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Firms' willingness to pay local business tax: The impact of trust and public goods

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**Firms' Willingness to Pay Local Business Tax –
The Impact of Trust and Public Goods**

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Firms' Willingness to Pay Local Business Tax – The Impact of Trust and Public Goods*

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Abstract

This study analyzes whether and to what extent the provision of public goods and firms' trust in local governments' handling of local business tax revenues are associated with firms' willingness to pay local business tax. Using survey data on German small- and medium-sized firms, we find that the average perceived provision of public goods is not associated with the willingness to pay local business tax. Separating public goods into private- and business-related public goods, we find that the perception of public goods related to the private sphere of firms' decision-makers is associated with an increase in firms' willingness to pay local business tax by about 10%. However, public goods related to the business sphere show no similar association. Contradictory to the perceived provision of public goods, we find surprisingly no association between firms' willingness to pay local business tax and the actual provision of public goods. Trust in local governments' handling of tax revenue increases firms' willingness to pay local business tax significantly, with an effect size of about twice as large as for the perception of provided private-related public goods. These findings indicate that the handling of tax revenues exerts a more pronounced influence on firms' willingness to pay than the actual utilization of these revenues. Documenting tax revenue implications, we further show that the average willingness to pay local business tax within a local government is associated with a significant decrease in tax avoidance by about 10%. Our results inform local governments about how the provision of public goods and the building of trust can sustainably contribute to firms' willingness to pay local business tax. Thus, our results contribute to the understanding of how taxes can be efficiently collected and effectively used.

Keywords: Tax Perception, Business Taxation, Tax Avoidance, Public Goods, Tax Revenue

JEL classification: H25, H26, H41, H71, D91

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1 INTRODUCTION

"[W]hile the government taketh away, it also giveth back (...)."
- Cowell and Gordon (1988)

This study examines the extent to which the provision of public goods and firms' trust in local governments' handling of local business tax revenues are related to firms' willingness to pay (WTP) local business taxes. We define firms' WTP local business tax as the difference between the *perceived appropriate local business tax rate* of firm decision-makers, obtained from a survey, and the *actual local business tax rate*, obtained from administrative data. WTP local taxes is important from the perspective of firms and local governments. On the one hand, taxes can influence firms' location and investment decisions (Barrios et al., 2012; Dobbins and Jacob, 2016). Since local business taxes are the main financial resources of local administrative units, such as federal states, provinces, and municipalities, firms' WTP can, on the other hand, impact policy initiatives of regulators (Beeri et al., 2022; OECD, 2019). In general, local taxes make up an important share of tax revenue in many countries (Brühlhart et al., 2024) and local governments often rely heavily on local business tax revenues. At the same time, they have the possibility to set the tax rate at their discretion. Therefore, the question arises as to how firms' WTP local business taxes can be sustained (or even increased) to generate stable (higher) revenues for local governments. As local governments are also responsible for tax revenue spending, we investigate how firms' WTP local business tax is influenced by the provision of locally provided public goods. Further, we examine if firms' trust in local governments' handling of business tax revenues is associated with firms' WTP local business tax. By distinguishing between perceived public goods, the utilization of tax revenues, and trust, the handling of tax revenue, we are able to separate these two effects. To demonstrate the tax revenue implications of our findings, we show that firms' WTP local business tax is significantly associated with the extent of tax avoidance on a local level.

A large strand of analytical and empirical tax research shows that the provision of public goods and trust in authorities can influence the tax-paying behavior of individuals (Spicer and Lundstedt, 1976; Cowell and Gordon, 1988; Alm, Jackson, and McKee, 1992a; Kirchler et al., 2008) and that the WTP taxes is closely linked to the type of public goods provided (e.g., Glaser and Hildreth, 1999; Anderson, 2017; Beeri et al., 2022). However, surprisingly little is known about these effects for firms.¹ We fill this research gap by investigating determinants of small- and medium-sized enterprises' (SMEs') WTP local business tax and its local tax revenue consequences.

¹ One exception is Ng et al. (2020). They use a small sample of SMEs in Malaysia to analyze the influence of awareness of penalties, ethics, perceived government spending, and quality of service influencing SMEs' WTP taxes.

We extend the literature on individual’s WTP, public goods provision, and trust in authorities with findings on firm behavior. Although individuals ultimately make decisions in firms, there are firm-specific aspects that influence the behavior of firms: First of all, they are subject to their own specific tax environment. In our setting, firms are subject to the local business tax, which is handled by and used within the municipality to generate tax revenue, being essential for the provision of public goods. Second, firms are subject to multiple taxes. Therefore, taxation may be more complex (e.g., McKerchar et al., 2005; Kamleitner et al., 2012; Hoppe et al., 2023).² It seems reasonable to assume that firms’ perception of the tax burden, and thus also their WTP, is affected by their experience of dealing with complex tax procedures. Third, firms compete with one another. The level of the local business tax rate can impact a firm’s competitiveness – especially when tax rates vary across local governments. It is possible that the positive effect of providing more (better) public goods may be offset by the resulting competitive advantage of higher tax rates. Fourth, other differences between firms and individuals include firms’ facing (board) reputation as well as differences in their structure, size, compliance costs, and risk preferences (OECD, 2019). All of these aspects could shape the views of firm decision-makers and lead them to value the provision of public goods and the spending of tax revenues differently in comparison to individual taxpayers. By clearly focusing on firms, our study contributes to closing this research gap. The relevance of this topic is stressed by an OECD report stating that a “better understanding of what motivates taxpayers to participate in, and comply with, a tax system is valuable for all countries and stakeholders” (OECD, 2019, p. 3). Our study directly answers the OECD’s call for further research on firm behavior.

Moreover, we address the call for research on SMEs and private firms, e.g., Hanlon and Heitzman (2010) and Lisowsky and Minnis (2020) by focusing on these highly relevant firms. Survey data on SMEs is particularly scarce. We contribute to providing insights into the most represented group of firms in OECD-countries (OECD, 2017). In most OECD-countries, SMEs are responsible for more than 50% of the gross domestic product (International Labour Organization, 2019). However, although SMEs, in our case craft firms, are important to countries’ economies, studies of them are rare in the accounting literature. Our sample also includes many private firms. Again, despite their importance in the business landscape (Allee and Yohn, 2009; Lisowsky and Minnis, 2020), they are rarely the focus of the accounting literature.

In general, the primary objective of taxes is to generate government revenue – then used to maintain the state budget. In about one third of all OECD-countries, including e.g., the US, Canada, and Germany, taxes are collected at the federal and the local level (Bundesministerium für Finanzen, 2024; Government of Canada, 2024; PwC, 2024).³ The federal government levies income and corporate tax, and the local governments levy

² See Hofmann et al. (2008) for an overview of the impact of complexity on individuals tax compliance behavior.

³ Appendix A2 provides an overview of local business taxes in OECD-countries.

local business taxes. For local governments, these business taxes are an important source of revenue to fund their expenses (Buettner & Poehnlein, 2024). In Germany, e.g., local municipalities provide almost 50% of all public investment and thus significantly contribute to basic services (Fratzscher, 2023). Since the local business tax is paid by firms located in a municipality⁴, the collection of local business tax corresponds to an exchange relationship (Spicer and Lundstedt, 1976; Glaser and Hildreth, 1999). From a firm's (municipality's) perspective, this relationship is as follows: paying (receiving) taxes and receiving (providing) public goods. To ensure the long-term viability of this relationship, it is essential that both parties perceive the exchange as appropriate. This concerns the amount of taxes to be paid and the public goods to be received, as well as the trustworthiness of municipalities in handling tax revenues. This is particularly important for SMEs, which are rarely in a position to provide traditional public goods such as infrastructure themselves. They are heavily dependent on the provision of public goods by local governments. Local governments face a trade-off in this exchange-relationship. They can either lower the local business tax rate or increase the provision of public goods to match firms' demand. Both alternatives have limits. The local governments need to raise sufficient revenues to maintain (necessary) expenditures and offer basic services, restricting it to set the tax rate below a certain threshold. At the same time, local tax competition may also be a factor, necessitating municipalities to respond to tax rate reductions by other municipalities to maintain their attractiveness for firms (Wildasin, 2003; Langenmayr and Simmler, 2021; Buettner and Poehnlein, 2024). Another option is to optimize the provision of public goods so that firms perceive their tax rate as adequate (Beeri et al., 2022). Despite the widespread use of local business taxes in OECD-countries, there is little evidence on whether and to what extent the provision of public goods affects firms' WTP local business tax and which public goods firms consider important. The same is true for the impact of trust in local governments' handling of tax revenues on firms' WTP local business taxes.

We test these associations for firms using the institutional framework of the German local business tax. Each municipality, the local government⁵, levies a local business tax on firms, the so-called trade tax. The German trade tax is well-suited for our analysis for several reasons. First, there is considerable variation in tax rates at the municipal level,⁶ which allows us to estimate the association of the provision of public goods as well as the trust in municipalities' handling of tax revenues. Second, municipalities are important providers of public goods, with high levels of public investment financed mainly by local business tax revenues, providing a testable direct link between local business tax revenues and the provision of public goods. Third,

⁴ See Fuest et al. (2017) for a differentiated consideration of the bearers of trade tax (increases) in Germany.

⁵ Throughout this paper, we refer to municipalities as one example of a local government.

⁶ We follow Fuest et al., 2018, p. 395, who highlight the advantage of using "substantial within-country variation in statutory municipal tax rates."

municipalities can change the tax rate – through the business tax multiplier⁷ – but not the tax base, which allows for easy comparisons across municipalities (Fuest et al., 2018). Finally, although municipalities are largely independent in terms of their trade tax rate and public goods provision, they all share the same institutional background of being part of Germany, which reduces unobservable confounding factors (Buettner & Holm-Hadulla, 2008).

For our analysis, we combine survey data on German handicraft SMEs with administrative data on the actual public goods provision and local business tax rates. To measure firms’ WTP local business tax, we examine differences between the tax rate that firms consider to be appropriate and the actual tax rate. We label this as the *additional local business tax rate*. To determine the additional local business tax rate, we rely on our survey data for the appropriate tax rate and archival data from the German Federal Statistical Office for the actual tax rate.⁸ For our variable of interest, trust, we rely on our survey data. We ask firms to indicate how much they trust municipalities to handle tax revenues. For the other variable of interest, the provision of public goods, we distinguish two forms: First, the *perceived provision of public goods*, which represents firms’ satisfaction with the public goods provided. For firms’ perceptions of the provision of public goods in the municipality in which they are located, we rely on our survey data. Second, the *actual provision of public goods*. We determine the actual provision of public goods based on archival data from the INKAR-database⁹. With regard to the actual provision, we also examine the effect of the salience of public goods. We define salience as the difference between firms’ perceptions of the provision of public goods (satisfaction) and the actual provision of public goods in the municipality. Since we are also interested in the types of public goods that impact firms’ WTP local business tax, we distinguish between *private-related public goods*, which mainly affect the personal sphere of the firm’s decision-makers (kindergarten/daycare, primary schools, recreational areas, police stations, and hospitals), and *business-related public goods*, which mainly affect the business sphere (secondary schools, vocational schools, motorway connection, railway stations, and public transportation).

We find that firms’ average satisfaction with the provision of all public goods has no impact on firms’ WTP local business tax. However, differentiating by the type of public good, we find significant associations for private-related public goods, but not for business-related public goods. In our baseline regression, a one standard deviation increase in firms’ satisfaction with private-related public goods increases the WTP local business tax by 10%. Using total local business tax revenues of €75 billion for 2023, this translates

⁷ The trade tax rate is determined by multiplying the so-called trade tax multiplier by the basic trade tax of 3.5% (German Trade Tax Act).

⁸ Fochmann et al. (2023) use a similar approach but focus on the (mis)perception of the actual tax rate whereas we exclude any misperception by using administrative data on the actual tax rate.

⁹ The INKAR-database of the Federal Institute for Building, Urban and Regional Research is available at <https://www.inkar.de/>.

into additional local business tax revenues for municipalities of more than €2.8 billion (3.74% of total local business tax revenues).¹⁰ From the different effects of *private- and business-related public goods*, we conclude that public goods are valued differently. As we can assume in the case of SMEs that a large proportion of the decision-makers in firms surveyed not only work but also live in the respective municipality, the appreciation of private-related public goods is a non-surprising result. What is surprising, however, is that public goods, which are associated with firms' activities, are valued less, even though they are usually not substitutable by firms themselves (e.g., highway access or vocational schools). In contrast, the actual provision of public goods, has neither for all nor for private- or business-related public goods, an impact on firms' WTP local business tax. Leading to the conclusion that the subjective perception is more relevant than the actual provision. We also document a strong association between firms' trust in municipalities' handling of local business tax revenues and their WTP local business taxes of up to 21%, based on total local business tax revenues of €75 billion for 2023, this translates into additional tax revenues for municipalities of €5.61 billion (7.48% of total local business tax revenues). It is particularly striking that the (economic) effect of trust on firms' WTP local business tax is considerably larger, about twice the size, than that for the provision of private-related public goods. This suggests that the handling of tax revenues impacts firms' WTP local business tax more than the actual utilization of these revenues. Finally, we show a (also economically) significant correlation between the stated WTP local business taxes and tax avoidance in the municipality. An increase in the absolute additional local business tax rate (relative additional local business tax rate) leads to an increase in the average ETR of about 10% (11%), highlighting the tax revenue consequences of firms' WTP.

Our research provides first insights into SMEs' WTP local business tax and drivers of such. In this way, we provide important evidence that can contribute to a long-term, sustainable, and (perceived) appropriate exchange relationship between firms and local governments. These findings are particularly important for policymakers. We highlight the importance of firms' satisfaction with provided private-related public goods and the building of trust between firms and local governments. Future research can build on our findings and further investigate the importance of the provision of public goods and trust for firms' WTP local business tax, especially for large firms.

¹⁰ We do not infer any cost-benefit estimates for municipalities in this study. Also, when considering the magnitude, it is important to note that the provision of public goods has diminishing marginal utility. Above a certain threshold, the provision of public goods does not lead to additional benefits for firms, i.e. the WTP for the local business tax, and thus, the tax revenue does not change.

2 LITERATURE AND HYPOTHESES DEVELOPMENT

Several strands of the literature examine drivers of taxpayers' WTP taxes. However, there is still no clear definition of WTP. The main question is whether firms' WTP reflects their willingness to pay the legally required amount of taxes (tax compliance) or whether it is solely a matter of the firms' willingness to pay more taxes (see e.g., Hofmann et al., 2008; Zhang et al., 2016; Iraman et al., 2021). In this study, we adopt the more expansive view of what constitutes WTP, including firms' tax compliance. Thus, we build our hypothesis both on the literature on tax compliance and WTP taxes, focusing on the provision of public goods and WTP, as well as on the relationship between trust in local governments' handling of tax revenues and WTP.

A first strand of the literature examines the relationship between public goods provision and WTP taxes for individual taxpayers. Prior studies show that the provision of public goods influences the tax-paying behavior of individuals – especially in small (local) economic systems. E.g., Spicer and Lundstedt (1976) show in an extension of the Allingham-Sandmo-Model (Allingham & Sandmo, 1972) that tax evasion becomes more likely if taxpayers perceive the exchange of public goods and tax payments as not appropriate – i.e., their contribution as too high. Cowell and Gordon (1988) extend the Allingham-Sandmo-Model by adding the benefits of public goods for taxpayers. In small economies, where taxpayers perceive their contribution as relevant, they show that the provision of public goods can limit tax evasion if the benefits are sufficiently high. Several laboratory experiments support these theoretical results for individuals. Alm, Jackson, and McKee (1992a) show that introducing a public good increases the tax compliance of taxpayers and Alm, Jackson, and McKee (1992b) find that the extent of tax evasion decreases with the introduction of public goods. Additionally, Alm, Jackson, and McKee (1992c) provide evidence that the existence of public goods reduces the extent of tax evasion. Alm, McClelland, and Schulze (1992) show that the higher the benefit a taxpayer derives from public goods, the less tax is evaded. However, this effect is limited. These results are in line with Torgler (2004) showing that the higher the benefit taxpayers can generate from public goods, the less taxes they evade. However, increasing deterrent measures, such as the audit probability or penalties, leads to a decrease in tax compliance. We go beyond these findings for individuals and focus on firms. Given the structural differences between firms and individuals, (e.g., firms' specific tax environment, tax complexity, market competition) as well as the economic significance of firms and corporate taxes, prior results on individuals cannot be transferred directly to our setting. We enhance the literature by examining the effect of the provision of public goods on firms' WTP local business tax. We expect that firms' WTP local business tax, especially in the context of small economies (at the municipal level), is positively influenced by

the provision of public goods and therefore hypothesize that the provision of public goods shows a positive association with firms' WTP local business tax.

In addition to the provision of public goods, the literature has also investigated the explicit use of public goods. Güth et al. (2005) show that the way tax revenues are used impacts tax compliance. Taxpayers evade less taxes if tax revenue spending is restricted to public goods in the local area compared to when several regions are financed jointly. This is of importance since municipalities are characterized by regionality. Iraman et al. (2021) show that individuals' WTP taxes increases with the provision of information on government spending, but only if the tax revenue generated is allocated to specific causes, such as healthcare. Wahl et al. (2010) also show that individuals who are involved in the decision-making process regarding the utilization of tax revenue exhibit a higher WTP taxes. In this line, Li et al. (2011) show similar negative effects on individuals' WTP taxes when citizens are not involved in the process. We add to this literature by not only examine the general provision of public goods, but also differentiating the type of public good provided. While we expect a positive association between the provision of public goods and firms' WTP local business tax, we hypothesize that the strength of this association varies with the type of public good provided.

The presented literature mostly examines the relationship between public goods and firms' WTP in laboratory experiments. It can thus be assumed that the participants were presented with information regarding the provision of public goods that corresponds to the actual provision of public goods. But a substantial body of literature indicates that tax-related perceptions often differ significantly from reality – especially for perceptions of tax rates. For individuals, there are numerous studies identifying and quantifying individuals' tax rate perception (e.g., Schmolders, 1960; Enrick, 1963; Gensemer et al., 1965; Brown, 1969; Auld, 1979; Fujii and Hawley, 1988; Rupert and Fischer, 1995; Jackson and Hatfield, 2005; Gideon, 2014; Gideon, 2017; Blaufus et al., 2015; Ballard and Gupta, 2018; Stantcheva, 2021, and an extensive literature review by Blaufus et al. (2022)) showing that perceptions affect investment and financing decisions, risk-taking and tax planning, real effort, consumption, and retirement saving strategies.

The evidence for firms is less extensive. However, there is evidence that this phenomenon is also applicable to firms (Graham et al. (2017); Fochmann et al. (2024)). To account for this, we examine both the relationship between the perceived and the actual provision of public goods and firms' WTP local business taxes. Following prior studies documenting the significance of perceptions, we hypothesize that the perception of provided public goods is the crucial metric, rather than the actual provision of public goods. Taken together, we formulate the following two hypotheses concerning the association of public goods and firms' WTP local business tax.

H1a: Higher satisfaction with the provision of public goods increases firms' WTP local business tax – the strength of the association varies with the type of public good.

H1b: The actual provision of public goods does not increase firms' WTP local business tax.

Another strand of literature, based on the slippery slope model by Kirchler et al. (2008), shows a positive relationship between trust in tax authorities and individuals' tax compliance. Torgler (2003), Torgler et al. (2008), Wahl et al. (2010), Batrancea et al. (2019), D'Attoma (2020), and Matthaei et al. (2023) empirically demonstrate that trust in authorities increases tax compliance.¹¹ Aktaş Güzel et al. (2019) show that this is also true for independent accounting professionals. Muehlbacher et al. (2011) further show that "trust in tax authorities [is] the strongest predictor of voluntary tax compliance" (Muehlbacher et al., 2011, p. 95). Batrancea et al. (2019) confirm this result and show that for trustworthy authorities – perceived as benevolent and promoting the common good – voluntary compliance is the highest. Studies focusing on the concept of tax morale and individuals' WTP taxes, confirm the positive effect of trust (Beeri et al., 2022). Anderson (2017) also documents that trust has a significant positive impact on WTP taxes for public goods – but the effect can vary across different types. So far, this literature mostly ignores firms. We address this research gap and investigate the influence of trust, more specific trust in local governments' handling of tax revenues, on firms' WTP. Applying prior studies' findings to our setting, we hypothesize that trust and firms' WTP local business tax are positively associated. Thus, we put forward the following hypothesis:

H2: Higher trust in municipality's spending of local business tax revenue increases firms' WTP local business tax.

3 SURVEY DESIGN AND SAMPLE

We built our analysis on data from a survey on German SMEs developed and collected in cooperation with the German Confederation of Skilled Crafts. Our questions are based on insights from existing literature on analyzing the behavior of taxpayers (e.g., Schmolders, 1960; Blaufus et al., 2022; Fochmann et al., 2024). The questions were integrated into a special survey of the German Confederation of Skilled Crafts.¹² The online survey was conducted between August 21 and 28, 2023. This questionnaire was used to survey craft firms throughout Germany. The firms were contacted via the German Confederation of Skilled Crafts. Due to the broad distribution of the questionnaire, we only know the characteristics of the responding firms. We

¹¹ We concentrate on the trust taxpayers have in authorities rather than taxpayers being treated trustfully by the authorities, which is another important strand of literature, see e.g., Feld and Frey (2002).

¹² For more information on the special survey ("Sonderumfrage") see: <https://www.zdh.de/ueber-uns/fachbereich-wirtschaft-energie-umwelt/sonderumfragen/zdh-umfragen-zu-den-auswirkungen-des-ukraine-kriegs/umfrage-zur-den-aktuellen-herausforderungen-kw-34/2023/>.

do not know the characteristics of all contacted firms, but we refer to the Census of Crafts evaluations for a description of these characteristics.¹³ Participation in the survey was anonymous.

Our study builds on the characteristics of the German local business tax system, the so-called trade tax. The trade tax is part of a compound tax levied on businesses. The trade tax rate is determined by multiplying the reported trade tax multiplier by the basic trade tax of 3.5% (German Trade Tax Act). While the base trade tax is fixed at 3.5%, the trade tax multiplier is set separately by each municipality and can vary, with a minimum of at least 200% up to 650% in 2022. Therefore, the amount of revenue generated within a municipality is largely determined by the trade tax multiplier set by each municipality. As the trade tax multiplier is the decisive characteristic for determining the trade tax rate, we focus on this in our survey. Figure 1 highlights the differences of the multiplier across German municipalities. The darker the color, the higher the tax rate multiplier in the respective municipality. Overall, there is a wide variation in multipliers across Germany, with lower levels in eastern Germany and Bavaria and higher multipliers especially in North Rhine-Westphalia.

< Insert Figure 1 about here >

In general, the compound tax for non-corporations, namely sole proprietorships and partnerships, is made up of the progressive income tax plus solidarity surcharge¹⁴ and the trade tax. For corporations, it includes the flat corporate tax, plus the solidarity surcharge and the trade tax. Non-corporations are subject to the transparency principle, so that profits are generally considered for income tax purposes at the level of the involved partners. The only exception is the trade tax: This is incurred at the level of the partnership itself. To avoid double taxation, arising from trade tax at the partnership level and income tax at the partner level, the legislator allows a credit of trade tax¹⁵ at the partner level. The tax credit is to avoid double taxation but does not lead to lower trade tax revenues for the municipality, as the trade tax is paid as usual, but is taken into account when calculating the income tax burden of the respective partner. As a result, the municipalities do not suffer any disadvantage from this tax credit. Nevertheless, this special regulation has the potential to alter the perception of the tax burden among non-corporations. On the one hand, the procedure may not be fully comprehended, leading to the erroneous impression that no trade tax is payable as a consequence of the tax credit. Alternatively, the tax credit may have a purely psychological effect, whereby the burden is perceived as lower due to the fictitious reduction (which, in reality, only represents an avoidance of double taxation). Conversely, the burden may be perceived as higher if there is a feeling of

¹³ In addition, we cannot determine how many enterprises were aware of our survey. Therefore, it is not possible to calculate a response rate.

¹⁴ The solidarity surcharge is based on the income tax and is 5.5% of the income tax (Section 4 Solidarity Surcharge Code).

¹⁵ According to § 35 German Income Tax Act.

double taxation, that is, if the effect of the tax credit is not fully understood.¹⁶ Corporations, on the other hand, are subject to the separation principle. Profits are subject to both corporate and trade tax at the firm level. In both cases, the trade tax is to be paid to the municipality.¹⁷

In developing the survey, we received feedback from the German Confederation of Skilled Crafts. The survey consists of three main parts being the basis for this study: (1) We ask for firm characteristics, such as legal form, number of employees, sales, industry, and the federal state. (2) We ask firms about the trade tax multiplier they perceive as appropriate within their municipality.¹⁸ To determine the actual trade tax multiplier, we ask for the zip code of the municipality where the firm is located. (3) We are interested in firms' perception of public goods provided in their municipality. Therefore, we ask firms how they would rate the provision of public goods (kindergartens/daycare, primary schools, secondary schools, vocational schools, hospitals, recreational areas, police stations, efficient municipal administration, motorway connection, railway connection, public transportation)¹⁹ in their municipality. Finally, firms were asked how much they trust their municipality to handle the trade tax revenues responsibly.²⁰

For the ease of interpretation, from now on, we will rely on the trade tax rate as the local business tax rate, calculated by applying the basic trade tax to the trade tax multiplier. Further, we will refer to the trade tax rate as the local business tax rate. The chosen research design has some limitations. As is common in surveys, self-selection bias (see e.g., Bethlehem, 2010) cannot be completely ruled out. However, this is less likely because the questionnaire included questions on topics other than the local business tax. Similarly, we cannot definitively verify whether the respondents answered the questions seriously. However, honest answers are to be expected as the survey guarantees full anonymity. We avoid framing effects by using neutral language.

In total, 2,496 firms responded to the survey. After excluding firms that did not answer questions relevant to this study, we are left with 1,695 observations (firms). Of these, we exclude 1,152 due to missing administrative information, leaving us with 543 observations for our main analysis. Of these firms, 41.6% are

¹⁶ As a complete credit is only possible up to a levy rate of approximately 400%, we examine in additional tests (untabulated) the difference in the additional local business tax rate for non-corporations located in municipalities with a levy rate of over and under 400%. We find a significant difference in the perceived additional local business tax rate. Both the absolute and relative additional local business tax rate is higher for non-corporations in municipalities with a levy rate of > 400%. However, this significant difference is equally evident for corporations. No difference between the legal forms is observed, suggesting that the effect is not due to (insufficient) allocation.

¹⁷ If a firm has multiple operating sites in different municipalities, the trade tax assessment base is apportioned among the municipalities according to the share of total wages, see e.g., Eichfelder et al. (2023). Given the size of the firms surveyed, this plays a minor role in our study. Additionally, the municipalities receive 15% of the revenue from income tax as well as 12% of the revenue from capital gains tax (German Municipal Finance Reform Act).

¹⁸ We refrain from asking for the tax rate since the trade tax multiplier is more salient, and this way we avoid bias in the statement due to computational difficulties (Chirvi et al., 2021).

¹⁹ Within the survey, we also asked for the category university. Due to a comparably small number of responses and the small number of municipalities with universities in general, we exclude this variable from our analysis.

²⁰ The full set of questions is listed in Appendix A1 of this paper in more detail.

sole proprietorships, 9.6% are partnerships (24.5% mixed forms), and 24.3% are corporations. On average (median), the surveyed firms employ 37 (10) employees. 34.2% of the firms have a turnover of up to €500,000, 54.1% between €500,000 and €5 million and 13.6% over €5 million. We consider all firms to be SMEs.²¹ There are regional concentrations in Hesse (23.4%), Northrhine-Westphalia (18.6%), and Lower Saxony (16.2%). Among the skilled trades, metal workers (17.7%), electricians (9.9%), and plumbers and fitters (8.7%) are the most strongly represented in the survey. Overall, the survey sample represents the German craft firm landscape very well as illustrated in Table 1.

< Insert Table 1 about here >

Based on our survey design, we collect firm characteristics, information on the local business tax rate perceived to be appropriate, and the satisfaction with and actual provision of public goods, as well as the trust in the use of tax revenues in the municipality. Table 2 provides an overview of the survey variables.

< Insert Table 2 about here >

4 MEASURING APPROACH

First, we measure firms' WTP local business tax. Since for our main analysis we are primarily interested in the amount of taxes firms are willing to pay, rather than whether they want to pay it at all (some would call this tax compliance (Iraman et al., 2021)), we focus on the difference between the actual tax rate and the perceived appropriate tax rate. Therefore, to measure firms' WTP, we use the additional local business tax rate as a proxy and define it as follows:

$$\begin{aligned} \text{Additional local business tax rate}_i = & \hspace{15em} (1) \\ & \text{Actual local business tax rate}_j - \text{Perceived appropriate local business tax rate}_i. \end{aligned}$$

The additional local business tax rate corresponds to the difference between the actual local business tax rate within the municipality j and the one deemed appropriate by the firm i . The subjectively perceived difference between the actual and the perceived appropriate local business tax rate is the important metric²², since it measures the amount of taxes firms perceive to pay too much or (in rare cases) too little. To determine the additional local business tax rate, we supplement the questionnaire data with the local business tax rate

²¹ Based on Section 267 (2) No. 2 German commercial code of the German Commercial Code (HGB), firms are SMEs if they have fewer than 250 employees and generate sales of less than €10 million. In the survey, however, we only asked about 50 or more employees and revenues of €10 million or more. Therefore, the number of SMEs cannot be determined with certainty. However, since 93.7% of the firms surveyed already fall into the category of less than 50 employees and less than €10 million in turnover, and the results of the official craft structural data 2021 show that 99.6% of all craft firms can be classified as SMEs (<https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Handwerk/aktuell-struktur-handwerk.html>), we are confident that the firms surveyed are SMEs.

²² See e.g., Blaufus et al. (2010); Blaufus et al. (2022), Körösi and Maiterth (2022) for the relevance of perceived tax rates.

for each municipality.²³ We match this information based on the zip code provided in the survey using the latest administrative data (2022) from the Federal Statistical Office (Statistische Ämter des Bundes und der Länder, 2023). We rely on this matching approach, rather than asking for the actual tax rate, to eliminate the influence of potential tax rate misperception (Fochmann et al., 2024). The summary statistics for the additional local business tax rate are shown in Table 2.²⁴

To investigate our research questions, we also measure firms’ trust in the municipality’s handling of tax revenue, firms’ perception of the provision of public goods, and the actual provision of public goods. To measure trust, we built on our survey data. We rely on the firm’s individual assessment of how trustworthy the municipality is in handling tax revenues. To measure firms’ perception of the provision of public goods, the satisfaction with public goods, we use our survey observations. To determine the actual provision of public goods, we use two measures: First, the actual provision of public goods within the respective municipality. To proxy for the objective, actual provision of public goods, we use administrative data from the INKAR-database provided by the German Federal Institute for Research on Building, Urban Affairs and Spatial Development. The publicly accessible database provides up-to-date regional statistical information on topics such as education, demographics, the labor market, the economy, housing, transportation, and the environment – both for Germany and for Europe.²⁵ To determine the actual provision of public goods within a municipality, we identify those public goods within the database that we also cover in our survey. See Appendix A4 for an overview of the matched public goods. In the next step, we transform the administrative data from INKAR to be able to compare it to the survey data. First, we scale all public goods by the size of the municipality (population in 2022).²⁶ This allows us to compare municipalities of different sizes. Second, we adjust the INKAR-data to match a 6-point Likert scale as used in the survey. We divide the values for the actual public goods (N = ~10.000) into six percentiles. Municipalities with the highest scores are assigned a six, while those with the lowest scores are assigned a one.²⁷ Afterwards, we match our survey data with the INKAR-data based on the municipality code from our survey data.²⁸ Second, we are also interested in the difference between our survey observations, the perception of public goods, and the actual provision. We define this difference as a measure of objective *salience*. We illustrate our proceedings with a fictitious example of the provision of elementary schools in Table 3.

< Insert Table 3 about here >

²³ The summary statistics for the actual local business tax rate are shown in Appendix A5.

²⁴ We provide variable definitions of all variables used in Appendix A3.

²⁵ For information see <https://www.inkar.de/>.

²⁶ Some of the data is already available in scaled form. In this case we do not scale them again.

²⁷ See Appendix A5 for the results of this procedure.

²⁸ In some cases, the provision of public goods is only available at the district level. When this is the case, we use the district code to match the public goods to the municipality level.

With regard to the satisfaction with and actual provision of public goods, we are particularly interested in which public goods are important for the firms surveyed. For this purpose, we group the variables into *private-* and *business-related* public goods. We assign to the *private-related* group those variables that are increasingly related to the firm decision-makers' personal sphere of life, focusing on children and general supply. Variables that are more relevant to the firms are assigned to the *business-related* group, focusing on infrastructure and vocational training. Even if no definite categorization is possible, there are clear tendencies in the individual variables that lead to the grouping in (1) private-related: *kindergarten/daycare, primary schools, recreational areas, police stations, hospitals* and (2) business-related: *secondary schools, vocational schools, motorway connection, railway stations, public transportation*.²⁹ To substantiate our assignment, we consider the pairwise correlations of these variables. The results in Appendix A6 show that there are particularly high correlations between *motorway connection, railway stations and public transportation*. The same applies to *secondary schools and vocational schools*. The classification into a group of *business-related public goods* therefore appears legitimate. We also find a high correlation between *kindergarten/daycare* and *primary schools*, as well as between *primary schools* and *recreational areas*. Furthermore, *police stations* show a high correlation not only with *recreational areas* and *primary schools*, but also with *hospitals*. The assignment to a common group therefore also appears legitimate for the *private-related public goods*.

5 RESULTS

5.1 Public Goods and Trust

Theoretical and empirical studies have already shown that the provision of public goods influences individual taxpayers' behavior (see e.g., Spicer and Lundstedt, 1976; Cowell and Gordon, 1988; Alm, McClelland, and Schulze, 1992; Alm, Jackson, and McKee, 1992b and Torgler, 2004). To measure the impact of the provision of public goods on firms' WTP local business tax, we first consider the perceived provision of public goods by the surveyed firms. In the survey, we asked firms about the provision of various public goods: kindergartens/daycare, primary schools, secondary schools, vocational schools, hospitals, police stations, recreational areas, efficient municipal administration, motorway connections, railway stations, and public transportation.³⁰ Figure 2 shows the distribution of ratings for each public good, providing deeper insights into firms' satisfaction with the provision of public goods.

< Insert Figure 2 about here >

²⁹ At this point, we refrain from categorizing '*efficient municipal administration*' because it can be equally associated with both the private- and business spheres, and unlike the considered variables, no tendency towards one area can be derived.

³⁰ The average values and medians of the ratings are displayed in Table 2.

Our results illustrate the differences in satisfaction with the provision of public goods in the municipalities of the surveyed firms. A left-skewed distribution indicates higher satisfaction than a right-skewed distribution. Accordingly, the surveyed firms are most satisfied with *recreational areas, primary schools, railway stations* and *motorway connections*. In contrast, the surveyed firms are least satisfied with the provision of *efficient municipal administration, vocational schools, and public transportation*. Public goods associated with childcare and leisure activities tend to be rated more favorably. This also applies to infrastructure, except for public transportation. Public goods that ensure general supply, such as the presence of police stations and hospitals, receive mixed ratings. The same applies to schools beyond the primary level. The efficient municipal administration, which we name as a separate category, is the least satisfactory. Categorizing public goods into *private- and business-public goods* we find no differences in the overall degree of satisfaction with the provision of these public goods. The results are shown in Table 4.

< Insert Table 4 about here >

Referring to our definition of actual public goods, we illustrate the *provision of actual and salient public goods* in a next step. Again, we first examine all public goods individually. Table 5 shows the results.

< Insert Table 5 about here >

The results show that the average provision of public goods varies depending on the public good. We find particularly high average values for *vocational schools, efficient municipal administration, and hospitals*. Comparatively low values are found for *recreational areas* and *public transportation*. With regard to salience, our results show that the provision of public goods is mostly overestimated – supporting the idea that public goods are rather salient. Exceptions are *efficient municipality administration, vocational schools, and hospitals*. On average, they are perceived to be provided less than they actually are (less salient). We find positive values of 0.83 and 1.2 for *private- and business-related public goods*, suggesting that the provision of both is perceived by respondents to be more comprehensive than it actually is. According to our definition, both *private- and business-related public goods* are perceived as salient. However, the results show a significant difference in the magnitude of salience between *private- and business-related public goods*, with *business-related public goods* being more salient ($p < 0.01$).

5.2 Firms' WTP

In relation to our research question, namely whether the provision of public goods and trust influence firms' WTP local business tax, we have already outlined firms' satisfaction with and provision of public goods in the previous section. We proceed to examine the second component, firms' WTP local business tax.

Table 6 shows our measure of WTP the average additional local business tax rate for all surveyed firms. Since the taxation procedure depends on the legal form of the firm, as shown in Section 2, we distinguish between non-corporations and corporations. The results in Table 6 illustrate that both non-corporations and corporations are confronted with a significant perceived additional local business tax rate. Regardless of the legal form, firms consider a reduction in the local business tax rate of, on average, 37.4% to be appropriate. Concerning the legal form, non-corporations consider an average reduction of around 38.5% and corporations consider an average reduction of 35.4% to be appropriate.³¹

< Insert Table 6 about here >

Our analysis shows that non-corporations perceive a higher additional local business tax rate than corporations. The findings indicate that the trade tax credit for non-corporations outlined in section 3 does not result in non-corporations perceiving a reduction in their overall tax burden. Conversely, the results indicate that non-corporations misjudge the effect of the tax credit, leading to the perception of a higher tax burden. This is also reflected in the desire for a greater reduction in the tax burden. However, our results are in line with Fochmann et al. (2023) who also demonstrate that non-corporations perceive a higher additional income tax rate (total income taxes) than corporations.³² This suggests that the observed difference in behavior between non-corporations and corporations is not primarily attributable to the trade tax credit.

Further, Cowell and Gordon (1988) show that for small economies in which taxpayers perceive their contribution as relevant, the provision of public goods can have a restrictive effect on individual tax evasion. Surprisingly, the comparison between the total additional income tax rate and the extracted additional local business tax rate shows that non-corporations (corporations) perceive a reduced combined income tax rate of 37.6% (33.0%) versus 38.5% (35.4%) as appropriate. This comparison suggests that firms are about equally willing to pay local business tax compared to taxes at the federal level. This difference in behavior between firms and individuals confirms the need for a separate investigation.

³¹ However, the difference in the additional local business tax rate is not statistically significant on conventional levels.

³² In the case of distributing corporations, the effect is reversed. Here, Fochmann et al. (2023) conclude that the effect is a result of the addition of a further tax (income tax at shareholder level). As local business tax remains unaffected by this, we refer to reinvesting corporations as a comparison group.

5.3 Effect of Public Goods and Trust on Firms' WTP

In the previous sections, we have shown in detail how the surveyed firms perceive the provision of various public goods in their municipality. In doing so, we provide an overview of trust in municipalities' handling of tax revenue, the average satisfaction with and actual (salient) provision of public goods and demonstrate differences between different categories of public goods. In addition, we determined the additional local business tax rate of the surveyed firms. In line with the existing literature, we show that firms would consider a substantial reduction in local business tax as appropriate. We now examine the relationship between the satisfaction with and actual (salient) provision of public goods, trust in the municipality, and the additional local business tax rate using a two-step approach. First, we examine the relationship using univariate analysis, specifically by looking at correlations. Second, we use multivariate analysis, OLS regressions, for our investigation.

5.3.1 Univariate Analysis

Starting with our univariate analysis, Figure 3 shows Pearson correlation coefficients for the correlation between the additional local business tax rate (our measure of WTP), the satisfaction with provided public goods, and *trust* in the handling of local business revenues by the municipality.

< Insert Figure 3 about here >

The results in Figure 3 partially confirm Hypothesis 1a, that the satisfaction with the provision of public goods is negatively associated with the additional local business tax rate. We find a significant correlation between the perceived satisfaction with the provision of the following public goods and the additional local business tax rate: *kindergartens/daycare*, *primary schools*, *recreational areas*, and *efficient municipal administration* ($p < 0.05$). There is also a significant correlation between the additional local business tax rate and *trust* in municipalities' handling of tax revenue ($p < 0.05$) confirming Hypothesis 2. There is no significant correlation between the perceived provision of *secondary schools*, *vocational schools*, *police stations*, *hospitals*, *motorway connections*, *railway stations*, and *public transportation*.

As shown in Section 4, we also group public goods into *private-related* and *business-related public goods*. This categorization reduces dimensions and enables us to understand more clearly which categories of public goods correlate with the additional local business tax rate, allowing us to deduce in which areas investments by the municipality can result in a decrease in additional local business tax rate and thus an increased WTP local business tax at the firm level. Figure 4 shows the results of the correlation matrix.

< Insert Figure 4 about here >

Private-related public goods and the *trust* in municipality's handling of local business tax revenue correlate significantly negative with the additional local business tax rate ($p < 0.05$), while there is no significant correlation for *business-related public goods*. This is in line with Hypotheses 1a. We repeat this procedure and show Pearson correlation coefficients for the correlation between the additional local business tax rate and all actual/salient public goods in Figure 5 and actual/salient private- and business-related public goods in Figure 6.

< Insert Figures 5 and 6 about here >

The results partially reject Hypothesis 1b, that actual/salient public goods are not correlated with the additional local business tax rate. We find a significant correlation between additional local business tax rate and *actual primary schools*, *actual vocational schools*, *salient hospitals*, *actual motorway connection*, *actual transport* as well as *salient kindergartens/daycare*, *salient secondary schools*, *salient vocational schools*, *salient hospitals*, and *salient efficient municipal administration* ($p < 0.05$). However, with regard to *private- and business-related public goods*, we find no significant association for the *actual provision of public goods*. The results show a significant negative correlation between *salient private-related public goods* and the additional local business tax rate ($p < 0.05$), but no such for *salient business-related public goods*, partially rejecting Hypothesis 1b.

Almost all correlations are negative. Even though the results represent correlations and do not allow any causal conclusions to be drawn, we assume that especially the *satisfaction with and salience of private-related public goods* and *trust* positively increase firms' WTP local business tax as the results are consistent with the existing theoretical and empirical literature. Overall, these results confirm the importance of categorizing public goods, as they are of different importance in terms of their impact on firms' WTP. Overall, our initial findings using univariate analysis (partially) support Hypotheses 1a and 2, but partially reject Hypothesis 1b.

5.3.2 Multivariate Analysis

To investigate the presented correlations more closely, we specify our analysis of the potential effects by conducting multivariate analysis. As specified in Section 4, we use the absolute additional local business tax rate as our proxy for firms' WTP local business tax. Therefore, we use the following multiple OLS-regression of the simplified form:

$$\text{Additional local business tax rate}_i = \alpha + \beta_1 \text{ public goods}_i + \beta_2 \text{ trust}_i + \beta_4 \eta_m + \beta_5 \kappa_i + \varepsilon_i \quad (2)$$

We define firms' WTP local business tax (1) as the absolute additional local business tax rate (in percentage points) and (2) as the relative additional local business tax rate (in %). Additionally, we use the perceived appropriate local business tax rate (in %) and the actual local business tax rate (in %) to identify the reason for changes in firms' WTP local business tax.³³ Public goods comprises the satisfaction with the provision of public goods, the actual provision of public goods and the salient provision of public goods. For firms' satisfaction with the provision of public goods, we use the perception of all provided public goods (*satisfaction average public goods*) as well as of private- (*satisfaction private public goods*) and business-related public goods (*satisfaction business-related public goods*). For the *actual provision of public goods*, we use INKAR-data and for the *salience of provided public goods*, we rely on the difference between the actual and the perceived provision of public goods. The same applies to *actual private-/business-related public goods* and *salient private-/business-related public goods*. The second variable of interest is firms' *trust* in municipalities' handling of tax revenue. We consider municipality- and district-related controls (*population* in 2022, *ground area* in km², *district debt*³⁴, *local business tax revenue* in € per capita, allocation of *investment promotion measures* to the municipality, and the *unemployment rate*³⁵) and use fixed effects for municipality-size classes³⁶ based on population³⁷ and legal form fixed effects. Based on our Hypotheses 1a and 2, we expect that both, the *satisfaction with the provision of public goods* and *trust*, to show a negative association with the absolute additional local business tax rate and therefore positively impact firms' WTP. Based on Hypotheses 1b we do not expect a significant association between the *actual/salient provision of public goods* and the absolute additional local business tax rate.

Satisfaction with the Provision of Public Goods and Trust

The results of the baseline regression analysis of associations between firms' satisfaction with provided public goods in the municipality and the additional local business tax rate are shown in Table 7.

< Insert Table 7 about here >

³³ Summary statistics for all variables can be found in Appendix A7.

³⁴ Unfortunately, the INKAR-database does not provide a measure of municipality debt. Hence, we use the closest aggregation level of this item, i.e., the district-level debt.

³⁵ We use the unemployment rate in the municipality to control for social spending, which could lead to budget constraints in the municipality that alter spending behavior on public goods.

³⁶ The use of municipality-size class fixed effects assumes an inherent effect of municipalities of approximately the same size that cannot be explained by observables. Therefore, we compare the effects within municipality-size classes. In a robustness test (Appendix A9), we use a stronger fixed effects structure and employ municipality fixed effects, comparing within-municipality effects. This approach compares responses within a municipality, holding all municipality-related factors constant. While this approach provides the most precise estimates, it is computationally demanding as it only allows us to use municipalities with at least two survey respondents, reducing our sample further to 350 observations. Therefore, we do not use this fixed effect structure for all of our estimations.

³⁷ We define our municipality-size classes based on size classes used by the Federal Statistical Office, see <https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/08-gemeinden-ewohner-groessen.html>. We adapt these by combining the large number of size classes into larger categories.

Our baseline regression results indicate that using the average satisfaction with all public goods, the *satisfaction average public goods*, has no significant association with the absolute additional local business tax rate and, therefore, on firms' WTP local business tax. *Trust* in municipality's handling of local business tax revenue, on the other hand, has a significant negative association with firms' absolute additional local business tax rate ($p < 0.01$). The effect of *trust* is also significant in economic terms, as a one standard deviation increase in *trust* is associated with a decrease of additional local business tax rate by almost 1.0 percentage point. This reduction corresponds to more than 21% of the absolute additional local business tax rate, translating into an increase in firms' WTP local business tax. Using the trade tax revenues of €75 billion³⁸ for all municipalities in 2023, this translates into additional tax revenues for municipalities of €5.61 billion (7.48% of total trade tax revenues)³⁹. To confirm that the effect is indeed due to firms' increased WTP and not to a lower actual local business tax rate, we also show the effect of *trust* on the perceived appropriate and actual local business tax rate in columns (2) and (3). The results emphasize that the effect of firms' increased WTP is due to an increase in the perceived appropriate local business tax rate.

To analyze the association between the *satisfaction with average public goods* and firms' WTP local business tax in more detail, we split them into *satisfaction with private-related public goods* and *satisfaction with business-related public goods* shown in Section 4 (columns (4) – (6)). We only find a significant negative association between the *satisfaction with private-related public goods* and the absolute additional local business tax rate ($p < 0.1$), which translates into more WTP local business tax. The effect is also relevant in economic terms. A one standard deviation increase in the *satisfaction with private-related public goods* is associated with a decrease in the absolute additional local business tax rate by approximately 0.6 percentage points. This reduction corresponds to more than 10% of the absolute additional local business tax rate (€2.81 billion additional trade tax revenue), translating into an increase in firms' WTP local business tax. Again, our results confirm that this is mainly due to an increase in the perceived appropriate local business tax rate (column (5)). For the *satisfaction with business-related public goods*, we do not find a significant association. With regard to *trust*, we confirm our previous results, showing a significant negative effect on the absolute additional local business tax rate. In particular, it is noticeable that the coefficient of *trust* is about twice as large as that of *satisfaction with private-related public goods*, about 0.9 percentage points. A one standard deviation increase in *trust* corresponds to a reduction of more than 20% of the absolute additional local business tax rate. Again, the results only show correlations and do in general not allow any causal conclusions. However, as the results are consistent with the existing theoretical and empirical literature, we assume that

³⁸ See <https://de.statista.com/statistik/daten/studie/77610/umfrage/einnahmen-aus-der-gewerbesteuer-seit-1999/>.

³⁹ To come up with this estimate, we multiply the trade tax revenues by absolute additional business tax rate scaled by the actual local business tax rate, multiplied with the effect size of *trust*.

the satisfaction with the provision of *private-related public goods* and *trust* in municipalities' handling of tax revenue positively affect firms' WTP local business tax.

Actual Provision of Public Goods and Trust

Next, we analyze the effect of the *actual* and *salient provision of public goods*. First, we analyze *actual/salient average public goods*. Second, we split the public goods in *actual/salient private-related public goods* and *actual/salient business-related public goods*. We use the same control variables as before as well as municipality-size and legal form fixed effects. The results for *actual* and *salient provision of public goods* are shown in Table 8.

< Insert Table 8 about here >

The results show that neither *actual average public goods* nor *salient average public goods* have a statistically significant association with absolute additional local business tax rate. *Trust* on the other hand is again associated highly significant with the absolute additional local business tax rate ($p < 0.01$). The effect size is similar in magnitude compared to the previous findings. Next, we analyze the effect of *actual/salient private-related public goods* and *actual/salient business-related public goods*. The regression results in column (1) show that, in contrast to the univariate results, the provision of *actual private-related public goods* as well as *salient private-related public goods* has no significant association with the absolute additional local business tax rate. For the provision of *actual business-related public goods* and *salient business-related public goods*, we also find no significant association. The results for *trust* are again significantly negative ($p < 0.01$) and the effect size is similar in magnitude compared to the previous findings. The results in column (2) support the assumption that *trust* leads to an actual increase in firms' WTP local business tax. To check the robustness of our results, we do another sample split and separate firms that overestimate and underestimate the provision of public goods. We find the same results as in Table 8 (untabulated).

In summary, we can partially confirm Hypothesis 1a – the *satisfaction with the provision of public goods* increases firms' WTP local business tax and the type of public good is of crucial importance. We only find a significant impact for private-related public goods. Since in the case of SMEs it can be assumed that a large proportion of the decision-makers in the firms surveyed not only work in the municipality but also live there, the higher impact of private-related public goods is a reasonable result. What is surprising, however, is that public goods that are increasingly associated with the activities of the firms are valued less, even though they are usually not substitutable by the firms themselves. Further, we find no significant association between the *actual* and *salient provision of public goods* (average, private- and business-related) and firms' WTP local

business tax. We therefore confirm Hypothesis 1b, which suggests that firms’ *satisfaction with the provision of public goods*, in this regard their subjective perception, is particularly relevant.⁴⁰ *Trust* in municipalities’ handling of local business tax revenue is consistently very important for firms’ WTP local business tax, confirming Hypothesis 2. We conclude that municipalities can increase firms’ WTP local business tax rate by providing *private-related public goods* and by establishing greater *trust* in municipalities’ handling of local business tax revenues.

Robustness Check

Lastly, we check the robustness of our findings by replacing the additional local business tax rate, which is measured as an absolute difference with the relative additional local business tax rate. We determine the relative measure by scaling the additional local business tax rate with the actual business tax rate. This measure is independent from the magnitude of the local business tax rate, i.e., we can compare additional local business tax rates across municipalities with different local business tax rates. The corresponding results are shown in Table 9.

< Insert Table 9 about here >

In line with our prior findings, the average of all public goods, the *satisfaction with average public goods*, has no significant association with the relative additional local business tax rate. However, *trust* in the municipality’s handling of local business tax revenues has a significant negative association with firms’ relative additional local business tax rate ($p < 0.01$). Splitting public goods into *private-related public goods* and *business-related public goods*, we again find a significant association only for *satisfaction with private-related public goods* ($p < 0.1$). For the *satisfaction with business-related public goods*, we find no significant results. With regard to *trust*, we confirm our previous results and show a significant negative association with relative additional local business tax rate, again, being about twice as large as the effect for *satisfaction with private-related public goods*.

5.4 Consequences of Firms’ WTP

In a final step, we examine the extent to which firms’ WTP local business tax stated in the survey is reflected in local tax payments, to test whether firms’ WTP is actually reflected in local business tax revenues of the municipalities. By examining the relationship between firms’ WTP stated in the survey and firms’ actual WTP local business tax in their municipality, or in other words, the degree of tax avoidance, we can

⁴⁰ This finding is in line with previous literature, showing that perceptions of tax rates matter for firms (e.g., Graham et al. (2017); Blaufus et al. (2022); Fochmann et al. (2024); Körösi and Maiterth (2022)).

investigate real effects of our findings.

We use equation 3 to investigate this question. As a proxy for firms’ tax avoidance, we follow existing literature (see e.g., Dyreng et al. (2008); Graham et al. (2014)) and use firms’ average three-year effective tax rate (ETR).⁴¹ Since we do not observe ETRs for our surveyed firms⁴², we use a more indirect approach. We use the DAFNE database to collect archival data on firms that are located in the municipalities of the surveyed firms and, therefore, have access to the same public goods. We then match our survey and archival data based on the municipality. This allows us to assign the survey-based average *additional local business tax rate*_{*m*} to the firms from the archival data. To ensure that we only use firms that correspond to our survey sample firms, we proceed as follows: First, we limit our sample to firms that are located in the same municipality as our surveyed firms. Second, we only use firms that are not part of a group. Third, we restrict these firms to be SMEs.⁴³ We end up with a sample of 165 firms for the following OLS-regression analysis of the simplified form:

$$\text{Tax avoidance}_j = \alpha + \beta_1 \text{Additional local business tax rate}_m + \beta_3 \Phi_j + \beta_4 \eta_m + \beta_5 \gamma_j + \varepsilon_{j,m}. \quad (3)$$

We measure tax avoidance by firms’ average three-year ETR.⁴⁴ We define firms’ average WTP local business tax rate within the municipality as the *absolute additional local business tax rate*_{*m*} (percentage points) and (2) as the *relative additional local business tax rate*_{*m*} (in %). Additionally, we use the average *perceived appropriate local business tax rate*_{*m*} (in %) and the *actual local business tax rate*_{*m*} (in %) to identify the changing component in firms’ WTP local business tax. We include municipality- and district-related controls by using the municipality mean of *population*_{*m*}, *ground area*_{*m*} in km², *district debt*_{*m*}, allocation of *investment promotion measures*_{*m*} to the municipality, and *unemployment rate*_{*m*} over a three-year period derived from the INKAR-database.⁴⁵ We also use firm specific controls (*total assets*, natural logarithm of *ROA*, *leverage*, *intangible intensity* and natural logarithm of *number of employees* derived from the DAFNE database). We use fixed effects for municipality-size classes based on population and industry fixed effects to

⁴¹ Even though we are only interested in firms’ local business tax rate, we rely on the ETR, including the corporate tax as well as the local business tax (see Section 3.1 for more information on the taxation procedure) as we do not have separate data for the amount of local business tax for the individual companies, only the aggregated tax rate from DAFNE. However, this does not affect our estimates since the profit base for corporate and local business tax is similar. Deviations only occur due to trade-tax-specific additions and deductions. These are mostly related to leasing, capital structure, and rental income. Given that Heckemeyer and Overesch (2017) show that tax avoidance is mostly driven by transfer pricing manipulations, which are not impacted by these additions and deductions, these changes to the tax base do not affect our analysis. As this analysis focuses on SMEs that are not part of a group, the municipal business tax rate is reflected rather accurately in the ETR, as SMEs are unlikely to operate in more than one municipality.

⁴² Since a firm’s ETR is a highly sensitive number, we refrained from asking for it within the survey to avoid high drop-out rates.

⁴³ Due to the availability of the data, there is one limitation: We can only use corporations, as tax return data for non-corporations are mostly anonymized. Despite these data limitations, we believe this approach is best suited to measure the impact of firms’ WTP local business tax on tax avoidance.

⁴⁴ To minimize the influence of outliers, we winsorize the variable at the 1st and 99th percentile.

⁴⁵ We do not use *local business tax revenues* of the municipality within these regressions as the ETR, at least partially, reflects these revenues.

account for systematic differences in the tax rate due to industry-specific characteristics.⁴⁶ The results of the baseline regression analysis are shown in Table 10.

< Insert Table 10 about here >

Our results show that an increase in the *absolute additional local business tax rate*, i.e., an increase in firms' WTP local business tax, is associated with the level of the three-year ETR, i.e., tax avoidance decreases. For the *absolute additional local business tax rate*, the association is marginally not significant at the 10% level (column (1)), but for the relative measure (*relative additional local business tax rate*), we find a correspondingly significant effect ($p < 0.1$) shown in column (2). This finding is also supported by the results in columns (3) – (4), where we show that the three-year ETR increases significantly ($p < 0.1$) as the *perceived appropriate local business tax rate* increases. Thus, an increase in the perceived appropriate local business tax rate is associated with less tax avoidance by firms within the same municipality. These results are also economically significant. A one standard deviation increase in the *relative additional local business tax rate* (*absolute additional local business tax rate*) is associated with an increase in the average ETR of about 11% (10%). To verify our results, we also use the one-year ETR as a measure of tax avoidance as shown in Appendix A10. The results are in line with the previous regression analyses: If companies indicate an increased WTP local business tax, this is significantly associated with a higher average one-year ETR of firms in the same municipality and thus with less tax avoidance.

Overall, we conclude that firms' WTP local business tax stated by the surveyed firms has a significant effect on the extent of tax avoidance in municipalities. Influencing firms' WTP, for example through the targeted provision of certain public goods or measures to increase trust in the handling of tax revenues by municipalities, can have a direct impact on municipal tax revenues.

6 CONCLUSION

Our study examines the association between trust in municipality's handling of local business tax revenue, the satisfaction with and the actual provision of public goods and firms' WTP local business tax. Therefore, we use survey data on firms' and administrative data on the actual provision of public goods.

In line with our hypotheses, we show that trust in municipality's handling of local business tax revenue is associated with an increase of in firms' WTP local business tax by more than 20%. With total local business tax revenues of €75 billion for 2023 this translates into additional tax revenues for the municipalities of €5.61 billion (7.48% of total local business tax revenues). The same holds partially for the satisfaction with

⁴⁶ Summary statistics for the DAFNE data can be found in Appendix A8.

provided goods within a firm's municipality. However, we only find a positive effect for private-related public goods, i.e., public goods related to the private sphere of the firm's decision-maker. A one standard deviation increase in firms' satisfaction with private-related public goods increases the WTP local business tax by 10%. This amounts to additional local business tax revenues for municipalities of more than €2.8 billion (3.74% of total local business tax revenues). Surprisingly, for business-related public goods, more important for the firm itself, we find no significant impact on firms' WTP local business tax. Focusing on the actual as well as the salient provision of public goods, we find no significant association with firms' WTP local business tax. This highlights the importance of perceptions with regard to tax issues. In our study, the perception of provided public goods is the most important parameter compared to the actual or salient provision of public goods. To proof that firms' stated WTP has actual economic consequences, we test it's correlation with tax avoidance within the respective municipality and find a significant negative effect. An increase in firms' WTP local business tax leads to a decrease in the average tax avoidance within the municipality of about 10% of the three-year ETR. Our results highlight the importance of providing the *right* public goods, e.g., primary schools or recreational areas, at the municipal level to enhance firms' WTP local business tax. Furthermore, it is particularly striking that the (economic) effect of trust on firms' WTP local business tax is considerably larger than that for the provision of private-related public goods. This suggests that the handling of tax revenues affects firms' WTP to a greater extent than the manner in which these revenues are ultimately utilized.

We contribute to the prior literature by providing insights on firms' behavior with respect to their WTP local business tax. We respond to the OECD's call for more information on firms' tax behavior, respectively, and calls for more studies of SMEs and private firms. Given that about one-third of all OECD-countries have a local business tax, these results are of great interest to many local governments: Enhancing trust, e.g., through transparent and accountable local governments, could be an important future goal to maintain or increase firms' WTP local business tax and thus maintain tax revenues, basic services, and ultimately municipality's self-administration. In addition, our findings can be used by local governments as an indication of how the provision of public goods can sustainably contribute to firms' satisfaction and thus support the efficient use of tax revenues. Our study highlights several areas for future research. To increase the internal validity of the results, one could think about conducting field experiments in different municipalities, states or regions. Furthermore, more evidence on firms of e.g., different sizes, like big or multinational enterprises, is of interest.

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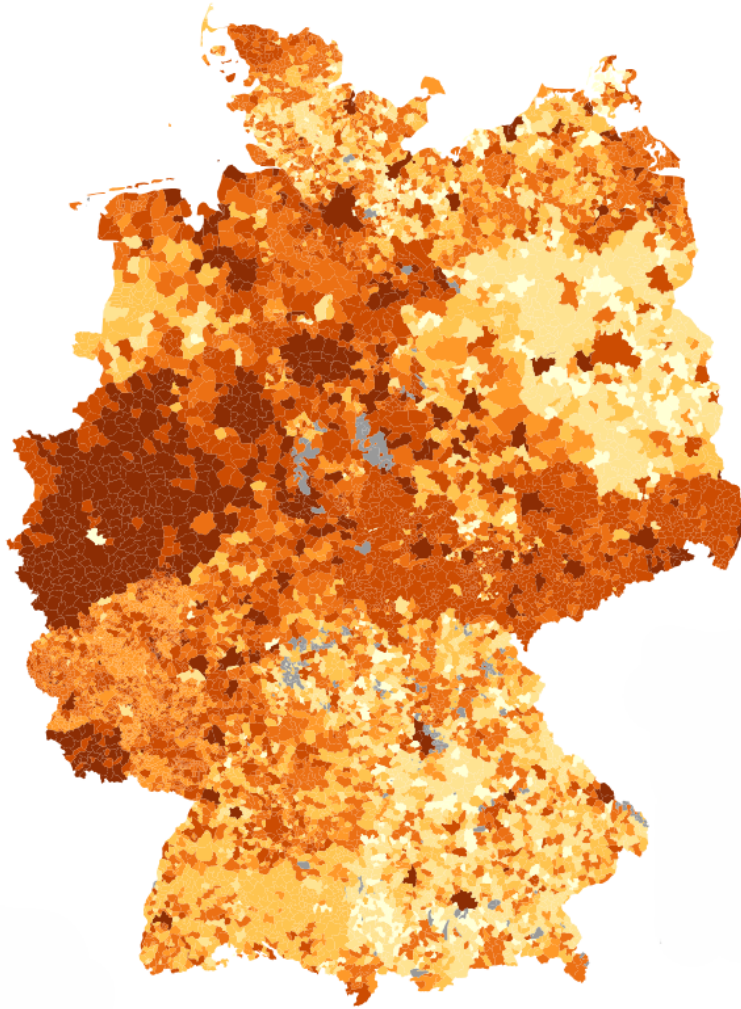
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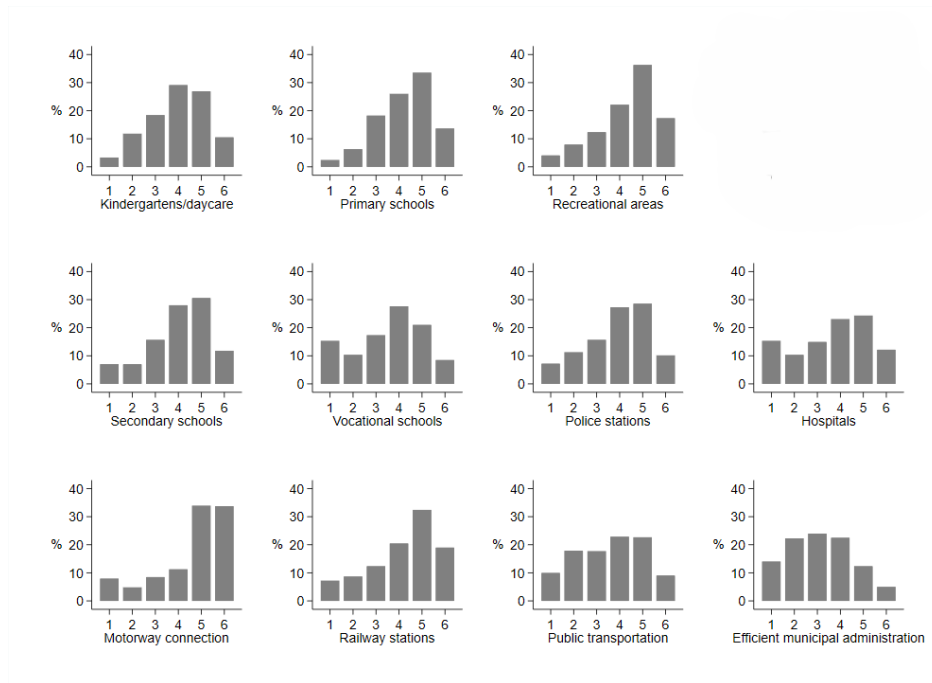
FIGURES AND TABLES

Figure 1: Trade Tax Multipliers of German Municipalities.



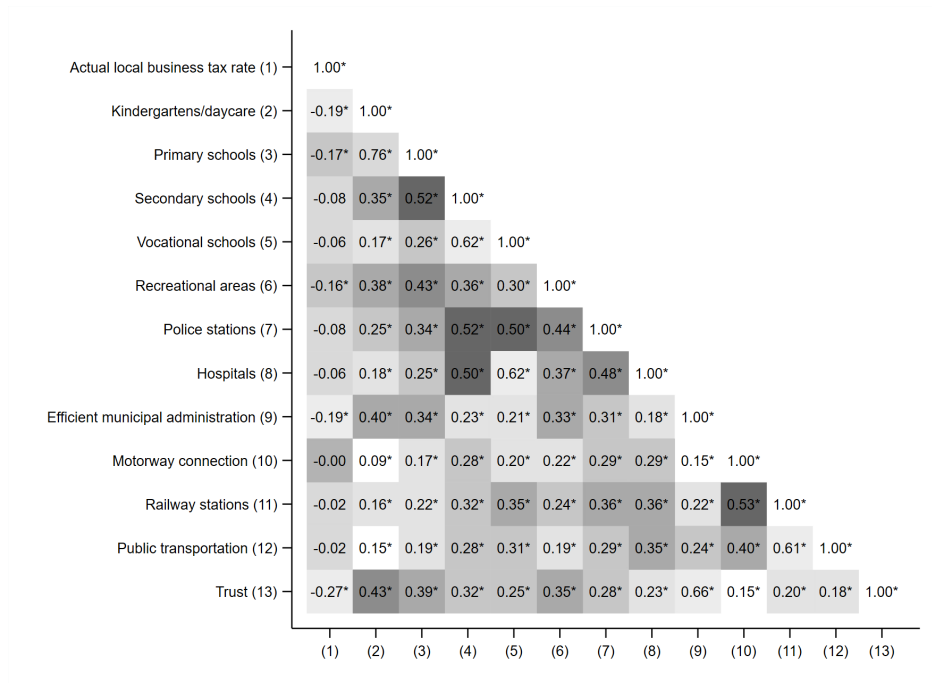
Notes: This map shows the trade tax multipliers across German municipalities in 2022. The darker the coloration, the higher the multiplier. Grey areas indicate areas that are not assigned to a municipality; these areas are subject to the district or federal state, e.g., state forests, military training areas, and wasteland. Source: German Federal and State Statistical Offices, www.statistikportal.de/de/karte-hebesaetze.

Figure 2: Perceived Provision of Public Goods.



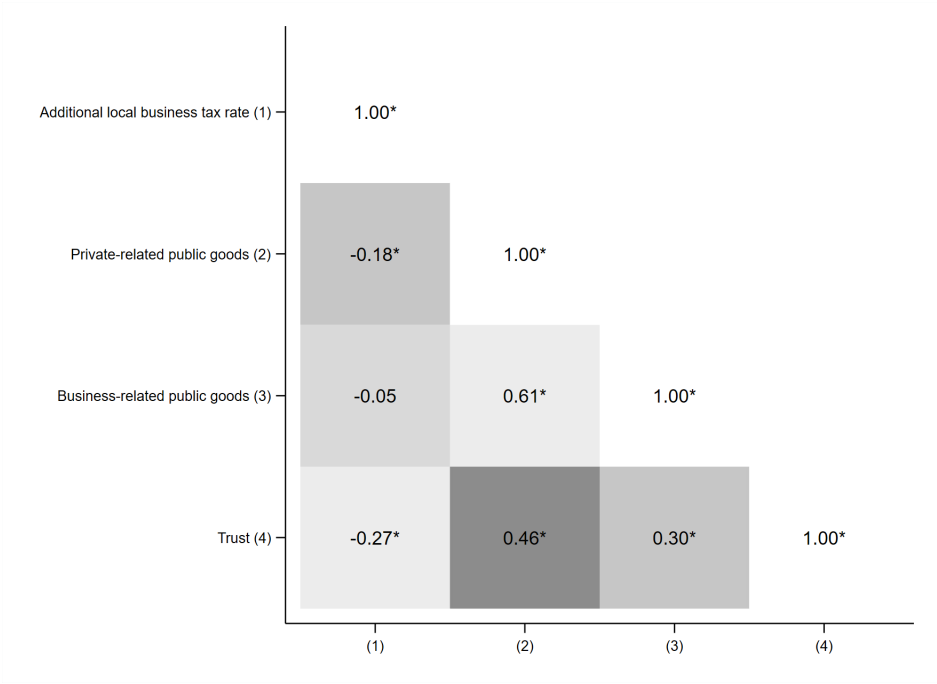
Notes: This figure shows the distribution for the provision of each public good separately (N = 543). The 6-point Likert-scale ranges from 1 (not good at all) to 6 (very good). Answering the question was voluntary, resulting in a changing base population (N) for the different ratings. The exact questions can be found in the Appendix A1.

Figure 3: Correlation Matrix – Satisfaction with Public Goods.



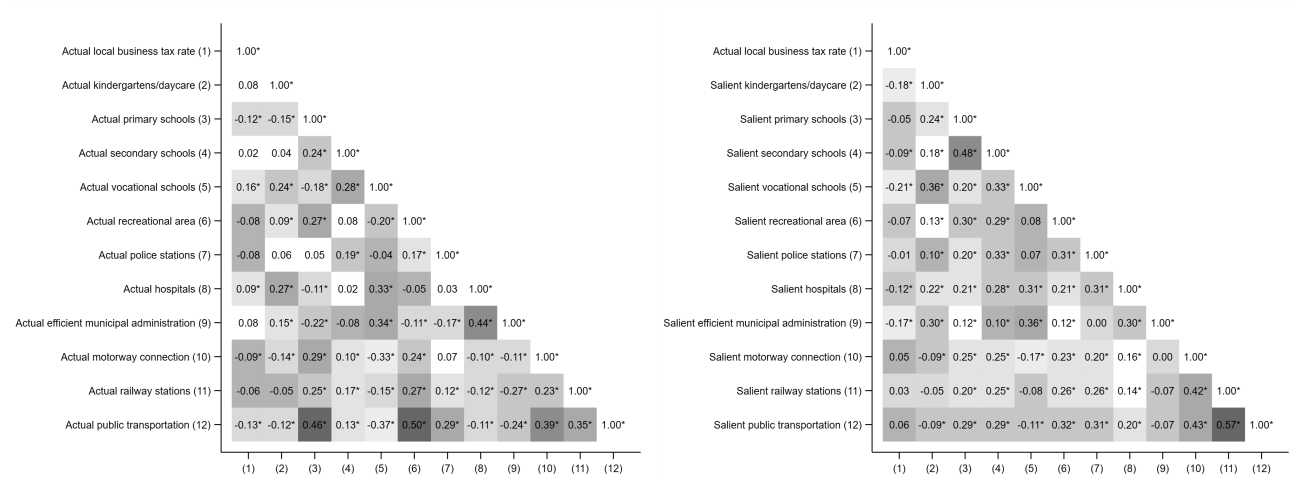
Notes: This figure shows Pearson correlation coefficients for the satisfaction with public goods (N = 543). * represents significance at the 5% level.

Figure 4: Correlation Matrix – Satisfaction with Private- and Business-Related Public Goods.



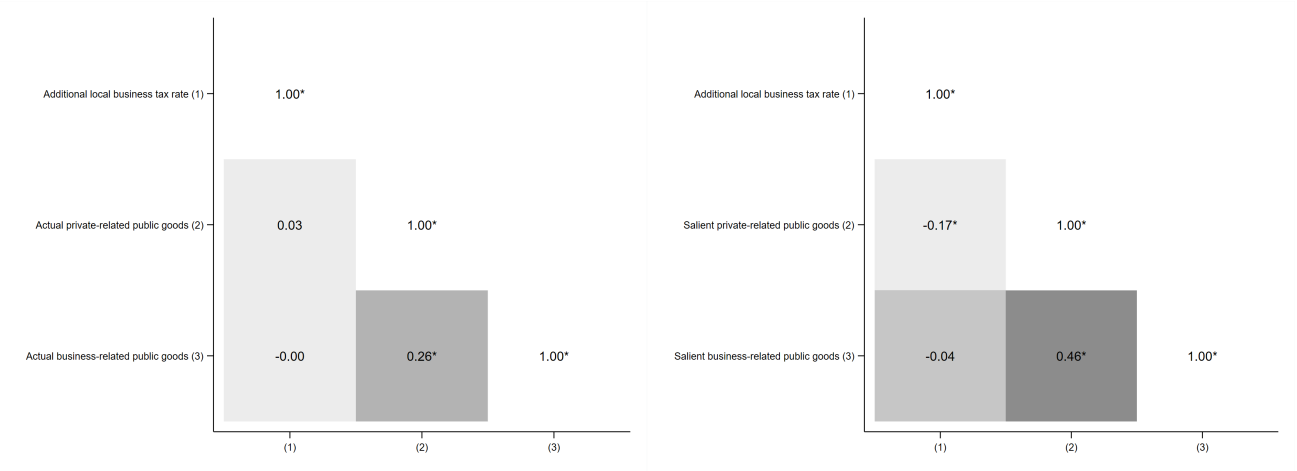
Notes: This figure shows Pearson correlation coefficients for the satisfaction with private- and business-related public goods (N = 543). * represents significance at the 5% level.

Figure 5: Correlation Matrix – Actual and Salient Public Goods.



Notes: This figure shows Pearson correlation coefficients for salient public goods (N = 543). * represents significance at the 5% level.

Figure 6: Correlation Matrix – Actual and Salient Private- and Business-Related Public Goods.



Notes: This figure shows Pearson correlation coefficients for salient private- and business-related public goods (N = 543). * represents significance at the 5% level.

Table 1: Survey Sample Comparison.

	Sample N = 543	Handicraft Census 2021 N = 568,314
<u>Legal Form</u>		
Sole proprietorship	41.6%	67.9%
Partnership	9.6%	8.0%
Mixed forms (e.g., GmbH & Co. KG)	24.5%	-
Corporation	24.3%	23.5%
Other	-	0.7%
<u>Employees</u>		
0-9	48.1%	80.1%
10-49	41.3%	17.6%
50 and more	10.7%	2.4%
<u>Sales*</u>		
up to 50.000 €	3.8%	14.4%
50.001 – 150.000 €	10.6%	20.5%
150.001 – 300.000 €	7.9%	17.5%
300.001 – 500.000 €	11.9%	16.4%
500.001 – 5 Mio. €	54.1%	27.7%
more than 5 Mio. €	13.6%	3.4%

Notes: This table compares the characteristics of firms in our sample to the Handicraft Census 2021. *14 firms chose the 'no information' option. Additionally, there are minor deviations between the revenue categories in the survey and the Crafts Census 2021. In the Handicraft Census the following categories are used: up to €50,000, €50,000 to €125,000, €125,000 to €250,000, €250,000 to €500,000, €500,000 to €5 million, more than €5 million. Source: <https://www.zdh.de/ueber-uns/fachbereich-wirtschaft-energie-umwelt/statistik/handwerkszaehlung/handwerkszaehlung-2021/>.

Table 2: Summary Statistics of Sample and Variable Definition.

Name	Definition / Measurement	Group	N	Mean	Median
<u>Trade tax rate</u>					
Perceived appropriate local business tax rate	= Perceived appropriate trade tax rate	-	543	9.0%	10.5%
<u>Satisfaction with the provision of public goods</u>					
Kindergartens/daycare	6-point Likert scale	private-related	543	4.0	4
Primary schools	6-point Likert scale	private-related	543	4.2	4
Secondary schools	6-point Likert scale	business-related	543	4.0	4
Vocational schools	6-point Likert scale	business-related	543	3.5	4
Recreational areas	6-point Likert scale	private-related	543	4.3	5
Police stations	6-point Likert scale	private-related	543	3.9	4
Hospitals	6-point Likert scale	private-related	543	3.7	4
Efficient municipal administration	6-point Likert scale	-	543	3.1	3
Motorway connection	6-point Likert scale	business-related	543	4.6	5
Railway stations	6-point Likert scale	business-related	543	4.2	5
Public transportation	6-point Likert scale	business-related	543	3.6	4
<u>Individual factors</u>					
Trust	6-point Likert scale	-	543	3.2	3

Notes: This table lists the survey variables. All 6-point Likert scales are sorted as follows: 1 = unsatisfactory to 6 = very good. The exact wording of the questions can be found in the Appendix A1.

Table 3: Matching Example – Saliency of Public Goods.

Municipality	No. of kindergartens	Population	Scaled no. of kindergartens	Calculated tiles	Matching firm's survey obs.	Saliency level
M1	10	10,000	0.0010	3	2	1
M2	6	4,000	0.0015	5	6	-1
M3	2	3,000	0.0007	2	1	1
M4	1	500	0.0020	6	4	2
M5	4	3,000	0.0013	4	4	0
M6	8	16,000	0.0005	1	2	-1

Notes: This table presents a fictitious example of our determination of the difference between the actual and perceived provision of public goods.

Table 4: Perceived Public Goods – Private and Business-Related Public Goods.

Variable	Definition	N	Mean	Median
Private-related public goods	6-point Likert scale	543	4.0	4.2
Business-related public goods	6-point Likert scale	543	4.0	4.2

Notes: This table lists the two categories private- and business-related public goods and provides the mean and median values. All 6-point Likert scales are sorted as follows: 1 = unsatisfactory to 6 = very good. The exact questions can be found in the Appendix A1.

Table 5: Actual Provision of Salience of Public Goods.

Name	Definition	Group	N	Mean	Median
<u>Actual public goods</u>					
Actual kindergartens/daycare	6-point scale	private-related	543	3.1	3
Actual primary schools	6-point scale	private-related	543	2.5	2
Actual secondary schools	6-point scale	business-related	543	3.5	4
Actual vocational schools	6-point scale	business-related	543	4.3	6
Actual recreational areas	6-point scale	private-related	543	2.1	2
Actual police stations	6-point scale	private-related	543	3.1	3
Actual hospitals	6-point scale	private-related	543	4.1	4
Actual efficient municipal administration	6-point scale	-	543	4.2	5
Actual motorway connection	6-point scale	business-related	543	2.3	2
Actual railway stations	6-point scale	business-related	543	2.4	1
Actual public transportation	6-point scale	business-related	543	2.1	2
<u>Actual private- and business-related public goods</u>					
Actual private-related public goods	6-point scale		543	3.2	3.3
Actual business-related public goods	6-point scale		543	2.9	2.8
<u>Salience of public goods</u>					
Kindergartens/daycare _{salient}	= Difference perceived – actual public goods	private-related	543	0.8	1
Primary schools _{salient}	= Difference perceived – actual public goods	private-related	543	1.8	2
Secondary schools _{salient}	= Difference perceived – actual public goods	business-related	543	0.5	1
Vocational schools _{salient}	= Difference perceived – actual public goods	business-related	543	-0.8	-1
Recreational areas _{salient}	= Difference perceived – actual public goods	private-related	543	2.2	2
Police stations _{salient}	= Difference perceived – actual public goods	private-related	543	0.7	1
Hospitals _{salient}	= Difference perceived – actual public goods	private-related	543	-0.4	-1
Efficient municipal administration _{salient}	= Difference perceived – actual public goods	-	543	-1.1	-1
Motorway connection _{salient}	= Difference perceived – actual public goods	business-related	543	2.3	3
Railway stations _{salient}	= Difference perceived – actual public goods	business-related	543	1.8	2
Public transportation _{salient}	= Difference perceived – actual public goods	business-related	543	1.5	2
<u>Salience of private- and business-related public goods</u>					
Salience private-related public goods	= Difference perceived – actual public goods		543	0.8	0.833
Salience business-related public goods	= Difference perceived – actual public goods		543	1.1	1.200

Notes: This table lists the actual provided public goods and salient provision of all and private- and business-related public goods.

Table 6: Extent of the Additional Local Business Tax Rate.

	N	Actual local business tax rate	appropriate local business tax rate	Additional local business tax rate
Non-corporations	411	14.3%	8.9%	5.5%-points
Corporations	132	14.4%	9.3%	5.1%-points

Notes: This table shows the average deviation of the actual local business tax rate from the perceived appropriate local business tax rate measured as additional local business tax rate by legal form. Non-Corporations also include mixed forms such as GmbH & Co. KG.

Table 7: Baseline Regression.

	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute additional local business tax rate	Perceived appropriate local business tax rate	Actual local business tax rate	Absolute additional local business tax rate	Perceived appropriate local business tax rate	Actual local business tax rate
Satisfaction average public goods	-0.2388 (-0.73)	0.2970 (0.93)	0.0582 (0.92)			
Satisfaction private-related public goods				-0.5626* (-1.78)	0.5803* (1.87)	0.0177 (0.29)
Satisfaction business-related public goods				0.2979 (1.01)	-0.2546 (-0.88)	0.0433 (0.70)
Trust	-0.9128*** (-3.97)	0.7961*** (3.53)	-0.1167*** (-2.86)	-0.8840*** (-4.04)	0.7692*** (3.58)	-0.1148*** (-2.88)
Population	0.0000* (1.94)	-0.0000 (-0.64)	0.0000*** (4.05)	0.0000* (1.82)	-0.0000 (-0.55)	0.0000*** (4.03)
Ground area (km ²)	0.0001 (0.03)	0.0034 (0.75)	0.0036** (2.56)	0.0014 (0.32)	0.0022 (0.49)	0.0036** (2.58)
District debt	0.0002 (0.84)	-0.0001 (-0.26)	0.0001* (1.72)	0.0002 (0.73)	-0.0000 (-0.16)	0.0001* (1.70)
Local business tax revenue (€/per capita)	-0.0001 (-0.17)	-0.0004 (-0.97)	-0.0005** (-3.04)	-0.0001 (-0.20)	-0.0004 (-0.97)	-0.0005*** (-3.04)
Investment promotion measures	0.0011 (0.51)	0.0000 (0.00)	0.0011 (1.53)	0.0013 (0.58)	-0.0002 (-0.07)	0.0011 (1.52)
Unemployment rate	0.1879 (0.99)	0.1671 (0.87)	0.3550*** (5.40)	0.2008 (1.06)	0.1551 (0.81)	0.3560*** (5.41)
Constant	7.4149*** (4.96)	4.4780*** (3.04)	11.8928*** (27.51)	7.3059*** (4.84)	4.5564*** (3.06)	11.8624*** (27.17)
Municipality-Size & Legal Form FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	543	543	543	543	543	543
Adj. R-sq	0.0829	0.0442	0.5726	0.0856	0.0468	0.5720

Notes: This table shows the OLS regression results for the absolute additional local business tax rate. The dependent variables in columns (1)-(3) represent the case with only the average perception of public goods and trust, columns (4)-(6) represent the case where we divide by private- and business-related public goods. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

Table 8: OLS-Regression – Actual and Salient Public Goods.

	(1)	(2)	(3)	(4)	(5)	(6)
	Absolute additional local business tax rate	Perceived appropriate local business tax rate	Actual local business tax rate	Absolute additional local business tax rate	Perceived appropriate local business tax rate	Actual local business tax rate
Panel A						
Actual average public goods	0.0583 (0.13)	0.1386 (0.31)	0.1969 (1.41)			
Actual private-related public goods				0.1802 (0.52)	-0.1668 (-0.50)	0.0135 (0.15)
Actual business-related public goods				-0.1587 (-0.38)	0.3602 (0.85)	0.2015 (1.55)
Trust	-0.993*** (-5.39)	0.9030*** (4.91)	-0.0963** (-2.70)	-0.9896*** (-5.23)	0.8885*** (4.75)	-0.1011** (-2.79)
Constant	6.5048*** (4.02)	5.0895*** (3.18)	11.5943*** (23.90)	6.4492*** (4.00)	5.0979*** (3.17)	11.5970*** (23.86)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-Size & Legal Form FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	543	543	543	543	543	543
Adj. R-sq	0.0828	0.0433	0.5720	0.0826	0.0426	0.5717
Panel B						
Salient average public goods	-0.1949 (-0.74)	0.1789 (0.69)	-0.0160 (-0.26)			
Salient private-related public goods				-0.3049 (-1.19)	0.2594 (1.03)	-0.0455 (-0.77)
Salient business-related public goods				0.0676 (0.33)	-0.0358 (-0.18)	0.0318 (0.63)
Trust	-0.9293*** (-4.33)	0.8393*** (3.95)	-0.0900** (-2.37)	-0.9198*** (-4.42)	0.8289*** (4.02)	-0.0908** (-2.44)
Constant	6.7936*** (5.73)	5.2979*** (4.25)	12.0914*** (31.13)	6.8685*** (31.13)	5.2231*** (4.13)	12.0916*** (31.22)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Municipality-Size & Legal Form FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	543	543	543	543	543	543
Adj. R-sq	0.0828	0.0433	0.5720	0.0826	0.0426	0.5717

Notes: This table shows the OLS regression results for the absolute additional local business tax rate. Panel A displays results for the actual provision of public goods, Panel B for the salient provision of public goods. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

Table 9: Robustness OLS-Regression – Relative Measure.

	(1)	(2)
	Relative additional local business tax rate	Relative additional local business tax rate
Satisfaction average public goods	-0.0118 (-0.52)	
Satisfaction private-related public goods		-0.0399* (-1.81)
Satisfaction business-related public goods		0.0258 (1.26)
Trust	-0.0633*** (-4.01)	0.0608*** (-4.02)
Constant	0.5685*** (5.46)	0.5599*** (5.33)
Controls	Yes	Yes
Municipality-Size & Legal Form FE	Yes	Yes
Observations	543	543
Adj. R-sq	0.0542	0.0577

Notes: This table shows the OLS regression results of the relative additional local business tax rate. The dependent variables in column (1) represent the case with only the average perception of public goods and trust, (2) represents the case where we divide public goods into private- and business-related public goods. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

Table 10: OLS-Regression – Tax Avoidance (Three-Year ETR) and Firms' WTP.

	(1)	(2)	(3)	(4)
	Three-year ETR	Three-year ETR	Three-year ETR	Three-year ETR
Absolute additional local business tax rate _m	-0.0044 (-1.39)			
Relative additional local business tax rate _m		-0.0773* (-1.73)		
Perceived appropriate local business tax rate _m			0.0056* (1.80)	
Actual local business tax rate _m				0.0212 (1.60)
Trust _m	-0.0257** (-2.42)	-0.0258** (-2.49)	-0.0261** (-2.50)	-0.0159 (-1.49)
Total assets	-0.0509* (-1.93)	-0.0512* (-1.93)	-0.0515* (-1.93)	-0.0473* (-1.79)
ROA	0.0398 (0.73)	0.0404 (0.75)	0.0426 (0.81)	0.0422 (0.75)
Leverage	-0.1710** (-2.04)	-0.1725** (-2.06)	-0.1731** (-2.07)	-0.1767** (-2.19)
Intangible intensity	-0.3416 (-0.66)	-0.3468 (-0.67)	-0.3631 (-0.71)	-0.4758 (-0.91)
Employees	0.0751*** (6.75)	0.0754*** (6.78)	0.0759*** (6.74)	0.0747*** (6.53)
Population _m	-0.0000 (-0.79)	-0.0000 (-0.81)	-0.0000 (-0.83)	-0.0000 (-1.50)
Ground area _m (km ²)	-0.0002 (-0.90)	-0.0002 (-0.93)	-0.0002 (-0.95)	-0.0002 (-0.99)
District debt _m	-0.0000 (-1.50)	-0.0000 (-1.60)	-0.0000 (-1.63)	-0.0000 (-1.39)
Investment promotion measures _m	-0.0001 (-1.23)	-0.0001 (-1.34)	-0.0001 (-1.39)	-0.0001 (-0.75)
Unemployment rate _m	0.0114 (1.25)	0.0115 (1.30)	0.0110 (1.27)	0.0023 (0.28)
Constant	0.2534 (0.95)	0.2625 (0.98)	0.1852 (0.68)	-0.0918 (-0.28)
Municipality-Size & Industry FE	Yes	Yes	Yes	Yes
Observations	165	165	165	165
Adj. R-sq	0.6393	0.6417	0.6442	0.6455

Notes: This table shows the OLS regression results for the three-year ETR. The dependent variables in column (1) represent the results for the average absolute additional local business tax rate within the municipality, column (2) for the average relative additional local business tax rate within the municipality. Columns (3) and (4) show the results for the average perceived appropriate local business tax rate in the municipality and the actual local business tax rate in the municipality. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

APPENDIX

A1 Survey Questionnaire

The structure of the survey is explained in Section 3. The survey is divided into three parts and includes all questions relevant for the analysis.

Part I: Firm Characteristics

1. What is the legal form of your firm?
2. In which craft do you operate?
3. How many employees do you have who are subject to social insurance contributions (in full-time positions)? Please provide the exact number.
4. Which of the following intervals most closely corresponds to your turnover (in €) in the 2022 financial year?

Part II: Trade Taxation

1. Please enter the municipality in which your firm is based.
2. What trade tax multiplier (in %) would you consider appropriate in the municipality in which your firm is based?

Part III: Perception of Public Goods

1. Regarding the municipality in which your firm is based, how do you rate the provision of:
 - Kindergartens/daycare
 - Primary schools
 - Secondary schools
 - Vocational schools
 - Recreational areas
 - Police stations
 - Hospitals
 - Effectiveness of municipal administration
 - Motorway connection
 - Railway stations
 - Public transportation
2. To what extent do you agree with the following statement? *"The municipality in which my firm is based handles the trade tax revenue responsibly."*

A2 Implementation of Local Business Tax

Table 11: Local Business Tax in OECD-Countries

OECD-country	Local Business Tax	Details
Australia	No	-
Austria	No	-
Belgium	No	-
Canada	Yes	All provinces and territories impose income tax on income attributable to a permanent establishment in the province or territory, ranging from 2.5% to 16%.
Chile	No	-
Columbia	Yes	All municipalities levy a Industry and Commerce Tax on income derived from the exercise of industrial, commercial, or service activities. The rate ranges from 0.2% to 1%.
Costa Rica	Yes	Municipalities levy a local tax. The rate depends on the municipality, but the most common method of calculation is to apply a percentage to net income or sales.
Czech Republic	No	-
Denmark	No	-
Estonia	No	-
Finland	No	-
France	No	-
Germany	Yes	The trade tax rate is a combination of a uniform tax rate of 3.5% (base rate) and a municipal tax rate. The municipal tax rate varies from 200% to 650%.
Greece	No	-
Hungary	Yes	The local business tax is similar to a sales tax, the rate varies by municipality up to a maximum of 2%.
Iceland	No	-
Israel	No	-
Ireland	No	-
Italy	Yes	The regional production tax, known as imposta regionale sulle attività produttive (IRAP), is 3.9%. Regions may increase or decrease the standard IRAP rate by up to 0.92%.

OECD-country	Local Business Tax	Details
Japan	Yes	The inhabitants' tax is levied on a corporation's income allocated to each prefecture and city (or municipality), ranging from 1% to 8.4%.
Korea, Republic of	Yes	The local income tax is a separate income tax with its own tax base, exemptions and credits, and rates. Local income tax rates for corporations, ranging from 0.9% to 2.4%.
Latvia	No	-
Lithuania	No	-
Luxembourg	Yes	Municipal business tax is levied by the communes and varies from municipality to municipality, e.g., for Luxembourg City it is 6.75%.
Mexico	No	-
The Netherlands	No	-
New Zealand	No	-
Norway	No	-
Poland	No	-
Portugal	Yes	A local surtax (Derrama) of up to 1.5% of taxable income (before deduction of any available tax loss carryforwards) is levied in certain municipalities. A regional surtax (Derrama Regional) is applied in the autonomous region of Madeira and autonomous region of Azores, ranging from 2.1% to 7.2%.
Slovakia	No	-
Slovenia	No	-
Spain	Yes	The business and professional activities tax is a local tax levied annually on the exercise of business, professional or artistic activities in Spain with a tax rate of up to 15%.
Sweden	No	-
Switzerland	Yes	Each canton has its own tax law and levies cantonal and communal corporate income and capital taxes at different rates.
Turkey	No	-
The United Kingdom	No	-
The United States of America	Yes	Corporate income tax rates vary from state to state, ranging from 1% to 10%.

Notes: This table provides an overview of the implementation of local business taxes in OECD-countries and their specific characteristics. The data set utilizes information sourced from PwC Worldwide Tax Summaries, <https://taxsummaries.pwc.com/>.

A3 Variable Definition

Table 12: Variable Definition of all Variables.

Variable	Definition	Source
Perceived appropriate local business tax rate	Perceived appropriate trade tax rate	Survey data
Actual local business tax rate	Actual trade tax rate	Administrative data
Satisfaction with provision of public goods	Perceived provision of public goods within the municipality the firm is located	Survey data
Actual provision of public goods	Actual provision of public goods within the municipality the firm is located	INKAR data
Trust	Trust in municipality's handling of tax revenues	Survey data
Population	Municipality population in 2022	INKAR data
Ground area	Municipality ground area in km ²	INKAR data
District debt	Scaled district debt the municipality is located in	INKAR data
Local business tax revenue	Tax revenue of the municipality in € per capita	INKAR data
Investment promotion measures	Scaled investment promotion measures of the municipality	INKAR data
Unemployment rate	Scaled unemployment rate within the municipality	INKAR data
Three-year ETR	Average three-year ETR of firms in a municipality	DAFNE data
One-year ETR	Average one-year ETR of firms in a municipality	DAFNE data
Total assets	Average three-year ETR of firms in a municipality	DAFNE data
ROA	Return on assets of a firm	DAFNE data
Leverage	Leverage of a firm	DAFNE data
Intangible intensity	Intangible intensity of a firm	DAFNE data
Employees	Number of employees in a firm	DAFNE data

Notes: The table shows variable definition for all variables used. For public goods the definition applies to all public goods examined within the study.

A4 Matching of Public Goods

Table 13: Matching Survey and Archival data – Public Goods.

Survey data	INKAR-database
Kindergartens/daycare	Childcare rate for small children
Primary schools	Primary schools
Secondary schools	Secondary schools
Vocational schools	Vocational schools
Recreational areas	Recreational areas
Police stations	Police stations
Hospitals	Hospital beds
Efficient municipal administration	Municipal Staff
Motorway connection	Motorway connection
Railway stations	Accessibility of Railway stations (IC/ICE)
Public transportation	Public Transportation Stops

Notes: This table shows the corresponding INKAR-database items for the public goods from the survey.

A5 Provision of Public Goods

Table 14: Archival Data – Summary Statistics of Data & Variable Definition.

Name	Definition / Measurement	Group	N	Mean	Median
<u>Trade tax rate</u>					
Actual trade tax rate	= Actual trade tax rate	-	543	14.3%	14%
<u>Actual public good</u>					
Actual kindergartens/daycare	6-point Scale	private-related	543	3.1	3
Actual primary schools	6-point Scale	private-related	543	2.5	2
Actual secondary schools	6-point Scale	business-related	543	3.5	4
Actual vocational schools	6-point Scale	business-related	543	4.3	6
Actual recreational areas	6-point Scale	private-related	543	2.1	2
Actual police stations	6-point Scale	private-related	543	3.1	3
Actual hospitals	6-point Scale	private-related	543	4.1	4
Actual efficient municipal administration	6-point Scale	-	543	4.2	5
Actual motorway connection	6-point Scale	business-related	543	2.3	2
Actual railway stations	6-point Scale	business-related	543	2.4	1
Actual public transportation	6-point Scale	business-related	543	2.1	2

Notes: This table lists all variables for which archival data is used in the matching process as described in Chapter 4. All 6-point Likert scales are sorted as follows: 1 = unsatisfactory to 6 = very good.

A6 Correlation Matrix

Table 15: Pairwise Correlation of Public Goods.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Motorway connection	1									
(2) Railway stations	0.528*	1								
(3) Secondary schools	0.196*	0.355*	1							
(4) Recreational areas	0.225*	0.242*	0.297*	1						
(5) Primary schools	0.167*	0.220*	0.258*	0.430*	1					
(6) Kindergartens/daycare	0.091*	0.157*	0.172*	0.379*	0.757*	1				
(7) Hospitals	0.295*	0.362*	0.617*	0.373*	0.252*	0.175*	1			
(8) Public transportation	0.402*	0.609*	0.315*	0.187*	0.185*	0.150*	0.348*	1		
(9) Police stations	0.295*	0.358*	0.497*	0.436*	0.336*	0.252*	0.484*	0.286*	1	
(10) Vocational schools	0.280*	0.316*	0.620*	0.362*	0.524*	0.348*	0.500*	0.280*	0.518*	1

Notes: This table presents Pearson correlation coefficients for the public goods ($N = 543$). * represents significance at the 5% level.

A7 Summary Statistics

Table 16: Summary Statistics of Regression Variables.

Variables	N	Mean	St. Dev.	p5	p95
Absolute additional local business tax rate	543	5.370	5.340	-1.610	14.700
Relative additional local business tax rate	543	0.370	0.369	-0.101	1
Perceived appropriate local business tax rate	543	8.972	5.234	0.000	17.500
Actual local business tax rate	543	14.342	1.720	10.500	17.150
Satisfaction average public goods	543	3.919	0.883	2.455	5.273
Satisfaction private-related public goods	543	4.011	0.970	2.400	5.600
Satisfaction business-related public goods	543	3.987	1.053	2	5.600
Trust	543	3.245	1.267	1	5
Actual average public goods	543	3.068	0.566	2.000	5.600
Actual private-related public goods	543	3.195	0.665	2.000	4.167
Actual business-related public goods	543	2.916	0.770	1.600	4.200
Salient average public goods	543	0.851	1.043	-1.000	2.636
Salient private-related public goods	543	0.817	1.134	-1.033	2.600
Salient business-related public goods	543	1.072	1.354	-1.400	3.200
Population	543	153,741	288,988	3,798	770,112
Ground area (km ²)	543	109.5	79.97	19	248
District debt	543	1,694	1,090	398.5	3,625
Local business tax revenue (€ per capita)	543	639.3	485.0	193.1	1,978
Investment promotion measures	543	95.31	89.33	7.560	244.7
Unemployment rate	543	5.477	1.793	3.070	9.050

Notes: This table lists all variables and provides sample size, mean and median values, as well as standard deviation and 5%- and 95%-percentile.

A8 Summary Statistics Tax Avoidance

Table 17: Summary Statistics of DAFNE Sample (Three-Year ETR).

Variables	N	Mean	St. Dev.	p5	p95
Three-year ETR	165	0.165	0.196	0.00308	0.488
One-year ETR	165	0.162	0.216	0	0.512
Absolute additional local business tax rate _m	165	5.797	3.872	-0.175	11.97
Relative additional local business tax rate _m	165	0.371	0.250	-0.0112	0.720
Perceived appropriate local business tax rate _m	165	9.730	3.807	3.500	15.750
Actual local business tax rate	165	15.530	1.479	12.600	17.150
Trust _m	165	2.976	1.063	1	5
Total assets	165	10.11	0.812	8.556	10.96
ROA	165	0.192	0.271	0.0204	0.636
Leverage	165	0.561	0.219	0.186	0.899
Intangible intensity	165	0.00761	0.0277	4.20e-08	0.0371
Employees	165	8.387	1.436	5.921	10.53
Population _m	165	368,929	380,139	24,919	1.509e+06
Ground area _m (km ²)	165	177.1	92.99	45	311
District debt _m	165	1,914	1,421	330.2	5,169
Investment promotion measures _m	165	125.4	101.8	26.45	379.4
Unemployment rate _m	165	6.738	2.157	3.990	11.11

Notes: This table lists all variables and provides sample size, mean and median values, as well as standard deviation and the 5%- and 95%-percentile.

A9 Robustness Test: Within Municipality Fixed Effects

Table 18: Baseline OLS-regression – Municipality Fixed Effects.

	(1)	(2)
	Absolute additional local business tax rate	Perceived appropriate local business tax rate
Satisfaction private-related public goods	-1.0819** (-2.06)	1.0819** (2.06)
Satisfaction business-related public goods	-0.3037 (-0.56)	0.3037 (0.56)
Trust	-0.3474 (-0.88)	0.3474 (0.88)
Constant	-12.7261*** (7.69)	2.1291 (1.29)
Controls	Yes	Yes
Industry FE	Yes	Yes
Observations	270	270
Adj. R-sq	0.0988	0.0791

Notes: This table shows the OLS regression results for the dependent variables absolute additional local business tax rate and perceived appropriate local business tax rate with municipality fixed effects. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

A10 Robustness Test: One-Year ETR

Table 19: OLS-Regression – Tax Avoidance (One-Year ETR) and Firms' WTP.

	(1)	(2)	(3)	(4)
	One-year ETR	One-year ETR	One-year ETR	One-year ETR
Absolute additional local business tax rate _m	-0.0077** (-2.19)			
Relative additional local business tax rate _m		-0.1273** (-2.51)		
Perceived appropriate local business tax rate _m			0.0094*** (2.67)	
Actual local business tax rate _m				0.0294* (1.92)
Trust _m	-0.0353** (-2.35)	-0.0347** (-2.29)	-0.0349** (-2.24)	-0.0199 (-1.26)
Constant	0.4509 (1.12)	0.4574 (1.14)	0.3270 (0.81)	-0.0428 (-0.10)
Controls	Yes	Yes	Yes	Yes
Municipality-Size & Industry FE	Yes	Yes	Yes	Yes
Observations	159	159	159	159
Adj. R-sq	0.4885	0.4919	0.4979	0.4929

Notes: This table shows the OLS regression results for the dependent variable one-year ETR. The independent variable in column (1) represents the average absolute additional local business tax rate within the municipality, in column (2) the average relative additional local business tax rate within the municipality. Columns (3) and (4) show the results for the average perceived appropriate local business tax rate in the municipality and the actual local business tax rate in the municipality. t-statistics are given in parentheses, and standard errors are heteroscedasticity-robust and clustered at the municipality level. ***, ** and * label statistical significance at 1%, 5% and 10% level, respectively.

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