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The Tax Treatment of Commuting Expenses and Job-Related Mobility*

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Abstract

Amid global climate change concerns, policymakers worldwide are increasingly scrutinizing environmentally harmful subsidies. This study examines the tax-deductibility of job-related commuting expenses, which has faced criticism for promoting longer commutes and congestion. Through a controlled, randomized survey experiment, we confirm that the tax-deductibility of commuting expenses results in longer commutes but does so with minimal economic impact. Increasing the deduction rate by €0.10 leads to an average acceptance of 377-meter-longer commutes. Surprisingly, subjects are inattentive to changes in the tax deduction's size when such changes are presented as tax-deductible expenses rather than as direct cash effects. In contrast, abolishing the tax deductibility significantly reduces average commuting distances by nearly 9 percent. These findings highlight people's responsiveness to the mere presence of the commuter tax break while being less sensitive to its specific size. Policymakers should consider these findings when evaluating the effectiveness of such tax deductions in mitigating climate change or their economic efficiency effects.

Keywords
Commuting Behavior - Commuting Subsidies - Tax Policy - Tax Complexity - Rational Inattention

JEL Codes
D90 - H21 - H24 - J22 - R23 - R28 - R41

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1 Introduction

In light of global climate change, potentially environmentally harmful tax rules are under increased scrutiny by policymakers worldwide. One example is the tax deductibility of job-related commuting expenses, which is widespread, especially in European countries. This practice is often criticized for leading to longer commutes and, thus, more congestion (Roy, 2014; Bretschneider and Burger, 2021). Despite this topic being highly relevant for policy considerations and a large theoretical stream of literature (e.g., Wrede, 2001; Borck and Wrede, 2005, 2009; Wrede, 2009; Hirte and Tscharaktschiew, 2013), empirical evidence on the effect of the tax deductibility of commuting expenses is scarce.

Paetzold (2019), Agrawal et al. (2023), and Boehm (2013) provide some evidence on the link between commuter tax breaks and commuting length. However, this evidence has some limitations related to focusing only on specific groups[1] (Paetzold, 2019), lacking a control group while being challenged by possibly confounding events (Boehm, 2013; Agrawal et al., 2023) or lacking exact data on commuting distance (Boehm, 2013). Our study aims to overcome these caveats by using a controlled, fully randomized survey experiment to investigate the time costs of commuting and the effect of the tax deductibility of job-related commuting expenses on commute length. We use a sample of German employees that is representative of the population of German employees in terms of age, gender, and state. An experiment offers important advantages compared to observational data in this context.

1. An experiment allows us to exogenously vary the commuter tax break while confronting each subject with an otherwise identical choice set.

2. Manipulating the complexity of the tax law allows us to test whether subjects misperceive the tax deductibility of commuting costs when deciding on a job.

[1] Paetzold (2019) estimates the tax break's effect only for male low-income individuals.

3. We can collect and control for detailed socioeconomic data and combine them with data on, e.g., actual commuting times and distance, the frequency of commutes, and transport modes used, which are necessary for evaluating commuters' reactions but usually unavailable in observational studies.

Our experiment is two-stage. In the first stage, we confront subjects with a fictitious offer for a permanent job that pays a higher salary but is otherwise identical to their current position. Additionally, we introduce a fictitious change in tax law that allows employees to deduct commuting expenses at a randomly assigned rate between €0.00 and €0.84 per kilometer (single trip). Using a between-subjects design, we vary the tax complexity that is associated with computing the cash effect of the commuter tax break by randomly assigning subjects to either a high-complexity setting that presents a deduction rate similar to actual German tax law or a low-complexity setting in which we report not only the deduction rate but also the effective refund using subjects' marginal tax rate. Based on this setting and with the job offer leaving the exact place of work undisclosed, we ask the subjects to choose their maximum acceptable commuting distance from a list of possible locations. While we require subjects to commute from their current residence in the first stage, we allow them to adjust their decision by moving closer to the new workplace in the second stage.

We find that, on average, a €0.10 increase in the deduction rate causes employees to accept 377-meter-longer commutes. At first glance, the effect seems relatively small compared to prior estimates in the literature. We, however, show that when controlling for vehicle-related costs, subjects value an hour of commuting at approximately 92 percent of their hourly net wage, which is in line with previous research on the time costs of commuting (Small et al., 2005, 2007). In addition, we find that when tax complexity is high — the setting where we only present the per-kilometer deduction rate but not the direct cash effect — subjects are fully inattentive to changes in the size of the commuter

tax break, which is in line with prior research showing that people tend to ignore tax incentives if they are perceived as too complex (e.g., Abeler and Jäger, 2015; Zwick, 2021).

While varying the deduction rate of commuting expenses is found to have little (low tax complexity) or no effect (high tax complexity) on commuting distance, we show that the mere possibility of deducting those expenses leads to a comparatively strong impact in both the low- and high-tax-complexity groups. Compared to subjects assigned a positive deduction rate, those to whom we give a setting that abolishes the commuter tax break are willing to commute 1.8 km less. This result is consistent with previous research showing that for boundedly rational subjects, the mere presence of an incentive is sometimes of greater importance than the size of the incentive (Karlan and List, 2007; Burgstaller et al., 2023).

We contribute to three different streams of literature. First, we extend the few findings on how the tax treatment of commuting expenses impacts the job search radius of employees (Boehm, 2013; Paetzold, 2019; Agrawal et al., 2023) by showing that the effect of the commuter tax break is smaller than expected and that the effect depends on whether tax-deductible commuting expenses or the corresponding cash effect are presented. Furthermore, we demonstrate that people respond to the mere presence of the commuter tax break rather than to its specific size.

Second, our paper contributes to the literature on inattention in the context of tax complexity (e.g., Abeler and Jäger, 2015; Zwick, 2021). We show that tax complexity does not lead to an over- or underestimation of the commuter tax break but rather to the commuter tax break being ignored even by subjects with an above-average level of tax knowledge.

Third, we contribute to research on the time costs of commuting (Small et al., 2005, 2007; van Ommeren and Fosgerau, 2009) by providing not only a current update on the

time costs of commuting but also a better understanding of how individuals' total driving costs are composed. On average, the time costs of commuting account for approximately 44 percent of the total costs of commuting by car.

Our results offer different implications depending on the goal policymakers try to achieve. Suppose the expansion of employees' job search radius is desired. In that case, our evidence suggests that legislators could either design the commuter tax break in a less complex and more salient manner to be in control of the magnitude of the effect or keep the deductibility but do so at a reduced deduction rate, which would increase tax revenue at the cost of not being in control over the effect size. However, if reducing work-related mobility is desirable, e.g., for ecological reasons, then abolishing the commuter tax break — if legally permissible — would significantly reduce the average commute by almost 9 percent.

The remainder of this paper is organized as follows. In the next section, we discuss the related literature and develop the hypotheses. In sections 3 and 4, we present the experimental design and data, respectively. Section 5 explains the estimation strategy, section 6 presents the results, and section 7 concludes.

2 Related Literature and Hypothesis Development

While there is still little experimental or empirical evidence, especially on the effect of commuting cost reductions in the form of tax deductibles, the matter has been discussed in a broad theoretical stream of literature; many of these works are concerned with efficiency considerations. What drives these considerations and the fundamentally different approaches by various jurisdictions worldwide is the question of to what degree, if at all, commuting expenses can be considered work-related. While commuting expenses do not qualify as tax deductibles in the Anglo-American world, they do — in some form —

in many Western European countries such as Germany, France, or Sweden and in some countries outside of Europe, e.g., Japan (Roy, 2014; Paetzold, 2019).

While legal research mainly discusses whether the business or personal motives of commuting expenses are predominant (e.g., Holderness, 2020), the economic literature is more concerned with efficiency considerations. Wrede (2001) argues within a two-region model that the tax deductibility of commuting expenses is inefficient only if workers face fixed work locations and are perfectly mobile regarding their residence. However, their model assumes first-best taxes that do not distort labor supply, whereas this assumption does not hold in reality. In a second-best world, introducing a wage tax without allowing commuting costs to be deducted could discourage workers from taking jobs they would otherwise accept, leading to a distortion of workplace choices (Diamond and Mirrlees, 1971; Wrede, 2009). On the other hand, Wrede (2009) argues that subsidizing commutes would also distort land rents since commuting longer distances and thus living further away from central business districts thus becomes more affordable (see also Borck and Wrede, 2005, 2009). Consequently, allowing the deduction of commuting expenses presents a trade-off between these two distortions and could be welfare-enhancing if adequately designed (Wrede, 2009; Hirte and Tscharaktschiew, 2013).

Commuting and transport subsidies, in general, are often found to have beneficial effects on labor markets. For example, both Zenou (2000) and Martin (2001) argue that transportation subsidies can reduce urban unemployment, although Zenou (2000) also finds that these subsidies could foster financial inequality. In a spatial computable general equilibrium analysis, Tscharaktschiew and Hirte (2012) confirm a welfare-enhancing effect; however, this effect is found only for subsidizing public transportation. Other findings mostly align with these results (e.g., Holzer et al., 2003; Phillips, 2014; Gaigné et al., 2016; Le Gallo et al., 2017; Franklin, 2018). Nevertheless, the consequences of discounted travel costs are not only positive. Arnott (1998) and Brueckner (2000, 2005)

show that subsidizing transport systems can lead to urban sprawl and inefficiently large cities. The resulting longer commutes lead to the excessive use of transportation systems and, subsequently, negative externalities such as congestion (Wheaton, 1998; Brueckner, 2000), the fragmentation of natural habitats, and soil sealing (European Environment Agency, 2006). Similar to Zenou (2000), Heuermann et al. (2017) further emphasize that subsidizing commuting through a tax system with progressive income taxes favors high-income and urban individuals, thereby fostering financial inequality. Additionally, by enabling households to be less locally bound, Bayer and McMillan (2012) show that reducing commuting costs can lead to increased racial, educational, and income segregation.

A large part of the empirical and experimental literature examines direct subsidies, whereas only Paetzold (2019), Agrawal et al. (2023), and Boehm (2013) investigate the tax treatment of commuting expenses specifically. There may be two main reasons why empirical tax research is underrepresented in this context. First, the amount of data needed to investigate decisions regarding commuting distance is immense because such data involve (possibly simultaneous) decisions about choices of workplace and residence. These two decisions alone result from various individual, as well as job and real estate market, variables that need to be accounted for. Investigating a tax effect would further require detailed information from tax statements to be combined with these data, which again has its limitations.[2] Second, natural experiments rarely occur, as tax reforms are usually induced and accompanied by confounding events. These confounders are, again, difficult to adjust for due to the lack of combined data and adequate control groups. Although commuting deductions exist in many countries, the abovementioned authors focus only on Germany (Boehm, 2013; Agrawal et al., 2023) and Austria (Paetzold, 2019).

Of these authors, Boehm (2013) and Agrawal et al. (2023) exploit several changes in

[2]Paetzold and Winner (2016), for example, find that approximately 30% of commuter tax break claims in Austria show overstated commuting distances.

German tax law between 2004 and 2009. [3] Boehm (2013) studies the moving and job-changing behavior of German employees around these events. He finds that increasing the taxes paid by €100 increases the probability of changing jobs (moving) by only 0.9 (0.57) percent.[4] In particular, changes that reduced the commuting distance became more likely. However, Boehm (2013) points out that by relying on as-the-crow-flies distances between municipalities and due to multicollinearity issues, the effect on commuting distance cannot be reliably estimated with his data.

On the other hand, Agrawal et al. (2023) use exact geo-locations of both workplace and residence and study the effect of commuter tax breaks on commuting distance and job-match-quality of job changers. They combine these locations with a rich database of employee and firm characteristics for German employees who switched jobs but not their residences between 2002 and 2015. They find an average increase in commuting distance of 2.5 km (1.55 mi) for a decrease in taxes paid of 100 EUR. Although Agrawal et al. (2023) use more detailed data than Boehm (2013), the lack of a control group, potentially confounding events such as the so-called *Agenda 2010*, a major German labor market reform, and the global financial crisis, as well as their focus on job changers who did not change residence, may contribute to an overestimation of the effect of the commuter tax break.

Outside of Germany, Paetzold (2019) uses a design that exploits a kink at the lower end of the Austrian income tax schedule where the commuter benefit transforms from a fixed tax credit to a distance-dependent commuter tax break. He finds that a decrease in taxes

[3]The first change occurred in 2004, when the government replaced the distance-dependent kilometer rate with a uniform rate, simultaneously reducing the rate by €0.06 and €0.10, respectively, to only €0.30. The second change in 2007 essentially abolished the deductibility for most commuters, allowing them to deduct €0.30 per km for only the 21st kilometer onward. However, the German Federal Constitutional Court ruled the latter change unconstitutional barely two years after it became effective and retroactively revoked it.Because Boehm's (2013) data end in 2007, that paper does not include the revocation of the second change.

[4]Boehm (2013) expresses his results in change per €1,000 change in tax deductibles. Taking his assumption of an average marginal tax rate of 30 percent, we convert his results into change per €100 change in taxes paid for better comparability.

paid by €100 leads to increased commuting distances by 1.56 km (1 mi). However, the regression kink design allows only the investigation of a local treatment effect for, in this case, low-income groups. Since low-income earners incur lower-than-average time costs of commuting and, under Austrian tax law at that time, receive a relatively sizable benefit from the commuter tax break, a generalization of this effect for the average taxpayer is not feasible.

Based on the theoretical and empirical literature, the tax deductibility of commuting expenses should counteract the distorting effect of an income tax and thus lengthen the average commute.

Therefore, we test the following hypothesis:

Hypothesis 1 *Subjects receiving a higher commuter tax break will accept a longer additional commute when deciding on a new job.*

While this relationship seems intuitive in theory, it is less evident whether and, if so, how implementing the commuter tax break as a deduction from the income tax base impacts how taxpayers perceive it. Theoretically, it should not affect rational decision makers whether we present a tax-deductible amount or an equivalent cash effect since they should know their marginal tax rate. Nonetheless, several studies show that tax complexity affects how taxes are perceived and, thus, accounted for (for a review, see Blaufus et al. (2022)).[5]

In particular, prior research shows that tax rate complexity increases the probability of erroneous investment decisions for individuals (Boylan and Frischmann, 2006; Rupert et al., 2003; Rupert and Wright, 1998) and corporations (Graham et al., 2017). Moreover, tax complexity prevents firms from exploiting tax incentives (e.g., Zwick, 2021), and tax complexity leads many people to ignore tax incentives (Blaufus and Ortlieb, 2009; Abeler

[5]While estimating one's marginal income tax rate might not be considered complex in a system with income tax brackets, determining the marginal tax rate under German tax law involves differentiating a quadratic function for taxable incomes up to approximately €63,000.

and Jäger, 2015).

Thus, on the one hand, tax complexity may result in inattention to taxes. If subjects perceive the net effect of the tax break as being too small relative to the cost they expect to incur from dealing with the tax complexity, they could rationally ignore the tax break altogether. Dickert-Conlin et al. (2005), Farhi and Gabaix (2020), and Maćkowiak et al. (2023) show that the complexity associated with the application process in a given tax system can cause taxpayers' inattention to and, thus, underutilization of a tax credit.

On the other hand, tax complexity can also lead to the amount of the tax incentive being miscalculated. Individuals are often found to misestimate their marginal tax rate, especially when faced with more complex progressive income taxes. While Rupert and Fischer (1995) show that taxpayers tend to overestimate marginal tax rates, more recent evidence by Blaufus et al. (2015) and Rees-Jones and Taubinsky (2020) suggests that the effect depends on personal income, with high-income (low-income) earners tending to underestimate (overestimate) their marginal tax rate. Depending on the direction of misperception, subjects in the high-tax-complexity treatment could react more or less than optimal to the commuter tax break.

Therefore, we also test the following hypothesis:

Hypothesis 2 *Tax complexity moderates the effect of the commuter tax break on commuting distance.*

3 Experimental Design and Procedures

To examine the causal effect of the commuter tax break on the commute length, we introduced a fictitious tax law change that alters the commuter tax break. We randomly assigned each subject a deduction rate ranging between €0.12 and €0.84 per kilometer, which we presented either as a tax-deductible expense (treatment 1: high tax complexity)

or multiplied by the individual marginal tax rate as an effective tax refund per kilometer (treatment 2: low tax complexity).[6] In a third treatment (treatment 0), we abolished the tax break and set the deduction rate to €0.00. Here, we did not distinguish by tax complexity since multiplying with the marginal tax rate would not provide any additional information.

After being asked about their general sociodemographic data (see Appendix B for screenshots of the choice tasks and Appendix C for the questionnaire), their current commuting behavior, and their occupational and residential situation, in the central part of the study, the subjects had to decide the following:

1. Up to which distance they would be willing to accept a new job, given a monetary incentive and the requirement of a daily commute from their current residence, and

2. At what distance they would prefer to move closer to the place of work of the new job rather than commuting every workday from their current residence.

Each subject received a fictitious job offer for a permanent position. To motivate a job change independent from tax considerations, the net salary offered was 20% higher than the current net salary reported by the subjects. The job offer indicated that their potential new employer has several job locations, but it does not yet specify to which location the offer refers. Below the job description, subjects found a table of eleven job locations, sorted in ascending order by distance and travel time considering their current residence. Subjects were then asked to indicate the furthest job location where they would just be willing to accept the job offer. To prevent subjects from choosing the preferred rather than the just acceptable distance, the text made clear that the employer had already determined the actual place of work for the job offer and that the subject's choice would have no influence on the actual place of work. While the first location always matched the

[6]To calculate individual marginal tax rates, we used information on (household) income, marital status, and social security status.

subject's current situation regarding commuting distance and time[7], each of the following workplace options added another 5 kilometers and 5.49 minutes, respectively.[8] In doing so, we assumed an average speed of approximately 55 km/h, which we derived from the longitudinal study of the German Socio-Economic Panel (Sozio-oekonomisches Panel, 2021).[9]

To create uniform conditions, we also specified the following in the first stage of the decision-making:

(i) That the place of work must be visited every workday,

(ii) That the commute could only be made by car, and

(iii) That a move closer to the workplace was not possible.

We specifically informed subjects that the job was otherwise identical to their current job. In the second stage of the decision, we allowed all subjects to revise their first-stage choice. They could now indicate at which point they would prefer to move to a prespecified new residence rather than commute from their current residence. For simplicity, we specified the following about the new residence:

(iv) It is 3 km away from the potential workplace,

[7]If subjects indicated they usually use their car to get to work, we asked how long it usually takes them (see Appendix C, Question 22). To have equal assumptions regarding the initial time value, we additionally asked subjects who usually use other means of transport how long it would currently take them if they used the car (see Appendix C, Question 23).

[8]Consequently, there was no option available to reduce the commute below the current level besides the move option in the second-stage decision, although some treatments did come with tax breaks that were below the current level. Additionally, some evidence suggests that commuters value reductions in their commuting distance differently than they value extensions (see, for example, Tversky and Kahneman, 1991; de Borger and Fosgerau, 2008; Dauth and Haller, 2020). Nevertheless, since the job offer came with a significant wage increase with otherwise identical conditions, that fact alone should have motivated decision-makers to accept at least their current commuting length. In fact, only 26 subjects (2.4%) rejected the job offer altogether.

[9]Using a simple linear model, we regressed commuting times on commuting distance and obtained a factor of 1.0972 minutes per kilometer, which converts to a speed of approximately 55 km/h. In addition, in the pilot study conducted prior to our actual study, we found that this estimate was reasonably close to the sample mean commute speed of 53 km/h.

(v) The housing situation would be identical to the subject's current situation and, if applicable,

(vi) Spouses and children would find working and living conditions identical to those currently held.

Although we used a two-stage model, to get the whole picture, we interpreted the two decisions in combination, using the maximum additional commute length at which a subject was just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting.

We chose this design to investigate the effect of the commuter tax break on both the job location and residence without building a scenario too complex to imagine in a hypothetical setting. Fixing conditions on subjects' current working and living conditions made it possible to isolate the effect of different levels of the commuter tax break. However, one could argue that the assumptions made for the fictitious move option in the second stage of the hypothetical decision setting were far from realistic and thus could have biased subjects' reactions. Assuming the perfect availability of identical housing and housing prices within 3 km of any of the presented work locations, as well as conditions for spouses and children that are identical to their current conditions, might have oversimplified an actually complex decision by ignoring real-world frictions. Consequently, this setting could have promoted moving closer to the workplace beyond what would commonly be considered realistic and, thus, have led to underestimating the commuter tax break's effect. On the other hand, not allowing subjects to change residence in the first stage puts them into a position of maximum residential immobility, possibly persuading them to accept commutes where under normal circumstances, they would have chosen to move closer to the new workplace; such a situation conversely leads to overestimating the commuter tax break's effect. Therefore, one could consider our combined interpretation as more of a lower-bound estimate, while investigating the first-stage decision alone also enables us to

estimate an upper-bound estimate.[10]

4 Data and Descriptive Statistics

For this study, we surveyed 1,633 German employees about their mobility behavior. For the sample to represent the population of German employees, we invited subjects using combined quotas on gender, age, and federal state. The survey was conducted online in May and June 2022 using an access panel provided by Bilendi & respondi. All subjects who completed the survey received a fixed compensation of €3.35. Looking at the median, it took subjects approximately 22 minutes to finish the survey, resulting in a median hourly wage of €9.14.

Two honesty tests, one attention test, and four comprehension tests were included to ensure good data quality. Consequently, we immediately excluded dishonest and inattentive subjects from further participation. In addition, subjects could only proceed with the study if they answered all comprehension questions correctly. Subjects were allowed to correct errors but were still excluded if they made more than three errors cumulatively in the four comprehension questions. The comprehension questions ensured that all subjects understood their task and were aware of their wage increase and assigned deduction rate. Furthermore, we dropped observations afterward if the total completion time was less than ten minutes[11] (65), the given postal code could not be identified (45), conflicting information on working hours was given (64), or the information on commuting

[10]To test whether there is a significant difference in effects between our preferred, combined interpretation of the two-stage decision (lower-bound) and the first-stage decision alone (upper-bound), as a robustness test, we considered only the first stage of the decision, i.e., without the option to move closer to the work location. The results of that regression are shown in Table A2 of Appendix A. The coefficient of D_RATE is slightly higher; however, the difference between a 444 m per 10-cent increase and a 377 m per 10-cent increase for D_RATE is almost economically negligible. Therefore, in the remainder of this article, we will only refer to the results of the combined interpretation of the two decision stages.

[11]Note that subjects additionally had to answer two other decision experiments not reported in this article. We found the threshold of 10 minutes to be adequate after evaluating internal testing and a preceding pilot study with 80 subjects.

time and distance required unrealistic travel speeds (4). Consequently, after applying the listed filters, 1,455 observations remained.

Since the job offer required daily commuting by car, we excluded all subjects without a car for the experiment presented in this article (204 observations). We set this requirement because, within the design, it would have been too complex to implement different means of transportation, which would again depend on distance, availability, and travel time. In addition, 86 percent of the subjects in the entire sample reported owning a car, while 65 percent reported usually getting to work by car.[12] Furthermore, with the experimental design relying on subjects' current commuting distance, we had to exclude all subjects exclusively working from home because we had no comparable distance to present as a starting value (98 observations). We also excluded subjects who refused the job offer even when their commuting distance and time were not altered (26 observations). Applying these additional filters led to 1,137 observations.

Descriptive statistics for the final sample can be found in Table 1. Since we used quotas for gender, age, and federal state, the mean age and sex of the sample equaled that of the German population. Employees were, on average, 51% male and 44 years old. Approximately half of the subjects reported living in cities. The distribution of current commuting lengths was right-skewed, with a mean of 20.24 kilometers and a median of 15 kilometers. Subjects reported needing 26.53 minutes at the mean (median: 20 minutes) to travel this distance. As expected, with 75 percent of employees already primarily using a car on their way to work, the share is higher than that in the full sample, where only 65 percent reported using their car. One might notice that the average speed of approximately 46 km/h is significantly lower than the assumed 55 km/h speed for the additional commuting length. However, if we restrict our calculation to motorists, the current average speed inclines to approximately 52 km/h and becomes even higher the

[12]As expected, including noncar owners in several unreported robustness tests led to an overall weaker but still statistically significant effect of the commuter tax break.

Table 1: Descriptive Statistics

	N	Mean	SD	Median
COMMUTE_ADD	1137	12.69	9.21	10.00
D_RATE	1137	43.93	26.28	48.00
TAX_COMPLEXITY_HIGH	1137	0.45	0.50	0.00
CURR_DISTANCE	1137	20.24	26.79	15.00
RELATIVE_HODAYS	1137	0.12	0.22	0.00
AGE	1137	44.37	11.65	46.00
INCOME	1137	2531	1320	2250
TEMPORARY	1137	0.05	0.22	0.00
MALE	1137	0.51	0.50	1.00
MARRIED	1137	0.52	0.50	1.00
CHILD_IN_HH	1137	0.38	0.49	0.00
HOUSE_OWNER	1137	0.47	0.50	0.00
UNIVERSITY	1137	0.32	0.47	0.00
CITY	1137	0.54	0.50	1.00
CURR_TRAVEL_TIME	1137	26.53	21.70	20.00
CAR_COMMUTE	1137	0.75	0.43	1.00
WORKHOURS	1137	35.89	7.78	39.00
MTR	1137	0.33	0.07	0.34

Notes: This table provides descriptive statistics on the dependent variable *COMMUTE_ADD*, all explanatory variables, and some other relevant variables. *COMMUTE_ADD* is the maximum additional commute length in kilometers at which a subject is just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting. *D_RATE* is the rate per kilometer (one-way) in euro cents, ranging from zero to 84 cents, at which subjects can deduct their commuting costs. *TAX_COMPLEXITY_HIGH* is a dummy that is one if the observation is from the high-tax-complexity treatment and zero otherwise. *CURR_DISTANCE* is the subject's current commute distance in kilometers, *RELATIVE_HODAYS* is the share of homeoffice days per week in percent of working days per week, *AGE* is the subject's age, *INCOME* is the subject's monthly net income in euro, *TEMPORARY* is a dummy that is one if a subject has a fixed-term employment contract and zero otherwise, *MALE* is a dummy that is one if a subject is a male and zero otherwise, *MARRIED* is a dummy that is one if a subject is married or in a registered partnership, *CHILD_IN_HH* is a dummy that is one if a subject lives in a household with a child and zero otherwise, and *HOUSE_OWNER* is a dummy that is one if a subject owns a house and zero otherwise. We also report descriptive statistics for variables we do not include in our main regressions but refer to in the text. *UNIVERSITY* is a dummy that is one if a subject holds an academic degree and zero otherwise, *CITY* is a dummy that is one if a subject lives in a city and zero otherwise, *CURR_TRAVEL_TIME* is the time in minutes subjects usually spend on their way to work in their most frequently used transport mode, *CAR_COMMUTE* is a dummy that is 1 if a subject usually uses a car to go to work and zero otherwise, *WORKHOURS* is the weekly contractual working hours, and *MTR* is the marginal tax rate we estimate for each subject as described in section 3.

longer the distance is extended. Hence, the added travel time for the fictitious workplaces is reasonable, as it only applies to the added distance.

Regarding the occupational sphere, subjects in our sample reported working, on

average, approximately 36 hours per week for a monthly net income of €2,531.[13] We obtained detailed information on the number of days worked at the employer's site versus days worked at home and, therefore, on the actual distance traveled. These data show that employees, on average, spent 12 percent (full sample: 18 percent) of their weekly workdays in their home office, with 29 percent working from home at least one day per week. We found a significant positive relationship between the current commute distance and the share of days worked from home, which aligns with previous research (see also Aksoy et al., 2022). This outcome shows the importance of considering the distance and frequency of commutes together when examining job-related mobility.

In addition, we report essential subject characteristics separately for the treatment groups in Appendix A1. We performed an omnibus test for joint orthogonality to test whether our randomization process was successful and whether these characteristics were distributed evenly across our treatments. Using multinomial logit regression, we regressed the assignment of the three treatments on all control variables described in section 5. The overall χ^2 test was found to be insignificant, suggesting evenly balanced individual characteristics. Only the coefficient of *MALE* was found to be positive and statistically significant, suggesting a higher share of men in the low-tax-complexity group. However, the difference was only marginal, with men making up 48 percent of the high tax-complexity group, 54 percent of the low-tax-complexity group, and 53 percent of the group with a commuter tax break of zero.

[13]To not deter subjects by asking too many personal questions that are too detailed, we decided to ask monthly net income in increments of €500. To calculate the reported average income and for further analysis (e.g., the estimation of individual marginal tax rates or the income base for salary stimulus), we used the midpoints of these increments.

5 Estimation Strategy

To estimate the effect of the commuter tax break on the additional commute length subjects are willing to accept in the given setting, we estimated the coefficients of the following model by running MM-robust regressions (Yohai, 1987) separately for the high- and low-complexity groups:[14]

$$COMMUTE\_ADD_i = \alpha + \beta_1 D\_RATE_i + \gamma X_i + \epsilon_i \tag{1}$$

where $COMMUTE\_ADD_i$ is the maximum additional commute length (in km) at which a subject i is just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting, and D_RATE_i is the rate per kilometer (single trip) in euro cents at which subjects can deduct their commuting expenses. Note that we could not vary the tax complexity in the setting that completely abolishes the commuter tax break; thus, we did not include it in our base model but instead investigated its effect separately (see section 6.2). Additionally, with the use of X_i, we included a vector of several control variables. Although we specified most of the job aspects to be identical to the subjects' current situation, we had to specify some aspects that could also affect commuting length. Therefore, we controlled for these aspects by including $RELATIVE\_HODAYS$ for the share of workdays the subject usually works from home and a dummy variable $TEMPORARY$ that is given a value of one if a subject's employment contract is fixed-term and zero otherwise. Because we varied income

[14]We choose the outlier-robust MM-regression because some estimates we obtained from OLS regression are affected by a few outliers. As suggested by Leone et al. (2019), instead of winsorizing or truncating our data, we used robust regressions to obtain MM-estimates, which are much less affected by outliers than OLS estimates while maintaining a high Gaussian efficiency of 95%. As implemented in the user-written Stata package *robreg* by Jann (2010), a Tukey biweight function was used for both the preliminary S-estimator and the final MM-estimator based on it. We ran ordinary regressions with robust standard errors for all our main models as a robustness test. The results overall remained essentially unchanged compared to the robust regression. However, with a magnitude of 0.0296 (p-value: 0.07) in the low-tax-complexity group, the coefficient of D_RATE was found to be slightly weaker in the model described in Equation 1:

and commuting distance based on their current levels, we controlled for these by including $INCOME$ and $CURR\_DISTANCE$, respectively. Finally, with AGE, $MALE$, $MARRIED$, $HOUSE\_OWNER$, and $CHILD\_IN\_HH$, we controlled for age, gender, marital status, house ownership, and whether children live in the household, respectively.

As a result of the design, the dependent variable can take values ranging between zero (keeping the current distance) and 50 additional kilometers. We used the maximum accepted additional commuting length from the first-stage decision unless subjects chose to move closer to the new workplace in the second-stage decision. In the latter case, we set the dependent variable to reflect the adjusted maximum commuting length the subject would be willing to accept before moving closer to the new workplace. If a subject decided to move in all of the presented cases, we set the dependent variable to zero since the subject would not be willing to extend his or her commute in any case.

We suspected that subjects in the first stage of the decision would accept the new job for every distance presented until they became indifferent between their old and new jobs. Thus, a subject would always accept the job if the gain in wages Δw, together with the tax refund caused by the modified commuter tax break Δl, was at least as high as the associated commuting costs Δk_c:

$$\Delta w - (\Delta k_c(d) - \theta \cdot \Delta l(d)) \geq 0; \tag{2}$$

with $\theta \geq 0$ being a perception parameter presenting the rate at which the tax deductibility is accounted for by a subject considering the costs of dealing with tax complexity or the possibility of subjects misestimating the tax effect. For subjects who knew their marginal tax rate and did not incur any estimation costs in dealing with tax complexity, we expected $\theta = 1$. Otherwise, we expected $\theta > 1$ for employees who overreacted and $0 \leq \theta < 1$ for those who underreacted. Regardless, θ should never become negative since a rational decision-maker would simply ignore the tax break ($\theta = 0$) if he or she incurs

more costs than gains from such a tax break.

On the other hand, when given the option to move closer to the new workplace, subjects were now faced with an optimization problem that also included their opportunity costs of moving k_m to a different location.[15] Therefore, depending on the individual marginal costs of commuting and the personal attachment to their home, all presented workplaces could now be accepted without subjects having to accept their maximum acceptable commute distance since the move option is fixed at a distance of 3 km. Instead, subjects with some attachment to their home might keep commuting from their current place until the additional costs of commuting $\Delta k_c - \Delta l$ exceeded their opportunity costs of moving Δk_m. Thus, subjects would always accept the job in the following case:

$$\Delta w - min(\Delta k_c(d) - \theta \cdot \Delta l(d); k_m) \geq 0 \tag{3}$$

Consequently, in the second-stage choice scenario, the commuter tax break also affected the commute length through the switching point between commuting and moving.

6 Results

6.1 The Effect of the Commuter Tax Break on Commute Distance

Table 2 shows the regression results. In our base setting, we run separate regressions for the high- and low-tax-complexity groups. Columns (1) and (2) show the results without controls, whereas Columns (3) and (4) include the control variables described above. Since the results for both groups do not significantly change when we include control variables, in the following, we will only refer to the results of the full regression

[15] We limited the costs of moving to opportunity costs by promising in the task description to reimburse the direct monetary costs.

model. It can be shown that the commuter tax break has a statistically significant positive effect on commute length. For each €0.10 increase in the kilometer rate, subjects in the low-tax-complexity group are ceteris paribus willing to commute an additional 377 m. However, in the high-tax-complexity group, the coefficient for D_RATE is not statistically significant.

To test whether the difference between the two treatment groups is significant, instead of running separate regressions, we control for $TAX\_COMPLEXITY\_HIGH_i$, which is a dummy that is equal to one if the observation is from the high-tax-complexity group and zero otherwise, and for the interaction of D_RATE and $TAX\_COMPLEXITY\_HIGH_i$ in a combined regression. The results from that regression are shown in Column (5) of Table 2 and depicted graphically in Figure 1. The estimate for D_RATE remains essentially unchanged. If tax complexity is reduced, i.e., if the $TAX\_COMPLEXITY\_HIGH_i$ dummy is zero, then the coefficient for D_RATE is 0.0373 and statistically significant at the 5 percent level. If tax complexity is high, i.e., the $TAX\_COMPLEXITY\_HIGH_i$ dummy is 1, and if we consider the negative and statistically significant interaction effect between D_RATE and $TAX\_COMPLEXITY\_HIGH_i$, then the effect of D_RATE becomes -0.0037 (p-value: 0.8155). This result indicates that subjects do not account for the size of the tax benefit in their decision making when such change is presented as a deduction from taxable income (high-tax-complexity treatment).

Subjects might ignore the tax break if they expect the costs of dealing with tax complexity to exceed the expected benefits of the tax break. Therefore, subjects with high estimation costs, e.g., tax-inexperienced subjects, or a low incentive from computing the cash effect, e.g., low-taxed subjects, could ignore the tax break and thus dilute the commuter tax break's effect in our regression. Conversely, we expect subjects with lower estimation costs and higher incentives to be less affected by tax complexity and more prone to consider the commuter tax break in their decision. Additionally, since we do not

Table 2: Regression Results:
The Effect of the Commuter Tax Break on Commute Distance

Tax Complexity:	(1) High	(2) Low	(3) High	(4) Low	(5) High & Low
VARIABLES	COMMUTE_ADD	COMMUTE_ADD	COMMUTE_ADD	COMMUTE_ADD	COMMUTE_ADD
D_RATE	0.000313	0.0307*	-0.00701	0.0377**	0.0373**
	(0.0163)	(0.0168)	(0.0161)	(0.0166)	(0.0164)
TAX_COMPLEXITY_HIGH					1.100
					(1.176)
TAX_COMPLEXITY_HIGH∗D_RATE					-0.0410*
					(0.0226)
CURR_DISTANCE			-0.120***	-0.0418***	-0.0654***
			(0.0196)	(0.0121)	(0.0227)
RELATIVE_HODAYS			-0.863	-2.029	-1.793
			(1.547)	(1.497)	(1.103)
TEMPORARY			1.725	3.181*	2.559*
			(2.164)	(1.833)	(1.398)
MALE			-0.366	-1.188	-0.757
			(0.829)	(0.864)	(0.607)
AGE			0.0113	-0.0473	-0.0182
			(0.0362)	(0.0321)	(0.0241)
INCOME			0.000992**	0.00153***	0.00122***
			(0.000388)	(0.000318)	(0.000253)
MARRIED			0.0492	0.142	0.151
			(0.824)	(0.854)	(0.593)
CHILD_IN_HH			0.801	-0.178	0.315
			(0.881)	(0.865)	(0.611)
HOUSE_OWNER			1.133	0.984	1.081*
			(0.795)	(0.795)	(0.569)
Constant	11.69***	11.10***	10.85***	10.16***	9.648***
	(0.869)	(0.869)	(1.884)	(1.701)	(1.438)
Observations	516	533	516	533	1,049
R^2 (WLS)	0.0000	0.0084	0.1120	0.1014	0.0924
Wald χ^2	0.0004	3.3499	43.3275	45.2431	39.5640
p-value	0.9847	0.0672	<0.0001	<0.0001	0.0001
Wald test (p-value):					
Tax Complexity Low vs. High					0.8155

Notes: This table presents the results of the Yohai (1987) MM-robust regressions with *COMMUTE_ADD* as the dependent variable. *COMMUTE_ADD* is the maximum additional commute length in kilometers at which a subject is just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting. In models 1 and 2, we regress *COMMUTE_ADD* on *D_RATE* without control variables separately for the high and the low tax complexity treatment, respectively. *D_RATE* is the rate per kilometer (one-way) in euro cents, ranging from 12 to 84 cents, at which subjects can deduct their commuting costs. Model 3 and 4 are identical but include control variables. *CURR_DISTANCE* is the subject's current commute distance in kilometers, *RELATIVE_HODAYS* is the share of homeoffice days per week in percent of working days per week, *AGE* is the subject's age, *INCOME* is the subject's monthly net income in euro, *TEMPORARY* is a dummy that is one if a subject has a fixed-term employment contract and zero otherwise, *MALE* is a dummy that is one if a subject is a male and zero otherwise, *MARRIED* is a dummy that is one if a subject is married or in a registered partnership, *CHILD_IN_HH* is a dummy that is one if a subject lives in a household with a child and zero otherwise, and *HOUSE_OWNER* is a dummy that is one if a subject owns a house and zero otherwise. In model 5, we include both the high and low tax complexity treatments and control for *TAX_COMPLEXITY_HIGH* and $TAX\_COMPLEXITY\_HIGH * D\_RATE$. *TAX_COMPLEXITY_HIGH* is a dummy that is one if the observation is from the high-tax-complexity treatment and zero otherwise. $TAX\_COMPLEXITY\_HIGH * D\_RATE$ is the interaction of the two variables. The Wald χ^2 test with its corresponding p-value tests for the significance of the model as a whole. Robust standard errors are reported in parentheses. *, **, and *** represent significance at the 0.10, 0.05, and 0.01 levels, respectively.

address the applicable lump sum for work-related expenses of €1,200 under German tax law, individuals with expenses well below this lump sum could expect a lower effective refund than the low-tax-complexity group for which we provide the effective refund. Note,

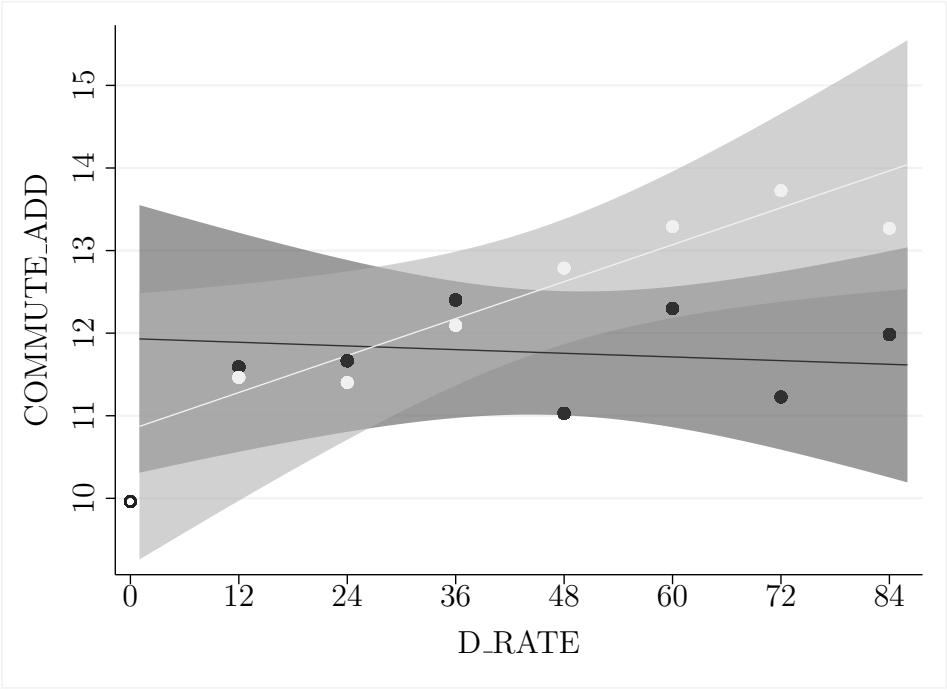

Figure 1: Marginal effects of D_RATE on COMMUTE_ADD by Tax Complexity

Notes: This figure shows the effect of the treatment variable D_RATE on the dependent variable COMMUTE_ADD. *D_RATE* is the rate per kilometer (one-way) in euro cents, ranging from 12 to 84 cents, at which subjects can deduct their commuting costs. *COMMUTE_ADD* is the maximum additional commute length in kilometers at which a subject is just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting. 3. The light (dark) gray dots show the outlier-robust weighted means of COMMUTE_ADD at each presented level of the deduction rate D_RATE between €0.12 and €0.84 for the low (high)-tax-complexity treatment. For reference, the black circle shows the outlier-robust weighted mean of COMMUTE_ADD for the treatment group that received a deduction rate of zero (treatment 0). The light (dark) gray line is the outlier-robust weighted least squares regression line for the low (high)-tax-complexity treatment, using the full model with interaction, as shown in Column 5 of Table 2. The shaded areas present the respective 95% confidence intervals.

however, that based on the subjects' current commuting distance, the average subject already exceeds this lump sum due to commuting expenses alone.[16]

To test this, we run untabulated separate regressions for subgroups with at least an average tax knowledge and subgroups that would gain the most from high deduction rates, i.e., high-income/highly taxed subjects, long-distance commuters, and subjects who indicated they had work-related expenses above the lump sum of €1,200 in the past three

[16]In the task, daily commuting is needed. Thus, the commuter tax break can be calculated as follows: 217 workings days*20.24 km + €0.3 = €1,318.

years.[17] We also run a regression with subjects overestimating their marginal tax rate by more than ten percentage points and, therefore, expecting a higher cash effect of the commuter tax break.[18] However, neither of these subgroups accounts for the commuter tax break in their job decision in the high-tax-complexity treatment.

This suggests that inattention to the commuter tax break in the context of tax complexity persists regardless of having a high level of tax knowledge or an (expected) higher incentive. We suspect that several factors cause such a nonresponse. Among low-taxed and less tax-experienced subjects, the incentive from tax-deductible commuting expenses might be too low compared to the costs of dealing with tax complexity. On the other hand, highly taxed subjects and those with a high level of tax knowledge might receive a higher absolute incentive and face lower costs for dealing with tax complexity but, simultaneously, have higher time costs that the deductible amount does not consider. The benefit from the commuter tax break, therefore, decreases relative to salary.

The result in our high-tax-complexity group mostly aligns with our inattention hypothesis, which states that subjects do not necessarily consider all available information, especially when processing this information requires a certain amount of effort. This outcome is consistent with the results of other papers on inattention to complex information (Blaufus and Ortlieb, 2009; Farhi and Gabaix, 2020; Maćkowiak et al., 2023).

One concern might be that subjects are inattentive to the commuter tax break because instead of tax complexity causing their inattention, they may have no real monetary incentive to calculate correctly; this suggests that subjects would account for the commuter tax break in a real choice scenario but not a hypothetical one. However, the fact that

[17] Subjects indicated their tax knowledge on a scale ranging from 1 (no knowledge) to 5 (expert) and were classified to have at least an average tax knowledge if they indicated knowledge equal to a 3 (average knowledge) or higher. We classified net incomes above the sample median (≥€3,000) and marginal tax rates above 40% (the highest quintile) as high. We considered subjects to be long-distance commuters if their stated current commute distance is among the highest quintile.

[18] At the end of the survey, we asked the subjects to estimate the income tax they would owe if their annual gross income were to increase by €100.

subjects in the low-tax-complexity treatment did engage in calculations despite also having no monetary incentive contradicts this argument. Additionally, compared to the high-tax-complexity group, we implicitly provided subjects in the low-tax-complexity treatment with additional information only about their marginal tax rate. Apart from that, we made the commuter tax break very salient for both treatment groups by explicitly mentioning it in the task and asking for its size in the comprehension questions. To further investigate this concern, we test whether we can find any difference in the amount of time that subjects in the low- and high-tax-complexity treatments spent on making the two decisions, including the time it took them to read the instructions and answer the comprehension questions. If subjects in the high-tax-complexity treatment group did not calculate at all, we expect them to have spent less time on making a decision than those in the low-tax-complexity treatment group. However, we find no statistically significant difference between the two groups.

Considering that the presentation of the commuter tax break in the high-tax-complexity setting resembled its actual presentation in German tax law raises the question as to why Paetzold (2019) and Agrawal et al. (2023), in contrast, find a reaction to the Austrian and German commuter tax break as implemented in the respective tax law, i.e., without any alteration of the salience of its effect. Focusing on Agrawal et al. (2023) first, who also exploit data from German employees, we see several reasons why their approach might lead to overestimating the effect. First and foremost, the reforms examined coincided with the most profound labor and welfare reform in postwar Germany and preceded the global financial crisis, both of which increased job uncertainty for workers. Since job uncertainty is associated with longer commutes, these concurrent events may have forced workers to extend their job search radius and accept longer commutes than they would typically do

(Crane, 1996; Parenti and Tealdi, 2019; Laß et al., 2023). [19] Given that no control group is used, it is difficult to disentangle the effect of the commuter tax break from the effects of the concurrent events. Even if we put aside the possibly confounding events, the lack of information on actual commuting times causes an underestimation of total costs per kilometer, leaving a significant part of the observed job changes unexplained.[20]

On the other hand, regarding the results of Paetzold (2019), we can think of two main differences in the institutional and empirical settings which might explain why the Austrian commuter tax break compares better to the one used in our low-tax-complexity setting than our high-tax-complexity setting:

First, as mentioned by Paetzold (2019, p. 137), the estimation and application process for the commuter tax break is much more straightforward in Austria than in Germany. Employees claim the tax credit through their employer using an online tool that calculates the tax break by asking only for the work and home address, typical work hours, and workdays. The tax break, therefore, lowers the employees' monthly taxable income, immediately increasing their net wage. Conversely, in Germany, taxpayers usually claim the tax break through their annual income tax return, potentially yielding a refund the following year.[21] It has been shown that a gap between the time of the tax filing of an expense and the time of the actual expense affects the amount spent (e.g., Hickey et al., 2019). Additionally, the complexity associated with the application process in a given tax

[19]Furthermore, focusing only on job changers who did not change residence could even produce a selection bias since workers with higher job uncertainty (e.g., a fixed-term contract) are also less likely to move closer to their work (Parenti and Tealdi, 2019; Laß et al., 2023) and thus more likely to be affected by the possible confounders.

[20]While Agrawal et al. (2023) have exact information on commute distances, they rely on estimating travel times made under ideal traffic conditions. The resulting average travel speed amounts to 63 km/h, whereas in our sample, commuters travel with an average speed of only 42 km/h (median: 40 km/h). Note that this average speed differs from the one reported in section 4 because, for comparison, we used the whole sample without filters for car ownership or workers exclusively working from home since these groups were not excluded in Agrawal et al.'s(2023) analysis.

[21]Taxpayers could also apply for a reduction in payroll taxes. However, for the application to be granted, they must provide sufficient evidence of income-related expenses expected to be at least €1,800. Assuming 230 working days, the commute distance would have to be at least 25 km to exceed this amount with the commuter tax break alone.

system can cause taxpayers' inattention to and, thus, underutilization of such a tax credit (Farhi and Gabaix, 2020; Maćkowiak et al., 2023; Dickert-Conlin et al., 2005), as well as an incorrect estimation of the actual tax burden (Chetty et al., 2009; Blaufus et al., 2013; Taubinsky and Rees-Jones, 2018).

Second, and most importantly, the Austrian progressive income tax at the time of the abovementioned study had a sharper incline than its German counterpart. For example, between 2005 and 2011, the Austrian income tax started with a marginal tax rate of 38% for an income of €10,000 (after 2009: €11,000). In Germany, the marginal tax rate starts at 14% with an income of €10,348, with an MTR of 38% reached only at an annual taxable income of approx. €49,000. Consider, for example, an employee with an income at the lower end of the income tax schedule, a commute of 20 km, and 230 workdays per year. While both Austrian and German tax law, in this case, allow a similar deductible amount of €1,476 and €1,380, respectively, the Austrian after-tax cash value of that tax break amounts to €560, which is significantly higher than the value of €213 in Germany. Considering that Paetzold (2019) focuses on low-income individuals who are positioned around the first income tax threshold, whereas we estimate an average effect, the individuals in his sample have a stronger and more immediate incentive from any tax break while bearing lower time costs.

Turning the focus back to the low-tax-complexity group, we can conclude that although employees are willing to accept longer commutes when receiving higher tax refunds in the low-tax-complexity group, the magnitude of that effect is small from an economic viewpoint. To compare our results with those of Paetzold (2019) and Agrawal et al. (2023), we convert our estimates into additional kilometers per €100 reduction in taxes paid. For this, we calculate the income tax effect of an increase in the per-kilometer deduction rate of €0.10 using mean values of current commute distance, annual workdays, and marginal

tax rates.[22]

On average, subjects accept a 0.256 km longer commute for every €100 decrease in taxes paid.[23] With an effect six and almost 10 times smaller than the effect observed in Paetzold (2019) and Agrawal et al. (2023), respectively, our estimate seems to be relatively small at first glance.

However, since Paetzold (2019) is only able to investigate a local effect for low-income individuals, the additionally accepted commuting distance and time need to be compared with respect to the individual time costs of commuting. In this context, based on the mean effect, Paetzold (2019) estimates the wage rate at which employees are willing to accept an additional hour of commuting to approximately €6.40, which is approximately 71 percent of the gross hourly wage rate in his sample. We replicate this calculation to examine whether our small average effect means that subjects underestimate the tax breaks' effect even in the low-tax-complexity treatment. The estimated effect of 256 m per €100 change means that €390 would be necessary for employees to accept a 1-km-longer commute. Considering the sample mean of 217 annual workdays, the outcome amounts to €1.80 per kilometer in distance or €0.78 per kilometer driven.[24] While Paetzold (2019) ignores monetary costs in his calculation, having no information about the travel mode used by subjects, we not only restrict subjects to using a car but also ask for their estimation of monetary costs per kilometer. Subtracting the mean monetary costs of €0.44 per kilometer from total costs per kilometer driven results in time costs of €0.34 for traveling one additional kilometer at the mean. Using a fixed speed of approximately 55 km/h

[22]
$$\frac{10,000 * \beta_1}{distance * workdays * mtr} = \frac{10,000 * \beta_1}{20.24\ km * 217 * 0.3349} \tag{4}$$

[23]Even if we calculate using the lower median distance (15 km) instead of the mean, the effect still amounts to an outcome of only 0.346 km per €100 decrease in taxes paid.

[24]Since we have specified that subjects must visit their new workplace every workday, employees who currently work in part from home consequently have to commute more frequently from now on. Therefore, when calculating the distance driven, we do not divide €1.80 by two but rather by 2.3141 to reflect this additional frequency.

to calculate the time needed for the additional distance, the per-kilometer estimate of €0.34 equals an hourly net wage of €18.43, which is approximately 92 percent of the mean hourly net wage.

Although at the higher end of the scale, our time costs estimate blends well with the results of other papers, which usually report travel time costs between 50 and 90 percent in revealed preference data. However, our estimate exceeds the 20 to 50 percent usually observed in stated preference data (Small et al., 2005, 2007, pp. 52-55). Compared to Paetzold (2019), who finds time costs of travel to be valued at 71% of the gross hourly wage in his sample, our estimate is almost 30% higher, suggesting higher average time costs of commuting not only in absolute terms but also relative to the hourly wage. Therefore, in addition to the different income structures of the samples and the differences in institutional settings, the — on average — higher relative time costs of commuting in our sample further explain the difference in magnitude between Paetzold's (2019) and our kilometer-per-€100 estimates. In light of these results, the assumption of Agrawal et al. (2023) that commuting costs are valued at only 50% of the gross wage seems too low.

6.2 Abolition of the Commuter Tax Break

Since no calculation of taxes is required in the case of the abolition of the commuter tax break, we cannot alter the tax complexity in this case. However, this particular case of manipulation allows us to test whether subjects in the high-tax-complexity treatment, although not considering size, account for the mere existence of a commuter tax break. Therefore, in a subsequent regression, we include only the high-tax-complexity group and those who were given a commuter tax break of €0.00, and we control for the dummy D_RATE_ZERO, which is one if $D\_RATE = 0$ and zero if $D\_RATE > 0$. The results of that regression are shown in Table 3.

Surprisingly, compared to the size effect of the commuter tax break, its mere existence

Table 3: Regression Results: Abolition

VARIABLES	High Tax Complexity COMMUTE_ADD
D_RATE_ZERO	-1.828*
	(0.932)
Constant	11.16***
	(1.596)
Controls	Yes
Observations	604
R^2 (WLS)	0.1288
Wald χ^2	64.2217
p-value	< 0.0001

Notes: This table presents the results of the Yohai (1987) MM-robust regression with *COMMUTE_ADD* as the dependent variable. *COMMUTE_ADD* is the maximum additional commute length in kilometers at which a subject is just willing to accept the job offer and would not prefer moving closer to the workplace over daily commuting. We regress *COMMUTE_ADD* on *D_RATE_ZERO*, a dummy that is one if $D\_RATE = 0$ and zero otherwise. We include all control variables described in section 5. The Wald χ^2 test with its corresponding p-value tests for the significance of the model as a whole. Robust standard errors are reported in parentheses. *, **, and *** represent significance at the 0.10, 0.05, and 0.01 levels, respectively.

has a much stronger impact on commute length. On average, abolishing the commuter tax break results in subjects being willing to travel 1.8 km less than subjects with a positive deduction rate, regardless of the magnitude of that rate. If we compare the abolition effect to the effect we estimated for the variation of a positive deduction rate in the low-tax-complexity group in section 6.1, the reaction to abolition equals that to an increase in the deduction rate, e.g., from €0.36 to €0.84.

To rule out the possibility that subjects simply overreacted as some form of protest to being stripped of their commuter tax break, we test whether subjects reacted differently to being worse off, quasiequal, or better off relative to the current German tax law, which allows a deduction of €0.30/km for the first 20 km and €0.38/km from the 21st km. We assume subjects treated with a deduction rate of 0.36 euro/km as being treated quasiequally to the status quo. To this end, in an untabulated regression using only the high-tax-complexity group, we substitute D_RATE in Equation 1 by the categorical variable REL_D_RATE, which is zero if $D\_RATE = 0$, one if $D\_RATE = 12$ or $D\_RATE = 24$, two if $D\_RATE = 36$, and three if $D\_RATE > 36$.

Our results (unreported) show that reducing the commuter tax break in the high-tax-complexity treatment to a level below that of the current German tax law does not have any impact on $COMMUTE\_ADD$ relative to treating subjects quasiequally or better than they are treated under the current German tax law. Hence, the relationship between the commuter tax break and average commute length seems to be nonlinear at the lower end. This finding supports previous research suggesting that people with bounded rationality may be more influenced by the presence of an incentive than by its actual size (Karlan and List, 2007; Burgstaller et al., 2023).

7 Conclusion

In the context of climate change and in the aftermath of the COVID-19 pandemic, tax incentives for job-related mobility, which are widespread in many Western European countries, have recently been scrutinized. Although classified as potentially environmentally harmful subsidies, empirical evidence on the impact of tax-deductible job-related commuting costs on job search radius or commuting distance is scarce. This study is the first to use a controlled randomized survey experiment to test for a causal effect of the tax deductibility of commuting expenses on commuting distance.

We find that the rate at which employees can deduct commuting costs is only accounted for in their job location choice when the tax break is presented as an effective tax refund (low-tax-complexity treatment). In this case, an increase in the deduction rate by €0.10 leads to an average acceptance of 377-meter-longer commutes.

In contrast, when the commuter tax break is presented as a deduction from the tax base (high-tax-complexity treatment), as is the case in the existing tax law, subjects do not respond to changes in the size of the deduction rate. We suspect this is because the costs that taxpayers expect to incur from dealing with tax complexity are too high compared to

the expected tax benefit, which leads to employees not calculating or considering such a break when deciding on a job location. Our evidence, however, also shows that employees in the high-tax-complexity group do consider the mere existence of a commuter tax break, with subjects who are not able to deduct commuting expenses accepting — on average — a 9-percent-shorter commute than that of any subject with a positive deduction rate in the high-tax-complexity group.

Our evidence offers several policy implications, depending on what is desirable regarding job-related mobility. If, on the one hand, the expansion of employees' job search radius is desired, our evidence suggests that the commuter tax break should be less complex and more salient for employees to consider it correctly in their decision making. Given the current implementation of the tax break, employees consider the mere existence of a commuter tax break but not the amount of the deductible, thereby making any deduction rates above a bare minimum inefficient. On the other hand, if a reduction in job-related mobility is desired, then abolishing the deductibility of commuting expenses could reduce average commutes by approximately 9 percent.

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Appendix

A Additional Tables

Table A1: Distribution of Control Variables Across Treatments

	Abolition	Low Tax Complexity	High Tax Complexity	Total
D_RATE	0.00	47.56	47.66	43.93
CURR_DISTANCE	19.59	19.86	20.71	20.24
RELATIVE_HODAYS	0.15	0.12	0.12	0.12
AGE	43.57	44.43	44.44	44.37
INCOME	2,398	2,535	2,548	2,531
TEMPORARY	0.03	0.06	0.05	0.05
MALE	0.53	0.48	0.54	0.51
MARRIED	0.50	0.50	0.54	0.52
CHILD_IN_HH	0.42	0.37	0.39	0.38
HOUSE_OWNER	0.48	0.46	0.47	0.47
Observations	88	533	516	1,137

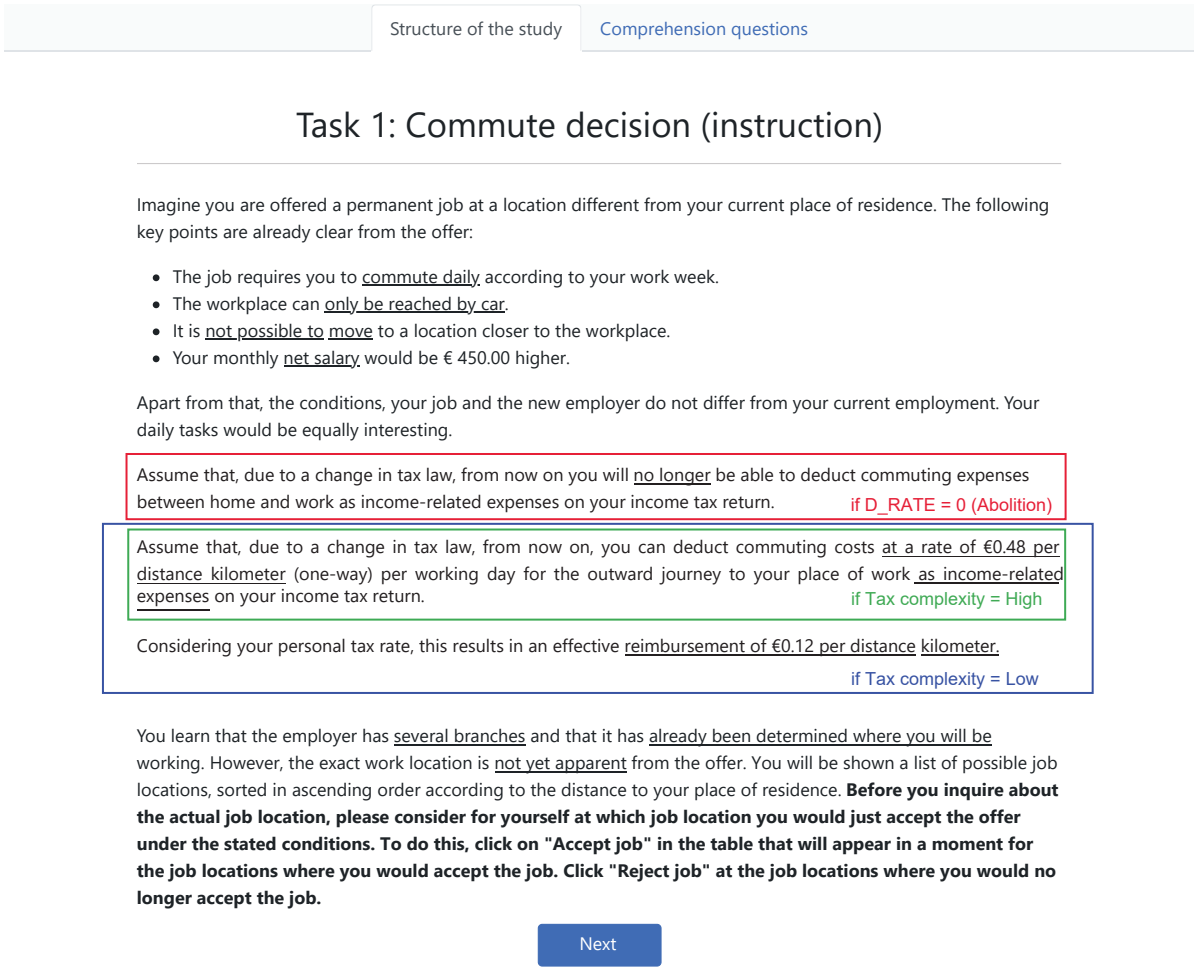
Notes: This table provides descriptive statistics on the explanatory variables of model 1 separately for the three treatments decribed in section 3. *D_RATE* is the rate per kilometer (one-way) in euro cents, ranging from zero to 84 cents, at which subjects can deduct their commuting costs. *CURR_DISTANCE* is the subject's current commute distance in kilometers, *RELATIVE_HODAYS* is the share of homeoffice days per week in percent of working days per week, *AGE* is the subject's age, *INCOME* is the subject's monthly net income in euro, *TEMPORARY* is a dummy that is one if a subject has a fixed-term employment contract and zero otherwise, *MALE* is a dummy that is one if a subject is a male and zero otherwise, *MARRIED* is a dummy that is one if a subject is married or in a registered partnership, *CHILD_IN_HH* is a dummy that is one if a subject lives in a household with a child and zero otherwise, and *HOUSE_OWNER* is a dummy that is one if a subject owns a house and zero otherwise.

Table A2: Robustness Test: Commute Decision Without Move Option

	(1)	(2)
Tax Complexity	High	Low
VARIABLES	$\text{COMMUTE}_{\text{add.}}$	$\text{COMMUTE}_{\text{add.}}$
D_RATE	-0.0168	0.0442***
	(0.0167)	(0.0162)
Constant	14.91***	12.98***
	(1.982)	(1.945)
Controls	Yes	Yes
Observations	514	532
R^2 (WLS)	0.0614	0.0708
Wald χ^2	32.36	30.64
p-value	0.0002	0.0003

Notes: This table presents the results of the Yohai (1987) MM-robust regression with *COMMUTE_ADD* as the dependent variable. Here, *COMMUTE_ADD* is the maximum additional commute length in kilometers at which a subject is just willing to accept the job offer without being able to move closer to the workplace (first-stage decision only). In columns 1 and 2 we regress *COMMUTE_ADD* on *D_RATE* separately for the high and the low tax complexity treatment, respectively. *D_RATE* is the rate per kilometer (one-way) in euro cents, ranging from 12 to 84 cents, at which subjects can deduct their commuting costs. We include all control variables described in section 5. The Wald χ^2 test with its corresponding p-value tests for the significance of the model as a whole. Robust standard errors are reported in parentheses. *, **, and *** represent significance at the 0.10, 0.05, and 0.01 levels, respectively.

B Screenshots of the Choice Scenarios



Comprehension test

Before the actual study begins, we would like you to answer the following comprehension questions. If anything is unclear, you can view the instructions as often as you like by clicking on the "Back" button or the "Structure of the study" tab.

Please note that we will not compensate you if you have not read the instructions carefully and consequently do not answer the following questions conscientiously.

1. Question

In the task, you get a job offer. Which of the following statements about this offer is correct?

- ○ Your net salary remains unchanged
- ○ There is no information about the salary
- ○ Your net salary increases by € 450.00
- ○ Your net salary increases by € 300.00
- ○ Your net salary decreases by € 450.00

2. Question (Tax Complexity = High or D_RATE=0 (Abolition))

The text also dealt with a change in tax law concerning the tax deductibility of travel expenses between home and work. Accordingly, to what extent can you deduct your travel expenses as income-related expenses for tax purposes?

- ○ 0,00 €
- ○ 0,12 €
- ○ 0,24 €
- ○ 0,48 €
- ○ 0,54 €

2. Question (Tax Complexity = Low)

The text also dealt with a change in tax law concerning the tax deductibility of travel expenses between home and work. For this purpose, you were given the effective reimbursement per distance kilometer in the task description, taking into account your personal tax rate. How high is it?

- ☐ 0,00 €
- ☐ 0,12 €
- ☐ 0,24 €
- ☐ 0,48 €
- ☐ 0,54 €

3. Question

For the task, you will be shown a table with different places of activity. Which of the following statements is true?

- ☐ The table contains job offers from different employers.
- ☐ The place of work is already fixed for the job offer. You only choose the maximum distance/travel time you would be willing to accept for the job described.
- ☐ Commuting by bicycle to the place of work is required each workday.
- ☐ As an alternative to commuting, it is also possible to move to a location near the place of work.

Back | Check

Task 1: Commute decision

Now please make your decision in the table below.
As a reminder, we show you the task text again.

Imagine you are offered a permanent job at a location different from your current place of residence. The following key points are already clear from the offer:

- The job requires you to commute daily according to your work week.
- The workplace can only be reached by car.
- It is not possible to move to a location closer to the workplace.
- Your monthly net salary would be € 450.00 higher.

Apart from that, the conditions, your job and the new employer do not differ from your current employment. Your daily tasks would be equally interesting.

Assume that, due to a change in tax law, from now on you will no longer be able to deduct commuting expenses between home and work as income-related expenses on your income tax return.

You learn that the employer has several branches and that it has already been determined where you will be working. However, the exact work location is not yet apparent from the offer. You will be shown a list of possible job locations, sorted in ascending order according to the distance to your place of residence. **Before you inquire about the actual job location, please consider for yourself at which job location you would just accept the offer under the stated conditions. To do this, click on "Accept job" in the table that will appear in a moment for the job locations where you would accept the job. Click "Reject job" at the job locations where you would no longer accept the job.**

Work location	Distance and travel time	Accept job	Reject job
Work location 1	Distance: 15 km Travel time: 20 min.	○	○
Work location 2	Distance: 20 km Travel time: 25 min.	○	○
Work location 3	Distance: 25 km Travel time: 30 min.	○	○
Work location 4	Distance: 30 km Travel time: 36 min.	○	○
Work location 5	Distance: 35 km Travel time: 41 min.	○	○
Work location 6	Distance: 40 km Travel time: 47 min.	○	○
Work location 7	Distance: 45 km Travel time: 52 min.	○	○
Work location 8	Distance: 50 km Travel time: 58 min.	○	○
Work location 9	Distance: 55 km Travel time: 63 min.	○	○
Work location 10	Distance: 60 km Travel time: 69 min.	○	○
Work location 11	Distance: 65 km Travel time: 74 min.	○	○

Next

Task 1: Commute decision

Now please make your decision in the table below.
As a reminder, we show you the task text again.

Imagine you are offered a permanent job at a location different from your current place of residence. The following key points are already clear from the offer:

- The job requires you to commute daily according to your work week.
- The workplace can only be reached by car.
- It is not possible to move to a location closer to the workplace.
- Your monthly net salary would be € 450.00 higher.

Apart from that, the conditions, your job and the new employer do not differ from your current employment. Your daily tasks would be equally interesting.

Assume that, due to a change in tax law, from now on you will no longer be able to deduct commuting expenses between home and work as income-related expenses on your income tax return.

You learn that the employer has several branches and that it has already been determined where you will be working. However, the exact work location is not yet apparent from the offer. You will be shown a list of possible job locations, sorted in ascending order according to the distance to your place of residence. **Before you inquire about the actual job location, please consider for yourself at which job location you would just accept the offer under the stated conditions. To do this, click on "Accept job" in the table that will appear in a moment for the job locations where you would accept the job. Click "Reject job" at the job locations where you would no longer accept the job.**

Work location	Distance and travel time	Accept job	Reject job
Work location 1	Distance: 15 km Travel time: 20 min.	◉	○
Work location 2	Distance: 20 km Travel time: 25 min.	◉	○
Work location 3	Distance: 25 km Travel time: 30 min.	◉	○
Work location 4	Distance: 30 km Travel time: 36 min.	◉	○
Work location 5	Distance: 35 km Travel time: 41 min.	○	◉
Work location 6	Distance: 40 km Travel time: 47 min.	○	◉
Work location 7	Distance: 45 km Travel time: 52 min.	○	◉
Work location 8	Distance: 50 km Travel time: 58 min.	○	◉
Work location 9	Distance: 55 km Travel time: 63 min.	○	◉
Work location 10	Distance: 60 km Travel time: 69 min.	○	◉
Work location 11	Distance: 65 km Travel time: 74 min.	○	◉

Next

Task 1: Commute decision

You selected that you **would just accept the** job if the actual job location was a **maximum of 30 km or 36 minutes by car** from your current home. If this is correct and corresponds to your wish, please click on "Confirm" below the table. If you want to adjust your choice, you can return to the selection by clicking on the "Back" button.

Work location	Distance and travel time	Accept job	Reject job
Work location 1	Distance: 15 km Travel time: 20 min.	◉	○
Work location 2	Distance: 20 km Travel time: 25 min.	◉	○
Work location 3	Distance: 25 km Travel time: 30 min.	◉	○
Work location 4	Distance: 30 km Travel time: 36 min.	◉	○
Work location 5	Distance: 35 km Travel time: 41 min.	○	◉
Work location 6	Distance: 40 km Travel time: 47 min.	○	◉
Work location 7	Distance: 45 km Travel time: 52 min.	○	◉
Work location 8	Distance: 50 km Travel time: 58 min.	○	◉
Work location 9	Distance: 55 km Travel time: 63 min.	○	◉
Work location 10	Distance: 60 km Travel time: 69 min.	○	◉
Work location 11	Distance: 65 km Travel time: 74 min.	○	◉

Back Confirm

Task 2: Move decision (instruction)

Now imagine the same job offer as in the previous question (permanent job, job comparable to current job), with the difference that you can now choose between commuting daily from your current place of residence and moving (main residence) to the respective place of work. Keep the following points in mind:

- The job requires you to visit your workplace every day according to your work week.
- The place of work can still only be reached by car from your current place of residence.
- You have the option of moving to a residential area close (3 km) to the new potential workplace. The location, amenities and price level of the properties there are comparable to your current living situation. The relocation costs would be reimbursed.
- Assume that - if applicable - your spouse or partner as well as your children have the same conditions locally (same job prospects, same school and childcare facilities, etc.).
- Your monthly net salary would be € 450.00 higher.

The tax law according to which you can no longer deduct travel expenses between home and work as income-related expenses in your income tax return continues to apply.

if D_RATE = 0 (Abolition)

The tax law, according to which you can deduct commuting costs at a rate of €0.48 per distance kilometer (one-way) per working day for the outward journey to your place of work as income-related expenses on your income tax return, continues to apply.

if Tax complexity = High

Considering your personal tax rate, this results in an effective reimbursement of €0.12 per distance kilometer.

if Tax complexity = Low

In a moment, you will again be presented with the list of possible job locations, sorted in ascending order by distance from your current residence. Now, please indicate the **distance at which you would prefer to move rather than commute daily**. Since you have already indicated that you would not commute for job locations 5 through 11, selecting the right option for these job locations means that you are turning down the job.

Next

Structure of the study | Comprehension questions

Comprehension test

Before the actual study begins, we would like you to answer the following comprehension questions. If anything is unclear, you can view the instructions as often as you like by clicking on the "Back" button or the "Structure of the study" tab.

Please note that we will not compensate you if you have not read the instructions carefully and consequently do not answer the following questions conscientiously.

What decision are you asked to make in this task?

- ◯ You are to decide which place of residence you like best.
- ◯ You are to decide when you prefer a move closer to work over a daily commute by car
- ◯ You are to decide by which means of transport you like to commute to the place of work.
- ◯ You are to decide whether the job offer is better than the one from the previous task

Back | Check

Task 2: Move decision

Now please make your decision in the table below.
As a reminder, we show you the task text again.

Now imagine the same job offer as in the previous question (permanent job, job comparable to current job), withthe difference that you can now choose between commuting daily from your current place of residence and moving (main residence) to the respective place of work . Keep the following points in mind:

- The job requires you to visit your workplace every day according to your work week.
- The place of work can still only be reached by car from your current place of residence.
- You have the option of moving to a residential area close (3 km) to the new potential workplace. The location, amenities and price level of the properties there are comparable to your current living situation. The relocation costs would be reimbursed.
- Assume that - if applicable - your spouse or partner as well as your children have the same conditions locally (same job prospects, same school and childcare facilities, etc.).
- Your monthly net salary would be € 450.00 higher.

The tax regulation according to which you can no longer deduct travel expenses between home and work as income-related expenses in your income tax return continues to apply.

Below you will again see the list of possible job locations, sorted in ascending order by distance from your current home. In the table below, indicate the **distance at which you would prefer to move rather than commute daily**. Since you have already indicated that you would not commute for job locations 5 through 11, for these job locations, selecting the right option means that you are declining the job.

Work location	Distance and travel time	Move	Commute or refuse job
Work location 1	Distance: 15 km Travel time: 20 min.	○	○
Work location 2	Distance: 20 km Travel time: 25 min.	○	○
Work location 3	Distance: 25 km Travel time: 30 min.	○	○
Work location 4	Distance: 30 km Travel time: 36 min.	○	○
Work locations 5 to 11	Distance: 35 km to 65 km Travel time: 41 min. to 74 min.	○	○

Next

Task 2: Move decision

Now please make your decision in the table below.
As a reminder, we show you the task text again.

Now imagine the same job offer as in the previous question (permanent job, job comparable to current job), withthe difference that you can now choose between commuting daily from your current place of residence and moving (main residence) to the respective place of work . Keep the following points in mind:

- The job requires you to visit your workplace every day according to your work week.
- The place of work can still only be reached by car from your current place of residence.
- You have the option of moving to a residential area close (3 km) to the new potential workplace. The location, amenities and price level of the properties there are comparable to your current living situation. The relocation costs would be reimbursed.
- Assume that - if applicable - your spouse or partner as well as your children have the same conditions locally (same job prospects, same school and childcare facilities, etc.).
- Your monthly net salary would be € 450.00 higher.

The tax regulation according to which you can no longer deduct travel expenses between home and work as income-related expenses in your income tax return continues to apply.

Below you will again see the list of possible job locations, sorted in ascending order by distance from your current home. In the table below, indicate the **distance at which you would prefer to move rather than commute daily**. Since you have already indicated that you would not commute for job locations 5 through 11, for these job locations, selecting the right option means that you are declining the job.

Work location	Distance and travel time	Move	Commute or refuse job
Work location 1	Distance: 15 km Travel time: 20 min.	○	◉
Work location 2	Distance: 20 km Travel time: 25 min.	○	◉
Work location 3	Distance: 25 km Travel time: 30 min.	○	◉
Work location 4	Distance: 30 km Travel time: 36 min.	◉	○
Work locations 5 to 11	Distance: 35 km to 65 km Travel time: 41 min. to 74 min.	◉	○

Next

Choice of residence

Imagine you have to move for whatever reason. For the characteristics listed below, please indicate on a scale from 1 (Unimportant) to 5 (Very important) how important each issue is to you when choosing a new place to live.

	1 Unimportant	2 Rather unimportant	3 Rather important	4 Important	5 Very important
Good infrastructure for motorists	○	○	○	○	○
Proximity to family and/or friends	○	○	○	○	○
Proximity and diversity of cultural and other leisure activities	○	○	○	○	○
Good infrastructure of public transport	○	○	○	○	○
Low population density	○	○	○	○	○
Proximity to nature	○	○	○	○	○
Proximity to shopping facilities	○	○	○	○	○
Proximity and quality of local schools/daycare centers	○	○	○	○	○
Real estate/rent prices	○	○	○	○	○
Good infrastructure for pedestrians/bicyclists	○	○	○	○	○
Low crime rate	○	○	○	○	○
Proximity to the work location	○	○	○	○	○
Proximity to medical care facilities (general practitioners, specialists, hospitals, etc.)	○	○	○	○	○
Attention question: Please select "5 Very important" here	○	○	○	○	○
Other:	○	○	○	○	○

Next

C Questionnaire

Notation Example

Question # Asked only conditional on ---- Variable derived from Question #	Question text
	○ Single-select multiple choice option [response value] □ Multi-select multiple choice option [response value]

Entry questions 1/4

Question 1 MALE	What is your gender?
	○ Female [0] ○ Male [1] ○ Other [2]
Question 2	In which year were you born? [Free text field]
Question 3	In which federal state do you live (main residence)?
	○ Baden-Wuerttemberg [0] ○ Bavaria [1] ○ Berlin [2] ○ Brandenburg [3] ○ Bremen [4] ○ Hamburg [5] ○ Hesse [6] ○ Mecklenburg-Western Pomerania [7] ○ Lower Saxony [8] ○ North Rhine-Westphalia [9] ○ Rhineland-Palatinate [10] ○ Saarland [11] ○ Saxony [12] ○ Saxony-Anhalt [13] ○ Schleswig-Holstein [14] ○ Thuringia [15]

Question 4	What is your profession (main job)?
	○ Employee [0] ○ Worker [1] ○ Apprentice [2] ○ Self-employed without employees (including freelancers, persons with a contract for work and services) [3]. ○ Self-employed with employees [4] ○ Family worker (unpaid work) [5] ○ Civil servant, judge, civil service employee [6] ○ Regular soldier, professional soldier [7] ○ Basic military/civilian service [8] ○ Part-time jobber, 1-Euro jobber [9]

Entry questions 2/4

Question 5 UNIVERSITY	What is your highest educational attainment? (If not listed, select a comparable degree).
	○ Lower secondary school (Hauptschule [1] ○ Intermediate secondary school (Realschule) [2] ○ Upper secondary school (Abitur) [3] ○ Dual university/college of advanced vocational studies [4] ○ University of applied sciences [5] ○ University [6] ○ Doctoral [7]
Question 6 MARRIED	What is your marital status?
	○ Single [0] ○ Married [1] ○ Divorced [2] ○ Widowed [3] ○ Registered civil partnership [4] ○ Registered partner deceased [5] ○ Registered civil partnership divorced [6]
Question 7	Do you have children?
	○ Yes [1] ○ No [0]
Question 8	Do you have a driver's license (car)?
	○ Yes [1] ○ No [0]
Question 9	Do you work exclusively in a home office?
	○ Yes [1] ○ No [0]

Entry questions 3/4

Question 10 if Question 6 = 1 or 5	Is your spouse/life partner employed?
	○ Yes [1] ○ No [0]
Question 11 if Question 7 = 1 CHILD_IN_HH	Does at least one child live in your household?
	○ Yes [1] ○ No [0]
Question 12 if Question 7 = 1	Is at least one of the children of school age?
	○ Yes [1] ○ No [0]
Question 13	Please assign the company in which you work to an industry/sector.
	○ Mining and extraction of crude oil, natural gas, stone, and earth [1]. ○ Manufacturing/production of goods (e.g., food, textiles, electronics, machinery, vehicles, petroleum processing, printed matter) [2]. ○ Repair and installation of machinery and equipment [3]. ○ Energy supply [4] ○ Water supply; sewage and waste disposal, and pollution removal [5]. ○ Construction, building, and civil engineering [6] ○ Wholesale and retail trade; repair of motor vehicles and motorcycles [7]. ○ Passenger and freight transport [8] ○ Warehousing (also postal and courier services) [9]. ○ Hospitality/accommodation and food service [10] ○ Information and communications (e.g., telecommunications, information technology services, media, and publishing) [11]. ○ Banks/financial and insurance service providers [12] ○ Real estate and housing [13] ○ Professional, scientific, and technical services (e.g., business, legal and tax consulting, auditing, architectural/engineering, research and development services, advertising, and market research) [14]. ○ Other economic services for companies and private individuals (e.g., rental of movable property, security services, building maintenance/cleaning, gardening/landscaping, travel agency/organizer, placement of workers, secretarial services, trade fair organizer) [15].

	○ Public administration, courts, public security and order, defense, social security [16]. ○ Education (e.g., colleges, schools, other schools (including driving schools), kindergartens) [17]. ○ Health care and social services (e.g., hospitals, medical practices, retirement, and nursing homes) [18]. ○ Other predominantly personal services; general repairs of goods and equipment (e.g., hair and beauty salon, laundry, solarium/sauna/bath, funeral) [19]. ○ Arts, entertainment, sports, and recreation (e.g., theaters, museums, writing activities, sports, and fitness centers) [20]. ○ Trade unions, associations, political parties and other interest groups, church and religious associations [21]. ○ Consulates, embassies, international and supranational organizations [22]. ○ Private households with employees [23]
Question 14 TEMPORARY	Is your current employment contract fixed-term or permanent?
	○ Fixed-term [1] ○ Indefinite [0]
Question 15 if Question 9 = 0	Could you theoretically perform part of your current job in your home office (regardless of whether your employer currently allows it)?
	○ Yes [1] ○ No [0]
Question 16 INCOME	What is your monthly net income?
	○ under 500 € [0] ○ 500 - 1.000 € [1] ○ 1.000 - 1.500 € [2] ○ 1.500 - 2.000 € [3] ○ 2.000 - 2.500 € [4] ○ 2.500 - 3.000 € [5] ○ 3.000 - 3.500 € [6] ○ 3.500 - 4.000 € [7] ○ 4.000 - 4.500 € [8] ○ 4.500 - 5.000 € [9] ○ 5.000 - 5.500 € [10] ○ 5.500 - 6.000 € [11] ○ 6.000 - 6.500 € [12] ○ 6.500 - 7.000 € [13] ○ 7.000 - 7.500 € [14] ○ 7.500 - 8.000 € [15] ○ 8.000 - 8.500 € [16] ○ 8.500 - 9.000 € [17] ○ 9.000 - 9.500 € [18] ○ 9.500 - 10.000 € [19] ○ over €10,000 [20]

Question 17 if Question 6 = 1 or 5	What is the monthly net income of your spouse/partner?
	○ no own income [0] ○ under 500 € [1] ○ 500 - 1.000 € [2] ○ 1.000 - 1.500 € [3] ○ 1.500 - 2.000 € [4] ○ 2.000 - 2.500 € [5] ○ 2.500 - 3.000 € [6] ○ 3.000 - 3.500 € [7] ○ 3.500 - 4.000 € [8] ○ 4.000 - 4.500 € [9] ○ 4.500 - 5.000 € [10] ○ 5.000 - 5.500 € [11] ○ 5.500 - 6.000 € [12] ○ 6.000 - 6.500 € [13] ○ 6.500 - 7.000 € [14] ○ 7.000 - 7.500 € [15] ○ 7.500 - 8.000 € [16] ○ 8.000 - 8.500 € [17] ○ 8.500 - 9.000 € [18] ○ 9.000 - 9.500 € [19] ○ 9.500 - 10.000 € [20] ○ over €10,000 [21]
Question 18 if Question 8 = 1	Do you own a car (including leased or company cars for private use)?
	○ Yes [1] ○ No [0]
Question 19 if Question 9 = 0 CAR_COMMUTE	Which means of transport do you typically use to reach your workplace? If you use multiple means of transport on your way to work, indicate the means of transport you use for the longest part of your commute.
	○ Car [1] ○ Local public transport (e.g., bus, streetcar, metro) [2]. ○ Regional local transport (e.g. RegionalExpress, Regional-Bahn) [3]. ○ Long-distance rail traffic (e.g., IC, ICE) [4] ○ Motorcycle/scooter [5] ○ Bicycle [6] ○ On foot [7] ○ Collective transportation by employers [8] ○ Other [9]

Entry questions 4/4
(displayed only if Question 9 = 0 or Question 18= 1)

Question 20 if Question 18 = 1	Is your car a company car that you are allowed to use privately?
	○ Yes [1] ○ No [0]
Question 21 if Question 9 = 0 CURR_ DISTANCE	What is the distance you typically travel between your residence and your workplace? (Please round to full kilometers) [Free text field].

Question 22 if Question 9 = 0 CURR_TRAVEL_TIME	How long does it usually take you to get from home to your workplace? (Indication in minutes) [Free text field].
Question 23 if Question 19 ≠ 1	How long would it take you to get from home to your workplace by car? [Free text field]
Question 24 if Question 19 = 9	Please indicate which means of transport you use exactly [Free text field]

Task 1: Commute decision (see Appendix B)

Task 2: Commute/move decision (see Appendix B)

Follow-up questions on commuting and/or moving decision
(displayed only if a subject rejected commuting and/or moving for all job sites).

Question 25 if all places of work have been rejected (commuting decision)	You indicated that you would not accept the proposed job, regardless of the actual job location, if you had to commute from your current residence each workday. Please indicate the reason(s) why you would not take the job if you had to commute from your current residence. (multiple answers possible) [multiple choice]
	☐ The distance or travel time is too long for all presented places of work ☐ I do not want to/cannot go to work by car ☐ I do not want to have to visit my place of work every working day ☐ I do not want to change my employer ☐ Other reason [free text field]
Question 26 if a move has always been rejected (move decision)	You indicated that you would commute for the proposed job but would not move closer to the work location, regardless of the actual location. Please indicate the reason(s) why moving would not be an option for you in this case. (multiple answers possible) [multiple choice]
	☐ I do not want to give up my current apartment/house ☐ I cannot/would not like to move away due to private obligations (e.g., care for relatives) ☐ I want to stay close to my friends/relatives ☐ Other reason [free text field]

Question 27 if the job offer was always rejected (commute decision and relocation decision)	You have indicated that you would not accept the proposed job regardless of the actual job location and would not accept it even if you could move to the new job location instead of commuting from your current residence. Please indicate the reason(s) why the offer is not an option for you. (multiple answers possible) [multiple choice]
	☐ The distance or travel time is too long for all presented places of work ☐ I do not want to/cannot go to work by car ☐ I do not want to have to visit my place of work every working day ☐ I do not want to change my employer ☐ I do not want to give up my current apartment/house ☐ I cannot/would not like to move away due to private obligations (e.g., care for relatives) ☐ I want to stay close to my friends/relatives ☐ Other reason [free text field]

Task 3: Choice of residence (see Appendix B)

Final questions 1/6

Question 28 AGE	How old are you? [Free text field]
Question 29	How long have you worked for your current employer?
	○ less than 2 years [1] ○ between 2 and 5 years [2] ○ between 6 and 10 years [3] ○ more than 10 years [4]
Question 30	How satisfied are you with your current job?
	○ dissatisfied [1] ○ rather dissatisfied [2] ○ neither satisfied nor dissatisfied [3] ○ rather satisfied [4] ○ satisfied [5]
Question 31 WORKHOURS	How many hours per week do you have to work according to your employment contract? [Free text field]
Question 32	How many days a week do you typically work?
	○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

Question 33 if Question 9 = 0 RELATIVE_HO-DAYS	How many days a week do you typically visit your workplace?
	○ not at all [0] ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7
Question 34 if Question 15 = 1 and Question 9 = 0 RELATIVE_HO-DAYS	How many days a week do you typically work from a home office?
	○ not at all [0] ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7
Question 35	How many vacation days are you entitled to per year? [Free text field]

Final questions 2/6

(displayed only if Question 8 = 1 or Question 19 ≥ 1 and ≤6)

Question 36 if Question 8 = 1	Do you use car-sharing services?
	○ Never [1] ○ Rarely [2] ○ Occasionally [3] ○ Frequently [4] ○ Very commonly [5]
Question 37 if Question 19 = 1	Do you carpool to and from work (e.g., with other colleagues)?
	○ Never [1] ○ Rarely [2] ○ Occasionally [3] ○ Frequently [4] ○ Always [5]
Question 38 if Question 18 = 1	What type of drive does your car have?
	○ Internal combustion engine (gasoline/diesel/gas) [1] ○ Electric motor [2] ○ Hybrid vehicle drivetrain [3] ○ Other [4]

Question 39 if Question 18 = 1	What type of vehicle is your car?
	○ Mini car [1] ○ Small car [2] ○ Medium car [3] ○ Large car [4] ○ Executive car [5] ○ Luxury car [6] ○ Multipurpose, sports car [7]
Question 40 if Question 18 = 1	How old is your car?
	○ under 1 year [1] ○ 1 to under 3 years [2] ○ 3 to under 6 years [3] ○ 6 to under 9 years [4] ○ 9 to under 12 years [5] ○ older than 12 years [6]
Question 41 if Question 18 = 1 and Question 20 = 0	Does your employer contribute to the costs of travel between home and work?
	○ Yes [1] ○ No [0]
Question 42 if Question 18 = 1 and Question 20 = 1	Does your employer bear all company car costs (including fuel, etc.)?
	○ Yes [1] ○ No [0]
Question 43 if Question 18 = 1 or Question 19 = 1	How much do you estimate your private car costs per kilometer (after deducting employer subsidies, if applicable)? [Free text field]
Question 44 if Question 19 = 2, 3 or 4	What is your monthly cost for public transportation (after deducting employer subsidies, if applicable)? [Free text field]
Question 45 if Question 19 = 5	How much do you estimate the costs you incur privately from your motorcycle/scooter per kilometer (after deducting employer subsidies, if applicable)? [Free text field]

Final questions 3/6
(displayed only if Question 43 was asked)

Question 46	You have indicated that the travel costs with your car are [X,XX] € per kilometer. Which of the following costs did you include in your indication? (multiple answers possible)
	☐ Fuel costs (for e-vehicles: electricity costs) ☐ Other operating costs (oil, AdBlue, car wash and maintenance, etc.) ☐ Fixed costs (insurance, taxes, inspection decal, parking space rent, etc.) ☐ Workshop costs (inspection, wear and tear repairs, tire wear, etc.) ☐ Loss of value due to wear and tear ☐ Leasing/rental fees ☐ Other [free text field]

Final questions 4/6

Question 47 HOUSE_OWNER	What type of property do you live in?
	○ Apartment for rent in an apartment building [1] ○ Condominium in apartment building [2] ○ Single-family house for rent (also terraced house/ semi-detached house) [3]. ○ Owned single-family house (also terraced house/ semi-detached house) [4]. ○ Other [5]
Question 48 if Question 6 ≠ 2 and 5	Do you live with a partner with whom you are neither married nor in a registered same-sex civil partnership?
	○ Yes [1] ○ No [0]
Question 49 CITY	What is the best way to categorize your living environment?
	○ Big city [1] ○ Small town [2] ○ Surroundings big city [3] ○ Surroundings small town [4] ○ Village [5] ○ Isolated house in the country [6]
Question 50	What is the postal code of your place of residence? [Free text field]
Question 51	How long have you lived at your current home address?
	○ less than 2 years [1] ○ between 2 and 5 years [2] ○ between 6 and 10 years [3] ○ more than 10 years [4]

Question 52	How satisfied are you with your current housing situation?
	○ dissatisfied [1] ○ rather dissatisfied [2] ○ neither satisfied nor dissatisfied [3] ○ rather satisfied [4] ○ satisfied [5]

Final questions 5/6

Question 53	Have you filed at least one income tax return in the last three years?
	○ Yes [1] ○ No [0]
Question 54 if Question 47 = 1 or 3	You have indicated that you live in rented accommodation. What is your current monthly rent?
	○ Less than 500 € [1] ○ 500 to under 1,000 € [2] ○ 1,000 to under 1,500 € [3] ○ 1,500 to under €2,000 [4] ○ 2,000 € or more [5]

Final questions 6/6

Question 55 if Question 53 = 1	Were your income-related expenses higher than the lump sum of € 1,000 when you filed your last tax return?
	○ Yes [1] ○ No [0] ○ Don't know [-1]
Question 56	Imagine that your gross annual salary was to increase by €100. How much do you estimate the income tax due on this (in euros, excluding social security contributions)? [Free text field]
Question 57	How would you rate your tax knowledge?
	○ No knowledge [1] ○ Little knowledge [2] ○ Average knowledge [3] ○ Good knowledge [4] ○ Expert [5]
Question 58 if Question 53 = 1	When preparing my income tax return, I...
	○ do not use external help [1] ○ get help from a tax advisor [2] ○ get help from a wage tax assistance association [3]. ○ get help from a person in my household [4]. ○ get help from a member of the family [5]. ○ get help from an acquaintance [6]

Question 59	According to the current legal situation, from the 21st distance kilometer, the rate for commuting expense deductions increases from €0.30 to €0.35 per kilometer for commutes between the home and the first place of work. The legislator plans to raise this increased value from the current €0.35 to €0.38. Considering your current situation, please indicate (estimate) what additional tax relief will result for you in 2022 from the planned change. (Indication in euros) [Free text field]
Question 60	The legislature plans to amend the Energy Tax Act to temporarily reduce the tax burden on fuels to cushion the impact of higher fuel prices. This could reduce the price of gasoline by up to €0.30 per liter and the price of diesel by up to €0.14 from June 1, 2022, to August 31, 2022. I consider this measure to be reasonable.
	○ Disagree [1] ○ Rather Disagree [2] ○ Neither agree nor disagree [3]. ○ Rather Agree [4] ○ Strongly Agree [5]
Question 61	By amending the Income Tax Act in 2022, the legislator plans to grant a one-time payment of (gross) €300 to all actively employed individuals (employees, salaried employees, self-employed persons) to cushion the increase in energy costs. This amount of €300 is taxable and, in the case of employees, is to be paid out by the employer together with the regular wage in September 2022. I consider this measure to be reasonable.
	○ Disagree [1] ○ Rather Disagree [2] ○ Neither agree nor disagree [3]. ○ Rather Agree [4] ○ Strongly Agree [5]
Question 62	From June to August 2022, the legislature plans to provide an additional temporary subsidy to enable a nationwide ticket for public transport at a price of €9 per month. I consider this measure to be reasonable.
	○ Disagree [1] ○ Rather Disagree [2] ○ Neither agree nor disagree [3]. ○ Rather Agree [4] ○ Strongly Agree [5]

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