 29.95%), but only 2.63% of the former paid taxes despite having losses as opposed to 28.12% of the latter. Having such a large share of loss-making micro-companies that still paid taxes casts serious doubts about the equity of the presumptive tax system, and this certainly deserves more consideration from policy makers.

The summary statistics of ETR1 and ETR2 without loss-making firms are presented in Table 7.

When I considered only profitable firms, micro-companies bears on average a higher tax burden than their larger counterparts, in terms of both ETR1 and ETR2. Even if the difference in ETR1 mean between the two groups is rather small, the data for micro-companies show distinct milestones that shaped the ETR1 in accordance with the tax law amendments (Table 2). Therefore, *for the profit-making micro-firms (i.e. from 2013 to 2015, micro-companies were those with turnover less than 65,000 EUR), the turnover tax brought a significantly higher tax burden*, well in excess of the benchmark STR of 16%. This means that *in the first 3 years of the compulsory presumptive tax system, the micro-companies were excessively taxed compared to their larger peers taxed under the profit tax, the main cause being the*

Table 7: Summary statistics for ETR1 and ETR2 for profit-making firms

	2013	2014	2015	2016	2017	2018	2019	Total
SMEs other than micro-companies (profit tax group)								
No. of firms	69,945	71,976	79,475	71,726	29,426	17,676	18,817	**359,041**
ETR1 mean	19.62	18.60	17.44	17.61	17.79	17.28	16.99	**18.13**
ETR1 std. dev.	16.28	15.08	13.80	13.27	12.96	12.31	11.86	14.28
ETR1 median	16.40	16.23	16.09	16.07	16.00	15.83	15.81	**16.12**
ETR2 mean	1.30	1.34	1.46	1.47	1.28	1.19	1.19	**1.36**
ETR2 std. dev.	1.56	1.58	1.63	1.59	1.34	1.28	1.26	1.54
ETR2 median	0.69	0.74	0.89	0.93	0.86	0.79	0.80	**0.82**
Micro-companies (turnover tax group)								
No. of firms	60,105	64,878	70,817	83,563	126,096	140,629	143,640	**689,728**
ETR1 mean	24.71	23.82	22.41	17.52	16.68	16.53	15.68	**18.50**
ETR1 std. dev.	26.24	25.75	24.30	21.73	21.13	21.25	20.34	22.60
ETR1 median	14.85	14.29	13.63	8.96	8.25	7.77	7.51	**9.52**
ETR2 mean	2.81	2.84	2.87	2.03	1.51	1.40	1.42	**1.91**
ETR2 std. dev.	0.89	0.87	0.82	1.03	0.99	0.87	0.90	1.10
ETR2 median	3.00	3.00	3.00	2.00	1.00	1.00	1.00	**1.38**

Table 8: ETR3 summary statistics

	2013	2014	2015	2016	2017	2018	2019	Total
SMEs other than micro-companies (profit tax group)								
No. of firms	92,075	91,226	94,493	83,631	32,944	19,571	20,817	434,757
Mean	1.57	1.68	2.04	2.28	2.05	1.89	1.91	1.90
Std. dev.	2.50	2.57	2.82	3.09	2.50	2.28	2.27	2.70
Median	0.54	0.65	0.99	1.15	1.25	1.17	1.20	0.89
Min	0	0	0	0	0	0	0	0
Max	32.21	32.75	32.44	32.77	26.97	31.90	25.56	32.77
Micro-companies (turnover tax group)								
No. of firms	104,969	106,301	103,921	119,279	172,209	188,057	189,870	984,606
Mean	4.31	4.30	4.40	3.24	2.48	2.30	2.25	3.09
Std. dev.	5.10	5.22	5.27	4.24	3.42	3.15	3.06	4.17
Median	2.62	2.54	2.63	1.83	1.43	1.35	1.33	1.69
Min	0	0	0	0	0	0	0	0
Max	32.92	32.94	32.93	32.92	32.91	32.93	32.93	32.94

turnover tax rate of 3%. From 2016 onwards, the turnover tax rate dropped from 3 to 1%, and consequently, ETR1 for micro-companies dropped to around 16%, marginally lower than ETR1 for larger SMEs. With regard to ETR2, the changes in summary statistics for profit-making companies are not so radical given that the denominator, e.g. turnover, could not have negative values. Nevertheless, a slight increase in the mean of ETR2 for the profit tax group can be detected when compared to data from Table 5 (expected since only profit-making companies were taken into account).

Basically, from the total number of 984,606 micro-companies, 276,864 (28.12%) paid taxes to the government in spite of having losses, 18,014 (1.83%) paid no taxes, while for the remaining 689,728 firms (70.05%), the mean ETR1 was 18.50%, which is higher than both the ETR1 for profit tax group (18.13%)[7] and the STR (16%). Therefore, *presumptive taxation did not translate into a lower tax burden for profit-making micro-companies, irrespective of the measure of tax burden used (ETR1 or ETR2).* This finding, which, to my best knowledge, is the first of its kind, may and should raise awareness among policy makers and business executives from Romania.

As robustness check, I also looked upon a third version of ETR, namely, ETR3, computed in a similar manner as ETR2, the only difference being that it scales the taxes over total assets, instead of turnover. Generally, balance sheet assets display a lower year-to-year variation compared to turnover, especially in the case of SMEs, which often face business disruptions that may affect their turnover (i.e. losing an important customer). Thus, ETR3 allows for a better isolation of the tax burden in relation to the size of the company, without the influence of temporary breaks in business. The summary statistics for ETR3 are disclosed in Table 8.

The results for ETR3 are in line with those for ETR2. Once again, the tax burden was higher for micro-companies compared to their larger peers. Looking only at profit-making firms, the results did not change much (slight increase in the mean for the profit tax group, as expected).

When considering practices of OECD countries (Weichenrieder, 2007) for small companies, the cutoff threshold for qualifying as a micro company for tax purposes is high in Romania, especially in the last years of the period. From a policy perspective, further disentangling the tax burden distribution of small companies over different bands of turnover may be informative for setting lower cut-off points for presumptive taxation. On the basis of OECD practices and tax reforms undertaken so far in Romania, I choose four different bands of turnover: (1) up to 100,000 EUR; (2) 100,000–200,000 EUR; (3) 200,000–500,000 EUR; and (4) 500,000 EUR – 1,000,000 EUR, for which I computed the corresponding ETRs. The results reported in the Table A1 reveal that micro-companies pay lower taxes in relation to their turnover (ETR2) and assets (ETR3) as their turnover increases, while for ETR1, the picture is (again) not conclusive. The highest relative differences in ETRs are between the first and the second band, while the lowest differences are between the third and the fourth band. This suggests that setting a cut-off point of 100,000 EUR for

7 Although not reported, the results of the independent *t*-test revealed significant differences between the means of the two groups (turnover tax vs. profit tax), $t = -10.3583$, $p = 0.000$. Moreover, I run *t*-tests for all versions of ETRs and for all restrictions imposed (only profit-making firms), and they all revealed significant differences between the means of the two groups, $p = 0.000$.

Table 9: No. of firms and taxes paid *(thou EUR)* by firm tax status

	2013	2014	2015	2016	2017	2018	2019	Total
SMEs other than micro-companies (profit tax group)								
No. of firms total:	92,075	91,226	94,493	83,631	32,944	19,571	20,817	434,757
of which no. of loss-making firms	*22,130*	*19,250*	*15,018*	*11,905*	*3,518*	*1,895*	*2,000*	*75,716*
Taxes paid total:	761620.92	872409.87	1058159.48	1091582.78	913165.31	830835.24	909146.66	6436920.25
of which taxes paid by loss-making firms	*9701.57*	*9280.31*	*8856.19*	*8059.99*	*8874.12*	*4895.26*	*8658.39*	*58325.84*
Micro-companies (turnover tax group)								
No. of firms total:	104,969	106,301	103,921	119,279	172,209	188,057	189,870	984,606
of which no. of loss-making firms	*44,864*	*41,423*	*33,104*	*35,716*	*46,113*	*47,428*	*46,230*	*294,878*
Taxes paid total	71836.95	78397.51	85064.24	75669.00	199884.13	306908.99	303449.11	1121209.93
of which taxes paid by loss-making firms	*20928.89*	*20361.21*	*16978.63*	*11988.35*	*23689.98*	*32591.33*	*29216.12*	*155754.51*

presumptive taxation for micro-companies responds better to tax burden distribution effects.[8]

Furthermore, since from 2016 onwards, micro-companies faced different tax rates (Table 2), I split the sample into two subgroups according to their employment status, one group that contains micro-companies with no employees, and the other one than contains at least one employee. The results are also reported in the Table A1. While ETR1 does not reveal any significant differences between the two groups, ETR2 is significantly lower for micro-companies with at least one employee. Hiring staff triggers labour costs which include social security contributions. This makes profits go down and, consequently, ETR1 may go up. ETR1 year-to-year variation is higher for the employee subgroup compared to the no employee subgroup, especially for the smallest micro-companies. Nevertheless, micro-companies with at least one employee enjoy lower tax-to-turnover ratio because of a lower STR (1% instead of 3%).

All in all, detailed corporate financial data provided empirical evidence that, in Romania, *the smallest group of SMEs, micro-companies, paid higher taxes than the larger SMEs relative to their size*. The results hold irrespective of the sample selection for ETR2 and ETR3, while for ETR1, they hold only for profit-making firms. The reason is that, given its design, ETR1 may display negative values, which does not mean a lower tax burden over the total sample, but actually a higher one, thus failing to accurately reflect the true corporate tax burden. *Moreover, within the micro-companies group, the smallest ones (band 1 with turnover up to 100, 000 EUR) pay the highest taxes in relation to their turnover or total assets.* However, the difference between turnover bands is higher for the no employees' group compared to employees' group, and the difference between employee subgroups decline with turnover increase. This may call for lower tax rates for the smallest of the micro-companies, irrespective of their employment status.

5 Implications for Government Revenues

Seeing micro-companies facing a higher tax burden than their larger SME counterparts comes as a bit as a surprise. As it is always the case of taxes, the story has two parties involved, the taxpayers and the government, who may have opposing views/interests on that matter. Therefore, I further investigated the global amount of taxes paid by the two groups of companies and look upon the results from the government perspective, which supposedly has a keen interest in maximizing tax receipts. If under the profit tax system, loss-making firms pay taxes only if they reported positive taxable income, under the turnover tax, companies in loss position pay taxes irrespective of their taxable income. Therefore, one can reasonably argue that taxes collected from loss-making companies under turnover taxation can be seen as an addition to the government receipts, which otherwise would had not collected taxes at all[9] (Table 9).

The total amount of taxes paid by the larger SMEs is almost six times higher than that of micro-companies (6,436,920 thou EUR vs 1,121,209 thou EUR), mainly because larger firms tend to have higher profitability given their higher economies of scale or lower entry barriers (Lee,

8 The 2024 tax reform stipulates two tax rates for turnover taxation: 1% for turnover up to 60,000 EUR and 3% above. The upper ceiling for turnover taxation is 500,000 EUR (from 2023).

9 Moreover, under profit taxation, loss-making firms qualify for loss-carryforward in the subsequent next 7 years, which further diminish public revenues in the following years.

2009). However, when one looks only at the loss-making firms the situation is completely opposite (58,325 thou EUR vs 155,754 thou EUR or almost three times lower). These numbers suggest that, for the government, presumptive taxes may raise more money from loss-making companies than regular taxes do, which casts serious doubts about the equity of such taxes.

All in all, I could not find compelling evidence that the compulsory system of turnover tax did translate into a lower firm-specific tax burden for the targeted firms, i.e. micro-companies. *All versions of ETR constructs show higher values for the micro-companies than for their larger peers*, with important caveats for ETR1, which if ignored could lead to false conclusions.

6 Conclusions

Taking advantage of the compulsory turnover taxation for the smallest of the companies (i.e. the so-called micro-companies for tax purposes), the article comparatively assessed the firm-specific tax burden for such firms in relation to the remaining larger SMEs, subjects to standard profit tax. The sample included all Romanian-incorporated SMEs available in Orbis database; therefore, the analysis is highly representative of the entire population of Romanian SMEs.

Going beyond the ETR standard approach (taxes over profit before taxes ratio – ETR1) and scaling taxes over turnover (ETR2) and balance sheet total assets (ETR3), I was able not only to overcome the inherent flaws of the ETR1 construct (i.e., the existence of a negative denominator in the case of loss-making firms, which significantly drive the results) but also to provide a more robust analysis of the tax burden in relation to the companies' size. The main conclusions are summarized as follows.

First, the number of companies subject to presumptive taxation continuously increased over the period (81% increase) as a result of raising the qualifying threshold. Consequently, the number of companies subject to profit decreased significantly (−77.4%). This means that in Romania the presumptive taxation ceased to be marginal and massively displaced the standard taxation system as the prevailing tax system, making Romania the only country in EU in which more than 90% of the SME pay turnover tax instead of the profit tax.

Second, the firm-specific tax burden is higher for micro-companies than for their larger SMEs peers, as the numbers for all versions of ETRs show. By design, ETR1 allows for negative values that make the mean for the entire sample go down, without really being the case. Since there are no firms with negative taxes (numerator) in the sample, negative values of ETR1 could only stem from negative denominators (negative profit before taxes, i.e. losses). Having loss-making firms paying taxes could not be, in any scenario, interpreted as having a diminishing effect on the corporate tax burden; therefore, by eliminating loss-making firms, I have been able to produce more reliable results.

Third, the ETR1 results for the profit tax group show that the mean over the total sample (considering loss-making firms) is slight below the STR of 16%, i.e. 14.49%, while the mean for the sample containing only profitable firms is above 16%, i.e. 18.13%. This suggests that Romanian larger SMEs did not massively engage in aggressive tax planning to lower their tax burden well below the STR benchmark of 16%.

Fourth, the number of loss-making firms that actually paid taxes is much higher for micro-companies, subjects to presumptive taxation than for larger SMEs, subjects to regular taxation (276,864 companies or 28.12% of total vs 11,462 companies or 2.63% of total). In relation to this, the government receipts from loss-making firms are higher for micro-companies than for the rest of the SMEs (155,754.51 mil EUR vs 58,325.84 mil EUR). This adds to the concerns about the distributional equity of the presumptive corporate taxation of Romanian SMEs.

Fifth, even within the micro-companies group subject to turnover taxation, there are differences in tax burden, the smallest companies (turnover up to 100,000 EUR) paying highest taxes in relation to their size, proxied either by turnover or by total assets. To level the field, different turnover tax rates may be called upon, with lower rates for the smallest of the micro-companies, irrespective of their employment status. This brings progressive taxation into discussion, which is a sensitive topic in Romania, given its flat tax experience.

The results (should) have important (tax) policy implications.

First, both business managers/owners and policy makers should be aware that the main advantages of the presumptive tax system, namely lower compliance costs (for companies) and lower administrative costs (for tax authorities) means a higher corporate tax burden, which translates into higher public finance receipts for the government, especially from the loss-making firms, at least for Romania scenario. Therefore, if from the business perspective, there is an offsetting effect (higher taxes vs lower compliance costs), from the government perspective, there is a cumulative effect (higher receipts and lower administrative costs). That is something that should be acknowledged of when it comes to public debates about tax reforms. One way to tackle this issue is to allow companies targeted by presumptive taxation to opt-out from such tax regimen in favour of the regular tax system, namely, profit taxation.

Second, turnover taxation triggers limited opportunities of using tax provisions for long-term corporate growth (loss-offset provisions, accelerated depreciation, R&D tax deductions/credits, interest deduction etc.) which may add to the corporate tax burden. If governments fail to set the optimal presumptive tax rate and the corresponding qualifying threshold for turnover taxation, there is an increasing risk of having a corporate tax policy that does not promote corporate growth not only because of the absence of tax stimulus but also by means of lock-in effect (companies do not want to grow above the threshold that qualifies them for the presumptive taxes) or split-out effect (companies that split their business in order to remain within the threshold). A better way to tackle all these issues without the distorting effects of a presumptive tax system consists of a tax credit (lump sum) for compliance costs incurred by all taxpayers who fill a profit tax return. But this comes, of course, at a cost for tax authorities; therefore, governments may be reluctant to bring this topic into discussion, especially when presumptive taxes could bring tax money even from the loss-making firms.

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References

Becker, G. (1983, August). A theory of competition among pressure groups for political influence. *Quarterly Journal of Economics*, *3*, 371–400. doi: 10.2307/1886017.

Belz, T., von Hagen, D., & Steffens, C. (2019). Taxes and firm size: Political cost or political power. *Journal of Accounting Literature*, *42*, 1–28. doi: 10.1016/J.ACCLIT.2018.12.001.

Blažić, H. (2012). Preferential corporate income tax treatment for SMEs: An international comparison. In L. Vidučić (Eds.), *Mala i srednja poduzeća: Financijska politika i ekonomsko-financijski okvir podrške* (pp. 13–32). Split: Sveučilište u Splitu, Ekonomski fakultet.

Drucker, P. (2009). *Innovation and entrepreneurship*. New York: Harper Collins.

European Commission. (2018). *Study on tax compliance costs for SMEs*. Luxembourg: European Commission. doi: 10.2826/02329.

European Commission. (2019). *Annual report of European SMEs 2018/2019*. Luxembourg: European Commission. https://ec.europa.eu/growth/smes/sme-strategy/performance-review_en.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, *50*(2), 127–178. doi: 10.1016/j.jacceco.2010.09.002.

Jacobs, O. H., & Spengel, C. (2000). Measurement and development of the effective tax burden of companies: An overview and intrenational comparisons. *Intertax*, *28*(10), 334–352.

Jousten, A. (2007). SMEs and the tax system: What is so different about them? *CESifo Forum*, *2*, 14–20.

Lee, J. (2009). Does size matter in firm performance? Evidence from US public firms. *International Journal of the Economics of Business*, *16*(2), 189–203.

Nicodeme, G. (2007). Comparing effective tax rates. *Frontiers in Finance and Economics*, *4*(2), 102–131.

OECD. (2015). *Taxation of SMEs in OECD and G20 countries*. OECD Tax Policy Studies, No. 23. Paris: OECD Publishing. doi: 10.1787/9789264243507-en.

Stigler, G. J. (1971). The theory of economic regulation source. *The Bell Journal of Economics and Management Science*, *2*(1), 3–21. doi: 10.2307/3003160.

Thuronyi, V. (1996). *Tax law design and drafting* (Vol. 1). Washington D.C.: International Monetary Fund.

VVA & ZEW. (2015). *SME taxation in Europe*. Brussels: European Commission. doi: 10.2769/027673.

Watts, R. L. (1986). *Positive accounting theory*. Edgewood Cliffs, NJ: Prentice Hall.

Weichenrieder, A. J. (2007). *Survey on the Taxation of Small and Medium-Sized Enterprises*. OECD.

World Economic Forum. (2019). *The Global Competitiveness Report 2019*. Geneva: World Economic Forum. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

Zimmerman, J. (1983). Taxes and firm size. *Journal of Accounting and Economics*, *5*, 119–149. doi: 10.1016/0165-4101(83)90008-3.

Zucman, G. (2014). Taxing across borders: Tracking personal wealth and corporate profits. *Journal of Economic Perspectives*, *28*(4), 121–148.

Appendix

Table A1: Number of firms, ETRs, and taxes paid (thou EUR) by turnover and number of employees (profit-making micro-companies*)

		2016			**2017**			**2018**			**2019**		
Turnover (EUR)	Employees	0	min 1	**Total**	0	min 1	**Total**	0	min 1	**Total**	0	min 1	**Total**
(1) up to 100,000	N	19,044	64,519	**83,563**	20,842	62,237	**83,079**	23,879	59,522	**83,401**	26,921	57,856	**84,777**
	ETR1	16.45	17.83	**17.52**	15.66	15.32	**15.41**	15.31	14.69	**14.87**	15.22	14.43	**14.68**
	ETR2	2.79	1.81	**2.03**	2.72	1.40	**1.73**	2.77	1.25	**1.69**	2.79	1.24	**1.73**
	ETR3	3.34	3.36	**3.36**	3.07	2.55	**2.68**	3.00	2.31	**2.51**	2.91	2.36	**2.54**
	Taxes	10,902	52,779	**63,681**	11,292	39,935	**51,227**	13,490	38,707	**52,197**	15,925	37,155	**53,080**
(2) 100,000–200,000	N		**		1,057	18,444	**19,501**	955	19,341	**20,296**	992	19,414	**20,406**
	ETR1				19.37	19.69	**19.67**	18.23	18.93	**18.90**	17.79	17.65	**17.66**
	ETR2				1.69	1.08	**1.11**	1.75	0.99	**1.02**	1.85	0.98	**1.02**
	ETR3				2.47	2.16	**2.18**	2.12	1.96	**1.97**	2.25	1.95	**1.96**
	Taxes				2,616	33,329	**35,946**	2,312	33,118	**35,430**	2,476	32,173	**34,650**
(3) 200,000–500,000	N		**		890	22,626	**23,516**	753	23,460	**24,213**	731	24,011	**24,742**
	ETR1				19.47	18.65	**18.68**	19.05	18.74	**18.75**	16.71	16.99	**16.98**
	ETR2				1.31	1.03	**1.04**	1.32	0.95	**0.96**	1.43	0.93	**0.94**
	ETR3				2.09	2.06	**2.06**	1.92	1.88	**1.88**	2.10	1.83	**1.84**
	Taxes				3,747	85,274	**89,021**	3,286	83,446	**86,733**	3,546	81,666	**85,211**
(4) 500,000–1,000,000	N		**			**		359	12,360	**12,719**	328	13,387	**13,715**
	ETR1							18.21	19.46	**19.43**	15.20	16.62	**16.59**
	ETR2							1.18	0.95	**0.96**	1.22	0.92	**0.93**
	ETR3							2.10	1.92	**1.92**	1.81	1.79	**1.79**
	Taxes							2,999	96,960	**99,959**	2,718	98,574	**101,293**
Total	N	19,044	64,519	**83,563**	22,789	103,307	**126,096**	25,946	114,683	**140,629**	28,972	114,668	**143,640**
	ETR1	16.45	17.83	**17.52**	15.98	16.83	**16.68**	15.57	16.75	**16.53**	15.35	15.77	**15.68**
	ETR2	2.79	1.81	**2.03**	2.62	1.26	**1.51**	2.67	1.11	**1.40**	2.71	1.09	**1.42**
	ETR3	3.34	3.36	**3.36**	3.00	2.38	**2.49**	2.92	2.12	**2.27**	2.85	2.11	**2.26**
	Taxes	10,902	52,779	**63,681**	17,656	158,538	**176,194**	22,087	252,230	**274,318**	24,666	249,568	**274,233**

*Since the results for ETR1 are strongly driven by loss-making firms, I report only the results for profit-making firms. **Empty cells are the consequence of the qualifying threshold for micro-companies for tax purposes in that respective year (see Table 2).