

DISKUSSIONSBEITRÄGE DISCUSSION PAPERS

Fiscal Sustainability and the Role of Voluntary Income Tax Filing: Evidence from Germany

An Initial Analysis

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No. 77 – June 2025

Fiscal Sustainability and the Role of Voluntary Income Tax Filing: Evidence from Germany

Summary. While existing research primarily focuses on tax evasion and tax avoidance, the fiscal relevance of legal filing decisions remains largely unexplored. This paper addresses this research gap by examining the fiscal implications of voluntary (non-)filing of income tax returns, using Germany as a case study. The analysis quantifies the aggregate effects of alternative filing scenarios on average tax payments and the fiscal sustainability of public finances. Based on administrative microdata from the German Wage and Income Tax Statistics, taxpayers with the legal option to forgo filing are first identified. Subsequently, potential revenue effects from changes in filing behavior are estimated and translated into sustainability indicators using a generational accounting framework. Preliminary results suggest that a universal filing of currently non-filing individuals would lead to moderate revenue losses, increasing intertemporal public liabilities by 8.2 percentage points of GDP in the reference year 2023. Moreover, the findings highlight a fundamental trade-off: while voluntary non-filing constitutes a legitimate individual tax strategy, its aggregated effect undermines horizontal equity in taxation. Ensuring this equity, however, comes at the cost of a moderate deterioration in fiscal sustainability.

JEL-Klassifikation: H24, H31, H60

Key words: Voluntary (non-)filing, Personal income tax, Automatic tax filing, Public finance, Fiscal sustainability, Generational accounting

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1 Introduction

The decision to file an income tax return carries not only individual financial implications but also aggregate effects on public revenues. In Germany, tax law grants certain groups of taxpayers the legal option to forgo income tax assessment, provided specific statutory conditions are met. As a legitimate feature of the German tax system, this provision affords eligible individuals a degree of autonomy in fulfilling their tax obligations. While illegal tax avoidance and aggressive tax planning have been widely examined in academic literature (cf. Alstadsæter et al., 2022; Kasipillai et al., 2003; Slemrod and Yitzhaki, 2002), fiscal implications of voluntary (non-)filing have received little scholarly attention to date.

This paper is a first step to address the existing research gap by empirically examining the fiscal implications of alternative assessment decisions made by voluntarily (non-)filing taxpayers. It focuses particularly on the aggregate effects of such decisions on average tax payments and the long-term fiscal sustainability of public finances. The relevance of this analysis is underscored by the demographic-driven rise in public expenditure and the pressing need for a stable and predictable revenue base to finance future government obligations. Therefore, the paper explores whether the current tax assessment framework is fiscally sustainable or whether it entails notable fiscal risks due to changes in taxpayers' behavior, even if this behavior is in line with applicable law.

To address this question, chapter 2 first presents the current state of research on voluntary tax assessment and the fiscal effects of individual tax decisions. This is followed by an overview of the institutional framework of the German income tax and wage tax system in chapter 3, which outlines the legal requirements for tax assessment as well as the wage tax withholding system. The empirical part of the study is structured around three key components. First, a methodological approach is developed to identify voluntarily (non-)filing taxpayers (chapter 4.1). Second, the corresponding income tax liability and the amount of income tax withheld during the year are calculated for various sample groups (section 4.2). Third, the resulting effects on fiscal sustainability are quantified using generational accounting methodology (chapters 4.3 and 4.4) to assess the longterm sustainability of public finances. The subsequent presentation of results focuses on changes in average tax payments depending on assessment behavior (section 5.1) and shows its resulting effects on government's intertemporal liabilities (section 5.2). Finally, chapter 6 offers a critical discussion of the findings, particularly regarding the identified conflict between fiscal sustainability and horizontal tax equity, before concluding with a summary of the key insights and suggestions for future research directions.

2 Current State of Research

Literature Review. Previous academic research on voluntary (non-)filing behavior has predominantly focused on the United States, with particular attention to demographic, socio-economic, and behavioral factors. One of the earliest contributions, by Cilke (1998), demonstrated that individuals may choose to file an income tax return even when not legally obligated, often motivated by the prospect of receiving a tax refund. The study found that voluntary non-filers are frequently single individuals or childless married couples, with a notably high proportion of older women among the single filers. Most of these individuals receive pensions or government transfer payments, although a significant share of working-age individuals also opt not to file. In contrast, individuals with higher levels of educational attainment are more likely to take advantage of the opportunity to file voluntarily, while taxpayers with a migrant background are less inclined to submit a tax declaration.

These descriptive findings are corroborated by subsequent studies. Cilke (2014) report that voluntary non-filers tend to be older than the average taxpayer, with men representing the majority among those under the age of 65. Compared to voluntary filers, non-filers generally have lower wage tax withholdings and are concentrated in lower income brackets. Similar results are presented by Mortenson et al. (2009), who identify low income levels and income primarily derived from wages and pensions as defining characteristics of voluntary non-filers. Notably, many individuals in this group refrain from filing a tax return even when the wage tax withheld throughout the year exceeds their actual income tax liability, thereby forfeiting the opportunity to claim a refund. The authors further highlight the potential fiscal implications if this pattern of filing behavior were to change in the future.

A primary motivation for voluntary filing is the opportunity to access tax-related transfer benefits. For example, Mortenson et al. (2009) and Robson and Schwartz (2020) emphasize that parents are particularly incentivized to file tax returns through programs such as the Earned Income Tax Credit. Robson and Schwartz (2020) further observe that married couples are more likely to file than single individuals, in part due to their eligibility for child-related benefits. At the same time, the study identifies the complexity of the tax system as a significant barrier that deters many taxpayers from filing.

In addition to structural complexity, information deficits and administrative burdens are key factors shaping filing behavior. Erard and Ho (2001) argue that lowering the costs of filing and offering targeted information can significantly increase the likelihood of tax return submission, particularly among low-income individuals. Their findings also suggest that once a taxpayer voluntarily files a return, the probability of continued compliance in subsequent years increases markedly. These results are supported by the longitudinal study of Ramnath and Tong (2017), which shows that tax information campaigns can exert a lasting influence on taxpayer behavior.

Hauck and Wallossek (2024) provides a nuanced examination of the German context. Utilizing administrative data, the study shows that low-income individuals are disproportionately affected by excessive wage tax withholdings. For these taxpayers, failing to file a tax return results in income below the basic tax-free allowance being taxed, thereby undermining the intended progressivity of the tax system. However, the authors conclude that the additional fiscal revenue generated from this behavior is relatively modest, implying that the implementation of automated filing would pose minimal risk to public budgets.

Existing literature demonstrates that voluntarily (non-)filing taxpayers constitute a demographically and economically heterogeneous group. Beyond individual incentives and administrative barriers, institutional conditions, such as the connection between tax filing and eligibility for state transfer benefits, play a critical role in shaping filing behavior. These factors are widely recognized as key determinants of whether taxpayers choose to submit a return.

Despite these insights, the medium- and long-term fiscal risks associated with uncertain filing behavior remain underexplored. While a small number of studies have investigated the expenditure-side implications of changes in filing behavior, particularly with regard to welfare transfers, the corresponding effects on public revenue are largely unexamined. Although it is occasionally suggested that revenue losses from voluntary non-filing are relatively minor, there is a notable lack of systematic empirical evidence quantifying these effects. This study seeks to address this research gap by offering the first comprehensive empirical analysis of the fiscal consequences of voluntary (non-)filing, based on administrative microdata. In doing so, it contributes meaningfully to the empirical literature on tax policy effects and lays the groundwork for future research from a range of disciplinary and methodological perspectives.

Explanatory Approaches for Different Assessment Behavior. Several theoretical perspectives can be applied to explain the assessment behavior of individuals who voluntarily choose to file or refrain from filing income tax returns. These perspectives reflect both economically rational decision-making and non-economic influences such as moral norms and cognitive constraints. The following outlines three principal explanatory approaches.

Tax Filing as an Economic Decision-Making Process. According to the economic reference model of tax compliance introduced by Allingham and Sandmo (1972) and further refined by Sandmo (2005), the decision to file a tax return can be conceptualized as a rational cost-benefit analysis. In this framework, rather than addressing tax evasion per se, the model evaluates the potential financial benefits and costs associated with voluntary filing. From a rational-choice perspective, taxpayers are more likely to file if the expected financial gain, typically a tax refund resulting from over-withholding, exceeds the perceived costs of assessment, including time, effort, or potential uncertainty. Even when a refund is anticipated, however, uncertainty regarding the final tax liability or administrative complexity may deter filing. Additionally, learning effects, such as familiarity gained through prior filings, can lower future compliance costs and positively influence filing behavior over time (Ramnath and Tong, 2017).

Filing a Tax Return as a Moral Obligation. Beyond economic reasoning, normative motivations may also influence assessment behavior. Individuals with a strong tax morale, a favorable attitude toward the public sector, or a high valuation of public services may perceive tax filing as a civic duty, even in the absence of a legal requirement to do so (Horodnic, 2018; Saad, 2014). Although most literature originates in the context of tax avoidance and evasion, the underlying concepts are equally applicable to voluntary assessment. When filing is seen as an expression of civic responsibility, individuals may choose to file regardless of any direct financial benefit. In such cases, moral commitment replaces monetary considerations in shaping compliance behavior.

Cognitive Barriers and Decision-Making Inertia. A third explanatory approach draws on insights from behavioral economics, focusing on the impact of cognitive barriers and decision-making inertia. The complexity of tax laws and the perceived difficulty of administrative processes may create psychological friction that discourages individuals from filing (Robson and Schwartz, 2020). This inertia does not necessarily reflect an intentional choice to avoid filing but may result from information deficits, low self-efficacy, or administrative overload. Particularly affected are individuals with lower educational attainment, limited language proficiency, or restricted access to administrative support. These groups are consistently identified in empirical research as being less likely to engage in voluntary filing (Cilke, 1998; Robson and Schwartz, 2020). At the same time, studies show that targeted outreach, simplification initiatives, and information campaigns can effectively reduce these barriers and increase compliance (Erard and Ho, 2001; Ramnath and Tong, 2017). This behavioral perspective highlights the interaction between individual-level characteristics and broader institutional conditions in shaping assessment behavior.

3 Institutional Background

To evaluate the effects of the voluntary assessment system, it is essential first to understand the institutional framework governing wage and income taxation in Germany. This framework is outlined in the following section. Income Tax Schedule and Solidarity Surcharge. The applicable income tax rate in Germany is set out in § 32a para. 1 EStG. Similar to the systems in many other industrialized countries such as the United States and Japan, the German income tax system is progressive. This means that the marginal tax rate, i.e. the rate applied to the next euro of taxable income, increases with the size of the tax base.



Figure 1: Income Tax Schedule and Solidaraity Surcharge in 2020

Source: Author's illustration.

For the 2020 assessment period, which is the base year for the empirical analysis in this study due to data availability, a basic tax-free allowance of 9,408 euros applies. Above this threshold, the tax rate starts at a marginal rate of 14 percent and increases gradually through two linear-progressive zones (see Figure 1). In the first zone, the marginal tax rate rises relatively steeply, resulting in the first notable kink in the rate curve at a taxable income of 14,533 euros. In the second zone, the marginal rate continues to increase more gradually until it reaches the top regular tax rate of 42 percent, which applies from a taxable income of 57,052 euros. At a taxable income of 270,500 euros and above, the so-called "wealth tax rate" of 45 percent comes into effect.

In addition to income tax, a solidarity surcharge must be paid under certain conditions.¹ The basis for the solidarity surcharge is the assessed income tax. For the 2020 assessment period, a surcharge exemption amount, commonly referred to as the "zero zone" (*Nullzone*), of 972 euros applies. For jointly assessed spouses, this exemption doubles to 1,944 euros. As a result, the surcharge is not applied in full to income tax amounts

¹ Alongside the solidarity surcharge, church tax constitutes another form of so-called annex tax (*Annexsteuern*). Since church tax can be avoided by leaving the respective religious community, it is not considered in this analysis.

up to this level, which roughly corresponds to a taxable income of 14,530 euros for single taxpayers, or approximately 29,065 euros in the case of spousal income splitting. If the exemption limit is exceeded, the surcharge does not immediately apply in full. Instead, § 4 SolZG 1995 provides for a mitigation zone (*Milderungszone*) in which the solidarity surcharge increases gradually. Within this transitional range, the surcharge must not exceed 20 percent of the amount by which the assessed income tax exceeds the exemption threshold. The mitigation zone ends at an income tax liability of 1,340 euros, or 2,700 euros in the case of joint assessment. Above these thresholds, the full solidarity surcharge rate of 5.5 percent is applied to the entire income tax liability.

Tax Deductions for Employees. Taxation in Germany is based on the constitutional principle of equal treatment, as established in Article 3 para. 1 of the Basic Law (Grundgesetz, GG). This principle requires that essentially similar situations be treated equally for tax purposes, while materially different situations may be treated differently. From this arises the so-called ability-to-pay principle, according to which the tax burden must be aligned with the taxpayer's economic capacity. To operationalize this fundamental principle, the German tax system differentiates between two sub-principles:

- 1. the objective net principle, and
- 2. the subjective net principle.

The objective net principle, codified in § 2 para. 2 of the Income Tax Act (EStG), stipulates that expenses directly associated with the generation of income may be deducted from gross income. The aim is to tax not the entire gross amount (such as an employee's total salary), but rather only the net portion remaining after deducting necessary business-related expenses. This residual amount reflects the resources actually available for private consumption and thus serves as an objectively measurable indicator of economic capacity. Depending on the category of income, deductible expenses are classified either as income-related expenses (*Werbungskosten*) in the case of surplus income, or as operating expenses (*Betriebsausgaben*) for profit income. For employment income, if no higher income-related expenses can be substantiated, a standard deduction of 1,000 euros is granted for the 2020 assessment period pursuant to § 9a sen. 1 no. 1 letter a $EStG.^2$

In contrast, the subjective net principle considers individual living conditions, such as the minimum subsistence level, medical needs, or maintenance obligations. Its goal is to ensure that only the portion of income exceeding what is necessary for basic living expenses is subject to taxation. The deductible items under this principle are determined

² See Thürmer (2024, margin nos. 83–91) for guidance on substantiating actual expenses; for a detailed overview of eligible deductions, see Oertel (2025, margin nos. 30–150).

by personal, that is, *subjective* criteria. This approach integrates elements of social equity by recognizing individual financial burdens in the assessment process. Deductible expenses under the subjective net principle include, in particular, extraordinary expenses (e.g. medical or care costs) and special expenses as defined in § 10 EStG. These include contributions to the statutory pension insurance system, 90 percent of which were deductible in 2020 under the deferred taxation model and are fully deductible as of 2023 (c.f. Gutmann et al., 2019; Schultis, Toussaint, et al., 2024). Contributions to statutory long-term care insurance and to basic health insurance also qualify as fully deductible special expenses. These deductions serve to (partially) offset the financial burden of social insurance contributions through a reduction in income tax liability. If a taxpayer does not declare higher actual special expenses in the assessment, a lump-sum deduction of 36 euros is granted in accordance with § 10 para. 1 nos. 4, 5, 7, and 9, as well as para. 1a and § 10b EStG.

Wage Tax Withholding. In Germany, income taxation operates through two distinct mechanisms. The first is the income tax assessment process, as outlined in the previous sections. The second involves direct withholding of wage tax by the employer. In the withholding system, employees subject to social security contributions are assigned to one of six income tax brackets (I to VI), which correspond to their individual tax circumstances, such as marital status and number of children. These classifications are recorded in the electronic payroll tax deduction system and are accessible to employers or payroll accounting offices. Using the relevant wage tax tables, the payroll accounting office calculates the amount of wage tax to be withheld. At the same time, the employee's social security contributions – covering pension, health, long-term care, and unemployment insurance – are determined. The employer then deducts the calculated wage tax and social insurance contributions directly from the employee's gross wages. These amounts are subsequently remitted to the appropriate tax authorities and social insurance institutions.

Annual Wage Tax Adjustment by the Employer. § 42b EStG regulates the provisions for the annual wage tax adjustment (*Jahresausgleich*). This procedure enables the employer to review the wage tax withheld from employees during the calendar year and to make corrections if necessary. The primary aim is to reconcile any differences between the wage tax actually withheld and the amount of tax owed based on the employee's annual income. As a consequence, employees can receive refunds of overpaid wage tax or settle outstanding tax liabilities without the need for a formal income tax assessment. This streamlined process fosters equitable taxation and reduces the administrative burden on both employees and tax authorities.

An employer is required to perform the annual wage tax equalization if it employs at least ten employees as of December 31 of the equalization year. The adjustment can be conducted for employees who have been continuously employed by the same employer throughout the entire calendar year. According to § 42b para. 1 sen. 3 EStG, certain employees are excluded from the annual wage tax equalization. These include, for example:

- Employees who were temporarily not taxed under wage tax class I during the equalization year,
- Employees who opted for the factor method,
- Employees for whom allowances or add-back amounts were considered in wage tax calculation, and
- Employees who received certain benefits during the equalization year, such as shorttime work allowance or maternity allowance.

The annual adjustment must be carried out no earlier than the payroll for the last wage payment period ending in the adjustment year and no later than the payroll for the final wage payment period in February of the following year. Any wage tax refunded or additionally collected as part of this adjustment must be recorded separately in the employee's payroll account and clearly indicated in the annual wage tax statement.

Compensatory Nature of Wage Tax Withholding. For taxpayers whose sole source of income is employment, the wage tax withheld typically has a compensatory effect in accordance with § 46 para. 4 EStG. In these cases, there is generally no obligation to file an income tax return with the tax office. However, § 46 para. 2 EStG outlines specific exceptions where the finality of wage tax withholding does not apply. If any of these conditions are met, a formal income tax assessment becomes necessary. Such exceptions include, for example, when the taxpayer's income subject to the progression clause exceeds 410 euros (§ 46 para. 2 no. 1), when wages are received simultaneously from multiple employers (§ 46 para. 2 no. 2), or when the taxpayer voluntarily opts for an income tax assessment by submitting a tax return (§ 46 para. 2 no. 8).³

Deviating Wage Tax Withholding. In payroll accounting, the accounting office applies various simplifying assumptions that may lead to discrepancies between the wage tax withheld and the income tax ultimately assessed. These simplifications primarily involve, first, extrapolating the employee's gross income to an annual basis. Second, standard-ized deductions are applied for income-related expenses (1,000 euros in 2020) and certain special expenses (36 euros), while deductible social security contributions are similarly extrapolated to cover the entire year.

³ For further details on cases where the final withholding tax does not apply, see Schmieszek (2025, margin nos. 43–96a).

Three main mechanisms can cause such deviations in withheld wage tax. The first concerns inaccurate extrapolations of gross income. When an employee's monthly income varies rather than remains constant, each payroll cycle assumes that the current month's income will continue for the entire year. This approach can lead to an overestimation of annual income and, consequently, excessive wage tax withholding throughout the year.⁴ The second mechanism relates to the application of standardized deductions for income-related expenses and the basic tax-free allowance of 9,408 euros. During payroll accounting, one-twelfth of these amounts is deducted monthly. However, if an employee is not employed for the full year and is subject to social security contributions, part of both the income-related expense allowance and the basic allowance is effectively lost. This situation can result in wage tax overpayment relative to the liability determined by a formal income tax assessment.

The third mechanism stems from the inherent tension between standardized payroll procedures and the fundamental taxation principles discussed earlier. While these simplifications promote administrative efficiency, they limit the extent to which the objective and subjective net principles can be fully implemented. For example, taxpayers may have verifiable income-related expenses exceeding the flat-rate deduction, or incur special and extraordinary expenses not being captured by the standardized process. In summary, the standardized nature of wage tax withholding does not account for various personal and situational factors typically considered in a formal income tax assessment, potentially leading to discrepancies between the amount withheld and the actual tax liability.

Wage Tax Reduction Procedure under § 39a EStG. The procedure for wage tax reduction is governed by § 39a EStG. It enables employees to obtain tax relief within the current calendar year by having individual allowances factored into the wage tax deduction process. The entry of such allowances reduces the employee's taxable wage, thereby lowering their monthly wage tax burden. Taxpayers may apply for an allowance under this procedure if they expect to incur specific expenses or financial burdens within the calendar year that exceed the statutory lump sums. This applies in particular to the following categories:

- Work-related expenses that exceed the standard income-related expense allowance for employment income (§ 9a sen. 1 no. 1 letter a EStG);
- Special expenses that surpass the lump sum provided for in § 10c EStG;
- Extraordinary expenses (§ 33 EStG) that exceed the threshold of reasonable personal burden, as well as flat-rate allowances for individuals with disabilities or surviving dependents, where applicable during the calendar year.

 $^{^4}$ Hauck (2021, p. 65) provides an example illustrating this form of excessive wage tax withholding.

Applications must be submitted to the competent tax office using the official form and must be duly signed by the taxpayer. The application period begins on November 1 of the preceding year and ends on November 30 of the calendar year in which the allowance is to be applied. It is important to note that applications are inadmissible if the total amount of anticipated deductible expenses does not exceed 600 euros. Once granted, the allowance is generally valid for two calendar years. The approved annual amount is divided evenly across the wage payment periods, resulting in a consistent monthly reduction of the wage tax burden.

For spouses who are both subject to unlimited income tax liability and are not permanently separated, deductible amounts are usually determined jointly. By default, the total eligible allowance is split equally between the spouses, unless an alternative allocation is explicitly requested. Single parents may claim the single-parent tax relief beginning in the month of separation, allowing for immediate adjustment and tax relief.

Submission of Income Tax Return. Taxpayers in Germany have several procedural options for filing a personal income tax return. One common option is to prepare and submit the return independently. This can be done either electronically or in paper form. According to the BMF letter dated 12 August 2022,⁵ paper submission remains permissible unless electronic filing is expressly required by law. Under § 25 para. 4 sen. 1 EStG, natural persons are generally exempt from mandatory electronic filing, provided their situation does not fall under one of the assessment scenarios specified in § 46 para. 2 nos. 2 to 8 EStG. For paper submissions, the return must be filed using the officially prescribed form, which can be completed in one of the following ways:

- 1. By using printed official forms available from local tax offices;
- 2. By printing official online forms provided on the tax administration's websites;
- 3. By using non-official forms created in an officially approved format, typically generated through certified tax software.

To assist with electronic filing, the German tax administration provides ELSTER (Elektronische Steuererklärung) – a web-based, platform-independent portal designed to support the digital preparation and paperless submission of tax returns. ELSTER includes several user-friendly features, such as the pre-filled tax return option, which allows users to automatically import personal master data held by the tax office. This includes third-party data such as wage tax certificates submitted by employers, information on health and long-term care insurance contributions, pension expenses, and wage replacement benefits (e.g. unemployment benefits, parental allowance, or sick pay). According

 $^{^5\,}$ BMF letter dated 12.08.2022, ref. IV A 5 - O 1561/19/10001, BStBl. I 2022, p. 1334.

to data published by the tax administration, around 28.2 million income tax returns were submitted electronically by private individuals via ELSTER for the 2020 tax year.⁶

In addition to the ELSTER platform, various commercial web-based applications (e.g. Taxfix, Smartsteuer, WISO-Steuer, etc.) offer fee-based services for the preparation and electronic submission of income tax returns. These tools typically include interactive features such as chatbots, context-sensitive help fields, and guided workflows, all designed to simplify data entry through explanatory texts and practical examples. Most commercial providers also support the retrieval of pre-filled tax return data. However, unlike EL-STER, accessing this feature usually requires a retrieval code, which must be requested separately and is sent to the taxpayer by post.

As an alternative to self-preparation, taxpayers may also engage professional support from tax advisors or income tax assistance associations (*Lohnsteuerhilfevereine*). Both services are subject to fees. According to the Federal Chamber of Tax Consultants (*Bundessteuerberaterkammer*), there were 88,509 registered tax advisors in Germany as of 2020.⁷ While professional tax advisors tend to be more costly than self-filing options, they offer the benefits of expert knowledge and legal certainty. In many cases, they are better positioned to identify deduction opportunities or tax relief measures that may be overlooked by non-professionals due to the complexity of the tax code. A more affordable alternative is offered by income tax assistance associations. According to the Bundesverband Lohnsteuerhilfevereine e.V., there are currently 298 registered member organizations. Although their advisory authority is limited under the Tax Consultancy Act (StBerG), they are permitted to offer assistance in defined areas, particularly with respect to employment income, pension income as defined in § 22 EStG, and, under certain conditions, other forms of surplus income (§ 4 no. 11 StBerG).

Fiscal Importance of Wage and Income Tax Revenue Across Government Tiers. Tax revenues from wage tax and income tax constitute a key element of public financing for Germany's various tiers of government: the federal government, the federal states (*Länder*), and the municipalities (*Gemeinden*). Pursuant to Article 106 para. 3 of the Basic Law (GG), revenue from these taxes is distributed equally between the federal and state governments. The municipalities, in turn, receive a fixed share of the overall income tax revenue: 15 percent of wage and assessed income tax, and 12 percent of capital gains tax, as specified in § 1 of the Municipal Finance Reform Act (Gemeindefinanzreformgesetz). Accordingly, both the federal and state governments each retain 42.5 percent of the total revenue. The municipal share is allocated among individual municipalities according to a distribution key defined in § 3 para. 1 of the Gemeindefinanzreformgesetz.

⁶ See https://www.elster.de/eportal/infoseite/elster_eine_erfolgsstory [last accessed 05.02.2025]. This value includes returns submitted through authorized representatives.

⁷ Federal Chamber of Tax Consultants, Berufsstatistik der Steuerberaterkammer 2023, p. 6. This value includes tax advisors, tax agents, and individuals pursuant to § 74 para. 2 StBerG.





Source: Author's calculations, Federal Statistical Office (2025).

Note: IT=Income tax; TT=Trade tax; WT=Wage tax; VAT=Value added tax. The percentages stated refer to values after tax distribution.

This key is based on official federal statistics on wage and assessed income tax and reflects the taxpayer's registered place of residence. Moreover, Germany operates a mechanism of fiscal equalization (*Länderfinanzausgleich*) designed to balance disparities in financial capacity among the federal states. Its purpose is to ensure that all states are adequately equipped to discharge their responsibilities. As part of this mechanism, income tax revenues may be partially redistributed from financially stronger to weaker states. Figure 2 illustrates the composition of tax revenues across government tiers in years 2020 and 2023. The distribution of wage and income tax revenue underscores its fundamental importance, especially for federal and state governments. In 2020, these taxes represented the largest single source of revenue at all levels of government, including municipalities. By 2023, trade tax had overtaken them as the primary municipal revenue source. Nonetheless, wage and income tax continued to account for over one-third of total municipal tax revenue, affirming its enduring fiscal relevance at the local level.

4 Empirical Strategy

The empirical strategy for assessing the fiscal significance of voluntary (non-)filers in relation to the long-term sustainability of local public finances is organized into three sequential stages. In the first stage (section 4.1), using data on wage and income tax statistics, individuals are identified for whom income tax is either voluntarily assessed or not assessed at all. The second stage (section 4.2) entails simulating an income tax assessment for these non-filing individuals in order to estimate their hypothetical tax liability. In the third stage (sections 4.3 and 4.4), the resulting tax profiles provide the empirical basis for a generational accounting analysis, which is used to quantify the long-term fiscal implications associated with this subgroup.

4.1 Identification of Voluntarily (Non-)Filing Individuals

The following sections outline the methodology employed to identify individuals who either voluntarily file or refrain from filing an income tax return.

Dataset on (Non-)Filing Individuals. The identification of voluntarily (non-)filing individuals is based on an anonymized 10% sample of Wage and Income Tax Statistics (FAST), provided by FDZ (2024). This dataset offers detailed information on various income components, social security contributions, wage and income tax payments made during the calendar year, as well as key socio-demographic characteristics of taxpayers. The FAST dataset for the year 2020 comprises a total of 4,271,427 observations, including 399,995 cases in which no income tax return was filed. In addition, the dataset provides a broad range of tax-relevant variables such as gross employment income, paid social security contributions, and annual wage tax withholdings. In total, FAST 2020 includes 777 variables, thereby offering a comprehensive foundation for empirical analysis.

Stepwise Identification. The identification of individuals who voluntarily file or refrain from filing an income tax return is carried out in a stepwise manner, following the methodological approaches outlined by Cilke (1998, pp. 8–12) for the United States and Hauck and Wallossek (2024, pp. 3 f.) for Germany. This identification is grounded in the statutory provisions that exempt certain taxpayers from the obligation to file a tax return. In the *first step*, , observations are excluded if the positive sum of income and wage replacement benefits subject to progression exceeds 410 euros (§ 46 para. 2 no. 1 2nd alternative EStG). This threshold can be determined because social insurance institutions report such benefits to the tax authorities. Moreover, taxpayers are excluded if the positive sum of income that is subject to income tax but not to wage tax withholding exceeds 410 euros, after deducting the age-related tax relief (§ 24a EStG) and the tax exemption for income from agriculture and forestry (§ 13 para. 3 EStG). The *second step* removes from the pool of potentially voluntary filers those taxpayers who received wages from multiple employers simultaneously in 2020, provided that these wages were not aggregated for wage tax withholding in accordance with § 38 para. 3a sen. 7 EStG (§ 46 para. 2 no. 2 EStG). A key indicator in this context is the taxpayer's income tax class: employees with secondary employment are typically assigned tax class VI, while unmarried employees with a single employment relationship are classified under tax class I.

The third step continues to apply tax class-related exclusions. Here, jointly assessed spouses (§§ 26, 26b EStG) are excluded if both received wages in 2020 and opted for tax class combinations V/III or VI, or for the factor method in combination with tax class IV. In such cases, the compensatory nature of wage tax withholding under § 46 para. 2 no. 3a EStG does not apply, thereby triggering a mandatory filing obligation.

The fourth step excludes taxpayers who made use of the wage tax reduction procedure (§ 39a EStG) during the assessment year. This procedure allows for the advance recognition of increased income-related expenses, special expenses, or extraordinary burdens in the wage tax deduction process. Such allowances are determined separately under § 179 para. 1 AO and are subject to verification under § 39 para. 1 sen. 4 EStG. According to § 46 para. 2 no. 4 EStG, the filing exemption does not apply to income from employment if the wage tax reduction procedure was used and the taxpayer's annual salary exceeds the sum of the basic personal allowance (*Grundfreibetrag*), the employee lump sum (*Werbungskostenpauschale*), and the special expenses lump sum (*Sonderausgabenpauschale*).⁸

The *fifth step* addresses the criteria listed in § 46 para. 2 nos. 4a–5a and 7 EStG. These have a negligible effect on the sample, as only a small number of observations remain that either involve jointly assessed parental couples (§ 26 para. 1 sen. 1 EStG) or relate to extraordinary expenses for vocational training of an adult child (§ 46 para. 2 no. 4a letter d EStG). Due to data limitations, it is not feasible to operationalize exclusions based on nos. 6, 8, and 9. These are therefore omitted. However, their omission is unlikely to introduce bias. In particular, whether a taxpayer submits an assessment application (§ 46 para. 2 no. 8 EStG) does not affect their eligibility to benefit from final wage tax withholding. In fact, eligibility to file such an application presupposes that the taxpayer is not subject to mandatory assessment.

The *final step* excludes recipients of old-age and survivors' pensions, insofar as they are obligated to file a tax return. The filing obligation depends on whether they or their spouses receive income subject to tax withholding. If such income exists, a tax return must be filed if the positive sum of other income not subject to withholding (e.g. pensions, rental income) exceeds 410 euros. Conversely, if no income subject to withholding is

⁸ For jointly assessed spouses, these thresholds are doubled. Additionally, the tax office may reassess the underlying conditions of the tax reduction procedure during the final income tax assessment, which may result in additional payments or refunds.

received, the obligation to file arises if total income exceeds the basic personal allowance of 9,408 euros (18,816 euros for jointly assessed couples), or if the tax office issues a filing request.⁹ In addition to the above, all observations lacking information on gender, gross income, or assessment status are excluded for methodological reasons. These variables are essential for calculating average per capita tax payments in the next stage of the analysis. Such so-called taxpayer profiles serve as the basis for the generational accounting model, which is used to estimate long-term wage and income tax revenues and to assess the fiscal implications of demographic change for governmental tiers.¹⁰

Sample of (Non-)Filing Individuals. Based on the identification procedure outlined above for taxpayers not legally obligated to file an income tax return, a subsample comprising 686,707 observations was extracted from the FAST 2020 dataset. Table 1 presents the socio-demographic characteristics of this identified sample. The first column summarizes information for all individuals eligible for optional income tax assessment. The second column isolates those who chose not to file a tax return for the 2020 assessment year, while the third column describes those who exercised the option to file voluntarily.

The sample comprises 686,707 observations, corresponding to approximately 14.6 million taxpayers. The majority of these are assessed individually. This outcome aligns with expectations, as jointly assessed spouses are typically subject to mandatory filing due to their choice of tax class combination. In 2020, approximately 46.5 percent of all taxpayers eligible for optional joint assessment refrained from filing and instead relied on final wage tax withholding. This figure closely matches the non-filing rate reported by Hauck and Wallossek (2024). The socio-demographic profile further reveals that taxpayers without children are disproportionately represented among those with no obligation to file. This can likely be attributed to the fact that parents frequently receive government transfers, such as parental allowance, which are subject to the progression clause under the Income Tax Act. Among eligible parents, however, a majority (about 53.6 percent) opted to file voluntarily. This behavior may reflect the availability of tax benefits related to children, such as deductions for daycare costs, school fees, or expenses for children living away from home.

An analysis of the age distribution indicates that working-age individuals are especially likely to be eligible for optional assessment. This is mainly because retirees are often required to file a tax return, as pension income is not subject to wage tax withholding, particularly when taxable income exceeds the basic allowance. Given the ongoing transition to a system of fully deferred taxation of retirement income, the share of retirees

⁹ For jointly assessed spouses, the basic allowance is doubled. Thus, an obligation to file arises only if their combined income exceeds 18,816 euros, in contrast to the individual limit.

¹⁰ In addition to these variables, age is a critical input for profile construction. However, for anonymization reasons, the FAST 2020 dataset contains modified age values for some individuals. A correction procedure is therefore required, as detailed in Chapter 4.2.

eligible for optional assessment is expected to decline substantially in the coming years (see Schultis, Toussaint, et al., 2024). Within the working-age group, younger individuals, particularly those under the age of 20, are the least likely to file voluntarily. By contrast, the share of voluntary filers increases steadily with age. This trend is consistent with findings by Hauck and Wallossek (2024, p. 5), who show that the absolute difference between withheld wage tax and actual income tax liability tends to grow with gross income. Since individuals between the ages of 40 and 60 generally earn the highest incomes over the course of their careers – and thus experience the largest discrepancy between withheld and assessed taxes – their comparatively high rate of voluntary filing is to be expected.

Limitations of the Identification Strategy. The approach used to identify individuals who voluntarily file or refrain from filing an income tax return is subject to certain limitations. To avoid potential misinterpretations, these limitations are outlined below. First, there is a risk of misclassification if taxpayers fail to fully disclose their income. For example, an individual may earn income from self-employment in addition to reported wage income but omit this from their tax declaration. In such cases, the identification strategy may incorrectly categorize the taxpayer as eligible for optional assessment, even though a legal filing obligation exists. However, since the primary focus of this study is not

	Optional filers	Non-filers	Voluntary filers	
Male	$395,\!364$	184,200 (46.6)	211,164 (53.4)	
Female	$291,\!343$	135,281 (46.4)	156,062 (53.6)	
With children	$154,\!810$	72,660 (46.9)	$82,\!150\ (53.1)$	
Without children	$531,\!897$	246,821 (46.4)	285,076 (53.6)	
Western states	$540,\!313$	252,729 (46.8)	$287,\!584$ (53.2)	
Eastern states	$146,\!394$	66,752 (45.6)	79,642 (54.4)	
Under 20 years	$26,\!192$	$16,246\ (62.0)$	9,946~(38.0)	
20 to under 30 years	$97,\!615$	37,780(38.7)	59,835~(61.3)	
30 to under 40 years	$82,\!623$	35,287 (42.7)	47,336(57.3)	
40 to under 50 years	$71,\!513$	32,589 (45.6)	38,924 (54.4)	
50 to under 60 years	$72,\!450$	27,969 (38.6)	44,481 (61.4)	
60 to under 70 years	$19,\!534$	9,753 (49.9)	$9,781 \ (50.1)$	
Over 70 years	$25,\!437$	24,576 (96.6)	861 (3.4)	
Sample size	686,707	319,481 (46.5)	367,226 (53.5)	
indiv. assessed	597,791	$230,793\ (38.6)$	366,998 (61.4)	
jointly assessed	88,916	$88,\!688$ (99.7)	$228\ (0.3)$	
Absolute number	$14,\!625,\!608$	9,715,556 (66.4)	4,910,052 (33.6)	
indiv. assessed	12,741,124	7,835,567 (61.5)	4,905,557 (38.5)	
jointly assessed	$1,\!884,\!484$	1,879,989 (99.8)	4,495~(0.2)	

 Table 1: Socio-Demographic Characteristics of the Identified Sample

Source: Author's calculations based on FAST dataset (FDZ, 2024). Note: The values in brackets are relative sizes. on tax evasion or underreporting by individual taxpayers, but rather on the broader fiscal implications of assessment behavior for local governments, such cases are not analyzed further.

A second notable limitation concerns the restricted availability of information on capital income within the FAST dataset provided by FDZ (2024). This constraint prevents a precise estimation of tax liabilities in cases where the preferential treatment of capital income under § 32d para. 6 EStG would apply. In particular, the inability to consider whether the taxpayer's individual income tax rate falls below the standard flat rate of 25 percent introduces a potential source of inaccuracy in estimating hypothetical tax burdens. Nevertheless, this shortcoming does not compromise the construction of the sample of optionally assessable individuals. Since capital gains tax (*Kapitalertragsteuer*) is typically withheld at source and treated as final taxation under § 43 para. 5 sen. 1 EStG, the receipt of capital income rarely triggers an obligation to file a tax return. Accordingly, the lack of detailed capital income data has no bearing on whether an individual is correctly identified as voluntarily (non-)filing.

4.2 Simulating Income Tax Liabilities for Non-Filing Individuals

General Simulation. The income tax liability for all observations in the dataset is estimated using a simulated income tax assessment. This simulation is particularly relevant for individuals who did not submit an income tax return for the 2020 assessment period. To this end, the taxable income of each relevant observation is calculated based on the tax law in effect as of February 1, 2025, applied retroactively to the 2020 assessment year. The simulation draws primarily on income from employment as defined in § 19 EStG, which is derived from wage tax certificate data. These data are available even for individuals who did not file a tax return.

Since employment income is categorized as surplus income, it is computed as the difference between gross wages and income-related expenses. However, detailed information on deductible income-related expenses is unavailable for non-filing individuals. Therefore, it is assumed that income-related expenses do not exceed the standard flat-rate allowance of 1,000 euros. In the case of married couples eligible for joint assessment, this lump sum is doubled. Special expenses are represented by contributions to the statutory social insurance system.¹¹ In addition, a standard deduction of 36 euros is applied for other special expenses. This simplified approach is necessitated by the absence of detailed data that would allow a more precise determination of these expenses.

Furthermore, no data are available on medical or other extraordinary expenses as

¹¹ Due to the lack of detailed information on insurance coverage within statutory health insurance, 4 percent of the total health insurance contributions are deducted as a lump sum to account for sick pay coverage, in line with the guidance provided in the BMF letter dated 24.05.2017 (ref. IV C 3 - S 2221/16/10001), as last amended on 16.12.2021 (BStBl. I, p. 155), margin no. 83.

defined in § 33 EStG. As a result, it is assumed that such expenses do not exceed the threshold for reasonable burden and are therefore not deductible. The age relief amount under § 24a EStG is also excluded from the simulation, as the individuals in the sample no longer fulfill the statutory requirements for eligibility.¹²

Based on these assumptions, the taxable income for each observation is determined and taxed according to the basic income tax rate schedule specified in § 32a para. 1 EStG. Married couples with differing marginal tax rates can reduce their combined tax liability by opting for joint assessment, thereby benefiting from the progressive nature of the tax scale (§§ 26, 26b in conjunction with § 35a para. 5 EStG). This option is used by nearly all married individuals who choose to file voluntarily. However, for non-filing individuals, the dataset does not include information on marital status or joint filing status. Accordingly, it is assumed for the purposes of this simulation that all taxpayers are assessed individually.¹³ The simulation is subject to further limitations for two specific groups:

- 1. Individuals whose gross income exceeds the compulsory insurance threshold of 62,550 euros, and
- 2. Civil servants who are exempt from mandatory participation in the statutory social security system.

For the first group, no data are available on whether these individuals have opted for voluntary membership in the statutory health insurance system or on their private insurance contributions. For the second group, information on social security contributions paid in 2020 is also lacking. The strategies adopted to address these limitations are presented in the following sections.

Treatment of High-Income Employees Above the Compulsory Insurance Thresh-

old. Employees with earnings exceeding the compulsory insurance threshold of 62,550 euros have the option of enrolling either in the statutory health insurance scheme on a voluntary basis or in private health insurance. If an individual opts for voluntary statutory health insurance, their contribution can be estimated using the applicable contribution rate and the corresponding assessment ceiling, which is set below the compulsory insurance limit. In contrast, private health insurance contributions vary significantly across individuals and cannot be objectively determined based on the available data. As a result, the amount of deductible special expenses related to private health insurance remains uncertain. Accurately estimating these deductions is essential for a reliable simulation of

 $^{^{12}}$ For a comprehensive overview of the eligibility criteria for the age relief amount, see Loewens (2025, margin no. 1–27).

¹³ The implications of this assumption for estimated tax liabilities are discussed in detail in the results section.

income tax liabilities. In addition to income-related expenses, special expenses such as health insurance contributions play a crucial role in determining taxable income among non-assessed individuals. If these contributions, whether statutory or private, are not considered, the resulting tax liability is likely to be significantly overestimated for the affected observations.

Two methodological approaches are available to address this data limitation: (1) excluding the observations concerned or (2) approximating health insurance contributions. Hauck and Wallossek (2024) follow the first strategy by excluding from their analysis all employees subject to social security contributions whose income exceeds the compulsory insurance threshold. However, applying this exclusion in the present study would risk systematically underestimating the fiscal relevance of voluntarily (non-)filing individuals for local governments. This potential bias stems from the fact that the affected group consists of high-income earners who typically face marginal tax rates above the average. For these individuals, deductible special expenses exert a disproportionately large influence on taxable income. Ignoring their deductions would result in an upward distortion of simulated tax liabilities, unless the amount of wage tax withheld happens to precisely match the tax liability under a full assessment, which is unlikely.

The second, and preferred, approach involves approximating health insurance contributions. Among assessed taxpayers with employment income above the compulsory insurance threshold, 149,500 individuals are identified. Of these, 30.2 percent are voluntarily insured under the statutory system, while 69.8 percent hold private health insurance coverage. Assuming a similar distribution among non-filing taxpayers, the group is split accordingly. For the subgroup assumed to be voluntarily insured under the statutory scheme, contributions are estimated based on the 2020 income assessment ceiling of 56,250 euros and the applicable statutory contribution rate. For the subgroup assumed to be privately insured, an approximation is made using the average private health insurance payments observed within the assessed group, calculated on an age- and gender-specific basis. It is assumed that non-filing individuals share similar demographic characteristics and thus face comparable insurance costs.

Despite this approximation, some degree of inaccuracy may remain if the assumed similarity between filing and non-filing high-income earners does not hold. For instance, systematic differences in health status between the two groups could lead to a misestimation of insurance costs and, consequently, tax deductions. Unfortunately, the available data do not permit a direct test of this assumption. To assess the sensitivity of the simulation results to this potential source of bias, an alternative scenario is constructed in which all high-income observations above the compulsory insurance threshold are excluded from the sample. Comparing the simulation outcomes with and without these observations allows for an evaluation of the extent to which approximated health insurance contributions among high earners affect the study's overall findings. Simulating Income Tax Liabilities for Civil Servants. Taxpayers who are civil servants have the option of taking out private health insurance. In these cases, the contribution amount varies by individual and therefore cannot be precisely determined for non-filing civil servants in the sample. Alternatively, civil servants who were already members of the statutory health insurance system prior to entering public service can retain their voluntary membership instead of switching to private insurance. However, civil servants who choose this option must cover the full health insurance contributions themselves, as they do not receive an employer subsidy. As a result, the total contribution rate, including an average additional contribution of 1.1 percent, amounted to 15.7 percent in 2020.

To estimate health insurance contributions for civil servants, the same approximation method is applied as for taxpayers with incomes above the compulsory insurance threshold for social insurance. In the first step, the ratio of privately insured to voluntarily statutorily insured civil servants is calculated within the group of filers and then applied to the non-filing group. This approach divides the latter into two subgroups: privately insured and voluntarily insured under the statutory system. In the second step, the average contribution amount is calculated for each subgroup based on age and gender. Assuming that individuals of the same age and gender exhibit similar characteristics across both groups, the contribution payments of non-filing civil servants can be approximated accordingly. The reliability of this approximation method can be further assessed through sensitivity analyses.

Dealing with changed age allocation in FAST dataset. For anonymization purposes, the age information in FAST dataset has been partially modified compared to the full wage and income tax statistics (LESt). This modification specifically affects observations where total income is at least twice the average. For these high-income earners, exact ages are not provided; instead, age is recorded in broader groups that span either five or ten years, depending on the income percentile. As a result, the precise age of these observations cannot be determined. Therefore, in the first step, all such observations are assigned the midpoint of their respective age group.

In the second step, a special evaluation conducted by the Federal Statistical Office provides age- and gender-specific average wage and income tax payments based on the LESt 2020 data (Federal Statistical Office, 2024a). Unlike the anonymized age groups in the FAST dataset, this evaluation contains exact age assignments corresponding to the full survey data. The objective of this step is to adjust the age structure of the tax profiles derived from the FAST dataset so that it aligns with the true age distribution found in the full survey. This adjustment is performed in two intermediate steps. First, the relative positions of each individual age are calculated from the FAST 2020-based profiles. This is done by dividing the average per capita tax payment for each age (separately by gender)



Figure 3: Relative Profiles of LESt 2020 and FAST 2020

Source: Author's calculations based on FDZ (2024) and Federal Statistical Office (2024a). Note: LESt=Wage and income tax statistics; FAST=Sample of the wage and income tax statistics.

by the highest average per capita tax payment observed for that gender across all ages. The resulting relative values indicate how each age's tax payment compares to the peak tax payment age within the same gender group. These values serve as index numbers allowing comparison across age groups. The same procedure is then applied to the profile obtained from the special evaluation. The resulting relative positions represent the true age distribution of average per capita income tax payments. The relative profiles derived from this process are illustrated in Figure 3.¹⁴

In the second intermediate step, the relative positions of individual ages in the FAST dataset profiles are adjusted to align with those from the special evaluation. This adjustment modifies the age distribution within the FAST profiles. If this modified age distribution were applied directly to the age- and gender-specific per capita tax payments derived from the assessment simulation, the total income tax revenue would change. To prevent such a revenue shift, the per capita tax payments would need to be scaled according to the adjusted relative profile, ensuring that the overall revenue remains consistent with the amount generated using the original age structure. However, the absolute level of tax payments is of secondary importance when working with age- and gender-specific per capita tax payments. The primary focus, especially in the context of generational accounting (see chapter 4.4), lies on the age- and gender-specific effects arising from changes

¹⁴ These relative profiles represent distribution patterns only and do not reflect the absolute levels of average per capita tax payments.

in taxpayers' assessment decisions. By applying these effects to the average per capita tax payments for each age and gender group, we obtain adjusted age-specific tax payments whose age distribution matches that of the special evaluation. Since the age structure of the profiles and the wage and income tax statistics (LESt) is now identical, total tax revenue can be calculated by multiplying the average tax payments by the cohort size for each age year, as provided by the LESt data.

4.3 Measuring Fiscal Sustainability

The generational accounting methodology is employed to assess the impact of changes in filing decisions. The following explains how this approach can be used to evaluate the sustainability of public finances.

Generational Accounting Method. Originally developed by Auerbach et al. (1991, 1992, 1994), generational accounting enables the analysis of the long-term effects of tax policies, incorporating economic and demographic changes. At the core of assessing fiscal sustainability is the government's intertemporal budget constraint, which requires that all government revenues and expenditures balance over an infinite time horizon. Formally, this can be expressed as:

$$B_{t} = \sum_{k=t-D}^{t} N_{t,k} + \sum_{k=t+1}^{\infty} N_{t,k}$$
(1)

Here, B_t represents the government debt or assets existing in base year t. The first summation over $N_{t,k}$ in equation (1) captures the present value of aggregated net tax payments made by all generations alive in year t, while the second summation covers the present value of net tax payments from all generations born after year t, i.e., future generations. The net tax payments $N_{t,k}$ represent the difference between future taxes paid and transfer payments received over the remaining lifetime of a generation born in year k. The maximum lifespan D is assumed to be 100 years. Formally, the present value of these net tax payments is defined as:

$$N_{t,k} = \sum_{s=max\{t,k\}}^{k+D} h_{t,t-(s-k)}^m P_{s,k}^m \cdot \left(\frac{1+g}{1+r}\right)^{s-t} + \sum_{s=max\{t,k\}}^{k+D} h_{t,t-(s-k)}^f P_{s,k}^f \cdot \left(\frac{1+g}{1+r}\right)^{s-t}$$
(2)

In equation (2), $h_{t,t-(s-k)}^m$ and $h_{t,t-(s-k)}^f$ denote the average per capita net tax payments of a representative man (m) and woman (f), respectively. These functions assign to each individual of age s - k in year s the tax and transfer payments observed for individuals of the same age in base year t, adjusted for annual productivity growth g. Initially, all income tax payments under the status quo are included, assuming no change in the decision to file a voluntary income tax return. The terms $P_{s,k}^m$ and $P_{s,k}^f$ refer to the number of surviving male and female members of the cohort born in year k who are alive in year s when the net tax payments occur.¹⁵ For aggregation, it is assumed that individual behavior remains constant except for changes in the decision to file an income tax return. This allows future tax and transfer flows between individuals and the government to be modeled consistently. All future net tax payments are discounted back to the base year using a constant real interest rate r.

Sustainability Indicators. Generational accounting recognizes several indicators for assessing the sustainability of public finances. A fundamental measure in this context is the concept of implicit debt B^{imp} . Implicit debt represents the present value of the government's future unfunded benefit commitments to its citizens. It indicates the amount the government would have needed to reserve in the base year to fulfill its promised obligations. Formally, implicit debt is calculated as the sum of the present value of all future aggregated net tax payments (see equation (3)):

$$B_t^{imp} = \sum_{s=0}^{D} N_{t,t-s} + \sum_{s=1}^{\infty} N_{t,t+s}$$
(3)

The first sum reflects the aggregated net tax payments of all generations alive in the base year (i.e., those born in t - s), while the second sum captures the net tax payments of generations born after the base year. When the *visible* public debt B_t , recorded explicitly in national accounts, is added to the implicit *uncovered* debt, the result is the *sustainability* $gap SG_t$. This gap represents the total amount the government would need to set aside to meet both existing obligations prior to the base year and all future benefit commitments. It is typically expressed relative to gross domestic product GDP_t :

$$SG_t = \frac{B_t + B_t^{imp}}{GDP_t} \tag{4}$$

Another key sustainability indicator derives from combining the sustainability gap with the government's intertemporal budget constraint (equation (1)). This indicator consists of adjustment rates μ^{Rev} for tax revenues and μ^{Exp} for government expenditures. These adjustment rates measure the intergenerational burden required to restore fiscal sustainability. They quantify the uniform increase in tax revenues or the uniform reduction in government expenditures across all future generations needed to close the sustainability gap and satisfy the government's budget constraint. Formally, the adjustment rates are defined as:

$$\mu^{Rev} = \frac{B_t + B_t^{imp}}{\sum_{s=t+1}^{\infty} \sum_{k=t+1}^{\infty} \sum_{a=1}^{m} h_{s,k,a}^{tax} P_{s,k} \cdot (1+r)^{-(s-t)}}$$
(5)

 $^{^{15}} P_{s,k}^m$ and $P_{s,k}^f$ are derived from a population projection based on the assumptions of the 15th Coordinated Population Projection (Federal Statistical Office, 2022). For further details and results on the baseline population projection used, see Raffelhüschen et al. (2023, pp. 12–16) and Schultis, Seuffert, et al. (2024, pp. 269–272).

$$\mu^{Exp} = \frac{B_t + B_t^{imp}}{\sum_{s=t+1}^{\infty} \sum_{k=t+1}^{\infty} \sum_{a=1}^{m} h_{s,k,a}^{trans} P_{s,k} \cdot (1+r)^{-(s-t)}}$$
(6)

To repay both explicit and implicit government debt, the total tax payments (or alternatively, transfer payments) made by all future generations, $\sum_{a=1}^{m} h_{s,k,a} P_{s,k}$, must be increased or decreased by these adjustment rates μ^{Rev} or μ^{Exp} uniformly across all categories a = [1, 2, ..., m]. In this way, the government's intertemporal budget constraint, deviating from fiscal sustainability by the sum of explicit and implicit liabilities, is satisfied by uniformly adjusting future tax or transfer payments, effectively shifting the fiscal burden to future generations. Unlike measures such as the sustainability gap or implicit debt, the adjustment rates μ^{Rev} and μ^{Exp} provide insight into how the costs of past and current government commitments will be distributed across generations.¹⁶

Data and Assumptions. The initial fiscal situation up to the reference year 2023 is based on data from the national accounts provided by the Federal Statistical Office (Federal Statistical Office, 2024b). Projections of future government revenues and expenditures are derived from demographic developments as well as economic and fiscal framework conditions. Population dynamics are modeled using the "moderate variant" (Variant 2: G2-L2-W2) of the 15th coordinated population projection (Federal Statistical Office, 2022). Economic and fiscal parameters rely on growth assumptions and tax estimates from the Federal Ministry of Finance covering the period 2022 to 2029 (BMF, 2024). Additionally, fiscal policy measures adopted up to October 2024 are incorporated based on the Joint Economic Forecast (GD, 2024). For the long-term projection, a real annual productivity growth rate of g = 1.5% and a real interest rate of r = 3.0% are assumed.¹⁷ The growth assumption applies only to projection periods for which no external data from the Federal Ministry of Finance or the Joint Economic Forecast are available.

Microdata from the 2020 wage and income tax statistics are employed to determine average per capita tax payments (FDZ, 2024; Federal Statistical Office, 2024a). The analysis assumes no behavioral responses to changes in tax payments; consequently, feedback effects on other government revenue or expenditure components are not considered. This means the results reflect a pure ceteris paribus scenario. Tax payments are not adjusted for income growth or inflation within the microdata analysis; instead, growth effects are incorporated at the generational accounting level, where tax revenues initially follow projections from BMF (2024) and subsequently grow at a constant real rate of 1.5% across all revenue and expenditure aggregates.

¹⁶ For a detailed explanation of these sustainability indicators, see Bonin and Patxot (2004, pp. 24–33), Hagist (2008, pp. 26–30), and Seuffert (2022, pp. 116–122).

¹⁷ These parameters align with assumptions commonly used in prior generational accounting studies and serve as standard reference values; see, e.g., Raffelhüschen (1999) and Wimmesberger and Seuffert (2024). This ensures comparability with earlier analyses such as Bonin (2001).

Further Limitations of This Approach. To avoid misinterpretation of the results, it is important to acknowledge several conceptual limitations inherent to generational accounting. In particular, weaknesses related to empirical implementation and the underlying paradigmatic assumptions should be emphasized.¹⁸ Because age- and gender-specific net tax payments are extrapolated rather than forecasted, the analysis is best understood as a thought experiment that provides initial orientation on potential effects of tax reforms. Macroeconomic feedback effects and possible behavioral responses are excluded, which may lead to distortions in either direction. Another key consideration is the dependence on the chosen base year; temporary economic fluctuations during this year may be projected forward, potentially causing either positive or negative distortions.¹⁹

4.4 Implementation in Generational Accounting

The simulated average per capita tax payments serve as the basis in generational accounting to analyze the effects of changes in filing behavior on fiscal sustainability. As a result of the assessment simulation, where deviations from the status quo filing decisions were assumed (see chapter 4.2), modified average wage and income tax payments by age and gender, denoted as $\hat{h}_{t,t-(s-k)}^m$ and $\hat{h}_{t,t-(s-k)}^f$, are obtained. Depending on the scenario, these changes in filing behavior result in either reductions or increases in per capita tax payments among working-age taxpayers compared to the status quo. This outcome is primarily driven by the issue of divergent wage tax withholding, as discussed in chapter 3. Equation (7) illustrates how these changes in average per capita net tax payments translate into the aggregate net tax payments of the age cohort born in year k at time t.

$$\hat{N}_{t,k} = \sum_{s=max\{t,k\}}^{k+D} \hat{h}_{t,t-(s-k)}^m P_{s,k}^m \cdot \left(\frac{1+g}{1+r}\right)^{s-t} + \sum_{s=max\{t,k\}}^{k+D} \hat{h}_{t,t-(s-k)}^f P_{s,k}^f \cdot \left(\frac{1+g}{1+r}\right)^{s-t}$$
(7)

The resulting changes in aggregate net tax payments $(\hat{N}_{t,k})$ induce corresponding variations in sustainability indicators through their effect on implicit debt (see equation (3)). These variations illustrate how altered filing decisions influence public finances.

5 Initial Results

Section 5.1 first presents the results, concentrating on the changes in average per capita tax payments. These modified cash flows subsequently provide the basis for the analysis in section 5.2, which explores the resulting impacts on fiscal sustainability.

¹⁸ For comprehensive discussions on methodological possibilities and limitations, see, for example, Feist and Raffelhüschen (2000), Raffelhüschen (1999), and Williamson and Rhodes (2011).

¹⁹ The robustness of results can be evaluated through sensitivity analyses. Alternatively, Bonin, Patxot, and Souto (2014) proposes economic adjustment methods to address this issue.

5.1 How Filing Behavior Affects the Average Per Capita Tax Payments

The methodology outlined in chapter 4.2 for identifying individuals voluntarily exempt from compulsory insurance in 2020 allows for the creation of distinct samples. This facilitates the examination of how approximated information affects the assessment of civil servants and employees with gross salaries above the compulsory insurance threshold for statutory health insurance who are subject to social insurance contributions. Moreover, excluding jointly assessed observations enables an analysis of the simplifying assumption that jointly assessed individuals are taxed as if assessed individually. Samples 2 to 4 are used in this context as sensitivity analyses to evaluate the robustness of the results under varying sample restrictions.

Overview of Different Scenarios. In addition to employees subject to social insurance contributions, the reference case (sample 1) includes observations with gross wages exceeding the compulsory insurance threshold for statutory health insurance. It also comprises filing cases involving civil servants with private health coverage, as well as jointly filed taxpayers for whom, due to insufficient information, a simplified assumption of individual filing was applied (see Table 2). To evaluate the potential fiscal impact of filing decisions made by voluntarily filing taxpayers on public finances, two extreme scenarios are constructed. The *no filing* scenario assumes that no taxpayer opts for voluntary filing, so wages are taxed solely based on the wage tax withheld during the year. Conversely, the *complete filing* scenario assumes that all voluntarily filing taxpayers submit an income tax return, whereby the tax authorities reconcile the final tax liability with the withheld tax, resulting in either a refund or additional payment. Under this scenario, there is no discrepancy between withheld wage tax and the final assessed liability.

Unlike sample 1, the second sample excludes all jointly filed cases, resulting in the removal of 88,916 observations from the voluntarily filed cases. This leaves 597,791 obser-

	No filing	Complete filing
Sample 1 (reference)	Sam1-B1-H1-Z1-nf	Sam1-B1-H1-Z1-cf
Sample 2	Sam2-B1-H1-Z0-nf	Sam 2-B1-H1-Z0-cf
Sample 3	Sam 3-B0-H0-Z1-nf	Sam 3-B0-H0-Z1-cf
Sample 4	Sam 4-B0-H0-Z0-nf	Sam 4-B0-H0-Z0-cf

 Table 2: Sample Overview and Scenarios

Source: Author's illustration.

Note: Sample 1 = reference; Sample 2: reference without joint taxpayers; Sample 3: reference without civil servants and income above the compulsory insurance limit; Sample 4: Only single taxpayers without civil servants and income above the compulsory insurance limit.



Figure 4: Change in per Capita Income Tax Payments: Sample 1 vs. LESt 2020

Source: Author's calculations based on FDZ (2024).

Note: LESt=Wage and income tax statistics; mal=male and fem=female. The changed per capita tax payments result from the difference between the average income tax liability in the status quo $(h_{t,t-(s-k)}^m)$ or $h_{t,t-(s-k)}^f$) and the tax payments with changed filing behavior $(\hat{h}_{t,t-(s-k)}^m)$ or $\hat{h}_{t,t-(s-k)}^f$). The changes relate to the average of all compulsorily and voluntarily filing individuals.

vations, corresponding to 87.1 percent of the initial sample size. The removed observations pertain almost exclusively to the non-filing subgroup. Sample 3 further excludes all civil servants and observations with gross salaries above the compulsory insurance threshold, removing 341,808 observations (49.8 percent) from the original sample. The excluded cases are roughly equally divided between filing types. Finally, sample 4 excludes jointly filed observations, restricting the sample to individually filed employees subject to so-cial insurance contributions who are neither civil servants nor high-income earners. This sample contains 297,252 observations, which corresponds to 43.3 percent of the size of sample 1.

Change in per Capita Tax Payments Using Sample 1. The altered filing decisions of voluntarily (non-)filing taxpayers influence the average age- and gender-specific wage and income tax payments payable per capita to the state by all taxpayers in Germany. These changes in per capita tax payments are calculated as the difference between the average income tax liability under the status quo $(h_{t,t-(s-k)}^m \text{ or } h_{t,t-(s-k)}^f)$ and the tax payments following the change in filing behavior $(\hat{h}_{t,t-(s-k)}^m \text{ or } \hat{h}_{t,t-(s-k)}^f)$. Figure 4 illustrates these differences for the two scenarios examined: no filing and complete filing.

In the no filing scenario, both women and men exhibit higher average income tax

payments, particularly between the ages of 30 and 55. This increase occurs because, during these years, the income tax withheld over the year exceeds the average income tax liability for taxpayers within the relevant age groups. In contrast, the *complete filing* scenario, in which taxpayers who currently do not voluntarily file an income tax return collectively decide to do so, leads to substantial tax refunds, especially for women aged 30 to 60 and men aged 18 to 25. The refunds observed among younger men are attributable to the fact that sample 1 includes an above-average proportion of men in these age groups who, despite high incomes, choose not to file tax returns. For women aged 30 to 60, the refunds primarily result from the individual assessment of married couples and the selection of income tax brackets.

Sensitivity of Results: Change in per Capita Tax Payments in Samples 2 to 4. While the scenarios examined using sample 1 include both jointly assessed cases and taxpayers with gross salaries above the compulsory insurance threshold for statutory health insurance, the scenario analyses based on samples 2 to 4 successively exclude these groups. These additional samples therefore serve as a sensitivity analysis to assess the robustness of the results obtained with sample 1. Figure 5 illustrates how these exclusions affect the changes in average wage and income tax payments per capita by age and gender. As in Figure 4, the individual graphs in Figure 5 show the difference between the average income tax payments in the status quo $(h_{t,t-(s-k)}^m \text{ or } h_{t,t-(s-k)}^f)$ and those under changed filing behavior $(\hat{h}_{t,t-(s-k)}^m \text{ or } \hat{h}_{t,t-(s-k)}^f)$.

In samples 2 to 4, the pattern of wage and income tax payments by age and gender remains broadly similar to that observed in sample 1. This is particularly true in the *no filing* scenario, where the per capita tax payments closely mirror those in sample 1. By contrast, in the *complete filing* scenario, in which all eligible taxpayers are assumed to file, the results deviate more noticeably from those of sample 1 in some cases. This divergence primarily reflects differences in sample size: as samples 2 to 4 contain fewer observations, the proportion of taxpayers affected by changes in filing behavior is correspondingly lower relative to the full taxpayer population represented in the wage and income tax statistics (Federal Statistical Office, 2024a). As a result, the overall change in per capita tax payments is less pronounced in these samples. The smaller pool of affected taxpayers translates into a more muted absolute effect on average age- and gender-specific tax liabilities. The following chapter analyzes how these shifts in filing behavior, through their impact on per capita tax payments, affect the fiscal sustainability of federal, state, and local governments.



Figure 5: Change in per Capita Tax Payments of All Taxable Individuals

Source: Author's calculations based on Federal Statistical Office (2024a) and FDZ (2024). Note: mal=male und fem=female. The changed per capita tax payments result from the difference between the average income tax liability in the status quo $(h_{t,t-(s-k)}^m \text{ or } h_{t,t-(s-k)}^f)$ and the tax payments with changed filing behavior $(\hat{h}_{t,t-(s-k)}^m \text{ or } \hat{h}_{t,t-(s-k)}^f)$. The changes relate to the average of all compulsorily and voluntarily filing persons.

5.2 Voluntary (Non-)Filers and Their Role in the Fiscal Sustainability of Local Authorities

The additional or reduced income from wage and income tax resulting from changes in filing behavior leads to corresponding changes in government revenue. In status quo, the implicit public debt (B_{2023}^{imp}) , see equation (3)) for the reference year 2023 amounts to 6,838.1 billion euros. This implies that, accounting for demographically driven expenditures and expected future revenues – ceteris paribus – an intertemporal financing gap of this magnitude exists in present value terms. If current fiscal policies are maintained, the state will continue to spend significantly more than it collects in revenue under the existing tax structure, even without altering investment behavior.

When combined with the reported explicit public debt of 2,622.7 billion euros (Federal Statistical Office, 2024b), the overall sustainability gap (SG_{2023} , as defined in equation

		B_{2023}^{imp}	SG_{2023}	μ^{Rev}	μ^{Exp}
	Status quo	6,838.08	229.57	8.72	8.02
No filing	Sam1-B1-H1-Z1-nf Sam2-B1-H1-Z0-nf Sam3-B0-H0-Z1-nf Sam4-B0-H0-Z0-nf	$\begin{array}{c} 6,706.00\\ 6,745.61\\ 6,757.49\\ 6,783.08\end{array}$	226.36 227.32 227.61 228.23	8.54 8.60 8.61 8.65	7.87 7.92 7.93 7.96
Complete filing	Sam1-B1-H1-Z1-cf Sam2-B1-H1-Z0-cf Sam3-B0-H0-Z1-cf Sam4-B0-H0-Z0-cf	$\begin{array}{c} 7,174.95 \\ 7,024.84 \\ 7,031.62 \\ 7,053.40 \end{array}$	$237.74 \\ 234.10 \\ 234.26 \\ 234.79$	9.19 8.98 8.99 9.02	8.42 8.24 8.25 8.28

Table 3: Projection Results: Sustainability Indicators in Different Scenarios

Source: Author's calculations.

Note: B_{2023}^{imp} is expressed as the present value relative to the reference year and is given in billions of euros. In contrast, the variables SG_{2023} , μ^{Rev} , and μ^{Exp} are expressed as percentages. Specifically, SG_{2023} is measured relative to the GDP of 2023, while μ^{Rev} and μ^{Exp} are measured relative to the tax revenue and total expenditure of local authorities, respectively (see equations (5) and (6) in Section 4.3).

(4)) amounts to 229.6 percent of GDP.²⁰ Closing this gap would require either an increase in the aggregate of all future tax payments across generations by 8.7 percent (adjustment rate μ^{Rev} in equation (5)) or a corresponding reduction in expenditures by 8.0 percent (μ^{Exp}) .

Under the *no filing* scenario, where taxpayers refrain from voluntarily submitting income tax returns beginning with the 2025 assessment period, the implicit public debt decreases to 6,706.0 billion euros (see Table 3). This reduction results from the additional tax revenue generated by higher average per capita wage and income tax payments when refunds are not claimed. Consequently, the sustainability gap narrows slightly, indicating a modest improvement in the long-term fiscal outlook. Nevertheless, across all examined samples, the magnitude of this positive effect remains limited. The overall results suggest that the failure to file income tax returns has only a marginal impact on the structural sustainability problems facing public finances.

A similar conclusion holds for the *complete filing* scenario, in which all eligible taxpayers file returns, either voluntarily or through automatic assessment by tax authorities. In this case, the implicit public debt increases to 7,174.9 billion euros due to a lower average tax burden. This raises the sustainability gap to approximately 237.7 percent of GDP in the reference year. However, even in this less favorable scenario, the deterioration in public finances remains modest relative to the overall gap.

To prevent an increase in intertemporal public liabilities under the *complete filing* scenario, tax revenues would need to rise. The adjustment rate indicator μ^{Rev} would have

 $[\]overline{^{20}}$ The gross domestic product in 2023 was 4,121.2 billion euros (Federal Statistical Office, 2024b).

to increase by between 0.26 and 0.47 percentage points, depending on the sample. This corresponds to an estimated additional annual revenue requirement of approximately 4.1 billion euros. Alternatively, the same fiscal effect could be achieved through a reduction in public expenditures. The corresponding change in the indicator μ^{Exp} suggests that transfer spending would need to decrease by between 0.22 and 0.40 percentage points across generations to fully offset the increase in future debt under full assessment.

6 Discussion and Conclusion

This study set out to provide an initial analysis of the fiscal implications arising from changes in tax filing behavior among taxpayers eligible for voluntary (non-)filing. The primary objective was not to quantify tax avoidance per se, but rather to assess the fiscal risks posed to public finances by the legal option of voluntary filing or non-filing.

The preliminary findings suggest that the institutional design of the German income tax system, especially the option of voluntary assessment, may give rise to violations of the principle of horizontal equity. Due to the withholding of income tax throughout the year, the actual tax burden often deviates from taxpayers' true ability to pay. Many individuals either fail to recognize or underestimate the refunds to which they are entitled, resulting in discrepancies between the effective and the intended tax burden. Our analysis reveals systematic deviations in this regard, particularly among voluntarily non-filing taxpayers. These findings are consistent with the results of Hauck and Wallossek (2024), who show that low-income households are disproportionately burdened by excessive tax withholding, thereby undermining the redistributive intent of progressive income taxation.

The application of generational accounting demonstrates that the state tends to benefit financially from this voluntary non-filing behavior. Because withheld wage taxes frequently exceed actual income tax liabilities, the state retains surplus amounts that would otherwise be refunded. From a fiscal perspective, this results in additional shortterm revenue. However, such revenues are not structurally stable, as they depend on the persistence of taxpayer non-filing. This introduces uncertainty and reduces the reliability of long-term fiscal planning.

The two stylized scenarios analyzed – no filing and complete filing – illustrate the range of fiscal risks arising from uncertainty in filing behavior. If all voluntarily assessed taxpayers chose not to file from the 2025 assessment period onward, the sustainability gap would decrease by 3.2 percentage points, reaching 226.4 percent of GDP in the reference year. Conversely, if all eligible individuals filed tax returns (e.g., under an automated assessment system), the sustainability gap would rise by 8.2 percentage points to 237.7 percent of GDP. Although automated filing could enhance horizontal equity, it also presents fiscal and administrative challenges. In addition to the increased fiscal burden, significant costs may arise from necessary infrastructure and processing capacities. As Robson and Schwartz (2020) notes, liquidity losses during the year and potential distortions in taxpayer behavior could further mitigate the expected benefits. These findings highlight a critical policy tension: while voluntary filing compromises tax equity, comprehensive automated assessment may exacerbate existing challenges to fiscal sustainability. Thus, any reform effort aimed at improving tax fairness through automation must be carefully designed to avoid undermining long-term budgetary stability. In this context, compensatory refinancing measures may be required to preserve fiscal sustainability while enhancing equity. The design and intergenerational distributional effects of such measures, like those discussed by Schultis (2025) in the context of tax rate reforms targeting the so-called middle-class bulge (*Mittelstandsbauch*), represent important areas for future research.

Moreover, potential labor market distortions, particularly among lower-income earners facing high wage tax deductions, merit further investigation. These behavioral effects were not addressed in the present analysis, which relies on a ceteris paribus framework. Nonetheless, it is conceivable that improved filing incentives and lower effective marginal tax rates could encourage labor supply and partially offset the fiscal costs of automated assessment. These dynamics warrant deeper exploration to assess the broader policy implications of filing behavior. In conclusion, this study offers an empirically grounded first step toward understanding the fiscal consequences of voluntary filing behavior. It identifies the potential risks to public finances associated with discretionary filing choices and demonstrates how reforms in tax assessment procedures involve inherent trade-offs between equity and fiscal resilience. The results confirm central assumptions in the existing literature while also offering new insights into the long-term implications of filing practices—thus providing a foundation for further research in public finance and tax policy.

References

- Allingham, Michael G and Agnar Sandmo (1972). "Income tax evasion: A theoretical analysis". In: *Journal of public economics* 1.3-4, pp. 323–338.
- Alstadsæter, Annette, Niels Johannesen, Ségal Le Guern Herry, and Gabriel Zucman (2022). "Tax evasion and tax avoidance". In: *Journal of Public Economics* 206, p. 104587.
- Auerbach, Alan, Jagadeesh Gokhale, and Laurence J. Kotlikoff (1991). "Generational Accounts: A Meaningful Alternative to Deficit Accounting". In: *Tax Policy and the Economy*, pp. 55–110.
- Auerbach, Alan, Jagadeesh Gokhale, and Laurence J. Kotlikoff (1992). "Generational Accounting: A New Approach to Understanding the Effects of Fiscal Policy on Saving". In: Scandinavian Journal of Economics, pp. 303–318.
- Auerbach, Alan, Jagadeesh Gokhale, and Laurence J. Kotlikoff (1994). "Generational Accounting: A Meaningful Way to Evaluate Fiscal Policy". In: *Journal of Economic Perspectives* 8.1, pp. 73–94.
- BMF Federal Ministry of Finance (2024). Ergebnis der 167. Sitzung des Arbeitskreises Steuerschätzungen, Berlin.
- Bonin, Holger (2001). *Generational accounting: theory and application*. zugl. Dissertation, Albert-Ludwigs-Universität Freiburg, 2001. Springer Science & Business Media.
- Bonin, Holger and Concepció Patxot (2004). "Generational accounting as a tool to assess fiscal sustainability: an overview of the methodology". In: *IZA Discussion Papers* 990.
- Bonin, Holger, Concepció Patxot, and Guadalupe Souto (2014). "Cyclically-Neutral Generational Accounting". In: *Fiscal Studies* 35.2, pp. 117–137.
- Cilke, James (1998). "A profile of non-filers". In: US Department of the Treasury, Office of Tax Analysis Working Paper 78.
- Cilke, James (2014). "The Case of the Missing Strangers". In: Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association. Vol. 107. JSTOR.
- Erard, Brian and Chih-Chin Ho (2001). "Searching for ghosts: who are the nonfilers and how much tax do they owe?" In: *Journal of Public Economics* 81.1, pp. 25–50.
- FDZ Research Data Centre (2024). Lohn- und Einkommensteuerstatistik 2020, Scientific Use File.
- Federal Statistical Office (2022). 15. koordinierte Bevölkerungsvorausberechnung, Annahmen und Ergebnisse, Wiesbaden.
- Federal Statistical Office (2024a). Sonderauswertung der Lohn- und Einkommensteuerstatistik 2020, Steuerzahlungen nach Altersjahren, Wiesbaden.
- Federal Statistical Office (2024b). Volkswirtschaftliche Gesamtrechnungen, Inlandsproduktberechnung, Detaillierte Jahresergebnisse, Wiesbaden.

- Federal Statistical Office (2025). Steuereinnahmen: Deutschland, Jahre, Steuerarten nach der Steuerverteilung. Tabelle 71211-0002. Stand: 06.02.2025.
- Feist, Karen and Bernd Raffelhüschen (2000). "Möglichkeiten und Grenzen der Generationenbilanzierung". In: Wirtschaftsdienst 80.7, pp. 440–448.
- GD Joint Economic Forecast (2024). Deutsche Wirtschaft im Umbruch Konjunktur und Wachstum schwach Dienstleistungsauftrag des Bundesministeriums f
 ür Wirtschaft und Klimaschutz, Kiel.
- Gutmann, David, Fabian Peters, and Bernd Raffelhüschen (2019). "Einkommensteuer im Spiegel der nachgelagerten Besteuerung von Alterseinkünften". In: Wirtschaftsdienst 99.11, pp. 777–783.
- Hagist, Christian (2008). *Demography and Social Health Insurance*. zugl. Dissertation, Albert-Ludwigs-Universität Freiburg, 2007. Nomos Verlagsgesellschaft mbH & Co. KG.
- Hauck, Tobias (2021). Avoidance, Evasion, and Non-filing Three Essays on Behavioral Responses to Taxation, Dissertation, Ludwig-Maximilians-Universität München.
- Hauck, Tobias and Luisa Wallossek (2024). "Optional (non-) filing and effective taxation". In: Journal of Public Economics 238, p. 105187.
- Horodnic, Ioana Alexandra (2018). "Tax morale and institutional theory: a systematic review". In: International journal of sociology and social policy 38.9/10, pp. 868–886.
- Kasipillai, Jeyapalan, Norhani Aripin, and Noor Afza Amran (2003). "The influence of education on tax avoidance and tax evasion". In: *eJTR* 1, p. 134.
- Loewens, Lars (2025). "§ 24a Altersentlastungsbetrag". In: *Ertragsteuerrecht*. Ed. by Peter Brandis and Bernd Heuermann. Werkstand: 175. EL Februar 2025. Vahlen.
- Mortenson, Jacob A, James Cilke, Michael Udell, and Jonathon Zytnick (2009). "Attaching the Left Tail: A New Profile of Income for Persons Who Do Not Appear on Federal Income Tax Returns". In: Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association. Vol. 102. JSTOR, pp. 88–102.
- Oertel, Eva (2025). "§ 9 EStG". In: *Einkommensteuergesetz*. Ed. by Paul Kirchhof and Roman Seer. 24th ed. Dr. Otto Schmidt.
- Raffelhüschen, Bernd (1999). "Generational accounting: method, data and limitations". In: *European Economy, Reports and Studies* 6, pp. 17–28.
- Raffelhüschen, Bernd, Sebastian Schultis, Stefan Seuffert, Sebastian Stramka, and Florian Wimmesberger (2023). Ehrbarer Staat? Die Generationenbilanz. Update 2023: Reformansätze für mehr Generationengerechtigkeit in der Kranken-und Pflegeversicherung. Tech. rep. Argumente zu Marktwirtschaft und Politik.
- Ramnath, Shanthi P and Patricia K Tong (2017). "The persistent reduction in poverty from filing a tax return". In: American Economic Journal: Economic Policy 9.4, pp. 367–394.

- Robson, Jennifer and Saul Schwartz (2020). "Who doesn't file a tax return? A portrait of non-filers". In: *Canadian Public Policy* 46.3, pp. 323–339.
- Saad, Natrah (2014). "Tax knowledge, tax complexity and tax compliance: Taxpayers' view". In: *Procedia-Social and Behavioral Sciences* 109, pp. 1069–1075.
- Sandmo, Agnar (2005). "The theory of tax evasion: A retrospective view". In: *National tax journal* 58.4, pp. 643–663.
- Schmieszek, Hans-Peter (2025). "§ 46 EStG". In: *Einkommensteuergesetz*. Ed. by Arno Bordewin and Jürgen Brandt. Werkstand: 466. EL, Januar 2025. C.F. Müller.
- Schultis, Sebastian (2025). "Solidarische Steuerpolitik?" In: Sozialer Fortschritt Online first, pp. 1–22.
- Schultis, Sebastian, Stefan Seuffert, and Sebastian Stramka (2024). "Der demografische Wandel im Wandel". In: *Wirtschaftsdienst* 104.4, pp. 269–274.
- Schultis, Sebastian, Philipp Toussaint, and Sebastian Stramka (2024). "Auswirkungen der Neuregelung zur nachgelagerten Besteuerung". In: Wirtschaftsdienst 104.10, pp. 711– 718.
- Seuffert, Stefan (2022). Anwartschaftsbasierte Projektion der gesetzlichen Rentenversicherung in der Generationenbilanzierung. zugl. Dissertation, Albert-Ludwigs-Universität Freiburg, 2022. Nomos Verlagsgesellschaft mbH & Co. KG.
- Slemrod, Joel and Shlomo Yitzhaki (2002). "Tax avoidance, evasion, and administration". In: *Handbook of public economics*. Vol. 3. Elsevier, pp. 1423–1470.
- Thürmer, Bernd (2024). "§ 9 Werbungskosten". In: *Ertragsteuerrecht*. Ed. by Peter Brandis and Bernd Heuermann. Werkstand: 174. EL, November 2024. Vahlen.
- Williamson, John B. and Anna Rhodes (2011). "A critical assessment of generational accounting and its contribution to the generational equity debate". In: International Journal of Ageing and Later Life 6.1, pp. 33–57.
- Wimmesberger, Florian and Stefan Seuffert (2024). "Myopic Fiscal Policy During the COVID-19 Pandemic and its Intergenerational Burden". In: German Politics 33.1, pp. 68–85.

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ISSN 1862-913X