Tax Policy Uncertainty and Investment*

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Abstract

We experimentally study how uncertainty about future profit taxation affects firms' investment plans and other planned decisions. Using a randomized information experiment with German firms, we vary perceived tax uncertainty around a common expert-based forecast of little expected change in profit taxation. The treatment raises posterior uncertainty without generating corresponding differences in posterior expected tax-rate changes. Higher perceived tax uncertainty reduces planned investment, particularly in intangible investment and R&D, with stronger effects at longer planning horizons. Firms also adjust other planned decisions. Overall, the results show that the predictability of future taxation matters for firm behavior independently of the expected tax path.

Keywords: Tax Policy Uncertainty, Firm Expectations, Investment, Randomized Controlled Trial
JEL classification: H20, H25, H32, E22, E62

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1 Introduction

"Uncertainty is a tax without revenue."
— Markus K. Brunnermeier, 2025

Firms making investment decisions care not only about the taxes they expect to pay, but also about how certain they are that those taxes will prevail. A firm may expect its future profit tax rate to remain unchanged and nevertheless attach substantial probability to a tax increase or decrease. Such uncertainty can affect investment even when the expected tax burden is unchanged by increasing the value of waiting, strengthening incentives to preserve liquidity, or making future after-tax returns more difficult to assess (Bernanke, 1983; Dixit and Pindyck, 1994; Bloom, 2009; Gilchrist et al., 2014). Tax policy may therefore affect real activity not only through expected tax rates, but also through the predictability of the future tax environment.

Identifying this effect empirically is difficult. The political and economic events that increase uncertainty about future tax policy often simultaneously change expectations about the direction and magnitude of future taxes (Bloom, 2014; Coibion et al., 2024). Elections, reform proposals, or legislative negotiations may make future policy less predictable while also changing the tax rates firms expect to face. Expectations and uncertainty are therefore closely related in observational data (Bachmann et al., 2021; Altig et al., 2022; Gallemore et al., 2025). As a result, empirical estimates may struggle to distinguish whether firms respond to changes in expected taxation or to uncertainty surrounding those expectations. This distinction is important for both research and policy: if uncertainty itself affects investment, the consequences of tax policy depend not only on the tax rules eventually implemented, but also on how predictable the policy environment is while firms make decisions.

This paper provides experimental evidence on this question. We directly elicit firm decision-makers' expectations and uncertainty about their own future profit taxation and embed a randomized information experiment in the German Business Panel (GBP), a large-scale survey of German firms (Bischof et al., 2025). The experimental design builds on the recent economics literature using information-provision experiments in surveys (Coibion et al., 2020; Kumar et al., 2023; Haaland et al., 2023; Coibion et al., 2024; Mikosch et al., 2024). The experiment generates exogenous variation in perceived profit-tax uncertainty while providing respondents with common information about the expected tax path. This design addresses the central empirical challenge of separating changes in uncertainty from changes in expected taxation, allowing us to study whether firms adjust their investment plans when perceived uncertainty changes while expected

tax-rate changes remain similar across treatment groups.

The experiment combines information from a separate assessment of academic tax experts with firm-specific belief elicitation. All respondents first receive the same expert-based forecast indicating no expected change in average profit taxation through the end of 2026. We then randomize the information firms receive about uncertainty surrounding this common forecast. Respondents in the high-uncertainty treatment group, hereinafter also HighU, receive information indicating a high probability that profit taxation may depart from the no-change benchmark, whereas respondents in the lower-uncertainty treatment group, hereinafter also LowU, receive either low-uncertainty information or only the common mean forecast. The design therefore varies the perceived likelihood of a departure from the expected tax path while holding the communicated central forecast fixed.

The belief data confirm that the treatment shifts the dimension it is intended to affect. Firms assigned to the HighU treatment report higher posterior uncertainty, whereas posterior expected tax-rate changes remain similar across treatment groups. The treatment also changes belief updating: firms receiving HighU information place relatively less weight on their prior uncertainty and more weight on the information provided in the experiment. These results show that firms distinguish between beliefs about the expected tax path and beliefs about the stability of that path, and that the latter can be shifted experimentally without generating a corresponding difference in expected tax-rate changes.

We find that greater profit-tax uncertainty reduces planned investment, with the clearest effects concentrated in specific investment margins. For tangible investment, assignment to HighU lowers the probability of reporting positive investment by 3.0 percentage points, indicating adjustment primarily at the extensive margin. By contrast, the response of intangible investment and R&D is concentrated among firms that continue to invest. Conditional on reporting positive investment, firms assigned to HighU plan approximately 22.5 percent less intangible investment. The remaining treatment effects estimates are generally negative but less precisely estimated. The remaining treatment-effect estimates are generally negative but less precisely estimated. The dynamic results further show that the extensive-margin response of tangible investment is stronger at the longer planning horizon. The probability of positive tangible investment in 2025 falls by 3.4 percentage points. This pattern is consistent with firms having greater scope to adjust investment that is not yet committed.

We next use the experimentally induced variation in posterior uncertainty in an instrumental variable (IV) framework to quantify the investment response to perceived profit-tax uncertainty. A one-percentage-point increase in posterior tax uncertainty reduces overall planned investment by approximately 1.0 percent. Along the intensive margin,

the same increase in uncertainty reduces overall planned investment by approximately 0.5 percent and intangible investment by approximately 0.6 percent among firms reporting positive investment. These estimates imply economically meaningful effects. A 24-percentage-point increase in perceived uncertainty, corresponding to the difference between respondents describing themselves as *Very certain* and *Very uncertain*, implies a 21.3 percent reduction in overall planned investment and reductions of approximately 11.3 percent in overall planned investment and 13.4 percent in intangible investment among firms that continue to invest. Importantly, these effects arise while expected tax-rate changes remain similar across treatment groups, indicating that firms respond not only to the taxes they expect to face, but also to the predictability of the future tax environment.

Greater tax uncertainty also affects other planned firm decisions. Firms assigned to HighU are 4.9 percentage points less likely to increase bonus payments and 6.9 percentage points less likely to increase withdrawals to entrepreneurs or shareholders, while the probability of planning an increase in the equity ratio rises by 2.9 percentage points. These responses are consistent with firms preserving internal financial resources and strengthening their balance sheets in response to greater tax uncertainty.

Our findings contribute first to the tax and accounting literature on how tax information, tax uncertainty, and managerial tax perceptions shape corporate decisions. A broad accounting literature documents the role of taxes in firms' reporting, planning, and real decisions (Hanlon and Heitzman, 2010; Graham et al., 2014). Managerial characteristics also generate substantial heterogeneity in corporate tax behavior (Dyreng et al., 2010). More closely related to our setting, Hanlon et al. (2017) show that uncertainty surrounding firms' tax positions affects corporate cash holdings, while Jacob et al. (2022) document real investment responses to the disclosure of uncertain tax positions. Gallemore et al. (2025) provide recent evidence linking firm-specific tax-policy expectations and tax-policy uncertainty to investment around major U.S. tax-policy events. Our notion of tax uncertainty differs from uncertainty surrounding firms' existing tax positions: it captures managers' forward-looking beliefs about the stability of the tax environment in which future investment returns will be taxed. By directly eliciting these beliefs and experimentally varying perceived uncertainty, we isolate this forward-looking uncertainty from changes in expected taxation.

Second, we contribute to the broader literature on policy uncertainty and firm behavior (Julio and Yook, 2012; Fernández-Villaverde et al., 2015; Baker et al., 2016; Jens, 2017; Hassan et al., 2019; Bloom et al., 2019). Prior studies measure policy uncertainty using aggregate indices, political events such as elections, or firm-specific textual measures. A key insight from the latter approach is that policy risk can vary substantially across firms even within the same aggregate political environment: Hassan et al. (2019) show that

most of the variation in their measure of political risk occurs at the firm level rather than at the aggregate or sector level. This finding motivates our focus on firm-specific uncertainty: rather than assigning firms a common aggregate measure of tax-policy uncertainty, we directly elicit managers' uncertainty about their own future profit taxation. More closely related to our setting, Gallemore et al. (2025) use earnings-call transcripts to construct firm-specific measures of tax-policy expectations and uncertainty and show that these measures are associated with firms' investment responses around major U.S. tax-policy events. These textual measures provide valuable firm-level evidence, but they also come with limitations. Because they are inferred from public corporate communications, they may reflect strategic communication or other sources of uncertainty in addition to managers' underlying subjective tax-policy beliefs. More generally, observational approaches face identification challenges because the shocks used to measure uncertainty may simultaneously affect expectations, demand, financing conditions, and other dimensions of firms' environments. Our experiment complements this work by exogenously varying perceived uncertainty while providing common information about the expected tax path. In doing so, we build on a growing literature using survey-based information treatments to study subjective expectations and uncertainty (Coibion et al., 2020; Kumar et al., 2023; Haaland et al., 2023; Coibion et al., 2024; Mikosch et al., 2024) and extend this approach to profit taxation.

Third, the survey design provides evidence from a broad set of firms and decision-makers. Research based on earnings calls, securities-market outcomes, or listed-firm databases naturally places greater weight on larger public firms. Our sample contains substantial numbers of private, micro, and small firms, allowing us to study tax-policy beliefs and investment responses among firms that are often less visible in conventional accounting and finance data. The heterogeneity analysis further shows that responsiveness to tax uncertainty varies with economically relevant firm and respondent characteristics, including firm size and decision-makers' tax knowledge and confidence in their prior beliefs.

The results have a broader implication for tax policy and tax communication. Policy affects firms before legislation is enacted and before tax liabilities are realized. If uncertainty about whether the current tax environment will persist leads firms to postpone projects or scale back planned expenditure, then predictability itself becomes an economically relevant feature of tax policy. This interpretation is consistent with recent evidence that uncertainty can shape the effectiveness of policy changes (Bloom et al., 2018; Guceri and Albinowski, 2021; Gallemore et al., 2025). Our findings therefore highlight a distinction between the expected level of taxation and the credibility and stability of the expected tax path. Clear and credible information about the future tax environment may support investment even when it contains no new information about the expected level of taxation.

The remainder of the paper proceeds as follows. Section 2 describes the institutional setting and presents an expert assessment of uncertainty surrounding future profit taxation. Section 3 introduces the firm and expert samples, defines our measure of perceived profit-tax uncertainty, and develops the theoretical predictions. Section 4 describes the survey experiment and the elicitation of prior and posterior beliefs. Section 5 presents the treatment effects, belief-updating results, and IV estimates. Section 6 examines dynamics, heterogeneity, additional firm decisions, and robustness. Section 7 concludes.

2 Institutional Background and Expert Opinions

In Germany, the taxation of business profits depends on both legal form and location. Corporations pay corporate income tax (CIT), whereas the profits of non-incorporated firms, such as sole proprietorships and partnerships, are attributed to their owners and taxed under the progressive personal income tax (PIT). Business income is generally also subject to local business tax (LBT). Throughout the paper, *profit taxation* refers to the combined tax burden that respondents associate with their business profits, excluding the solidarity surcharge.[1]

The municipal component creates additional cross-firm variation. LBT is calculated by applying a federally determined base rate of 3.5 percent to a multiplier chosen by the municipality. During the survey period, municipalities were subject to a minimum multiplier of 200 percent but could set higher rates. For firms operating in multiple municipalities, the LBT base is generally allocated across municipalities according to the geographic distribution of payroll. Firms operating under the same federal tax system can therefore face different profit-tax burdens because of their legal form, their owners' tax circumstances, and the municipalities in which they operate. These differences motivate our elicitation of beliefs about each respondent's own profit taxation rather than about a single national statutory rate.

Despite this cross-sectional heterogeneity, federal headline rates had been stable for an extended period when we conducted the surveys in 2024. The CIT rate had remained at 15 percent since 2008, while the PIT schedule continued to apply marginal rates of 42 and 45 percent at higher levels of taxable income.[2] Municipal taxation, however, provides an additional source of variation over time. Between 2003 and 2021, approximately 71 percent of municipalities changed their trade-tax rate at least once, and about 10 percent did so in an average year. Thus, a firm's future profit-tax burden can change even when

[1] At the time of the 2024 survey, the CIT rate was 15 percent. The PIT schedule included a 42 percent top-bracket rate and a 45 percent highest rate for very high taxable income.

[2] Appendix Figure A.1 displays the evolution of these federal rates and the distribution of municipal trade-tax rates.

federal statutory rates remain unchanged.

Historical stability does not, however, make future taxation certain. Firms may assign positive probability to new legislation, changes in implementation or timing, or municipal adjustments even when their central forecast is that the applicable rate will remain unchanged. A firm can therefore expect little or no change in its profit taxation while assigning substantial probability to an increase or decrease. We refer to this subjective probability of a tax-rate change as perceived tax uncertainty. This distinction between the expected tax path and uncertainty around that path is central to our analysis.

To document whether these two belief objects are empirically distinct and to construct the information used in the firm experiment, we surveyed academic tax experts between March and April 2024. Our sampling frame comprised researchers affiliated with German universities and research institutions who conduct tax-related research (Section 3.1 provides details on the expert sample). The experts reported point forecasts for the CIT rate, the top PIT rate, and the overall profit tax rate faced by an average firm. They also stated the probability that each rate would change by the end of 2024, 2025, and 2026.

Figure 1 summarizes the expert forecasts. The markers report sample means, and the vertical bars show the corresponding interquartile ranges. Panel A presents expected tax-rate changes. Experts anticipate only modest changes in overall profit taxation, despite opposing movements in the federal-rate forecasts. By 2026, the mean expected change is approximately -0.9 percentage points for the CIT rate, 1.1 percentage points for the top PIT rate, and only 0.3 percentage points for the overall profit tax rate. At the same time, the dispersion of forecasts shows that the near-zero average change in overall profit taxation does not reflect agreement that tax rates will remain unchanged. Experts differ substantially in the changes they expect, particularly at longer horizons.

Panel B reports experts' subjective probabilities of a tax-rate change. These probabilities increase markedly with the forecast horizon. By 2026, the mean probability of a change reaches approximately 24 percent for the CIT rate, 28 percent for the top PIT rate, and 43 percent for the overall profit tax rate. The distribution of these probabilities is also wide, especially for overall profit taxation, indicating substantial heterogeneity in experts' assessments of whether firms' tax burdens will change.

Taken together, the two panels illustrate the distinction that motivates our analysis. Expected changes in tax rates are small on average, yet experts differ substantially both in the changes they anticipate and in the probabilities they assign to any change occurring. A near-zero expected change therefore does not imply a uniformly low perceived probability of a tax-rate change. Panel A captures beliefs about the direction and magnitude of future tax changes, whereas Panel B captures beliefs about whether a change will occur at all. The figure thus provides direct evidence that expected tax changes and perceived

tax uncertainty are related but distinct dimensions of beliefs about future taxation.

This distinction is important for studying firm behavior. If firms respond to expected tax-rate changes, their decisions reflect beliefs about the future level of taxation. If they respond to variation in the perceived probability of a change while expected tax changes remain similar, predictability itself may affect their decisions. Our experimental design is constructed to separate these two channels.

3 Data and Conceptual Background

This section describes the expert and firm samples, defines the measure of tax uncertainty used in the analysis, and develops the empirical predictions linking perceived profit tax uncertainty to firms' investment plans.

3.1 Samples

Our analysis combines two surveys administered through the GBP: a survey of academic tax experts conducted between March and April 2024 and a firm survey conducted between April and November 2024. The GBP is a web-based survey of German firms. Contact information was obtained from the *Bureau van Dijk Orbis* database, and firms were randomly drawn from the available address pool and invited by email. Bischof et al. (2025) provide further information about the GBP, and Table B.2 summarizes the data collection procedures for the two surveys.

Tax Expert Sample.— We use forecasts from academic tax experts to construct the information provided to firms in the experiment. Experts are particularly useful for this purpose because they actively update their beliefs and interpret complex policy information. Moreover, further suggests that expert interpretations is preferred over direct policymaker communication and can influence economic expectations and decisions (Gründler et al., 2026). We therefore use expert forecasts as an external, behaviorally relevant, and potentially credible source of information about future profit taxation.

Because the population of tax experts is not uniquely defined, we specify the target population as researchers affiliated with German universities or research institutions who conduct tax-related research. We contacted 2,400 eligible researchers and received 287 completed responses. Respondents provided point forecasts of future tax rates and quantitative assessments of the probability that these rates would change.

Table B.3 reports the composition of the expert sample. Approximately 47% of respondents have a background in business administration and 38% in economics. The sample

spans researchers at different career stages, ranging from doctoral researchers and research staff to professors and other senior academics. These characteristics document the range of perspectives represented in the expert survey.

Firm Sample.— The firm survey yielded responses from 2,126 firms. The GBP directs its firm questionnaires to executives and other decision-makers whose positions make them well suited to answer questions about firm-level knowledge, firms' planned resource allocation, and broader decision-making.

We apply three restrictions to construct the analysis sample. First, we exclude 62 firms that do not report any past investment amounts because the respondent declines to answer, does not know the answer, or indicates that the question does not apply. Second, we exclude 102 firms whose stated expected change in their profit tax rate is exactly -50 or $+50$ percentage points, the endpoints of the permitted response scale. These endpoint responses are unlikely to represent well-calibrated expectations about changes in profit taxation and may instead reflect scale misinterpretation, rounding, or limited attention to the forecasting task. Those restrictions use information collected before the randomized information treatment. Finally, we exclude one micro firm reporting EUR 15 billion in capital expenditures. The resulting analysis sample contains 1,961 firms.

Table B.4 describes the respondents. Approximately 89% are owners, managing directors, board members, or hold other senior positions, and 80% belong to executive management. Among respondents who report their education, approximately 64% have a tertiary qualification. These characteristics indicate that the survey primarily reaches senior decision-makers, whose roles make them relevant respondents for questions on taxation and firm-level financial decisions. Related evidence from Graham et al. (2017) shows that more highly educated tax executives are more likely to use economically relevant marginal tax rates in corporate decision-making.

Table B.5 compares the analysis sample with population benchmarks from the German Federal Statistical Office. The sample covers a broad coverage across firm sizes, legal forms, and industries, but it is partially not representative of the German firm population. Corporations account for 62% of sampled firms, while sole proprietorships and partnerships jointly account for approximately 24%; in the population, the shares are reversed. Firms with fewer than ten employees account for 71.5% of the sample, compared with 86.9% of the population. The estimates should therefore be interpreted as average effects for the respondent sample rather than population-average effects for all German firms.

Despite these compositional differences, the sample provides substantial coverage of small private firms that are difficult to observe in studies based on listed companies, securities-market outcomes, or earnings-call transcripts. Using reported employment and revenue to

approximate the European Commission's size categories, approximately 65% of sampled firms are classified as micro firms and 26% as small firms.

Table 1 summarizes firms' investment in 2023, which serves as a pre-treatment benchmark for the investment plans elicited in the survey. The distribution is strongly right-skewed. Mean tangible investment is €271,271, compared with a median of €10,000, and 84% of firms report positive tangible investment. Investment in intangible assets and R&D has a mean of €91,781 and a median of €2,000, with 68% of firms reporting a positive amount. The large differences between means and medians motivate empirical specifications that do not rely exclusively on untransformed investment levels.

We also compare selected self-reported firm characteristics with information recorded in Orbis. As shown in Figure C.6, the correlation between survey and Orbis values is 0.96 for revenue and 0.92 for employment in 2023 among the retained matched observations. The revenue comparison excludes seven implausible records and corrects 46 observations that appear to omit zeros; the employment comparison excludes 57 cases, primarily those in which Orbis records only the owner rather than the firm's other employees. The comparison indicates substantial concordance between survey responses and the corresponding administrative data after the stated cleaning procedures. While this comparison does not validate firms' subjective tax beliefs, investment plans, or responses to the experimental information, it indicates that respondents report observable firm characteristics with substantial accuracy and are well informed about these measures.

3.2 Measuring Profit Tax Uncertainty

Our empirical analysis examines two dimensions of firms' beliefs about future profit taxation. First, firms report a point forecast of the expected change in their own profit tax rate by the end of 2026, which we refer to as *expectation*. Second, we measure uncertainty around this expected path. In our setting, we operationalize this second dimension as the subjective probability that the firm's profit tax rate deviates from a no-change benchmark by the end of 2026. We refer to this measure as *tax uncertainty* throughout the paper.[3]

Anchoring beliefs to a well-defined no-change benchmark imposes additional structure on the elicitation and may reduce heterogeneity in how respondents interpret the question, thereby lowering measurement error and improving comparability across firms (Haaland et al., 2023). The no-change benchmark is also economically salient, as the key source of uncertainty is whether the firm's current profit tax rate will remain in place. A high probability of no change therefore reflects greater confidence in the persistence of the status quo, whereas a lower probability indicates greater uncertainty about whether the tax rate

[3]Section 4 describes the timing and wording of these questions in detail.

will change. This measure complements the point forecast by capturing firms' confidence about the realization of future tax changes, rather than their expected magnitude alone.

In observational data, uncertainty and expectations are typically correlated: firms that expect larger policy changes may also perceive those changes as less predictable (Bachmann et al., 2021; Altig et al., 2022; Gallemore et al., 2025). Our survey experiment is designed to generate variation in perceived tax uncertainty while holding the expected tax-rate change fixed across treatment groups.

We measure uncertainty at the firm level because policy risk can differ substantially across firms even within a common political and tax environment. Hassan et al. (2019) show that much of the variation in firms' exposure to political risk is firm-specific rather than attributable to aggregate or sector-level variation. This consideration is especially relevant for profit taxation, where legal form, location, exposure to particular tax provisions and reforms, and other firm-specific characteristics can affect both the tax burden a firm expects to face and the uncertainty surrounding it. We therefore ask respondents about the probability that their own profit tax rate will change rather than about aggregate tax-policy uncertainty. This makes the elicitation directly relevant to respondents' decisions but does not ensure that every respondent applies the same tax-rate concept. We therefore interpret the measure as the respondent's perceived profit tax rate rather than as a uniform statutory or accounting tax-rate construct.

Let $p_i^{\text{const}} \in [0, 100]$ denote firm i's stated probability, in percentage points, that its profit tax rate will remain unchanged through the end of 2026. We define perceived profit tax uncertainty about a change in the profit tax rate, $\Delta\tau$, as

$$U_i^{\Delta\tau} = 100 - p_i^{\text{const}}. \tag{1}$$

The measure captures perceived instability relative to the no-change benchmark. Higher values of $U_i^{\Delta\tau}$ indicate that the firm assigns greater probability to operating under a tax regime that differs from the current one. This is the relevant margin of uncertainty for our experimental design: even when a firm has a precise view of the direction and magnitude of a future tax change, a departure from the status quo still implies that the firm expects to operate in a different tax environment. By contrast, a high probability of no change reflects confidence that the current tax regime will persist. Our measure therefore captures uncertainty about the stability of the tax environment, rather than uncertainty about the size or direction of a change conditional on one occurring. This focus aligns closely with our design, which varies beliefs about whether the tax environment will depart from the status quo while holding the expected tax-rate change fixed. Related survey experiments similarly use subjective probabilities to measure beliefs about uncertain economic out-

comes and experimentally induce variation in those beliefs (Kumar et al., 2023; Mikosch et al., 2024).

Figure A.4 provides complementary descriptive evidence on the relationship between expected tax changes and perceived uncertainty. Panel A plots experts' self-reported uncertainty against their point forecasts, while Panel B relates firms' point forecasts to a separately elicited four-category confidence measure. In both panels, perceived uncertainty is lowest around forecasts of no change and increases as expected changes move away from zero. Among experts, longer forecast horizons are also associated with greater uncertainty. Thus, although expectations and uncertainty capture different dimensions of beliefs, they are systematically related. This pattern is consistent with previous evidence that subjective uncertainty tends to rise as expected outcomes move away from a constant path or become more dispersed (Bachmann et al., 2021; Altig et al., 2022).

This systematic relationship creates the identification problem that motivates our experimental design. In observational data, variation in tax-policy beliefs typically combines changes in the expected tax path with changes in uncertainty around that path, making it difficult to isolate their separate behavioral effects. Our experiment addresses this problem by shifting the perceived likelihood of departures from a common expected tax path while holding the expected tax-rate change fixed across treatment groups. The design therefore allows us to identify behavioral responses to tax uncertainty separately from changes in expectations.

3.3 Theoretical Predictions

Why should greater uncertainty about future profit taxation affect firms' plans and expectations when the expected path of taxation remains unchanged? Tax uncertainty can affect investment because taxes determine how future pre-tax cash flows translate into after-tax returns. A higher perceived probability of a tax-rate change matters for investment insofar as firms associate that change risk with a broader or less predictable distribution of after-tax returns. The sign of the resulting investment response is not unambiguous.

Tax-specific models illustrate this ambiguity. Hassett and Metcalf (1999) show that tax-policy uncertainty can delay investment when tax rates follow a geometric Brownian motion but accelerate investment when uncertainty arises from a stationary jump process. Similarly, Niemann (2011) shows in a real-options model that greater uncertainty about tax payments can accelerate irreversible investment when tax uncertainty is relatively low, cash-flow uncertainty is high, and tax payments are strongly positively correlated with cash flows. More generally, convexity in the marginal return to capital can cause

uncertainty to increase expected marginal returns and investment under the conditions studied by Oi (1961), Hartman (1972), and Abel (1983). Firms may also change the composition of investment across projects or assets without changing total expenditure. Theory therefore does not imply that greater perceived tax-rate change risk must reduce aggregate investment.

Several possible mechanisms nevertheless predict a negative response. The first operates through irreversibility and the option value of waiting. When investment is costly to reverse, committing capital today entails giving up the option to condition the decision on information that arrives later. Greater uncertainty raises the value of preserving that flexibility and can increase the threshold required for immediate investment (Bernanke, 1983; Dixit and Pindyck, 1994). This mechanism should be most relevant for investment plans that firms can still revise. Expenditures that are already contracted or initiated should respond less than investment planned for later periods, when firms retain greater scope to revise their decisions.

A second mechanism operates through precautionary behavior. When firms are prudent, uncertainty about after-tax cash flows may increase the marginal value of resources available in adverse future states and thereby increase the incentive to preserve internal liquidity. The precautionary-saving logic in Leland (1978) implies that uncertainty raises desired saving when decision-makers place greater marginal value on resources in adverse future states. Applied to firms, the precautionary motive should be stronger among more prudent managers, who place greater value on preserving internal funds under uncertainty and may therefore reduce current investment even when expected taxation is unchanged.

A related third mechanism operates through firms' external financing conditions. If uncertainty about after-tax cash flows raises lenders' or investors' assessment of downside risk, it can increase required returns, widen credit spreads, and tighten financing constraints. Accordingly, the negative effect of uncertainty on capital expenditure through this financing channel is predicted to be particularly pronounced among firms that rely more heavily on external finance or face tighter financing constraints (Gilchrist et al., 2014).

The theoretical mechanisms provide two predictions that organize our empirical analysis. The primary behavioral hypothesis is directional but conditional. If the option-value, liquidity-preservation, or financing channels dominate the forces that can increase investment, greater perceived profit tax uncertainty should reduce planned investment. Because theory permits effects in either direction, the sign and magnitude of the average response remain empirical questions.

The option-value mechanism also yields a timing prediction. Investment planned for a later period should generally be more adjustable than expenditures that have already been

initiated or committed. A negative response may therefore be stronger for investment planned for 2025 than for investment reported for 2024.

Having defined the samples, tax uncertainty, and empirical predictions, we next describe the survey design linking the common expert signal, pre-treatment beliefs about the probability of a tax change, the randomized information treatment, posterior beliefs, and firms' investment plans.

4 Firm Survey Flow and Experimental Design

We use randomized information messages to study how firms respond to tax uncertainty. Figure 2 summarizes the survey sequence. Respondents first report their pre-treatment expectations regarding their profit taxation by the end of 2026. All respondents then receive the same information about tax experts' average forecast of future profit taxation, which constitutes the *tax-rate component* (TRC) of the information treatment. After this common information treatment, but before the randomized uncertainty component, respondents report the probability that their firm's profit tax rate will remain unchanged. Respondents are then exposed to different levels of uncertainty surrounding the common expert forecast, which constitutes the *uncertainty component* (UC) of the information treatment. In the final stage, respondents report post-treatment beliefs over possible tax-rate changes and their investment plans and additional planned adjustments.[4]

4.1 Pre-Treatment Beliefs about Profit Taxation and Tax-Rate Component

Pre-Treatment Expected Profit Tax Rate Change.— Respondents first report their beliefs about future profit taxation. Specifically, they report the change, in percentage points, that they expect in their firm's profit tax rate by the end of 2026 relative to its current level. We denote this point forecast by $\Delta\tau^{e,\text{prior}}$ and refer to it as the respondent's prior expectation. Respondents subsequently report their confidence in this forecast on a four-point qualitative Likert scale. The corresponding survey questions are:

> *In Germany, business profit taxation (excluding the solidarity surcharge) depend on the legal form and consists of corporate tax/income tax and local business tax. What change in percentage points do you expect in your firm's profit taxation by the end of 2026 compared to today?*

[4]Table B.1 summarizes the variables, and Appendix E.2 presents the original German questionnaire screens.

By the end of 2026: ..... Percentage points

How confident are you in this prediction?

(a) Very certain *(b) Certain* *(c) Uncertain* *(d) Very uncertain*

This wording provides respondents with a simplified description of German profit taxation. As discussed in Section 2, the applicable components differ across corporations and noncorporate businesses, and the elicited firm-specific rate need not correspond to a uniform statutory or accounting tax-rate construct.

Table 1, Panel B, summarizes firms' pre-treatment expectations about future profit taxation. Firms expect an average increase in their profit tax rate of approximately 3 percentage points by the end of 2026, whereas the median expected change is only 0.25 percentage points. This difference reflects a pronounced right tail in the distribution of point forecasts: 62.8 percent of respondents report a nonzero expected change, while 37.2 percent expect their profit tax rate to remain exactly unchanged.

Confidence in these forecasts varies systematically with their magnitude. Approximately 53 percent of respondents describe themselves as *Uncertain* or *Very uncertain*. Respondents who report being *Very certain* expect an average increase of only 0.7 percentage points, whereas mean expected increases among the remaining confidence categories range from 2.9 to 3.6 percentage points. Consistent with this pattern, 77 percent of respondents who are *Very certain* expect their profit tax rate to remain unchanged, compared with substantially smaller shares among respondents reporting lower confidence.

These patterns yield two observations that motivate our experimental design. First, uncertainty about future profit taxation is widespread rather than confined to a small subset of respondents. Second, confidence and expected tax changes are closely related: respondents who expect no change tend to be more confident in their forecasts, whereas those expecting larger changes tend to report lower confidence. This relationship is consistent with prior evidence that expectations and subjective uncertainty are correlated (Bachmann et al., 2021) and illustrates why their behavioral effects are difficult to disentangle in observational data.

Comparing firms' beliefs with the expert benchmark reveals an additional difference. The median firm forecast is close to the median expert forecast, whereas the mean firm forecast is substantially higher than the expert mean forecast. The higher mean forecast among firms is also consistent with related evidence that firms often misperceive and tend to overestimate their tax rates (e.g., Graham et al., 2017; Fochmann et al., 2022).

Tax-Rate Information Treatment.— Figure 3 illustrates the two treatment compo-

nents and their sequencing. After reporting their prior expectation of the profit tax-rate change, all respondents receive the same *TRC*:

> *It is generally assumed that profit taxation can influence the investment behavior of firms. There is currently a political debate in Germany whether the taxation of business profits should be changed. In March 2024, the University of Mannheim surveyed experts (e.g. tax researchers, economic researchers, tax lawyers) who deal professionally with tax policy issues in order to better understand expectations regarding business profit taxation. According to the survey conducted by the University of Mannheim, the experts expect, on average, that business profit taxation in Germany will remain constant by the end of 2026 compared to today.*

The expert survey yields a mean expected increase in the profit tax rate of 0.26 percentage points. The *TRC* summarizes this near-zero forecast as no change at whole-percentage-point precision. Because all respondents receive the same benchmark, the *TRC* anchors beliefs about the expected tax path prior to the randomized *UC*.

Identification does not require the *TRC* to mechanically equalize respondents' posterior expected tax-rate changes. Rather, because the *TRC* is common across randomized groups, treatment-induced variation should operate through uncertainty rather than systematic differences in expected tax changes. The subsequent uncertainty messages may nevertheless generate asymmetric updating, so equality of posterior expectations is an empirical implication of the design rather than an imposed restriction. We verify this implication below by showing that posterior expected tax-rate changes are similar across treatment groups.

Pre-Treatment Profit Tax Uncertainty.— After receiving the common *TRC*, but before the randomized *UC*, respondents state the probability that their firm's profit taxation will remain unchanged by the end of 2026:

> *Naturally, average expectations are subject to uncertainty. We would now like to know how likely you think it is that the experts' average expectation will apply to your firm. What do you think: What is the probability (in %) that your firm's profit taxation will remain unchanged by the end of 2026 compared to today?*
>
> *By the end of 2026: .....%*

Following Section 3.2, we transform this response into the subjective probability that the firm's tax rate changes by the end of 2026 and denote the resulting measure by $U^{\Delta\tau,\text{prior}}$.

Table 1, Panel B, shows that firms assign an average probability of 46.4% to a change in

their own profit taxation. The corresponding expert mean is 42.9%. The firm measure is also related to the earlier confidence response. The mean probability of a change is 29.7% among respondents who are *Very certain* about their point forecast and 53.7% among those who are *Very uncertain*. The 24 percentage point increase amounts to an 81 percent rise relative to the uncertainty reported by *Very certain* firms. This association between these two distinct belief measures provides additional evidence that the probability measure captures a meaningful dimension of respondents' general uncertainty about the future tax path.

4.2 Tax-Uncertainty Information Treatment

The randomized *Uncertainty Component* varies the information firms receive about the probability that profit taxation deviates from a common no-change forecast. It thereby generates exogenous variation in perceived tax uncertainty while holding the communicated expected tax path fixed. Figure 3 illustrates the design.

Respondents assigned to the 10% Uncertainty treatment arm receive the following information:

> *According to some of the experts who took part in the survey, the probability is at least 90% that the average profit taxation of firms will remain constant by the end of 2026 compared to today. This means that the average profit taxation of firms will change (i.e. increase or decrease) with a maximum probability of 10% according to these experts.*

Respondents assigned to the 90% Uncertainty treatment arm receive the corresponding high-uncertainty message:

> *According to some of the experts who took part in the survey, the probability is a maximum of 10% that the average profit taxation of firms will remain constant by the end of 2026 compared to today. This means that the average profit taxation of firms will change (i.e. increase or decrease) with a maximum probability of at least 90% according to these experts.*

Finally, respondents assigned to the Mean treatment arm receive no quantitative information about uncertainty. Instead, the message reiterates the common central forecast:

> *As stated above, experts expect profit taxation to remain unchanged—a change of 0 percentage points—by the end of 2026.*

The Mean treatment provides a benchmark that allows us to distinguish the effect of explicit uncertainty information from the effect of merely reiterating the common expected tax path

The content of the *UC* treatments draw on expert responses from the tails of the expert distribution. Neither message indicates whether a departure from the no-change forecast would represent a tax increase or decrease. The treatments therefore vary the communicated probability of a deviation while preserving the common no-change forecast.

Our main analysis compares a High Uncertainty group, HighU, comprising firms assigned to the 90% arm, with a Low Uncertainty group, LowU, comprising firms assigned to either the 10% or the Mean arm. The pooled coefficient thus captures the effect of receiving explicit high-uncertainty information relative to the applicable lower-uncertainty comparison condition with the same expected tax path.[5]

Random assignment ensures that treatment status is orthogonal to firms' characteristics and pre-treatment beliefs. Appendix Table A.2 and Table A.3 confirms balance between treatment arms and treatment groups. The differences are small and jointly consistent with random assignment.[6]

The identifying variation therefore comes from randomized treatment assignment rather than from cross-sectional differences in firms' naturally occurring beliefs. For the design to isolate uncertainty, HighU must increase posterior perceived uncertainty without inducing a corresponding difference in posterior expected tax-rate changes. We evaluate both conditions using the post-treatment belief elicitation.

4.3 Post-Treatment Beliefs about Profit Taxation

Immediately after the randomized uncertainty information treatment, respondents report their beliefs about the change in their firm's profit tax rate by the end of 2026. Following the probabilistic approach to subjective expectations in Manski (2018), they allocate 100% probability across seven mutually exclusive intervals.

> *We would now like to ask you about your expectations regarding various scenarios for the development of your firm's profit taxation. With what probability do you expect the following changes in profit taxation for your firm in percentage points (%-points) by the end of 2026 compared to today?*

[5] As a robustness check, we compare the 90% Uncertainty treatment separately with the 10% Uncertainty treatment.

[6] Figure C.6 additionally assesses balance using firm characteristics obtained from Orbis.

$< -6\%$-*p.*: .....%

$\geq -6\%$-*p. and* $< -3\%$-*p.*: .....%

$\geq -3\%$-*p. and* $< 0\%$-*p.*: .....%

0%-*p. (unchanged profit taxation)*: .....%

$> 0\%$-*p. and* $\leq +3\%$-*p.*: .....%

$> +3\%$-*p. and* $\leq +6\%$-*p.*: .....%

$> +6\%$-*p.*: .....%

Relative to the pre-treatment point forecasts, this richer elicitation allows us to recover two measures of posterior beliefs. Posterior uncertainty, U_i^{post}, is defined as the total probability assigned to the six nonzero-change categories. Posterior expected tax-rate change, $\Delta\tau_i^{e,\text{post}}$, is computed using interval midpoints, with values of -7.5 and 7.5 percentage points assigned to the two open-ended categories.

Figure 4 shows the pooled posterior distributions. Relative to the pooled comparison observations, respondents assigned to the 90% message place less probability on unchanged taxation and more probability on some positive tax-change categories. The reallocation is not visibly symmetric: Table 2 reports increases of 2.412 percentage points in the $(3, 6]$ category and 2.171 points in the category above six percentage points. The treatment should therefore not be described as producing a literal mean-preserving spread.

Figure 4 plots the average posterior distributions by treatment group. The predicted treatment effect is that, relative to respondents in LowU, respondents in HighU reallocate probability mass away from no change in taxation and toward nonzero tax-rate changes. The figure is consistent with this prediction, although the reallocation is not symmetric. It also provides no clear visual evidence of an equality in posterior mean beliefs across treatment groups.

Table 2 complements the visual evidence by providing a quantitative comparison of prior and posterior beliefs across treatment groups. Expected tax-rate changes are statistically similar across LowU and HighU, both before and after treatment, whereas posterior tax uncertainty differs significantly between the groups. Post-treatment, both groups revise their expectations toward the information provided by the experts in *TRC*. Posterior uncertainty is 61.4% among respondents assigned to the HighU and 57.2% among the LowU , a difference of 4.2 percentage points ($p = 0.018$).

At the same time, measured uncertainty increases between the prior and posterior elicitation in both treatment groups. We do not interpret this common increase as a treatment effect. The questions use different elicitation formats, and elicitation format itself can alter reported subjective probabilities (Kumar et al., 2023). Repeated questions about

profit taxation may also increase the salience of tax policy for all respondents. Identification instead comes from the randomized post-treatment difference between HighU and LowU.

A further concern in survey experiments is experimenter demand (De Quidt et al., 2018). In our setting, this concern is mitigated by the fact that the uncertainty treatment does not suggest an obvious or socially desirable response in our main outcome, planned investment.

Taken together, the randomized *UC* treatment therefore shifts perceived uncertainty without generating a corresponding difference in expected tax-rate changes.

4.4 Firms' Decisions

After posterior beliefs are elicited, we measure whether the experimentally induced variation in tax uncertainty translates into differences in firms' planned decisions. Our primary outcomes are planned investment expenditures. We complement these measures with a broader set of planned adjustments covering other margins of firm decision-making.

Investment Plans.— Respondents report planned expenditures on tangible investment and on intangible investment and R&D for 2024 and 2025. The question is:

> *Given your expectations and any uncertainty regarding the future of your company's income tax rate: What investment expenditures (in €) do you plan for your company in the coming calendar years?*

This question yield four underlying investment outcomes: tangible investment and intangible investment and R&D for each of the two planning horizons. We use these outcomes in four complementary ways. In our main specification, we sum all four investment amounts to construct a measure of total planned investment. Asset-specific totals aggregate planned investment across the two years within each asset category. This aggregation reduces sensitivity to the precise timing of lumpy investment projects. To study dynamics, we analyze total investment separately by year and, in addition, examine each of the four underlying investment outcomes separately.

Given that firm-level investment is highly right-skewed, as documented in Section 3.1, we winsorize investment amounts at the $99th$ percentile to limit the influence of extreme observations in the upper tail.

To examine the investment response in greater detail, we then analyze each outcome in three ways: as unconditional planned investment, as an indicator for reporting any positive planned investment (the extensive margin), and as planned investment conditional

on a positive amount (the intensive margin).

Additional Planned Adjustments.— Besides investment plans, respondents also report planned adjustments over the next 12 months in R&D, fixed costs, sales prices, bonus payments, withdrawals by entrepreneurs or shareholders, distributions to shareholders, and the equity ratio. For each margin, respondents indicate whether they plan to reduce, leave unchanged, or increase the respective activity.

> *To improve economic policy, it is also important to know what firms in Germany are planning. Which decisions are you planning over the next 12 months?*

	Reduction	*No change*	*Increase*	*No answer*
R&D	☐	☐	☐	☐
Fixed costs	☐	☐	☐	☐
Sales prices	☐	☐	☐	☐
Bonus payments	☐	☐	☐	☐
Withdrawls from entrepreneurs/shareholders	☐	☐	☐	☐
Distribution to shareholders	☐	☐	☐	☐
Equity ratio	☐	☐	☐	☐

These outcomes capture margins of adjustment beyond investment expenditure and therefore provide a broader picture of how firms alter planned decisions in response to tax uncertainty.

All outcomes are immediate reported plans rather than realized expenditures. However, plans are economically meaningful outcomes in their own right because they capture firms' intended responses at the time decisions are being formed, before any response necessarily appears in realized accounting or administrative data. Their interpretation nevertheless depends on whether stated plans contain information about subsequent behavior. Prior research from firm surveys finds that intended plans are on average strong predictive of realized firm outcomes (Coibion et al., 2018; Altig et al., 2022; Kumar et al., 2023).

5 Main Results

We organize the empirical analysis in three steps. We first estimate the effect of randomized information on planned investment. We then examine how the information changes firms' posterior tax beliefs. Finally, we use the experimentally induced variation in beliefs to quantify the investment response to changes in perceived profit-tax uncertainty.

We study three investment outcomes: overall planned investment, tangible planned in-

vestment, and planned expenditure on intangible investment and R&D. For each outcome, we consider the unconditional amount, the probability of reporting positive investment, and the amount reported conditional on being positive. The unconditional measure captures the overall expenditure response, combining changes in both whether firms invest and how much they invest. The positive-investment indicator captures adjustment at the extensive margin, while the conditional-positive outcome captures the intensive margin by describing changes in planned expenditure among firms reporting positive investment. This decomposition helps identify which margin drives the overall investment response to tax uncertainty.

5.1 Plain Tax Uncertainty Treatment Effects

We begin by estimating the intention-to-treat effect: do firms assigned to HighU report different investment plans from firms assigned to LowU? We consider three pooled investment outcomes: overall investment, tangible investment, and intangible investment, including R&D. For each investment category, we estimate the treatment effects on the unconditional mean of planned investment and separately on the extensive and intensive margins defined above.

For the unconditional investment outcome, we estimate the following Poisson pseudo-maximum-likelihood specification:

$$\mathbb{E}[InvestPlan_i \mid \text{HighU}_i] = \exp(\beta_0 + \beta_1 \mathbb{1}[\text{HighU}_i])\,. \tag{2}$$

where $InvestPlan_i$ denotes firm i's planned investment, measured in levels, and $\mathbb{1}[\text{HighU}_i]$ is an indicator equal to one if the firm was assigned to the HighU treatment.

For the probability of reporting positive planned investment, the extensive-margin effect, we estimate the following linear probability model:

$$\mathbb{1}[InvestPlan_i > 0] = \beta_0 + \beta_1 \mathbb{1}[\text{HighU}_i] + \epsilon_i, \tag{3}$$

where the dependent variable is an indicator equal to one if firm i reports positive planned investment and zero otherwise. The coefficient β_1 captures the difference between the treatment groups in the probability of reporting positive planned investment.

Finally, for observations with positive planned investment, the intensive margin effect, we estimate the following specification:

$$\log(InvestPlan_i) = \beta_0 + \beta_1 \mathbb{1}[\text{HighU}_i] + \epsilon_i, \tag{4}$$

where the dependent variable is the logarithm of planned investment among firms reporting positive planned investment.

Table 3 reports the resulting estimates using a common estimation sample within each panel to facilitate comparisons across outcomes. Across all three investment outcomes, firms assigned to the HighU treatment report lower planned investment than firms assigned to the LowU treatment along each margin. The estimated effects, however, differ across investment categories and margins.

For overall pooled investment, column (1), the estimated treatment effects are consistently negative but statistically insignificant. The Poisson estimate implies a 5.1 percent reduction in expected investment, corresponding to approximately €11,822 less in planned investment. The probability of reporting positive investment falls by 2.0 percentage points, while investment among firms reporting positive amounts declines by approximately 13 percent. None of these estimates is statistically distinguishable from zero. However, disaggregating overall investment into tangible and intangible components reveals distinct patterns of adjustment across the two investment categories.

For tangible investment, column (2), we find weak evidence of an adjustment along the extensive margin. Assignment to HighU reduces the probability of reporting positive tangible investment by 3 percentage points, relative to a LowU mean of 85.1 percent. By contrast, the Poisson estimate and the conditional log estimate are statistically insignificant. This pattern is consistent with lumpy adjustment in physical capital. Tangible investments often involve indivisibilities, fixed installation costs, and partial irreversibility. Firms may therefore respond to greater uncertainty by postponing a project rather than marginally reducing its scale.

This response can arise through the option value of waiting. Holding expected profitability constant, greater uncertainty widens the distribution of potential payoffs, making both very favorable and very unfavorable outcomes more likely. By delaying investment, firms avoid committing resources in unfavorable states while retaining the option to invest once additional information becomes available. This mechanism does not require a decline in expected demand, expected tax rates, or expected profits. For marginal investment projects close to the profitability threshold, an increase in the option value of waiting may be sufficient to delay or prevent investment. Consistent with this interpretation, Chen et al. (2023) show that firms' responses to tax incentives are concentrated in investment spikes, highlighting the importance of the extensive margin when physical investment is lumpy. Our results provide complementary evidence that uncertainty leads firms to postpone or forgo tangible investment projects, but no evidence that firms that continue to invest reduce their planned investment expenditures.

For intangible investment and R&D, column (3), the treatment has little effect on the

probability that firms report positive intangible investment: the estimated reduction is 1.7 percentage points and is statistically insignificant. Conditional on reporting positive investment, however, firms assigned to HighU plan approximately 22.5 percent less intangible investment than firms assigned to LowU. Thus, greater uncertainty does not appear to make firms substantially less likely to undertake intangible investment, but it reduces the amounts planned by firms that continue to invest.

This pattern is consistent with the nature of intangible investment. Intangible investment, particularly R&D, is often recurring and scalable rather than lumpy. Ongoing programs can therefore be adjusted by changing their scale, pace, or scope without being discontinued entirely. Firms may thus respond to greater uncertainty by reducing planned expenditures on existing programs rather than by abandoning intangible investment altogether. Related evidence likewise points to the intensive margin as the main channel of adjustment in R&D investment. Dechezleprêtre et al. (2023) find that more generous R&D tax relief primarily increased spending among firms already engaged in R&D, with little effect on firms' entry into R&D activity. Similarly, Maican et al. (2023) show that lower export-market profits reduced R&D spending industries. Most of this adjustment occurred among firms that continued to invest in R&D but reduced the scale of their spending. Taken together, these findings support the interpretation that firms adjust intangible investment mainly by scaling ongoing activities rather than by entering or exiting such activities.

Appendix Table C.6, Panel A, shows that the results are robust to using the inverse hyperbolic sine transformation of planned investment, with estimates that are directionally similar and generally somewhat stronger. Further, the results are qualitatively unchanged when using the maximum available sample for each outcome, Appendix Table C.7.

Heterogeneity by Pre-Treatment Uncertainty.— An important consideration is that assignment to HighU may not affect all firms uniformly. Responses to information treatments may depend on respondents' initial beliefs because the information provided can differ in novelty and distance from those beliefs (Cavallo et al., 2017; Haaland et al., 2023; Weber et al., 2025). In our setting, firms enter the experiment with substantially different levels of uncertainty regarding future profit taxes. The effect of assignment to HighU on investment plans may therefore vary with firms' prior uncertainty. The plain intention-to-treat estimates average over this potential heterogeneity and may conceal stronger responses among firms for which the treatment provides more novel or relevant information. We therefore augment the preceding specifications (2) – (4) with two additional explanatory variables: demeaned prior uncertainty, $U_i^{\Delta\tau,\text{prior}}$, and its interaction with the HighU treatment indicator. Demeaning prior uncertainty implies that the coefficient on HighU captures the treatment effect for a firm with average prior uncertainty, while the interaction coefficient captures how the treatment effect varies with firms' initial

uncertainty.

Table 4 reports the results. The estimated treatment effects at average prior uncertainty are similar to the plain treatment effects reported above. For overall investment, assignment to HighU is associated with lower planned investment along all three margins, but none of the estimates is statistically significant. For tangible investment, the results continue to indicate adjustment primarily along the extensive margin and are nearly identical to the corresponding plain treatment effect. For intangible investment and R&D, the treatment effect remains concentrated along the intensive margin. Conditional on reporting positive investment, firms assigned to HighU plan approximately 22.0 percent less intangible investment than firms assigned to LowU.

Prior uncertainty is negatively associated with planned investment amounts. In the LowU group, a one-percentage-point increase in prior uncertainty is associated with a 0.8 percent reduction in expected overall investment, a 0.7 percent reduction in expected tangible investment, and a 0.7 percent reduction in expected intangible investment. Along the intensive margin, the conditional log estimates show a similar negative association between prior uncertainty and planned investment amounts, whereas we find no significant relationship along the extensive margin. Taken together, these results suggest that the negative relationship between tax uncertainty and investment operates primarily through adjustments in the amount invested conditional on investing, rather than through the decision to invest at all. This pattern is consistent with models in which uncertainty raises the value of waiting and reduces firms' willingness to commit resources to investment projects (Bloom et al., 2007; Bloom, 2009; Kumar et al., 2023).

The interaction between assignment to HighU and prior uncertainty is statistically insignificant across all outcomes and specifications. This interaction tests whether firms with different initial levels of uncertainty respond differently to the treatment. In particular, firms with low prior uncertainty might be expected to react more strongly because the HighU treatment represents a larger and more novel departure from their initial beliefs, whereas firms with high prior uncertainty may react less because the treatment more closely confirms what they already believed. The estimates do not support such heterogeneity: although firms with greater prior uncertainty report lower planned investment on average, the effect of assignment to HighU is not significantly different between firms with initially low and high uncertainty. Thus, prior uncertainty is related to investment levels, but does not significantly moderate the causal effect of treatment assignment.

5.2 Bayesian Learning and Instrumental Variable Approach

The intention-to-treat estimates capture the causal effect of assignment to the HighU treatment on firms' investment decisions. We next examine whether the randomized information shifts the beliefs it is intended to affect. The analysis first considers how firms update their tax beliefs in response to the treatment. It then uses the resulting treatment-induced variation in posterior uncertainty in an IV framework to estimate the effect of perceived tax uncertainty on firms' decisions.

5.2.1 Treatment-Induced Belief Updating

The intuition of the belief-updating framework is straightforward. Firms enter the experiment with prior beliefs about future profit taxation. After receiving the information treatment, they update these beliefs in a Bayesian manner by combining their prior beliefs with the information provided in the survey to form posterior beliefs. The extent of this updating depends on the weight firms place on the new information relative to their initial beliefs.

For perceived tax uncertainty, this process is represented as

$$U_i^{\Delta\tau,\text{post}} = \omega_{i,U,TG} UC_{TG} + (1 - \omega_{i,U,TG})\, U_i^{\Delta\tau,\text{prior}}, \qquad 0 \leq \omega_{i,U,TG} \leq 1, \tag{5}$$

where $U_i^{\Delta\tau,\text{prior}}$ denotes firm i's perceived tax uncertainty before the information treatment and $U_i^{\Delta\tau,\text{post}}$ denotes perceived tax uncertainty after the treatment. UC_{TG} denotes the uncertainty information received by firms in treatment group $TG \in \{\text{LowU}, \text{HighU}\}$. The updating weight $\omega_{i,U,TG}$ captures how strongly firm i responds to the treatment information.

The same logic applies to firms' expectations about the change in their profit tax rate. In this case, however, both treatment groups receive the same information through the common tax-rate component, TRC. The experimental design therefore predicts similar updating of expected tax-rate changes across HighU and LowU, but different updating of perceived uncertainty because the uncertainty component differs across treatment groups.[7]

To estimate belief updating, we relate posterior beliefs to prior beliefs, treatment assignment, and their interaction. For perceived uncertainty, we estimate

$$U_i^{\Delta\tau,\text{post}} = \alpha_U + \beta_U U_i^{\Delta\tau,\text{prior}} + \delta_U \mathbb{1}[\text{HighU}_i] + \gamma_U \left(U_i^{\Delta\tau,\text{prior}} \times \mathbb{1}[\text{HighU}_i] \right) + \epsilon_i^U. \tag{6}$$

[7] Appendix D provides the formal derivation and maps the Bayesian learning framework into the empirical regression specification.

The coefficient δ_U captures the difference in posterior uncertainty between HighU and LowU at zero prior uncertainty, while γ_U captures whether the relationship between prior and posterior uncertainty differs across treatment groups. A negative γ_U implies a flatter prior-posterior relationship in HighU, consistent with firms placing relatively less weight on their prior uncertainty and more weight on the treatment information.

We estimate an analogous specification for firms' expected tax-rate changes. Figure 5 presents the coefficients that capture differential updating across treatment groups, while Table 5 reports the corresponding numerical estimates.

The results in Figure 5 reveal a sharp distinction between expectations and uncertainty. For expected profit tax-rate changes, we find no evidence of differential updating across treatment groups. Neither the treatment indicator nor its interaction with prior expectations is statistically significant. Firms assigned to HighU and LowU therefore form similar posterior expectations and exhibit a similar dependence on their prior expectations. This is consistent with the experimental design, since both groups receive the same information about the expected change in profit taxation.

By contrast, Panel A shows that the uncertainty treatment produces a clear shift in perceived tax uncertainty. Firms assigned to HighU report systematically higher posterior uncertainty than firms assigned to LowU. For a firm with zero prior uncertainty, assignment to HighU increases posterior uncertainty by approximately 7 percentage points. Evaluated at the sample mean of prior uncertainty, $U_i^{\Delta\tau,\text{prior}} = 46.4$, the implied difference is 3.34 percentage points.

Panel B shows that the treatment also changes the extent to which firms rely on their prior beliefs. The interaction coefficient is negative and statistically significant ($\gamma_U = -0.079$), implying a flatter relationship between prior and posterior uncertainty for firms in HighU. Thus, firms receiving the high-uncertainty information place relatively less weight on their prior uncertainty and more weight on the information provided by the treatment. Consistent with this interpretation, the treatment induces larger revisions in perceived uncertainty among firms with relatively low prior uncertainty and smaller revisions among firms with relatively high prior uncertainty.

Taken together, these findings show that the experiment generates substantial variation in firms' perceived uncertainty while leaving their expected tax-rate changes essentially unchanged. The treatment-induced variation in posterior uncertainty provides the first stage for our IV analysis, while the absence of a corresponding shift in mean expectations allows us to isolate variation in uncertainty from variation in expected tax rates.

5.2.2 Instrumental Variable Estimates for Investment

We next use an IV design to estimate the causal effect of perceived profit-tax uncertainty on firms' investment decisions. We instrument posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$, using the exogenous variation generated by the randomized information treatment. Following the first-stage specification in Kumar et al. (2023), the instruments for posterior uncertainty are assignment to HighU, prior uncertainty, and their interaction, as specified in equation (6). Identification therefore relies on treatment-induced shifts in posterior uncertainty, conditional on prior beliefs. We retain the three investment specifications introduced above and estimate their IV counterparts, using the same outcome definitions for the unconditional, extensive, and intensive margins. In each case, posterior tax uncertainty,

For unconditional investment, the second stage is given by

$$\mathbb{E}[InvestPlan_i \mid U_i^{\Delta\tau,\text{post}}] = \exp\Big(\beta_0 + \beta_1 U_i^{\Delta\tau,\text{post}}\Big). \tag{7}$$

For the extensive margin, the second stage is

$$\mathbb{1}[InvestPlan_i > 0] = \beta_0 + \beta_1 U_i^{\Delta\tau,\text{post}} + \epsilon_i, \tag{8}$$

estimated as an IV linear probability model.

For the intensive margin, the second stage is

$$\log(InvestPlan_i) = \beta_0 + \beta_1 U_i^{\Delta\tau,\text{post}} + \epsilon_i. \tag{9}$$

Table 6 reports the second-stage IV estimates from specifications (7)–(9). The first-stage F-statistics are well above conventional thresholds, indicating that the instruments strongly predict posterior tax uncertainty. Across specifications, the IV estimates point to a negative and economically meaningful effect of perceived profit tax uncertainty on firms' investment plans. The results are consistent with and reinforce the baseline treatment effects reported in Section 5.1.

Panel A reports the IV estimates for unconditional investment. A one-percentage-point increase in posterior tax uncertainty reduces overall planned investment by approximately 1.0 percent. To assess the economic magnitude, we compare respondents who report being *Very certain* about their prior expectations with those who report being *Very uncertain*. On average, moving between these categories corresponds to a 24-percentage-point increase in perceived uncertainty. Applying our point estimate, this increase implies a 21.3 percent reduction in overall planned investment. Evaluated at the control-group

mean of €233,199, the effect corresponds to approximately €49,700 less planned investment.

The magnitude of this effect is comparable to estimates in the broader uncertainty literature. Alfaro et al. (2024) find that a two-standard-deviation increase in uncertainty, measured using stock-return volatility, reduces investment by 0.18 standard deviations, whereas Kumar et al. (2023) report a decline of about 0.61 standard deviations in response to a two-standard-deviation increase in macroeconomic uncertainty. Our estimates fall between these benchmarks. A two-standard-deviation increase in perceived tax uncertainty reduces overall planned investment by 0.22 standard deviations, planned investment for 2025 by 0.20 standard deviations, and planned intangible investment by 0.27 standard deviations.

Panels B and C show that the decomposition into extensive- and intensive-margin responses is broadly consistent with the main treatment effects. On the extensive margin, a one-percentage-point increase in posterior uncertainty lowers the probability of positive overall and tangible investment by approximately 0.1 percentage points, while the estimate for intangible investment is statistically indistinguishable from zero. On the intensive margin, conditional on positive investment, a one-percentage-point increase in posterior uncertainty reduces overall planned investment by approximately 0.5 percent and intangible investment by a 0.6 percent. The corresponding estimate for tangible investment is smaller and statistically insignificant. Moving from respondents who report being *Very certain* about their prior expectations to those who report being *Very uncertain* implies declines of approximately 11.3 percent in overall planned investment and 13.4 percent in intangible investment among firms that continue to invest.

We do not additionally control for prior uncertainty in the second stage, consistent with the Bayesian updating structure underlying our IV design. In this framework, posterior uncertainty combines prior uncertainty with the information received through the treatment. The model therefore implies that prior uncertainty affects investment exclusively through its effect on posterior uncertainty, rather than through a separate direct channel. Under this structure, omitting prior uncertainty from the second stage does not generate omitted-variable bias. Prior uncertainty instead enters the first stage, where it shapes how firms update their beliefs in response to the treatment.

6 Further Results

The preceding analysis shows that the effect of tax uncertainty on investment plans operates through different margins depending on the investment category. In this section, we further analyze whether the effect depends on the dynamic dimension of investment, as

predicted by theory in Section 3.3, and identify which firm and respondent characteristics are associated with stronger responses. We then examine the effects of tax uncertainty on additional planned adjustments and conclude with a series of robustness checks.

6.1 Dynamics

We decompose the three pooled investment outcomes in Tables 3 and 6 into separate investment plans for 2024 and 2025. We report the corresponding treatment-effect estimates in Table 7 and the IV estimates in Table 8.

The dynamic analysis in Table 7 shows that the extensive-margin response of tangible investment is concentrated at the longer investment horizon. For 2025, the probability of positive tangible investment decreases by 3.4 percentage points, twice the decline estimated for 2024. This pattern is consistent with the lumpy and partially irreversible nature of tangible investment. Physical investment projects often involve fixed and installation costs as well as discrete commitments, making postponement a natural response to heightened uncertainty. Firms may therefore postpone these projects rather than reduce their scale. For intangible and R&D investment, adjustment again occurs predominantly along the intensive margin. In contrast to tangible investment, however, the effects are distributed more evenly across the 2024 and 2025 horizons. This pattern suggests that firms adjust the scale of intangible investment more continuously across horizons rather than primarily postponing projects to a later date.

The IV estimates in Table 8 show a similar pattern, with responses generally somewhat stronger for the 2025 horizon than for 2024. This difference is again most pronounced for tangible investment, while the effects on intangible and R&D investment remain more comparable across horizons.

6.2 Heterogeneity

As an exploratory analysis, we examine whether treatment effects vary across firm characteristics and tax-related dimensions of firms' perceptions and decision-making. The vast majority of subgroup-specific effects and differences across subgroups are statistically insignificant, so the heterogeneity results should be interpreted cautiously despite several economically sizable differences in the point estimates (Table 9). Among firm characteristics, point estimates tend to be more negative for medium and large firms and for corporations, particularly for unconditional and log-transformed investment. By contrast, firms expecting a loss do not display systematically stronger responses and often show smaller effects.

A somewhat clearer pattern in the magnitude of the estimates emerges for tax-related characteristics. Firms with greater tax knowledge and firms that frequently or always account for profit taxation generally exhibit more negative point estimates, especially for log-transformed investment. Prior tax uncertainty shows a mixed pattern, with a significantly stronger extensive-margin response for tangible investment among firms with higher prior uncertainty. The equality tests otherwise generally do not reject homogeneous treatment effects across subgroups, although some differences in point estimates are economically sizable. Overall, the heterogeneity results are suggestive rather than conclusive.

6.3 Additional Planned Adjustments

We next examine firms' broader planning decisions to shed light on potential channels through which tax uncertainty affects firm behavior. For each decision, firms indicate whether they plan to increase it, decrease it, or leave it unchanged. Table 10 reports treatment effects on the probabilities of reporting an increase or a decrease, together with the corresponding means in the LowU group.

Two findings stand out. First, firms exposed to greater tax uncertainty are 4.9 percentage points less likely to increase bonus payments and 6.9 percentage points less likely to increase withdrawals to entrepreneurs or shareholders. Relative to the corresponding LowU means of 19.7 and 15.7 percent, these effects represent declines of about 25 and 44 percent, respectively. For both bonus payments and owner withdrawals, the treatment effects on increases and decreases also differ, indicating that the response is concentrated in a lower likelihood of expanding these outflows. This pattern is consistent with a precautionary saving motive: when future after-tax cash flows become more uncertain, firms may preserve internal financial resources by limiting increases in relatively flexible cash outflows. The absence of a comparable response in distributions to shareholders may reflect the greater rigidity and external visibility of formal payout policies. Managers may adopt conservative dividend policies because markets respond asymmetrically to dividend increases and decreases (Brav et al., 2005), while dividend changes can also signal information about firms' underlying earnings prospects (Kaplan and Pérez-Cavazos, 2022). Bonus payments and owner withdrawals may therefore provide margins through which firms can preserve internal resources without altering formal shareholder payout policies.

Second, the high-uncertainty treatment increases the probability of raising the equity ratio by 2.9 percentage points, corresponding to an increase of about 23 percent relative to the LowU mean. This response is likewise consistent with firms strengthening their balance sheets in response to greater uncertainty about future after-tax cash flows.

For the remaining decisions, including R&D, fixed costs, sales prices, and distributions to shareholders, we find no statistically significant treatment effects.

6.4 Robustness

We conduct four robustness exercises that address distinct threats to the interpretation of our main estimates. First, we assess the sensitivity of the IV results to potential violations of instrument exogeneity and the exclusion restriction using falsification adaptive sets. Second, we exploit variation across the uncertainty-information treatment arms to distinguish the effect of receiving an uncertainty message from the effect of increasing the intensity of that message. Third, we examine whether survey timing affects reported investment plans or beliefs, and whether any such time patterns differ across treatment groups. Finally, we test whether the treatment effects vary with firms' prior expectations about the direction of future profit-tax changes. Together, these exercises assess the robustness of both the identification strategy and the interpretation of the estimated investment response to profit-tax uncertainty.

Falsification Adaptive Set for IV Estimates.— The validity of our IV estimates requires both instrument exogeneity and the exclusion restriction. Violations of either condition can invalidate the conventional IV estimator. To assess the sensitivity of our results to such violations, we report falsification adaptive sets (FAS), following Masten and Poirier (2021) and the generalization in Apfel and Windmeijer (2026). Under the maintained assumptions, the generalized FAS_G contains the structural parameter whenever at least one instrument is valid and relevant.

We report three sets that differ in the type of instrument invalidity they allow: FAS_{exo} allows instruments to violate conditional exogeneity, FAS_{excl} allows violations of the exclusion restriction, wheras the generalized set, FAS_G, permits different instruments to violate either condition and takes the union across the corresponding patterns of invalidity. For each class, we also report a relevance-screened version that retains only transformed instruments with a first-stage F-statistic of at least 10.

Table C.10 reports the resulting adaptive sets. The FAS_{exo} sets remain entirely below zero in every specification. Applying the $F \geq 10$ relevance screen generally narrows these sets further, while preserving their negative sign throughout.

The FAS_{excl} results are less uniform. The sets include zero for the IHS and extensive-margin outcomes, whereas they remain below zero for all log-transformed outcomes. Once weak transformed instruments are excluded, however, the screened FAS_{exc} sets are negative in every specification. In several cases these screened sets collapse to a single point because only one transformed instrument satisfies the relevance threshold. The FAS_G

contains zero in every specification. This result is driven by a small number of transformed just-identified estimates, as in several outcomes, the positive upper bound is generated by a single transformed-IV specification, while the remaining estimates are negative. Hence, the failure of FAS_G to exclude zero reflects sensitivity to particular instrument configurations rather than a pervasive reversal in the sign of the estimated effect. The $F \geq 10$ relevance screen substantially narrows the generalized sets. The screened FAS_G remain strictly negative for several IHS and extensive-margin outcomes, although they continue to include zero for some specifications, particularly the log-transformed outcomes.

Taken together, the FAS analysis shows that the negative investment response is robust to several restricted forms of instrument invalidity, including relevance-screened exclusion violations, although the sign is not uniformly preserved under the most permissive generalized relaxation of the IV assumptions.

Treatment Intensity.— A useful feature of our experimental design is that it allows us to distinguish between the effect of receiving an uncertainty message and the effect of increasing the intensity of that message. The 10% and 90% Uncertainty Treatments use the same treatment text and differ only in the probability assigned to a future tax change. Comparing these two arms therefore provides a clean test of whether firms respond to the intensity of the uncertainty signal while holding the wording and structure of the treatment fixed. By contrast, the Mean Treatment provides only the common mean information and no additional uncertainty message, so comparing the 90% Uncertainty Treatment with the Mean Treatment captures the effect of introducing a high-uncertainty message relative to receiving no additional uncertainty signal. Distinguishing these two margins is important for interpretation, because it allows us to separate responses to the presence or salience of an uncertainty message from responses to the magnitude of uncertainty conveyed.

Table C.11 reports the corresponding pairwise treatment effects and places the main results in perspective. Relative to the 10% Uncertainty Treatment, the 90% Uncertainty Treatment produces a pattern that is broadly consistent with the baseline estimates: effects are weak in the Poisson specifications but more negative at the extensive margin and for log-transformed investment, with the strongest evidence again concentrated in intangible investment and R&D. Relative to the Mean Treatment, the estimated effects also generally point in the same negative direction as the baseline results, although they are less precisely estimated.

Overall, the robustness check supports the interpretation of the main treatment effects. The comparison with the 10% Uncertainty Treatment shows that the results are not driven only by exposure to an uncertainty message, but also reflect the intensity of the uncertainty signal. At the same time, the comparison with the Mean Treatment indicates

that introducing a high-uncertainty message yields effects that are directionally similar to the baseline estimates. While statistical precision varies across specifications, the qualitative pattern is broadly consistent with the main findings.

Survey Timing.— The timing of survey completion may affect how firms report investment plans and beliefs about profit taxtion. Because the survey was fielded from April through November 2024, the investment measure may combine expenditures already realized, projects already committed, and plans for the remaining months. If reporting behavior changes over the field period, or if such changes differ across treatment arms, survey timing could confound the interpretation of the treatment effects.

We therefore examine whether reported investment plans and beliefs vary systematically with the survey date and whether any such time pattern differs between the HighU and LowU treatment groups. Specifically, we estimate

$$Y_i = \alpha + \rho\, SurveyDate_i + \delta\, \mathbb{1}[HighU_i] + \lambda\, (SurveyDate_i \times \mathbb{1}[HighU_i]) + u_i, \qquad (10)$$

where Y_i denotes an investment or belief outcome and $SurveyDate_i$ is centered at the sample mean. The coefficient ρ captures the survey-date trend in the LowU group, while λ tests whether this trend differs in the HighU group.

Table C.12 provides little evidence that survey timing drives the main results. The estimated survey-date coefficients are small and statistically insignificant for the investment outcomes, including both the 2024 and 2025 measures. The interaction between survey date and assignment to the HighU treatment is also statistically insignificant across all investment and belief outcomes. Prior beliefs show no meaningful time pattern, while the small negative trend in posterior expectations is only marginally significant. Importantly, there is no evidence that this pattern differs systematically across treatment groups.

Overall, the results indicate that the estimated treatment effects are stable over the survey field period. In particular, the absence of differential survey-date trends across treatment arms suggests that variation in the remaining 2024 planning horizon is unlikely to account for the main investment responses.

Differences in Prior Expectations.— Firms enter the experiment with different expectations about the direction of future profit-tax changes. This matters because the common tax-rate information moves respondents toward a common benchmark of no expected change. Relative to their priors, this benchmark constitutes favorable news for firms that initially expect a tax increase, unfavorable news for firms that initially expect a tax decrease, and comparatively neutral news for firms that already expect no change. The effect of the additional uncertainty treatment may therefore depend on whether this common information improves, worsens, or leaves unchanged the expected tax outlook.

We examine this possibility by estimating the effect of assignment to the HighU treatment separately for firms with negative, zero, and positive prior expected tax changes. Table C.13 reports the corresponding subgroup-specific treatment effects for overall investment, investment by asset type, and investment by time horizon.

The estimates provide little evidence of systematic heterogeneity across prior-expectation groups. For overall investment, tangibles, and investment by time horizon, the treatment effects are statistically indistinguishable across firms expecting tax decreases, no change, or tax increases. The main exception is intangible investment and R&D, where the treatment effect is more negative among firms that initially expect a tax decrease, and the test of equality across groups is marginally significant.

Overall, the results suggest that the investment response to uncertainty is not strongly driven by the direction of firms' prior tax expectations. While there is some evidence of heterogeneity for intangible investment and R&D, the broader pattern is similar across firms receiving favorable, unfavorable, or relatively neutral directional news from the common tax-rate information.

7 Conclusion

Tax policy has two economically relevant dimensions: the level of taxation firms expect to face and the uncertainty surrounding that expected path. This paper provides causal evidence that the second dimension matters for firm behavior. Using a survey-based randomized controlled trial, we vary firms' perceived profit-tax uncertainty while providing common information about the expected tax path. The design therefore allows us to isolate the behavioral response to uncertainty from systematic differences in expected tax-rate changes.

The experiment shifts the belief margin it is designed to affect. Firms receiving high-uncertainty information report higher posterior uncertainty, while posterior expected tax-rate changes remain similar across treatment groups. This treatment-induced variation in uncertainty translates into lower planned investment. The response differs across investment margins and asset types: tangible investment adjusts primarily at the extensive margin, whereas intangible investment and R&D respond more strongly through changes in planned expenditure among firms reporting positive investment. The effects are also more pronounced for the later planning horizon, consistent with greater scope to adjust investment that is not yet committed. Using the experimentally induced variation in posterior uncertainty in an IV framework, we further find economically meaningful reductions in planned investment as perceived profit-tax uncertainty increases.

Beyond these substantive findings, the paper contributes methodologically by showing that survey experiments can separate expectations from uncertainty, two dimensions of beliefs that are difficult to disentangle in observational data. It also provides direct causal evidence on the effect of profit-tax uncertainty on firms' investment plans and extends the evidence to a broad sample that includes private, micro, and small firms, which are often underrepresented in studies based on listed firms or financial-market data.

The findings have a direct policy implication. Firms respond not only to the taxes they expect to pay, but also to how predictable they perceive the future tax environment to be. Greater uncertainty can therefore affect investment before any statutory tax change is implemented. Predictability and credible communication about the future tax environment may thus matter for investment even when the expected level of taxation remains unchanged.

Several questions remain open. Our outcomes are planned rather than realized investment, so an important next step is to examine how these responses translate into subsequent expenditures. In addition, our measure captures uncertainty about whether firms' profit tax rates will depart from the status quo, while tax uncertainty may also concern the timing, magnitude, design, or implementation of future policy. Finally, our results do not distinguish whether uncertainty permanently reduces investment or primarily delays it until uncertainty is resolved. Distinguishing between temporary postponement and persistent investment losses therefore remains an important avenue for future research.

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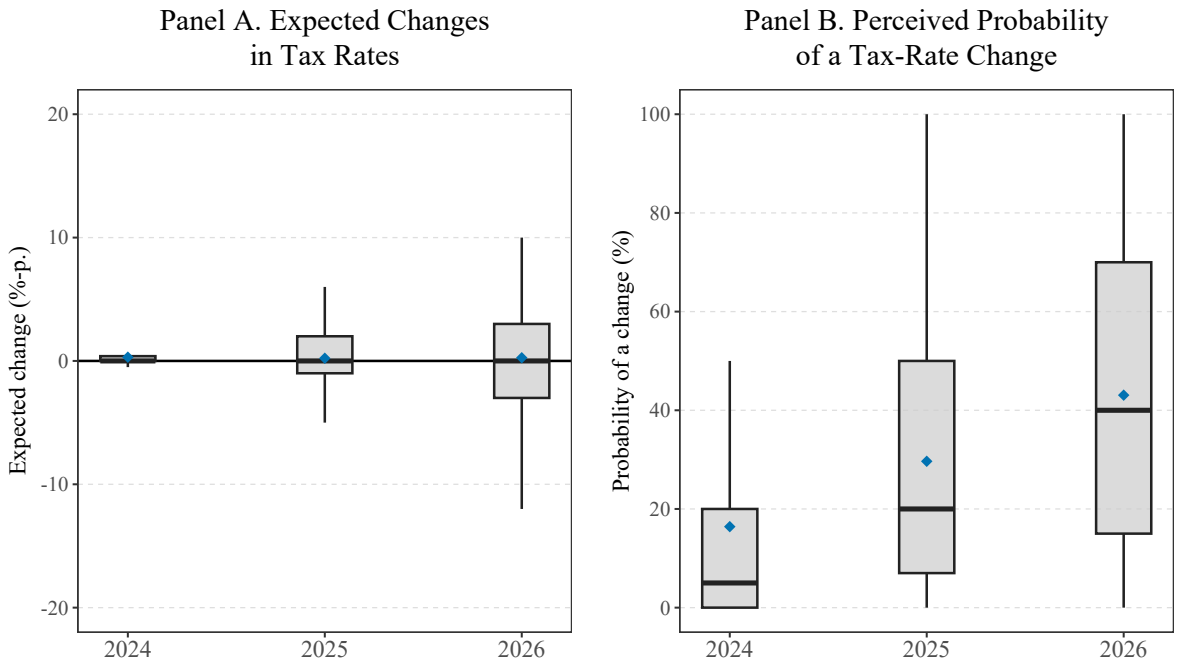
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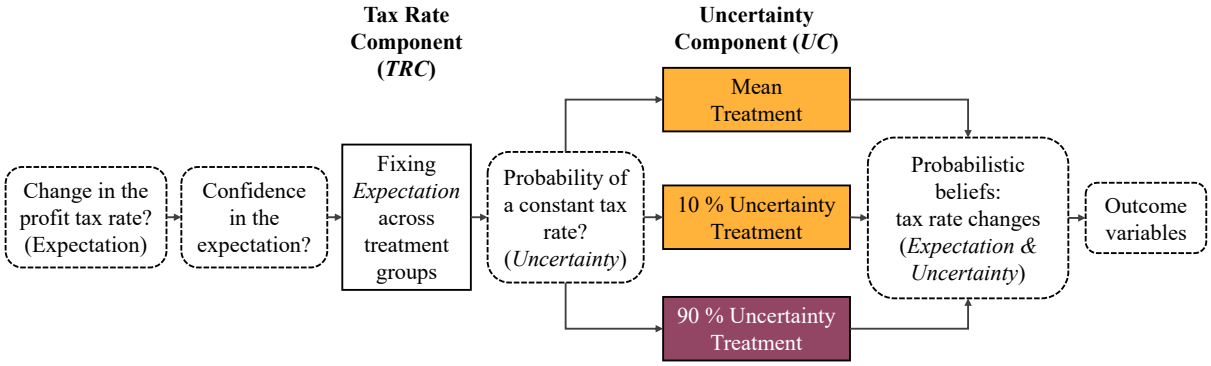
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Figure 1: Tax Experts' Forecast of Profit Taxation



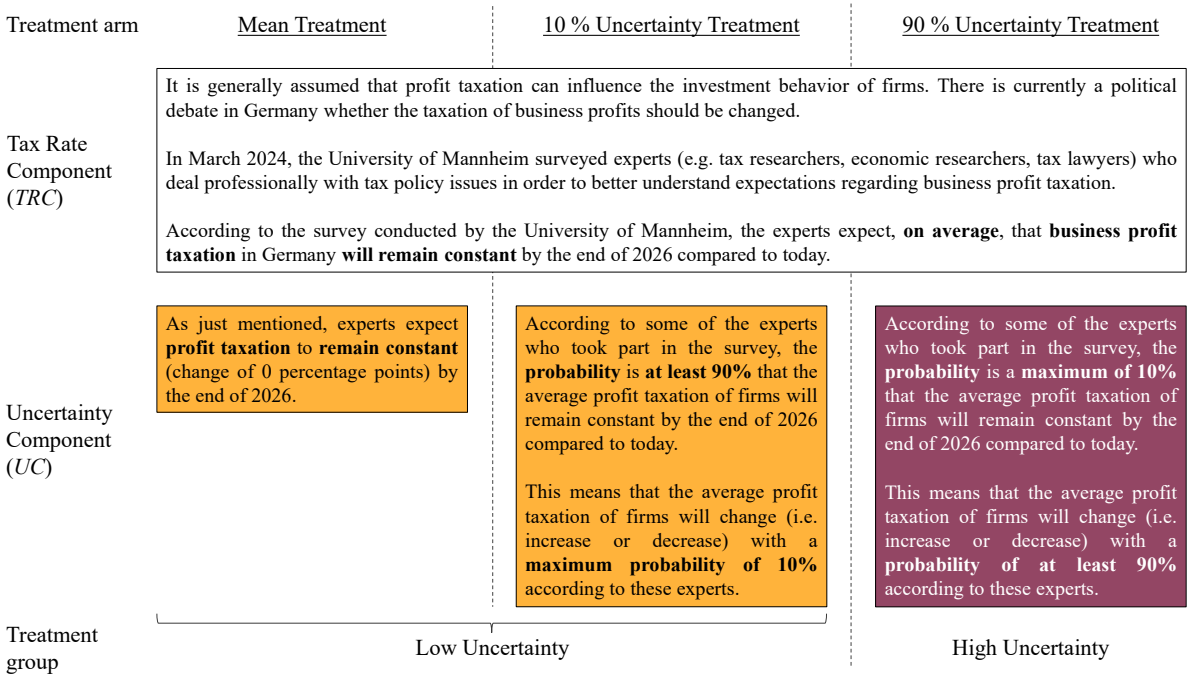
Notes: Panel A shows experts' expected changes in the profit tax rate for 2024–2026, and Panel B shows their perceived probability of a profit tax-rate change over the same period. In both panels, boxes indicate the interquartile range and the horizontal line within each box indicates the median; markers indicate mean responses. Whiskers extend to the most extreme observations within 1.5 times the interquartile range. A corresponding figure for the statutory corporate income tax and top personal income tax rates is reported in Figure C.5 in the Appendix.

Figure 2: Overview of Firm Survey Flow



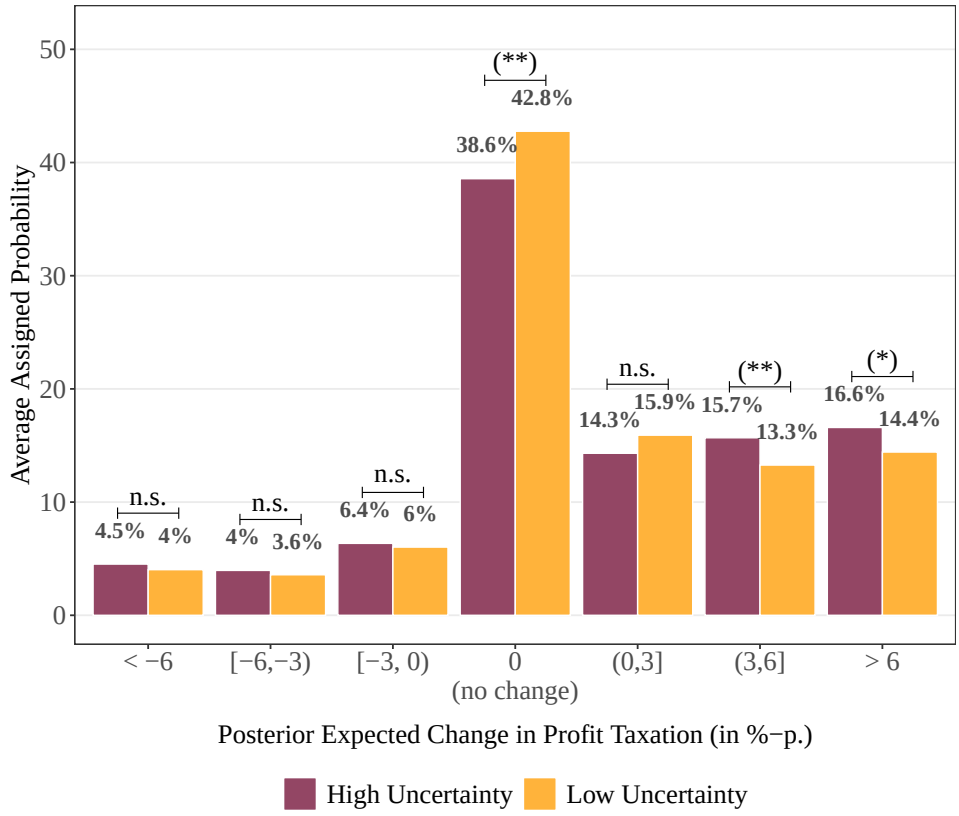
Notes: The figure presents key stages of the firm survey flow. Survey questions are indicated by dashed borders, whereas tax rate component (TRC) and the uncertainty component (UC) of the information treatment are indicated by solid borders. It also highlights the point in the questionnaire at which respondents receive different information treatments and how the treatment arms are grouped for the analysis: the Mean Treatment and the 10% Uncertainty Treatment are pooled to form LowU treatment group (yellow), whereas the 90% Uncertainty Treatment forms HighU treatment group (red).

Figure 3: Structure of the Information Treatment



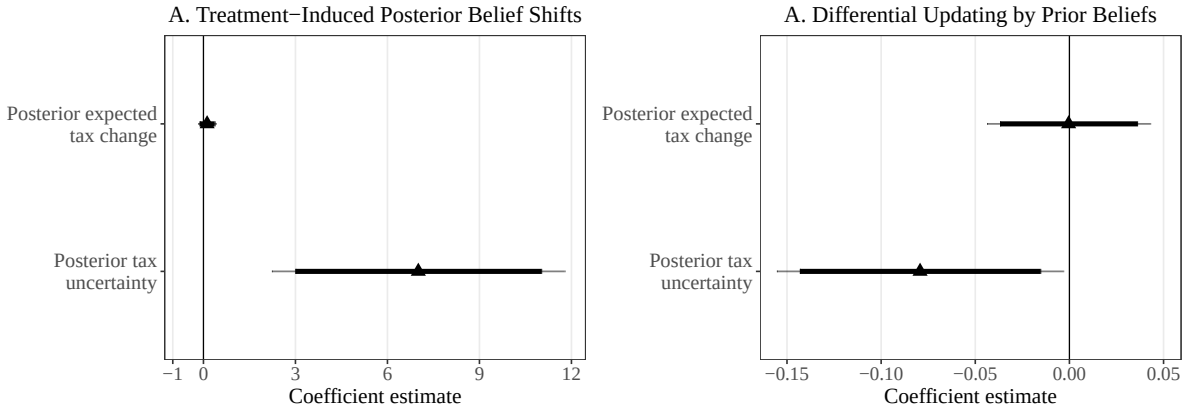
Notes: The figure depicts the structure of the information treatment, comprising two components: the tax rate component (TRC) and the treatment-specific uncertainty component (UC). All respondents first receive the TRC. Only later in the survey do they receive the UC corresponding to their assigned treatment arm. The TRC, reflecting experts' average forecast of profit taxation by the end of 2026, is constant across treatment arms. The UC varies by treatment arm, as participants are exposed to different degrees of uncertainty or to no uncertainty at all.

Figure 4: Posterior Treatment Beliefs about Profit Taxation



Notes: The figure graphically presents the averaged assigned probabilities to various profit tax rate changes per Low Uncertainty (LowU) and High Uncertainty (HighU) treatment group. Within the figure, the statistical significance between the treatment groups is indicated.

Figure 5: Belief Updating Across Treatment Groups



Notes: The figure reports coefficients from the belief-updating regressions for posterior expected profit tax-rate changes and posterior profit tax-rate uncertainty, where $b \in \{U, \Delta\tau\}$ indexes uncertainty and expectations, respectively. Panel A reports the treatment-indicator coefficient, $\hat{\delta}_b$, which measures the corresponding difference in posterior beliefs when prior beliefs equal zero. Panel B reports the interaction coefficient, $\hat{\gamma}_b$, which measures the HighU–LowU difference in the slope on prior beliefs. Thick and thin horizontal lines denote 90% and 95% confidence intervals, respectively, based on robust standard errors.

Table 1: Descriptive Statistics - Investments and Beliefs

	Mean	Median	Share Nonzero	N
Panel A. Baseline Investments				
Tangible investment 2023 (EUR)	271,271	10,000	0.836	1,961
By firm size				
Micro	32,376	5,000	0.799	1,282
Small	161,861	34,000	0.910	500
Medium-sized	627,110	100,000	0.904	115
Very Large	9,090,309	100,000	0.919	37
Intangible and R&D investment 2023 (EUR)	91,781	2,000	0.684	1,961
By firm size				
Micro	11,712	1,000	0.617	1,282
Small	60,101	6,500	0.798	500
Medium-sized	141,240	20,000	0.876	115
Very Large	3,214,296	50,000	0.833	37
Panel B. Prior Beliefs				
Prior expectation (*%-p.*), $\Delta\tau^{e,prior}$	3.08	0.25	0.628	1,961
By confidence level in $\Delta\tau^{e,prior}$				
Very certain	0.743	0	0.233	202
Certain	3.56	0	0.604	709
Uncertain	3.28	2	0.725	850
Very uncertain	2.88	2	0.707	198
Prior uncertainty (*%*), $U^{\Delta\tau,prior}$	46.4	50	0.823	1,961
By confidence level in $\Delta\tau^{e,prior}$				
Very certain	29.7	0	0.418	202
Certain	46.4	50	0.784	709
Uncertain	48.9	50	0.928	850
Very uncertain	53.7	50	0.918	198

Notes: The table reports descriptive statistics for the firm sample. For each variable, it reports the mean, median, the share of observations strictly above zero, and the number of observations. Statistics are reported separately by firm size and by respondents' self-reported confidence in their pre-treatment expectations about changes in profit taxation.

Table 2: Prior and Posterior Beliefs about Profit Taxation by Treatment Group

	Full sample		LowU		HighU			
	Mean	SD	Mean	SD	Mean	SD	Difference	p-value
Prior expectation, $\Delta\tau^{e,prior}$	3.08	9.49	2.78	9.36	3.38	9.63	0.60	0.158
Posterior expectation, $\Delta\tau^{e,post}$	1.46	3.01	1.36	2.91	1.55	3.12	0.19	0.167
Prior uncertainty, $U^{\Delta\tau,prior}$	46.4	37.5	45.8	37.2	47.1	37.7	1.3	0.466
Posterior uncertainty, $U^{\Delta\tau,post}$	59.3	39.1	57.2	39.0	61.4	39.2	4.2	0.018

Notes: The table reports means and standard deviations of prior and posterior beliefs about expected changes in profit taxation, in percentage points, and uncertainty about profit taxation, in percent, for the full sample and by treatment group. Difference is calculated as HighU − LowU, p-values are based on Welch's two-sided t-tests.

Table 3: Treatment Effects on Investment Plans

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – InvestPlan			
High uncertainty treatment, 𝟙[HighU]	-0.052	-0.040	-0.121
	(0.145)	(0.151)	(0.158)
LowU mean (€)	233,199	150,269	56,156
LowU SD (€)	724,079	483,561	186,595
Observations	1,859	1,859	1,859
Pseudo R-squared	0.000	0.000	0.001
Panel B. Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
High uncertainty treatment, 𝟙[HighU]	-0.020	-0.030*	-0.017
	(0.015)	(0.017)	(0.021)
LowU mean	0.888	0.851	0.734
LowU SD	0.315	0.356	0.442
Observations	1,859	1,859	1,859
R-squared	0.001	0.002	0.000
Panel C. Log-Transformed Investment – $\log(InvestPlan)$			
High uncertainty treatment, 𝟙[HighU]	-0.139	-0.122	-0.255**
	(0.122)	(0.127)	(0.123)
LowU mean	10.836	10.177	9.461
LowU SD	2.114	2.219	2.149
Observations	1,271	1,271	1,271
R-squared	0.001	0.001	0.003

Notes: The table reports estaimtes of specification (2), (3), and (4), which estimate the effect of assignment to the of assignment to the HighU treatment on firms' investment plans. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 4: Prior Uncertainty and Treatment Effects on Investment Plans

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – InvestPlan			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.016	-0.016	-0.100
	(0.147)	(0.152)	(0.160)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.008***	-0.007**	-0.007**
	(0.003)	(0.003)	(0.003)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	0.004	0.003	0.002
	(0.004)	(0.004)	(0.004)
Observations	1,855	1,855	1,855
Pseudo R-squared	0.016	0.013	0.012
Panel B. Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.020	-0.029*	-0.017
	(0.015)	(0.017)	(0.021)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	-0.001	-0.001	-0.000
	(0.000)	(0.000)	(0.001)
Observations	1,855	1,855	1,855
R-squared	0.004	0.005	0.002
Panel C. Log-Transformed Investment – $\log(InvestPlan)$			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.134	-0.119	-0.249**
	(0.122)	(0.127)	(0.123)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.004*	-0.002	-0.004*
	(0.002)	(0.002)	(0.002)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	0.002	0.001	0.001
	(0.003)	(0.003)	(0.003)
Observations	1,269	1,269	1,269
R-squared	0.004	0.001	0.007

Notes: The table reports conditional effects of assignment to the HighU treatment on firms' investment plans. All specifications include demeaned prior uncertainty and its interaction with assignment to the HighU treatment. The coefficient on $\mathbb{1}$[HighU] therefore represents the treatment effect for a firm with average prior uncertainty. For estimates based on outcome-specific samples, see Table C.8. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 5: Treatment Effects on Posterior Beliefs

	Posterior Belief		Probability Assigned to Profit Tax Rate Change Intervals					
	Expectation, $\Delta\tau^{e,post}$	Uncertainty, $U^{\Delta\tau,post}$	<-6	$[-6,-3)$	$[-3,0)$	$(0,3]$	$(3,6]$	>6
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High uncertainty treatment, $\mathbb{1}[HighU]$	0.119	7.006***	0.492	0.385	0.330	-1.598	2.412**	2.171*
	(0.148)	(2.436)	(0.710)	(0.531)	(0.609)	(0.986)	(1.045)	(1.297)
Prior expectation, $\Delta\tau^{e,\text{prior}}$	0.115***							
	(0.015)							
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$		0.676***						
		(0.026)						
High uncertainty treatment $\times$ $\Delta\tau^{e,\text{prior}}$	-0.000							
	(0.022)							
High uncertainty treatment $\times$ $U^{\Delta\tau,\text{prior}}$		-0.079**						
		(0.039)						
Constant	1.047***	26.431***	4.030***	3.579***	6.024***	15.912***	13.270***	14.422***
	(0.097)	(1.640)	(0.469)	(0.350)	(0.410)	(0.726)	(0.697)	(0.886)
Observations	1,955	1,955	1,961	1,961	1,961	1,961	1,961	1,961
R-squared	0.132	0.376	0.000	0.000	0.000	0.001	0.003	0.001

Notes: The table reports OLS estimates of the effects of assignment to the HighU treatment on posterior beliefs. Column (1) estimates posterior expected tax-rate changes as a function of treatment assignment, prior expected tax-rate changes, and their interaction. Column (2) reports regression specification (6), relating posterior uncertainty to treatment assignment, prior uncertainty, and their interaction. Columns (3)–(8) report treatment effects on the probability mass assigned to each interval of posterior expected changes in the profit tax rate; these regressions include only the HighU treatment indicator. The intervals are measured in percentage points. Robust standard errors are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: IV Estimates of the Effect of Posterior Uncertainty on Investment Plans

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – $InvestPlan$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.010***	-0.012***	-0.008**
	(0.004)	(0.004)	(0.003)
Observations	1,855	1,855	1,855
1st stage F-stat	342.62	342.62	342.62
Panel B. IV Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.001**	-0.001*	-0.001
	(0.000)	(0.000)	(0.000)
Observations	1,855	1,855	1,855
1st stage F-stat	342.62	342.62	342.62
Panel C. IV Log-Transformed Investment – $\log(InvestPlan)$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.005**	-0.003	-0.006**
	(0.003)	(0.003)	(0.003)
Observations	1,269	1,269	1,269
1st stage F-stat	259.34	259.34	259.34

Notes: This table reports IV estimates of the effect of posterior profit-tax uncertainty on planned investment. Posterior uncertainty is instrumented using assignment to HighU, prior uncertainty, and their interaction, with the first stage given by specification (6). Panel A reports estimates from specification (7), Panel B from specification (8), and Panel C from specification (9). For estimates based on outcome-specific samples, see Table C.9. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 7: Dynamics of Treatment Effects on Investment Plans

	Overall		Tangibles		Intangibles and R&D	
	2024	2025	2024	2025	2024	2025
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Poisson Regression – InvestPlan						
High uncertainty	-0.072	-0.073	-0.047	-0.034	-0.108	-0.091
treatment, 𝟙[HighU]	(0.143)	(0.151)	(0.154)	(0.161)	(0.153)	(0.166)
LowU mean (€)	100,245	124,972	63,005	80,718	24,990	29,746
LowU SD (€)	312,794	416,322	214,081	284,539	80,743	105,120
Observations	1,920	1,870	1,938	1,888	1,922	1,872
Pseudo R-squared	0.000	0.000	0.000	0.000	0.001	0.001
Panel B. Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$						
High uncertainty	-0.012	-0.026	-0.017	-0.034*	-0.017	-0.023
treatment, 𝟙[HighU]	(0.017)	(0.017)	(0.019)	(0.019)	(0.021)	(0.021)
LowU mean	0.840	0.853	0.783	0.808	0.695	0.707
LowU SD	0.367	0.354	0.413	0.394	0.460	0.455
Observations	1,920	1,870	1,938	1,888	1,922	1,872
R-squared	0.000	0.001	0.000	0.002	0.000	0.001
Panel C. Log-Transformed Investment – $\log(InvestPlan)$						
High uncertainty	-0.124	-0.120	-0.101	-0.106	-0.291**	-0.216*
treatment, 𝟙[HighU]	(0.117)	(0.119)	(0.119)	(0.122)	(0.118)	(0.120)
LowU mean	9.748	9.839	9.298	9.361	8.804	8.835
LowU SD	2.292	2.298	2.236	2.294	2.090	2.117
Observations	1,601	1,571	1,500	1,493	1,320	1,303
R-squared	0.001	0.001	0.000	0.001	0.005	0.003

Notes: The table reports estimates from specifications (2), (3), and (4) for firms' investment plans in 2024 and 2025. The reported coefficients estimate the effect of assignment to the HighU treatment relative to the LowU treatment. Columns report results separately for overall, tangible, and intangible investment plans. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 8: IV Estimates of the Dynamics of Investment Plans

	Overall		Tangibles		Intangibles and R&D	
	2024	2025	2024	2025	2024	2025
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Poisson Regression – InvestPlan						
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.008**	-0.012***	-0.006	-0.014***	-0.008**	-0.008**
	(0.004)	(0.004)	(0.004)	(0.005)	(0.003)	(0.003)
1st stage F-stat	361.47	346.63	358.93	347.00	362.22	347.57
Observations	1,916	1,866	1,933	1,883	1,918	1,868
Panel B. IV Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$						
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.001	-0.001***	-0.001	-0.002***	-0.001*	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
1st stage F-stat	361.47	346.63	358.93	347.00	362.22	347.57
Observations	1,916	1,866	1,933	1,883	1,918	1,868
Panel C. IV Log-Transformed Investment – $\log(InvestPlan)$						
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.005*	-0.006**	-0.001	-0.002	-0.007***	-0.007***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
1st stage F-stat	291.46	288.01	268.13	262.44	283.52	272.75
Observations	1,598	1,568	1,496	1,489	1,319	1,302

Notes: The table reports instrumental-variable estimates of the effect of posterior tax uncertainty on firms' investment plans in 2024 and 2025. Posterior uncertainty is instrumented using assignment to the HighU treatment, prior uncertainty, and their interaction. Columns report results separately for overall, tangible, and intangible investment plans. Panel A reports IV Poisson estimates, Panel B reports IV linear probability estimates, and Panel C reports IV estimates for log-transformed investment. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 9: Plain Treatment Effect Heterogeneity

	Poisson Regression			Linear Probability Model			Log-Transformed Investment		
	Overall	Tangibles	Intangibles and R&D	Overall	Tangibles	Intangibles and R&D	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A. Firm Size									
Micro/Small firms	0.034	0.031	-0.027	-0.022	-0.031	-0.021	-0.091	-0.061	-0.287
	(0.164)	(0.169)	(0.179)	(0.016)	(0.018)	(0.022)	(0.116)	(0.120)	(0.118)
Medium/Large firms	-0.185	-0.152	-0.345	-0.016	-0.029	0.012	-0.412	-0.332	-0.396
	(0.231)	(0.246)	(0.276)	(0.041)	(0.049)	(0.057)	(0.413)	(0.425)	(0.455)
p-value: equality	0.441	0.539	0.334	0.898	0.974	0.586	0.454	0.540	0.816
Panel B. Legal Form									
Non-incorporated firms	0.066	0.097	0.028	0.007	0.009	-0.003	0.194	0.119	-0.035
	(0.272)	(0.278)	(0.297)	(0.029)	(0.030)	(0.039)	(0.205)	(0.208)	(0.212)
Corporations	-0.022	-0.075	-0.037	-0.029	-0.044	-0.018	-0.205	-0.158	-0.318
	(0.172)	(0.182)	(0.181)	(0.019)	(0.022)	(0.025)	(0.147)	(0.154)	(0.147)
p-value: equality	0.786	0.605	0.852	0.285	0.160	0.748	0.114	0.285	0.272
Panel C. Financial Constraint									
Not expecting a loss	-0.140	-0.118	-0.195	-0.032	-0.041	-0.033	-0.142	-0.147	-0.281
	(0.164)	(0.171)	(0.175)	(0.015)	(0.018)	(0.023)	(0.129)	(0.132)	(0.133)
Expecting a loss	0.241	0.273	0.057	0.034	0.024	0.028	0.050	0.295	-0.207
	(0.318)	(0.328)	(0.349)	(0.040)	(0.043)	(0.048)	(0.281)	(0.292)	(0.272)
p-value: equality	0.287	0.290	0.519	0.123	0.166	0.259	0.533	0.169	0.808

Notes: The table reports subgroup-specific treatment effects of assignment to the HighU treatment on investment plans. The final row in each panel reports the p-value for equality of treatment effects across subgroups. Robust standard errors are in parentheses.

Table 9: Plain Treatment Effect Heterogeneity (*continued*)

	Poisson Regression			Linear Probability Model			Log-Transformed Investment		
	Overall	Tangibles	Intangibles and R&D	Overall	Tangibles	Intangibles and R&D	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel D. Prior Tax Uncertainty									
Lower prior uncertainty	-0.159	-0.146	-0.188	-0.001	-0.002	-0.007	-0.217	-0.192	-0.302
	(0.174)	(0.182)	(0.188)	(0.018)	(0.021)	(0.026)	(0.146)	(0.152)	(0.148)
Higher prior uncertainty	0.214	0.238	0.027	-0.053	-0.075	-0.036	0.087	0.140	-0.178
	(0.265)	(0.265)	(0.292)	(0.027)	(0.030)	(0.035)	(0.191)	(0.194)	(0.196)
p-value: equality	0.240	0.232	0.535	0.105	0.043	0.495	0.206	0.177	0.614
Panel E. Tax Knowledge									
Lower tax knowledge	0.061	0.035	-0.042	0.002	-0.016	0.003	-0.035	-0.014	-0.216
	(0.272)	(0.276)	(0.307)	(0.026)	(0.030)	(0.037)	(0.200)	(0.208)	(0.202)
Higher tax knowledge	-0.011	0.037	-0.185	-0.030	-0.035	-0.034	-0.190	-0.094	-0.300
	(0.204)	(0.213)	(0.219)	(0.022)	(0.025)	(0.030)	(0.169)	(0.172)	(0.169)
p-value: equality	0.834	0.995	0.704	0.354	0.628	0.436	0.555	0.768	0.750
Panel F. Accounting for Profit Taxation									
Never/Rarely considers profit taxation	-0.034	0.039	-0.085	-0.031	-0.040	-0.013	0.084	0.174	-0.154
	(0.202)	(0.208)	(0.217)	(0.021)	(0.024)	(0.030)	(0.170)	(0.175)	(0.171)
Frequently/Always considers profit taxation	-0.210	-0.219	-0.203	-0.023	-0.043	-0.037	-0.386	-0.359	-0.416
	(0.242)	(0.255)	(0.269)	(0.029)	(0.031)	(0.037)	(0.206)	(0.213)	(0.209)
p-value: equality	0.577	0.434	0.732	0.814	0.931	0.611	0.078	0.053	0.331

Notes: Prior tax uncertainty is split at the median, with firms at the median excluded. Tax knowledge is split into lower and higher groups, excluding firms with a score of 5. Accounting for profit taxation is split into *Never/Rarely* and *Frequently/Always*, excluding firms that report considering profit taxation *Sometimes*.

Table 10: Treatment Effect on Planned Adjustments

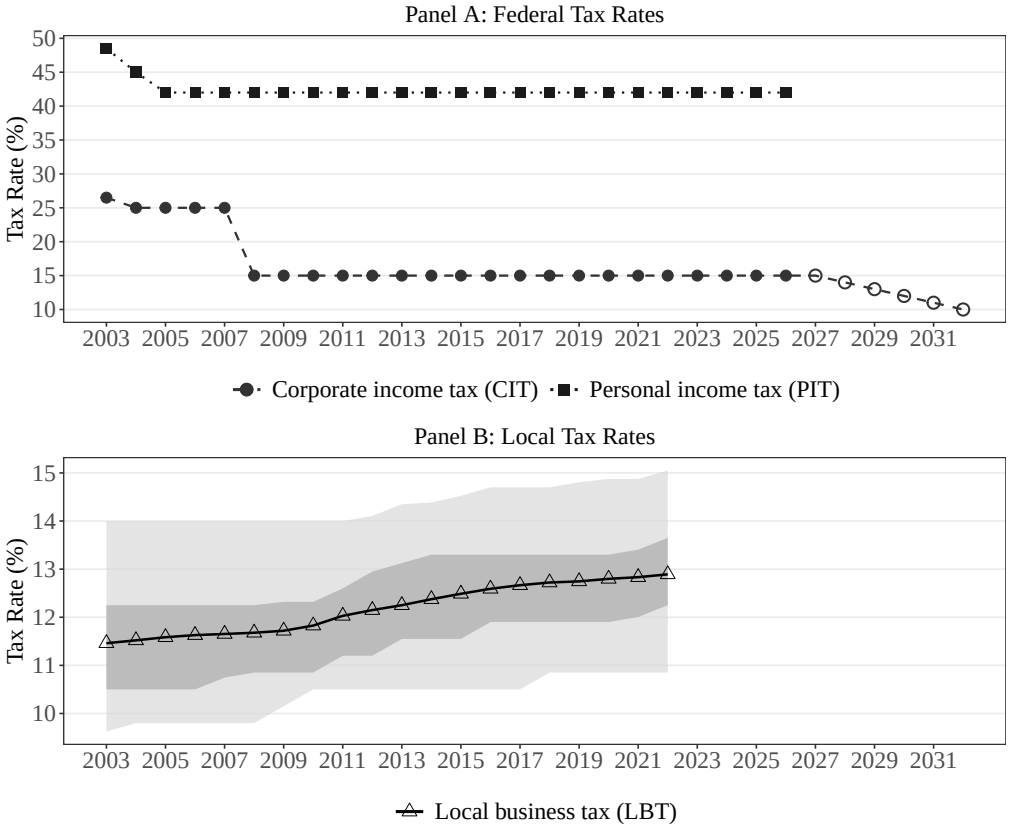
	Increase		Decrease			
	Treatment effect	LowU mean	Treatment effect	LowU mean	p-value	N
Decision	(1)	(2)	(3)	(4)	(5)	(6)
R&D	2.000	16.171	1.529	12.366	0.861	1,683
	(1.839)		(1.647)			
Fixed costs	0.438	37.277	-1.084	21.990	0.660	1,883
	(2.233)		(1.893)			
Sales prices	-1.953	56.129	0.503	5.591	0.388	1,816
	(2.336)		(1.102)			
Bonus payments	-4.933***	19.709	0.809	20.941	0.053	1,739
	(1.807)		(1.967)			
Withdrawals from entrepreneurs/shareholders	-6.867***	15.674	3.713	21.003	0.019	671
	(2.539)		(3.243)			
Distribution to shareholders	0.927	11.573	1.042	22.966	0.974	1,057
	(2.007)		(2.614)			
Equity ratio	2.890*	12.387	0.210	20.045	0.333	1,752
	(1.650)		(1.918)			

Notes: The table reports OLS estimates from separate linear probability models of the form $Y_{ik} = \alpha_k + \beta_k \mathbb{1}[\text{HighU}_i] + \varepsilon_{ik}$, where Y_{ik} is an indicator for reporting an increase or decrease in decision k. Outcomes are multiplied by 100, such that coefficients are interpreted as percentage-point treatment effects. Means for the LowU treatment group are reported. Differences in the number of observations, N, across outcomes reflect differences in the legal-form-specific filters applied to the respective survey question. Robust standard errors are reported in parentheses. Column (5) reports the p-value from a test of equality between the treatment effects on the probability of reporting an increase and the probability of reporting a decrease. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix

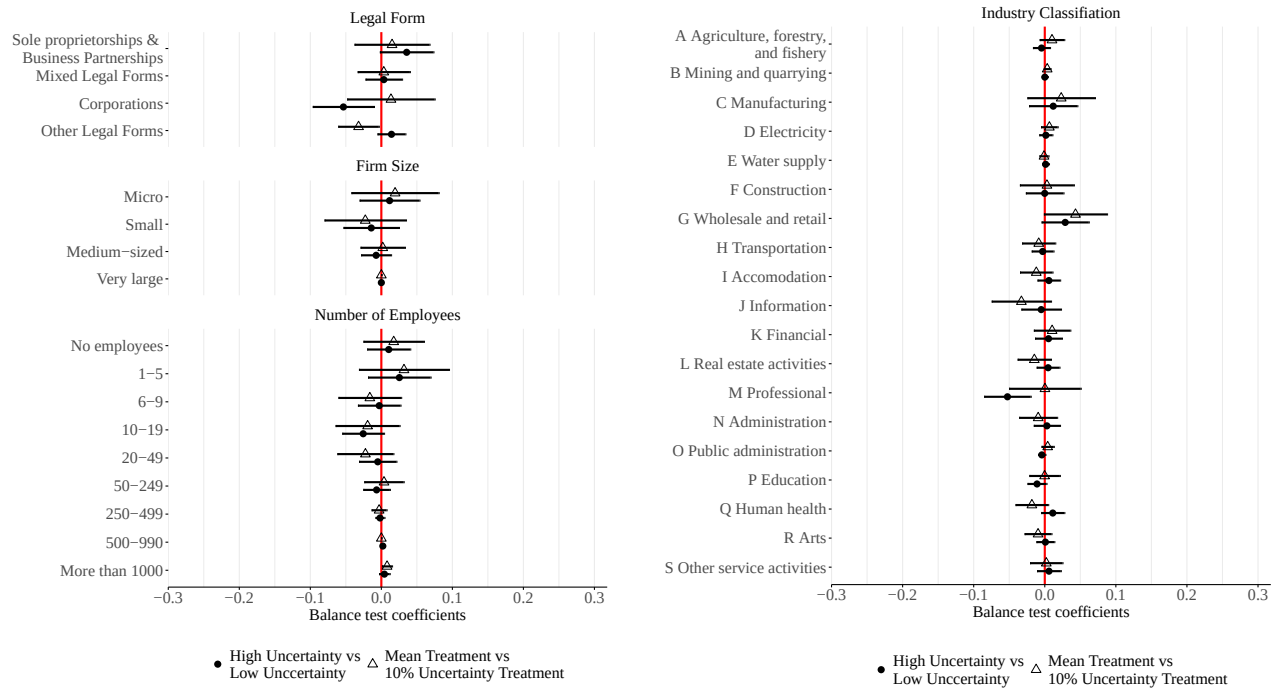
A Figures

Figure A.1: Statutory Tax Rates for Business Profits



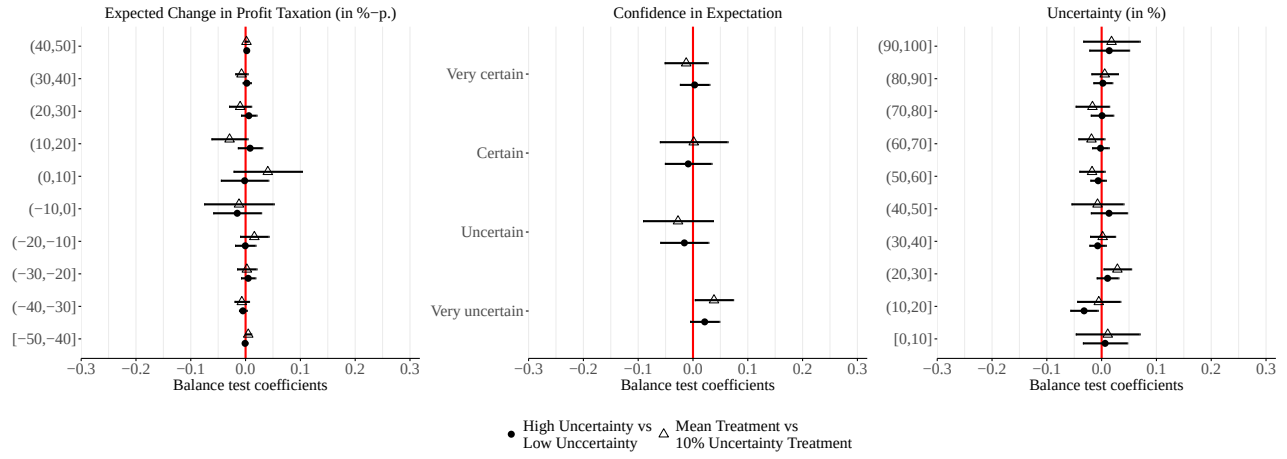
Notes: The figure plots the time series of profit taxation in Germany. Business profits are taxed at both the federal and local levels. Panel A plots the federal tax rates, i.e. corporate income tax (CIT) and the personal income tax (PIT). The CIT is planned to be gradually reduced to 10% through 2032 beginning in 2028. Panel B the average local business tax (LBT) ($5th$ and $95th$ percentiles in light grey; $25th$ and $75th$ percentiles in dark grey). The calculation method for the LBT changed following a standardization reform in 2008. For consistency, we apply the new method retroactively.

Figure A.2: Balance Test Coefficients - Firm Characteristics



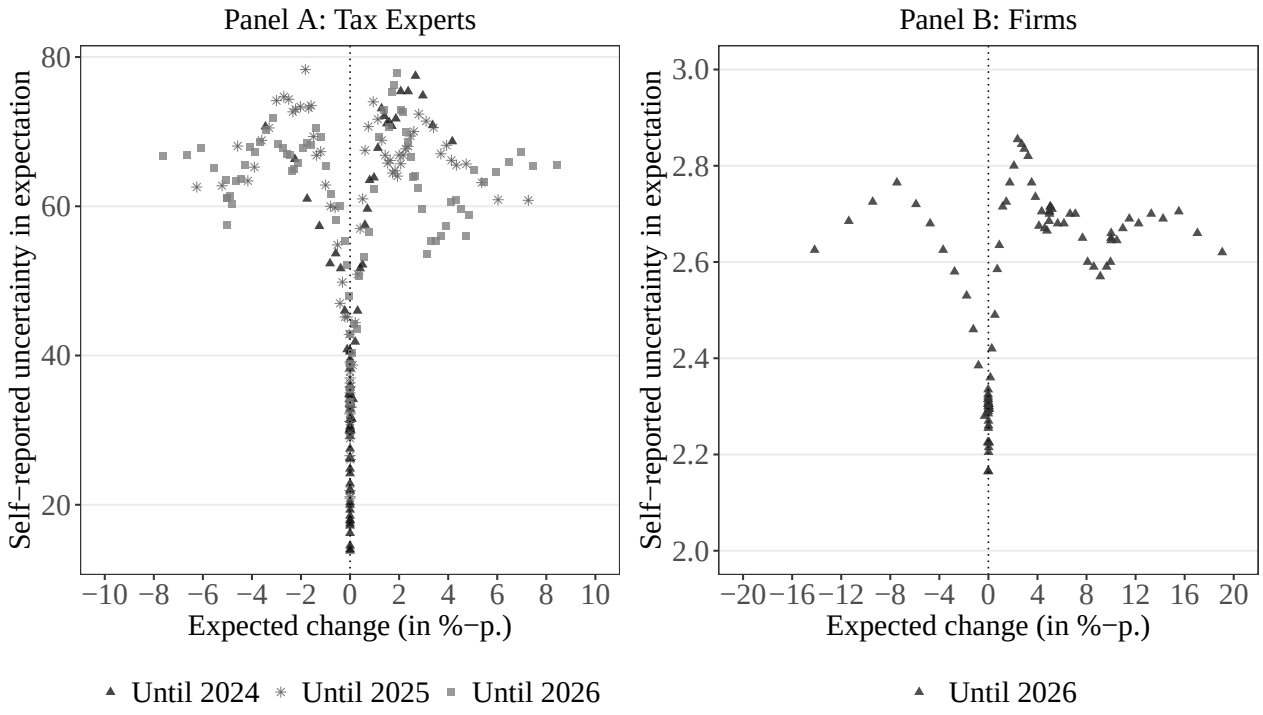
Notes: The figure presents the coefficients from balance tests estimated using the regression specification $Y_i = \beta_0 + \beta_1 Treatment_{i,High} + \epsilon_i$, where Y_i is a binary indicator variable for a given covariate, and $Treatment_{i,High}$ is a binary indicator that equals one for firms assigned to the high uncertainty treatment group. The horizontal bars depict the 95 percent confidence intervals based on heteroskedasticity-robust standard errors.

Figure A.3: Balance Test Coefficients - Prior Beliefs



Notes: The figure presents the coefficients from balance tests estimated using the regression specification $Y_i = \beta_0 + \beta_1 Treatment_{i,High} + \epsilon_i$, where Y_i is a binary indicator variable for a given covariate, and $Treatment_{i,High}$ is a binary indicator that equals one for firms assigned to the high uncertainty treatment group. The horizontal bars depict the 95 percent confidence intervals based on heteroskedasticity-robust standard errors.

Figure A.4: Profit Taxation Expectations and Uncertainty - Tax Experts



Notes: The figure illustrates the relationship between expectations about future profit tax changes and self-reported uncertainty among academic tax experts (Panel A) and firms (Panel B). In Panel A, uncertainty is measured on a scale from 0 to 100, whereas Panel B uses a four-point scale ranging from 1 (*Very certain*) to 4 (*Very uncertain*). The relationship is visualized using a rolling binned scatter constructed with a 30-observation moving window in Panel A and a 200-observation moving window in Panel B. In both panels, reported uncertainty is substantially higher when tax rate changes are expected. For visualization purposes, Panel A restricts the range of expected tax changes to [-10,10], which includes 99.3% of observations for 2024, 97.8% for 2025, and 95.6% for 2026. To improve readability, we plot only every third observation. In Panel B, we restrict the range of expected tax changes to [-20,20], which includes 95% of observations. We plot only every 20th observation.

B Tables

Table B.1: Variables Firm Survey

No	Variable	Survey Question	Answer Options/Range
Panel A. Pre-treatment Variables			
(1)	Investments Tangibles 2023; Investments Intangibles and R&D 2023	*What capital expenditure (in EUR) did your firm make in the calendar year 2023?*	Range: $[0, \infty)$
(2)	Expected Profit Tax Rate Change	*What change in percentage points do you expect for your firm's profit taxation by the end of 2026 compared to today?*	Range: $[-50, 50]$
(3)	Confidence in Prediction	*How confident are you in this prediction?*	Very certain, Certain, Uncertain, Very uncertain
(4)	Probability Constant Profit Taxation	*What is the probability (in %) that your firm's profit taxation will remain constant by the end of 2026 compared to today?*	Range: $[0, 100]$, with 0% indicating that profit taxation does not remain constant and 100% indicating that profit taxation remains constant
Panel B. Post-treatment Variables			
(5)	Probability Profit Tax Rate Changes	*With what probability do you expect the following changes in profit taxation for your firm in percentage points by the end of 2026 compared to today?*	Assign 100 to the following bins: < -6 %-p.; ≥ -6 %-p. and < -3 %-p.; ≥ -3 %-p. and < 0 %-p.; 0 %-p. (no change); > 0 %-p. and ≤ 3 %-p.; > 3 %-p. and ≤ 6 %-p.; > 6 %-p.
Panel C. Firm Plans and Tax-Related Measures			
(6)	Investments Tangibles 2024; Investments Intangibles and R&D 2024; Investments Tangibles 2025; Investments Intangibles and R&D 2025	*What capital expenditure (in EUR) are you planning for your firm in the following calendar year?*	Range: $[0, \infty)$
(7)	Profit Tax Relevance for Investment	*Does your firm take profit taxation into account when making investment decisions?*	Always, Frequently, Sometimes, Rarely, Never
(8)	Tax Knowledge	*How would you rate your own tax knowledge?*	11-point Likert scale $[0, 10]$, with 0 indicating no knowledge at all and 10 indicating tax expert
(9)	Expected Loss in Current Year	*We expect to close the current calendar year with a loss.*	0 = No; 1 = Yes
(10)	Additional Planned Adjustments	*What decisions are you planning to make in the next 12 months?*	1 = No change; 2 = Decrease; 3 = Increase

Notes: The table provides a comprehensive overview of the key variables from the firm survey. For each variable, the corresponding survey question and its range of possible responses or answer options are included. The variables are listed in the order in which they appeared in the survey.

Table B.2: Overview of data collection

Treatment Arms	Group Label	Collection Period	n	Proportion
Panel A. Tax Expert Sample				
		March - April 2024	287	
Panel B. Firm Sample				
Mean Treatment	LowU	April - November 2024	620	0.192
10% Uncertainty Treatment			376	0.316
90% Uncertainty Treatment	HighU		965	0.492

Notes: All data collection waves were administered by the German Business Panel (Bischof et al., 2025). The collection period refers to the date of the survey invitation. In the following, we use HighU to denote the group assigned to the 90% Uncertainty Treatment arm and LowU to denote the pooled group assigned to the Mean Treatment and 10% Uncertainty Treatment arms.

Table B.3: Tax Expert Sample Characteristics

Tax Expert Characteristic	n	Prop.	Tax Expert Characteristic	n	Prop.
Gender			*Work experience (in years)*		
Male	226	0.787	0–9	66	0.230
Female	61	0.213	10–19	28	0.098
			20–29	17	0.059
			30–39	11	0.038
			40 or more	6	0.021
			Missing	159	0.554
Professional position			*Academic disciplines*		
Scientific employee	108	0.376	Business administration	136	0.474
Professor	78	0.272	Economics	109	0.380
Doctoral student	75	0.261	Law	26	0.091
Others	13	0.045	Sociology	8	0.028
Tax advisor	8	0.028	Political science	5	0.017
Not specified	5	0.017	*Missing*	3	0.010

Notes: The table displays the characteristics of the academic tax expert sample. The data was collected between March 7, 2024 and April 11, 2024 by the German Business Panel (Bischof et al., 2025). Gender is inferred from the salutation used when the experts were contacted.

Table B.4: Descriptive Statistics Firm Sample - Respondent Characteristics

Firm Respondent characteristic	n	Prop.	Firm Respondent characteristic	n	Prop.
Gender			*Highest Level of Education*		
Male	1,587	0.809	No/Low Formal Education	19	0.010
Female	263	0.134	Vocational/Upper		
Not specified	111	0.057	Secondary	492	0.251
			Tertiary: Bachelor/Master	906	0.462
			Tertiary: Doctoral/Above	104	0.053
			Other	65	0.033
			Missing	375	0.191
Position in the Firm			*Division in the Firm*		
Owner/Managing Director/			Executive Management	1,561	0.796
Board Member	1,752	0.893	Not specified	117	0.060
Not specified	89	0.045	In another area	104	0.053
Department Head	55	0.028	Finance/Controlling/		
Other Title	41	0.021	Accounting	101	0.052
Clerk/Administrative Officer	24	0.012	Sales/Marketing/		
			Communication	58	0.030
			Taxes	20	0.010

Notes: The table reports respondent characteristics, showing proportions in the sample. Information must be provided for *Position in the Firm*, *Division in the Firm*, and *Gender*; respondents were given the option to select 'Not specified'.

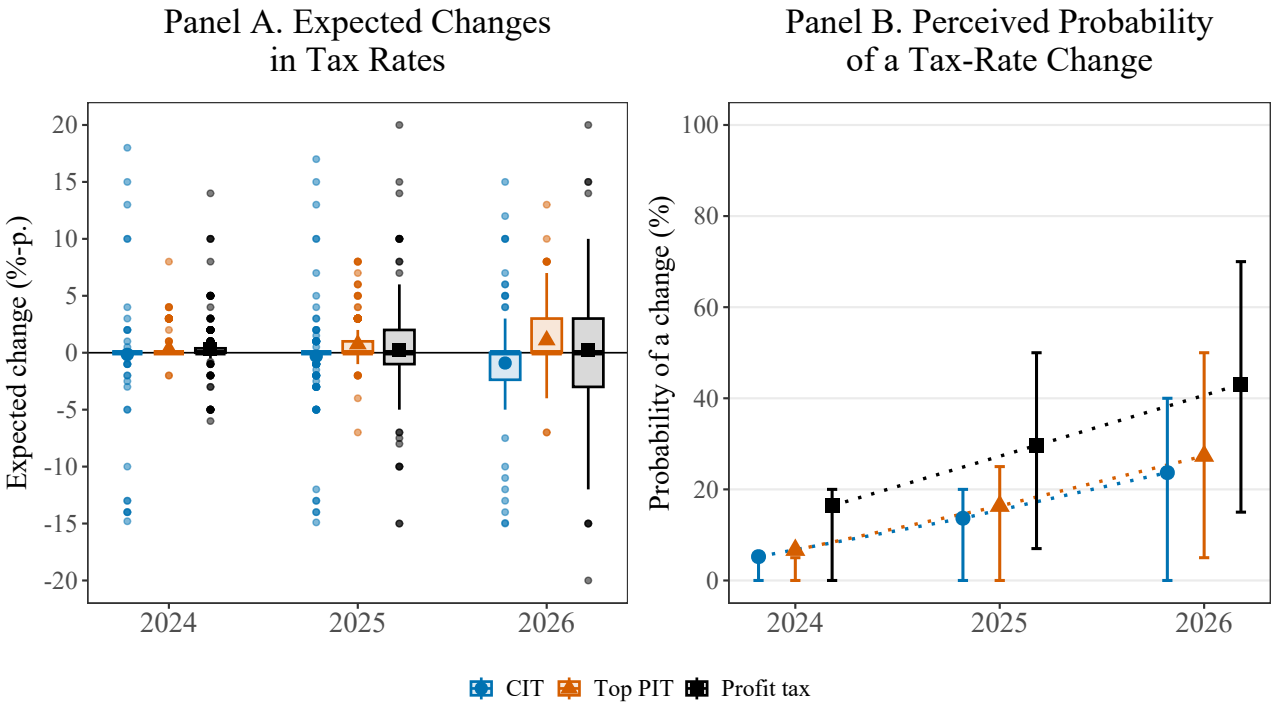
Table B.5: Descriptive Statistics Firm Sample - Firm Characteristics

		Proportion	
Firm characteristic	n	Firm Sample (2024)	Population (2023)
Legal form			
Corporations	1,209	0.617	0.240
Sole Proprietorships & Business Partnerships	460	0.235	0.590
Mixed Legal Forms	180	0.092	0.120
Other Legal Forms	100	0.051	0.049
Revenue previous calendar year			
EUR 0-2 million	1,513	0.771	0.915
EUR 2-10 million	324	0.165	0.062
EUR 10-50 million	72	0.037	0.017
More than EUR 50 million	25	0.013	0.006
Number of employees			
0-9	1,402	0.715	0.869
10-49	441	0.225	0.105
50-249	92	0.047	0.022
250 or more	26	0.013	0.005
Firm size			
Micro	1,282	0.654	
Small	500	0.255	
Medium-sized	115	0.059	
Very large	37	0.019	
Industry Classification			
A Agriculture, forestry, and fishery	33	0.017	
B Mining and quarrying	4	0.002	0.001
C Manufacturing	308	0.157	0.061
D Electricity, gas, steam and air conditioning supply	19	0.010	0.024
E Water supply	5	0.003	0.003
F Construction	172	0.088	0.112
G Wholesale and retail trade	290	0.148	0.162
H Transportation and storage	54	0.028	0.031
I Accomodation and food service activities	58	0.030	0.068
J Information and communication	193	0.098	0.041
K Financial and insurance activities	83	0.042	0.021
L Real estate activities	59	0.030	0.061
M Professional, scientific, and technical activities	285	0.145	0.150
N Administrative and support service activities	79	0.040	0.069
O Public administration and defence	6	0.003	
P Education	41	0.021	0.023
Q Human health and social work activities	61	0.031	0.076
R Arts, entertainment, and recreation	36	0.018	0.031
S Other service activities	64	0.033	0.066

Notes: The table reports firm characteristics and shows their proportions in the sample and in the total population, as reported by the Federal Statistical Office. The industry classification indicates the predominant industry in which the firm is active, according to the classification scheme of the German Statistical Office. A total of 12 firms (0.6 percent of the sample) did not provide any information regarding their legal form, 111 firms (5.7 percent of the sample) did not provide any information about their industry classification, and 27 firms (1.4 percent of the sample) did not provide any information about their annual revenue. For the latter 27 firms, firm size could not be determined. The definition of firm size follows EU Definition 2003/361 on SMEs.

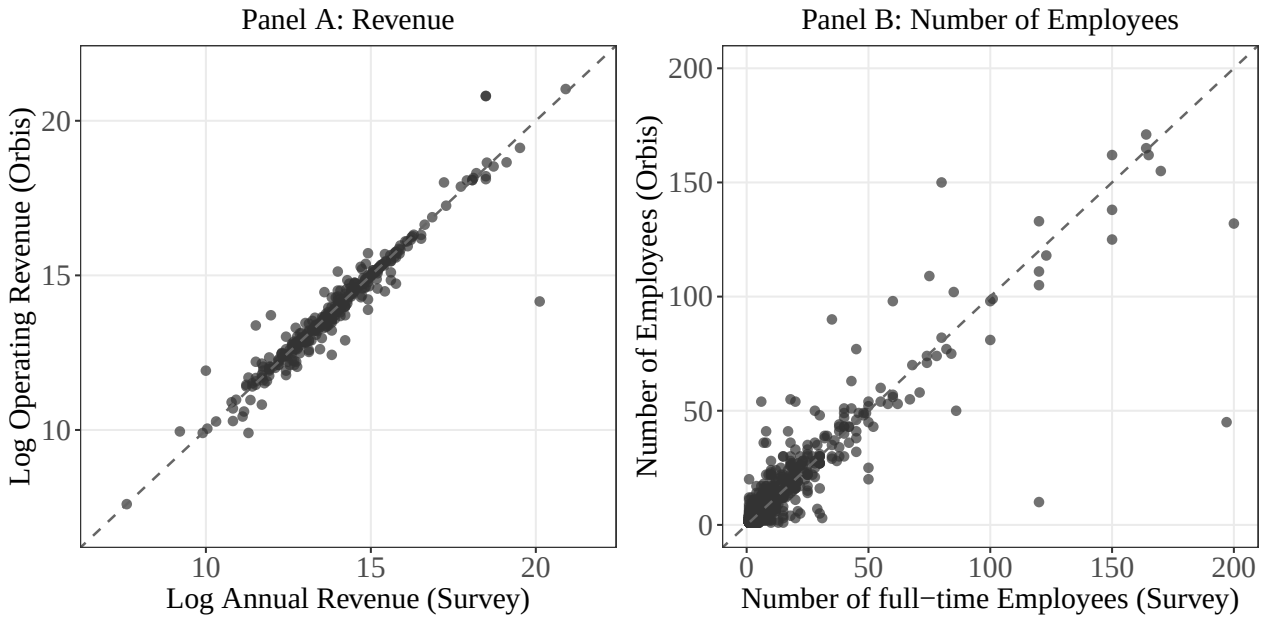
C Further Results

Figure C.5: Tax Experts' Forecast of CIT, PIT, and Profit Taxation



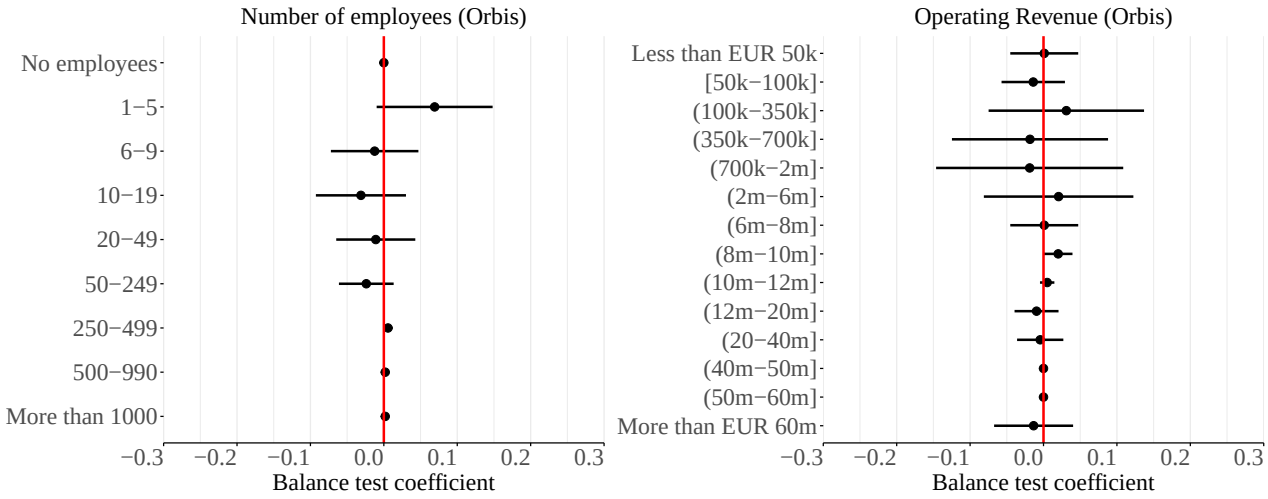
Notes: Panel A shows expected changes in tax rates, and Panel B shows the perceived probability of a tax-rate change, for 2024–2026. Markers indicate mean forecasts for the CIT, top PIT rate, and overall profit tax. In Panel A, boxes indicate the interquartile range; in Panel B, whiskers indicate the interquartile range. We exclude responses from Panels A and B indicating that the expected CIT rate (28 responses) or PIT rate (six responses) until the end of 2024 would be zero, which we interpret as reflecting a misunderstanding of the question wording.

Figure C.6: Relationship Between Survey Responses and Orbis



Notes: The figure presents scatter plots comparing survey responses with Orbis data. In Panel A, we exclude seven records with implausible values and manually correct 46 records that appear to omit zeros in reported revenues. In Panel B, we exclude 57 observations, mostly cases in which Orbis indicates that the firm has only one employee (the owner) and neglects other employees. The correlation coefficients are 0.96 in Panel A and 0.92 in Panel B. Panel B displays 99% of the sample, omitting the 1% of observations with extreme values to improve readability.

Figure C.7: Balance Test Coefficients (Orbis)



Notes: The figure presents the coefficients from balance tests using Orbis data estimated using the regression specification $Y_i = \beta_0 + \beta_1 Treatment_{i,High} + \epsilon_i$, where Y_i is a binary indicator variable for a given covariate, and $Treatment_{i,High}$ is a binary indicator that equals one for firms assigned to the HighU treatment group. The horizontal bars depict the 95 percent confidence intervals based on heteroskedasticity-robust standard errors.

Table C.6: Investment Plans: Inverse Hyperbolic Sine Specifications

				Overall		Tangibles		Intangibles and R&D	
	Overall	Tangibles	Intangibles R&D	2024	2025	2024	2025	2024	2025
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A. Plain Treatment Effects – asinh($InvestPlan$)									
High uncertainty treatment,	-0.315	-0.371*	-0.364	-0.233	-0.250	-0.364*	-0.372*	-0.423**	-0.363*
$\mathbb{1}[HighU]$	(0.197)	(0.207)	(0.224)	(0.201)	(0.210)	(0.214)	(0.203)	(0.211)	(0.217)
Observations	1,859	1,876	1,863	1,920	1,938	1,922	1,870	1,888	1,872
Panel B. Treatment and Prior Uncertainty									
High uncertainty treatment,	-0.310	-0.368*	-0.356	-0.241	-0.258	-0.365*	-0.352*	-0.405*	-0.345
$\mathbb{1}[HighU]$	(0.197)	(0.207)	(0.224)	(0.201)	(0.210)	(0.214)	(0.202)	(0.210)	(0.216)
Prior uncertainty, demeaned	-0.007*	-0.004	-0.007	-0.006	-0.001	-0.006	-0.010***	-0.007*	-0.007*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
$\mathbb{1}[HighU]$ × Prior uncertainty	-0.002	-0.003	-0.001	-0.001	-0.006	-0.002	-0.004	-0.007	-0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Observations	1,855	1,871	1,859	1,916	1,933	1,918	1,866	1,883	1,868
R^2	0.007	0.004	0.005	0.003	0.003	0.005	0.013	0.010	0.007
Panel C. IV Estimates									
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.013***	-0.010**	-0.012**	-0.010**	-0.007	-0.012***	-0.020***	-0.017***	-0.015***
	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
First-stage F-statistic	342.62	341.71	344.29	361.47	358.93	362.22	346.63	347.00	347.57
Observations	1,855	1,871	1,859	1,916	1,933	1,918	1,866	1,883	1,868

Notes: The table reports estimates using the inverse hyperbolic sine transformation of planned investment, IHS($InvestPlan$) = asinh($InvestPlan$). Panel A reports reduced-form estimates of assignment to the HighU treatment, analogous to Table 3. Panel B additionally includes demeaned prior uncertainty and its interaction with treatment assignment, analogous to Table 4. Panel C reports 2SLS estimates in which posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$, is instrumented using treatment assignment, prior uncertainty, and their interaction, analogous to Table 6. Robust standard errors are reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table C.7: Treatment Effects on Investment Plans: Outcome-Specific Samples

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – InvestPlan			
High uncertainty treatment, 𝟙[HighU]	-0.052	-0.040	-0.121
	(0.145)	(0.151)	(0.158)
LowU mean (€)	233,199	150,269	56,156
LowU SD (€)	724,079	483,561	186,595
Observations	1,859	1,859	1,859
Pseudo R-squared	0.000	0.000	0.001
Panel B. Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
High uncertainty treatment, 𝟙[HighU]	-0.020	-0.030*	-0.017
	(0.015)	(0.017)	(0.021)
LowU mean	0.888	0.851	0.734
LowU SD	0.315	0.356	0.442
Observations	1,859	1,859	1,859
R-squared	0.001	0.002	0.000
Panel C. Log-Transformed Investment — $\log(InvestPlan)$			
High uncertainty treatment, 𝟙[HighU]	-0.139	-0.122	-0.255**
	(0.122)	(0.127)	(0.123)
LowU mean	10.836	10.177	9.461
LowU SD	2.114	2.219	2.149
Observations	1,271	1,271	1,271
R-squared	0.001	0.001	0.003

Notes: The table reports estimates of specification (2), (3), and (4). In contrast to Table 3, each specification uses the maximum number of observations available for the respective outcome. Consequently, the estimation sample may differ across columns. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table C.8: Prior Uncertainty and Treatment Effects on Investment Plans: Outcome-Specific Samples

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – InvestPlan			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.016	-0.010	-0.105
	(0.147)	(0.151)	(0.160)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.008***	-0.007**	-0.007**
	(0.003)	(0.003)	(0.003)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	0.004	0.003	0.002
	(0.004)	(0.004)	(0.004)
Observations	1,855	1,871	1,859
Pseudo R-squared	0.016	0.013	0.012
Panel B. Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.020	-0.029*	-0.017
	(0.015)	(0.017)	(0.021)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	-0.001	-0.001	-0.000
	(0.000)	(0.000)	(0.001)
Observations	1,855	1,871	1,859
R-squared	0.004	0.005	0.002
Panel C. Log-Transformed Investment – $\log(InvestPlan)$			
High uncertainty treatment, $\mathbb{1}$[HighU]	-0.103	-0.070	-0.254**
	(0.116)	(0.119)	(0.118)
Prior uncertainty, $U^{\Delta\tau,\text{prior}}$	-0.006***	-0.004*	-0.005**
	(0.002)	(0.002)	(0.002)
$\mathbb{1}$[HighU] $\times$ $U^{\Delta\tau,\text{prior}}$	0.005	0.004	0.001
	(0.003)	(0.003)	(0.003)
Observations	1,629	1,567	1,350
R-squared	0.006	0.002	0.009

Notes: The table reports conditional effects of assignment to the HighU treatment on firms' investment plans. All specifications include demeaned prior uncertainty and its interaction with assignment to the HighU treatment. Prior uncertainty $U^{\Delta\tau,\text{prior}}$ is demeaned; the coefficient on $\mathbb{1}$[HighU] therefore represents the treatment effect for a firm with average prior uncertainty. Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table C.9: IV Estimates of the Effect of Posterior Uncertainty on Investment Plans: Outcome-Specific Samples

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson Regression – $InvestPlan$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.010***	-0.011***	-0.008**
	(0.004)	(0.004)	(0.003)
Observations	1,855	1,871	1,859
1st stage F-stat	342.62	341.71	344.29
Panel B. IV Linear Probability Model – $\mathbb{1}[InvestPlan > 0]$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.001**	-0.001*	-0.001
	(0.000)	(0.000)	(0.000)
Observations	1855	1871	1859
1st stage F-stat	342.62	341.71	344.29
Panel C. IV Log-Transformed Investment – $\log(InvestPlan)$			
Posterior uncertainty, $U_i^{\Delta\tau,\text{post}}$	-0.007***	-0.003	-0.007***
	(0.003)	(0.003)	(0.003)
Observations	1629	1567	1350
1st stage F-stat	295.38	277.41	277.30

Notes: This table reports IV estimates of the effect of posterior profit-tax uncertainty on planned investment. Posterior uncertainty is instrumented using assignment to HighU, prior uncertainty, and their interaction, with the first stage given by specification (6). Panel A reports estimates from specification (7), Panel B from specification (8), and Panel C from specification (9). Standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table C.10: Falsification Adaptive Sets for Investment IV Estimates

		Exogeneity Violations (FAS_{exo})		Exclusion Violations (FAS_{excl})		Generalized FAS (FAS_G)	
	Baseline IV	All	$F \geq 10$	All	$F \geq 10$	All	$F \geq 10$
Investment Plan	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. IHS-Transformed Investment – asinh($InvestPlan$)							
Overall	−0.013	[−0.096, −0.013]	[−0.022, −0.013]	[−0.036, 0.028]	[−0.011, −0.011]	[−0.432, 0.028]	[−0.022, −0.004]
Tangibles	−0.010	[−0.108, −0.009]	[−0.108, −0.009]	[−0.021, −0.009]	[−0.006, −0.006]	[−0.486, 0.051]	[−0.021, 0.001]
Intangibles and R&D	−0.012	[−0.114, −0.012]	[−0.022, −0.012]	[−0.049, 0.019]	[−0.010, −0.010]	[−0.480, 0.019]	[−0.022, −0.001]
Panel B. Investment Share – $\mathbb{1}[InvestPlan > 0]$							
Overall	−0.001	[−0.006, −0.001]	[−0.002, −0.001]	[−0.000, 0.008]	[−0.000, −0.000]	[−0.042, 0.008]	[−0.002, −0.000]
Tangibles	−0.001	[−0.009, −0.001]	[−0.002, −0.001]	[−0.000, 0.010]	[−0.000, −0.000]	[−0.051, 0.010]	[−0.002, −0.000]
Intangibles and R&D	−0.001	[−0.006, −0.001]	[−0.001, −0.001]	[−0.001, 0.004]	[−0.001, −0.001]	[−0.030, 0.004]	[−0.001, −0.000]
Panel C. Log-Transformed Investment – log($InvestPlan$)							
Overall	−0.007	[−0.037, −0.006]	[−0.006, −0.006]	[−0.045, −0.009]	[−0.009, −0.009]	[−0.045, 0.048]	[−0.009, 0.002]
Tangibles	−0.003	[−0.026, −0.001]	[−0.026, −0.001]	[−0.003, −0.001]	[−0.005, −0.005]	[−0.046, 0.084]	[−0.005, 0.005]
Intangibles and R&D	−0.007	[−0.064, −0.007]	[−0.012, −0.007]	[−0.039, −0.008]	[−0.008, −0.008]	[−0.167, 0.004]	[−0.012, 0.004]

Notes: The table reports falsification adaptive sets (FAS) for the effect of posterior tax uncertainty on firms' investment outcomes. FAS_{exo} allows instrument invalidity to arise through violations of the exogeneity assumption, whereas FAS_{excl} allows invalidity to arise through violations of the exclusion restriction. The generalized FAS (FAS_G) allows instruments to violate either identifying assumption. Columns (3), (5), and (7) restrict attention to transformed instruments with a first-stage F-statistic of at least 10.

Table C.11: Plain Treatment Effects Across Uncertainty-Information Arms

	Overall	Tangibles	Intangibles and R&D
	(1)	(2)	(3)
Panel A. Poisson – InvestPlan			
90% Uncertainty Treatment relative to	0.114	0.095	0.022
10% Uncertainty Treatment	(0.183)	(0.193)	(0.195)
90% Uncertainty Treatment relative to	-0.140	-0.106	-0.206
Mean Treatment	(0.167)	(0.173)	(0.182)
Panel B. Extensive Margin – $\mathbb{1}[InvestPlan > 0]$			
90% Uncertainty Treatment relative to	-0.027	-0.040*	-0.046*
10% Uncertainty Treatment	(0.020)	(0.022)	(0.027)
90% Uncertainty Treatment relative to	-0.015	-0.023	0.000
Mean Treatment	(0.017)	(0.019)	(0.024)
Panel C. Log-Transformed Investment – $\log(InvestPlan)$			
90% Uncertainty Treatment relative to	-0.176	-0.120	-0.332**
10% Uncertainty Treatment	(0.150)	(0.153)	(0.149)
90% Uncertainty Treatment relative to	-0.062	-0.037	-0.215
Mean Treatment	(0.134)	(0.137)	(0.139)

Notes: This table reports plain treatment effects for pairwise comparisons across the uncertainty-information treatment arms. The first specification compares the 90% Uncertainty Treatment with the 10% Uncertainty Treatment, while the second compares the 90% Uncertainty Treatment with the Mean Treatment. Panel A reports Poisson estimates for planned investment, Panel B reports linear probability estimates for the extensive margin, and Panel C reports OLS estimates using log-transformed investment. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table C.12: Survey Timing and Stability of Reported Outcomes and Beliefs

	Investment Plans (EUR thousands)					Beliefs			
		By Asset Type		By Time Horizon		Expectation		Uncertainty	
	Overall	Tangibles	Intangibles and R&D	2024	2025	Prior	Posterior	Prior	Posterior
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SurveyDate	0.359	0.290	0.045	0.031	0.267	-0.006	-0.002*	-0.009	-0.010
	(0.327)	(0.222)	(0.096)	(0.139)	(0.198)	(0.004)	(0.001)	(0.018)	(0.019)
High uncertainty	-10.614	-5.011	-6.202	-7.133	-7.490	0.577	0.179	1.287	4.227**
treatment, $\mathbb{1}[HighU]$	(32.797)	(21.749)	(8.373)	(13.704)	(18.124)	(0.430)	(0.137)	(1.697)	(1.767)
SurveyDate $\times$ $\mathbb{1}[HighU]$	-0.382	-0.488	0.022	-0.109	-0.198	0.003	0.002	0.034	0.029
	(0.451)	(0.306)	(0.122)	(0.194)	(0.255)	(0.006)	(0.002)	(0.026)	(0.027)
Intercept	231.972***	148.290***	56.082***	100.141***	123.988***	2.796***	1.372***	45.868***	57.271***
	(23.292)	(15.386)	(6.022)	(9.957)	(13.281)	(0.298)	(0.093)	(1.182)	(1.239)
Observations	1,859	1,876	1,863	1,920	1,870	1,961	1,961	1,955	1,961
R^2	0.001	0.001	0.001	0.000	0.001	0.002	0.002	0.001	0.004

Notes: This table examines whether reported investment plans and beliefs vary systematically over the survey field period. *SurveyDate* is centered at its sample mean, so the coefficient on $\mathbb{1}[HighU]$ captures the difference between the HighU and LowU treatment groups at the average survey date. The coefficient on *SurveyDate* captures the time trend in the LowU group, while the interaction term captures the difference in the survey-date slope between the HighU and LowU groups. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table C.13: Treatment Effects by Prior Expected Tax Change

		By Asset Type		By Time Horizon	
	Overall	Tangibles	Intangibles and R&D	2024	2025
High-Uncertainty Treatment Effect	(1)	(2)	(3)	(4)	(5)
Expected tax decrease, $\Delta\tau^{prior} < 0$	-70.157	-5.060	-40.530**	-17.422	-50.167
(N=233)	(65.534)	(43.855)	(20.109)	(33.953)	(33.285)
No expected tax change, $\Delta\tau^{prior} = 0$	-16.940	-2.488	-10.680	-4.552	-19.119
(N=696)	(70.316)	(45.845)	(17.832)	(29.650)	(39.151)
Expected tax increase, $\Delta\tau^{prior} > 0$	4.513	-10.257	5.195	-7.896	4.079
(N=930)	(35.357)	(25.887)	(8.355)	(15.267)	(19.843)
p-value: Equal treatment coefficients	0.604	0.987	0.099	0.957	0.367
Observations	1,859	1,859	1,859	1,859	1,859

Notes: The table reports the coefficient on assignment to the HighU treatment separately for firms that, prior to treatment, expected the profit tax rate to decrease, remain unchanged, or increase. The estimates are obtained from OLS regressions that fully interact assignment to the HighU treatment with indicators for the three prior-expectation groups. The reported coefficients are the implied subgroup-specific treatment effects, obtained as linear combinations of the treatment and interaction coefficients, rather than the coefficients on the interaction terms themselves. The reported p-value tests the joint null hypothesis that the treatment effect is equal across all three prior-expectation groups. Robust standard errors are reported in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

D Bayesian Learning Framework and Econometric Mapping

This appendix provides the formal derivation underlying the belief-updating specifications in Section 5.2.1.

Firm i enters the experiment with prior beliefs about perceived uncertainty regarding future profit taxation, $U_i^{\Delta\tau,\text{prior}}$, and about the expected change in its profit tax rate, $\Delta\tau_i^{e,\text{prior}}$. After receiving the information treatment, the firm combines its prior beliefs with the information provided by the experiment to form posterior beliefs.

For perceived uncertainty, firms receive the treatment-group-specific uncertainty component, UC_{TG}, such that

$$U_{i,TG}^{\Delta\tau,\text{post}} = \omega_{i,U,TG} UC_{TG} + (1 - \omega_{i,U,TG})\, U_i^{\Delta\tau,\text{prior}}, \qquad 0 \leq \omega_{i,U,TG} \leq 1, \tag{11}$$

where $TG \in \{\text{LowU}, \text{HighU}\}$ denotes the treatment group. For expected tax-rate changes, both treatment groups instead receive the common tax-rate component, TRC, so that

$$\Delta\tau_{i,TG}^{e,\text{post}} = \omega_{i,\Delta\tau,TG} TRC + (1 - \omega_{i,\Delta\tau,TG})\, \Delta\tau_i^{e,\text{prior}}, \qquad 0 \leq \omega_{i,\Delta\tau,TG} \leq 1. \tag{12}$$

The parameters $\omega_{i,U,TG}$ and $\omega_{i,\Delta\tau,TG}$ denote updating weights. A larger value of ω implies that the posterior belief places greater weight on the information provided by the experiment and correspondingly less weight on the firm's prior belief. Conversely, a value close to zero implies that posterior beliefs remain close to prior beliefs.

We next show how the Bayesian learning representation maps into the fully interacted regression specification used in the empirical analysis. For ease of exposition, we consider perceived tax uncertainty. The corresponding derivation for expected tax-rate changes is analogous.

For firms assigned to LowU, the intercept and slope implied by equation (11) are

$$\text{Intercept}_{\text{LowU}}^{U} = \omega_{U,\text{LowU}} UC_{\text{LowU}}, \qquad \text{Slope}_{\text{LowU}}^{U} = 1 - \omega_{U,\text{LowU}}. \tag{13}$$

For firms assigned to HighU, the corresponding intercept and slope are

$$\text{Intercept}_{\text{HighU}}^{U} = \omega_{U,\text{HighU}} UC_{\text{HighU}}, \qquad \text{Slope}_{\text{HighU}}^{U} = 1 - \omega_{U,\text{HighU}}. \tag{14}$$

We estimate the corresponding fully interacted regression

$$U_i^{\Delta\tau,\text{post}} = \alpha_U + \beta_U U_i^{\Delta\tau,\text{prior}} + \delta_U \mathbb{1}[\text{HighU}_i] + \gamma_U \left(U_i^{\Delta\tau,\text{prior}} \times \mathbb{1}[\text{HighU}_i] \right) + \epsilon_i^U. \tag{15}$$

Because LowU is the omitted treatment group, the regression-implied intercept and slope for LowU are

$$\text{Intercept}^U_{\text{LowU}} = \alpha_U, \qquad \text{Slope}^U_{\text{LowU}} = \beta_U. \tag{16}$$

For HighU, the corresponding regression-implied intercept and slope are

$$\text{Intercept}^U_{\text{HighU}} = \alpha_U + \delta_U, \qquad \text{Slope}^U_{\text{HighU}} = \beta_U + \gamma_U. \tag{17}$$

Matching the regression-implied parameters to the Bayesian learning model yields

$$\begin{aligned} \alpha_U &= \omega_{U,\text{LowU}} UC_{\text{LowU}}, & \beta_U &= 1 - \omega_{U,\text{LowU}}, \\ \delta_U &= \omega_{U,\text{HighU}} UC_{\text{HighU}} - \omega_{U,\text{LowU}} UC_{\text{LowU}}, & \gamma_U &= \omega_{U,\text{LowU}} - \omega_{U,\text{HighU}}. \end{aligned} \tag{18}$$

The coefficient γ_U therefore has a direct interpretation in terms of Bayesian updating weights. If $\gamma_U < 0$, then $\omega_{U,\text{HighU}} > \omega_{U,\text{LowU}}$, implying that firms assigned to HighU place relatively greater weight on the treatment-specific uncertainty information and correspondingly less weight on their prior uncertainty.

The corresponding equations and coefficient interpretations for expected tax-rate changes follow analogously by replacing $U_i^{\Delta\tau,t}$ with $\Delta\tau_i^{e,t}$ and the treatment-group-specific uncertainty component UC_{TG} with the common tax-rate component TRC.

E Screenshots Survey Questions

E.1 Tax Expert Survey Questions

Figure E.8: Probability of Change in Profit Taxation

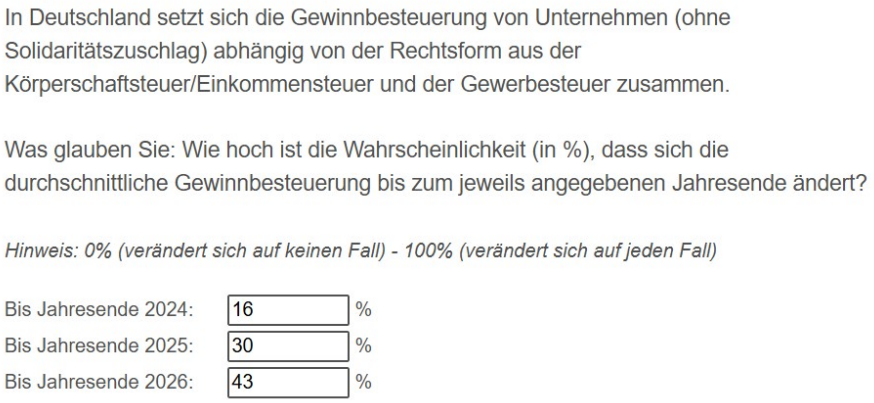


Figure E.9: Expected Profit Tax Changes

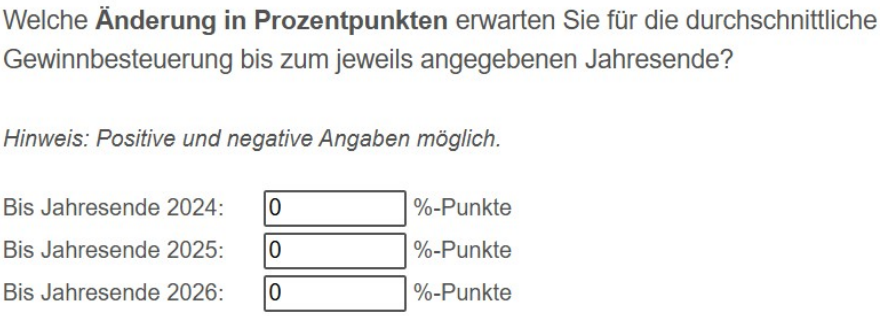


Figure E.10: Confidence in Expected Profit Tax Changes

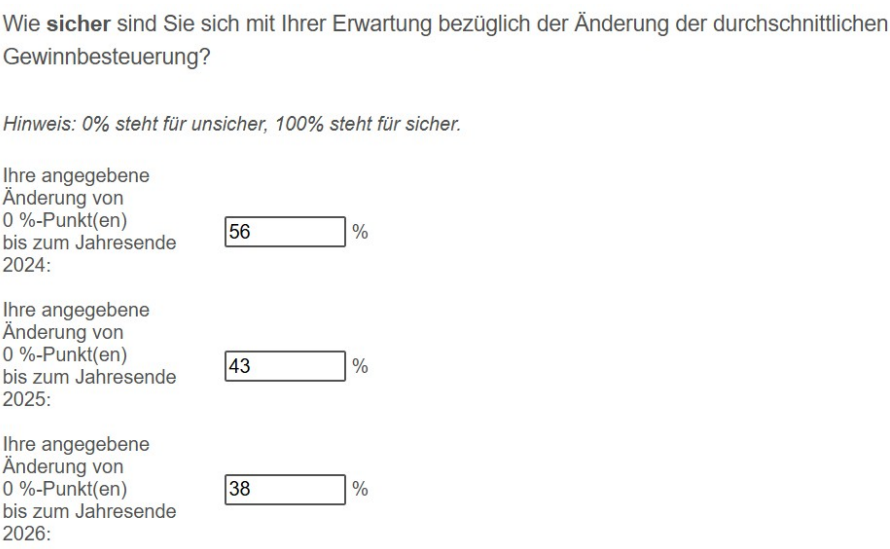


Figure E.11: Probability of Change in Corporate Income Taxation

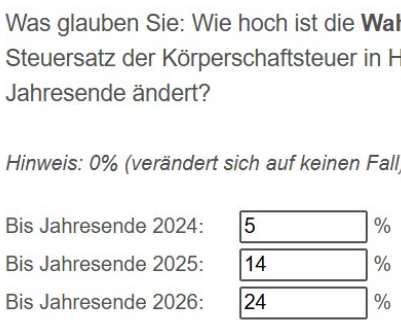


Figure E.12: Expected Corporate Income Taxation Changes

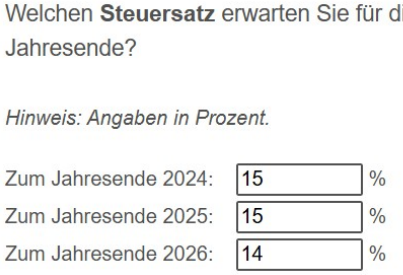


Figure E.13: Confidence in Expected Corporate Income Taxation Changes

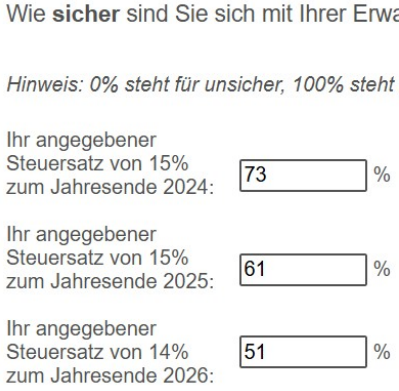


Figure E.14: Probability of Change in Personal Income Taxation

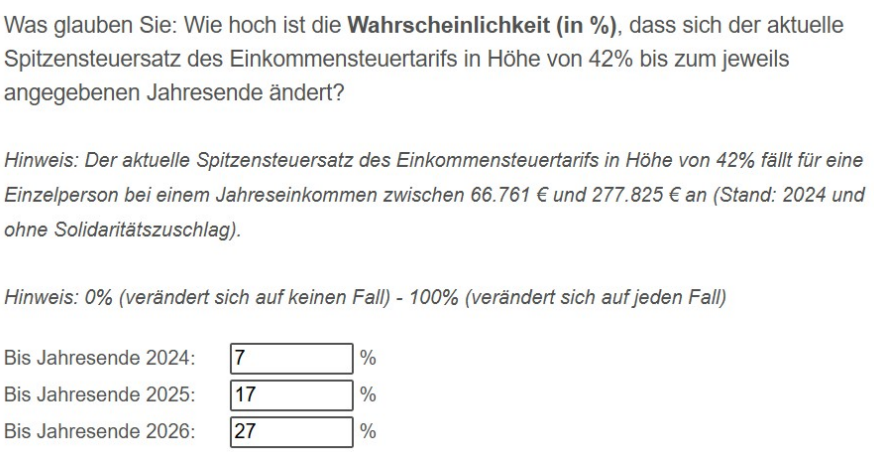


Figure E.15: Expected Personal Income Taxation Changes

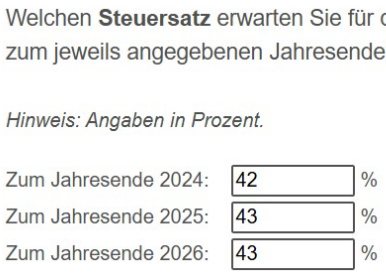
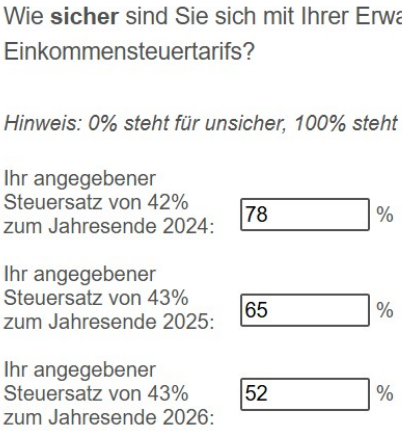


Figure E.16: Confidence in Expected Personal Income Taxation Changes



E.2 Firm Survey Questions

Figure E.17: Past Investment Amounts

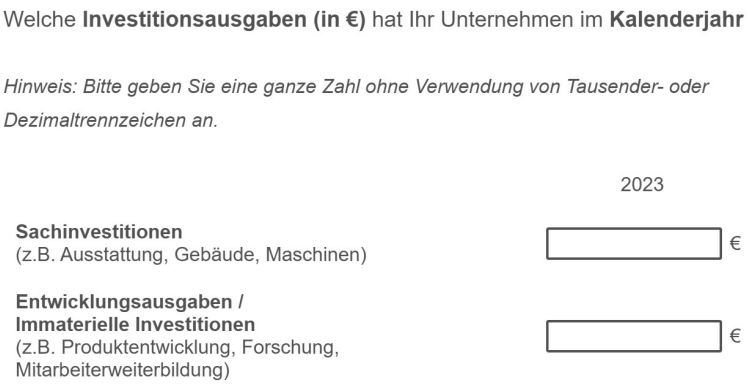


Figure E.18: Pre-treatment Expected Tax Rate Change and Confidence in Prediction

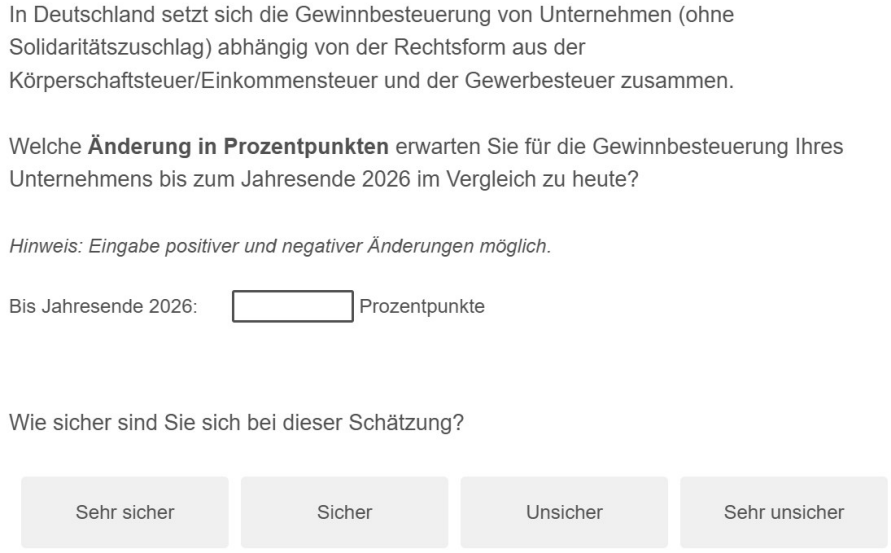


Figure E.19: Information Treatment - Tax Rate Component

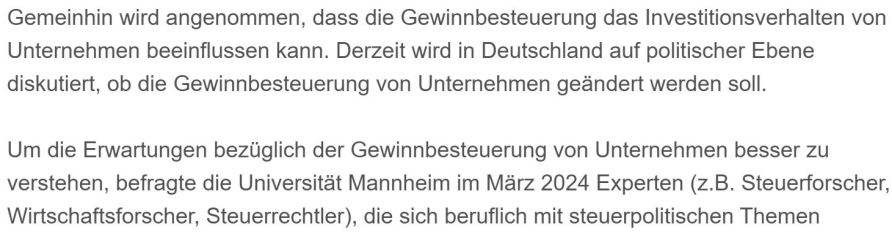


Figure E.20: Pre-treatment Probability Constant Profit Taxation

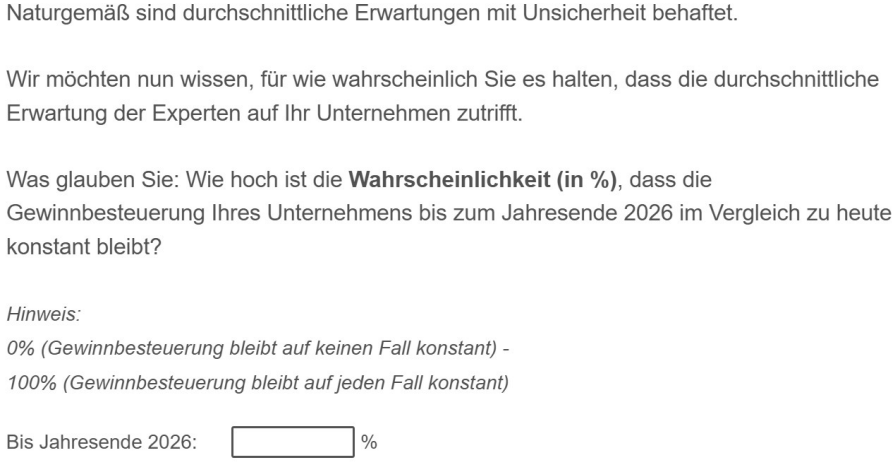


Figure E.21: Information Treatment - Uncertainty Component

Wie gerade erwähnt, erwarten die Experten im Durchschnitt, dass die **Gewinnbesteuerung** der Unternehmen bis zum Jahresende 2026 **konstant bleibt** (Änderung von 0 Prozentpunkten).

Figure E.22: Probability Profit Tax Rate Changes

Wir möchten Sie nun nach Ihrer Erwartung bezüglich verschiedener Szenarien der Entwicklung der Gewinnbesteuerung Ihres Unternehmens befragen.

Mit welcher **Wahrscheinlichkeit** erwarten Sie die folgenden Änderungen der Gewinnbesteuerung für Ihr Unternehmen in Prozentpunkten (%-Pkt.) bis zum Jahresende 2026 im Vergleich zu heute?

Hinweis: Bitte geben Sie die prozentuale Wahrscheinlichkeit an, die Sie den verschiedenen Szenarien zuordnen. ***Die Wahrscheinlichkeiten müssen in der Summe 100 Prozent ergeben.*** *Bitte tragen Sie zudem in* ***jedes Textfeld eine Zahl von 0 bis 100*** *ein.*

< -6%-Pkt.	
≥ -6%-Pkt. und <-3%-Pkt.	
≥ -3%-Pkt. und < 0%-Pkt.	
0%-Pkt. (unveränderte Gewinnbesteuerung)	
> 0%-Pkt. und ≤ +3%-Pkt.	
> +3%-Pkt. und ≤ +6%-Pkt.	
> +6%-Pkt.	
Summe	0

Figure E.23: Planned Investment Amounts

Angesichts Ihrer Erwartung und der eventuellen Unsicherheit bezüglich der Entwicklung der Gewinnbesteuerung Ihres Unternehmens:

Welche **Investitionsausgaben (in €)** planen Sie für Ihr Unternehmen in den **folgenden Kalenderjahren**?

Hinweis: Bitte geben Sie eine ganze Zahl ohne Verwendung von Tausender- oder Dezimaltrennzeichen an.

	2024	2025
Sachinvestitionen (z.B. Ausstattung, Gebäude, Maschinen)	€	€
Entwicklungsausgaben / Immaterielle Investitionen (z.B. Produktentwicklung, Forschung, Mitarbeiterweiterbildung)	€	€

Figure E.24: Profit Tax Relevance for Investment



Figure E.25: Tax Knowledge



Figure E.26: Expected Financial Performance and Expected Loss in Current Year

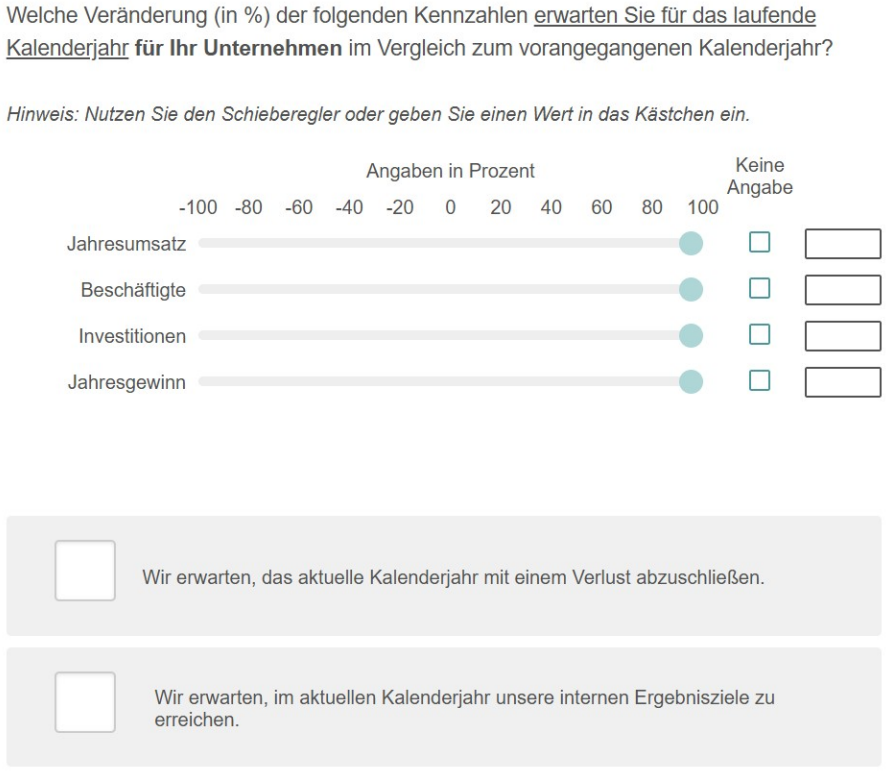


Figure E.27: Planned Decisions

Um Wirtschaftspolitik besser zu gestalten, ist es auch wichtig zu wissen, wie die Planungen von Unternehmen in Deutschland aussehen.

Welche Entscheidungen planen Sie in den nächsten 12 Monaten?

Hinweis: Mehrfachnennungen sind möglich.

	Reduzierung	Keine Änderung	Erhöhung	Keine Angabe
Absatzpreise	☐	☐	☐	☐
Fremdkapital (z.B. Kredit) im Vergleich zum Eigenkapital	☐	☐	☐	☐
Forschung und Entwicklung	☐	☐	☐	☐
Fixkosten (z.B. festes Personal, Miete)	☐	☐	☐	☐
Bonuszahlungen	☐	☐	☐	☐
Andere	☐	☐	☐	☐