Zarah Westrich

Peer Pressure or Personal Choice? How Peer Working Hours Shape Individual Working Hours Preferences

uni-due.de/sozioekonomie/wp

ifso working paper 2025 no.49

Peer Pressure or Personal Choice? How Peer Working Hours Shape Individual Working Hours Preferences

Zarah Westrich*

March 2025

Abstract

Standard economic models view labour supply decisions as individual utility maximisation balancing the trade-off between income and leisure. In contrast, we focus on the social context as a central determinant and analyse how colleagues' working hours shape individual working hours preferences. Our analysis is based on a representative survey of employees in Germany that we conducted in October 2024 (N = 4,450). Combining novel survey experiment with a quantitative text analysis of an open-ended survey question enables us to identify a causal mechanism and to provide contextual insights into the role of social context for the formation of working hours preferences. We show that colleagues' working hours causally affect working hours preferences. The reasons given by the respondents for choosing the stated working hours, by contrast, are primarily personal. This shows that preferences are socially determined, even if they are rationalised in individualistic terms. Our findings emphasise the importance of collective action for working time policy and highlight methodological challenges that need to be considered when analysing and interpreting working time preferences.

Keywords: working hours, social comparisons, preference formation
JEL Codes: B55, D9, J22

*University of Duisburg-Essen, Institute for Socio-Economics, zarah.westrich@uni-due.de

1 Introduction

Decision-making processes have long been a subject of debate within the social sciences, oscillating between two contrasting views, one emphasising individual agency and exogenous preferences, and the other stressing the influence of social context and the endogenous evolution of preferences (see e.g., Becker, 1976; Bowles, 1998; Sen, 1977; Simon, 1955). Working hours decisions are no exception to this. Standard economic models view labour supply decisions as individual utility maximisation balancing the trade-off between income and leisure. This paper goes beyond the individual utility function and analyses the role of social context for working hours decisions. Specifically, this paper explores how colleagues' working hours shape individual working hours preferences.

While previous literature on working hours preferences has focused primarily on individual determinants (Antal et al., 2024), we put the social context at the centre of our analysis. Our main argument is that people strive to improve or maintain their relative position, which makes them compare their working hours and adapt their working hours preferences accordingly. Prior survey experiments indicate that peer working hours influence individual working hours preferences (Eastman, 1998; Landers et al., 1996; Pingle and Mitchell, 2002). These experiments often rely on small sample sizes, which limits the robustness and generalisability of their findings. In designing our survey experiment, we address further shortcomings of the literature by employing a between-subject design to minimise potential rationalisation biases and by incorporating a question that enables us to measure the magnitude of the observed effects. Furthermore, our survey experiment is the first to address this research question in the German context and to combine it with an open-ended question on the underlying motives.

We conducted a survey experiment in October 2024, employing a between-subjects design with a representative sample of full- and part-time employees in Germany (N = 4,450). Participants are randomly assigned to one of three treatment groups, with each group receiving a different hypothetical scenario. Depending on the treatment group, participants are informed that most of their colleagues' work more, fewer or the same number of hours as they do. They are then asked how many hours a week they would like to work. After respondents indicated their preferred working hours, they were asked to state some key points about the reasons they chose the indicated hours. We analyse the responses by using word frequency analysis and Latent Dirichlet Allocation (LDA) topic modeling.

Combining a survey experiment with the quantitative text analysis of an open-ended survey questions offers a powerful methodological approach to studying working hours preferences. The survey experiment provides causal insights into the influence of colleagues' working hours on preferences, while the analysis of open-ended responses uncovers the motivations behind response behaviour in the experiment. The combination of the two methods enables a more nuanced approach to analysing preference formation and the tension between personal and contextual influencing factors.

We identify a causal link between colleagues' working hours and working hours decisions with the effect being the strongest for the *fewer hours* treatment. The larger effect observed for the *fewer hours* treatment aligns with the fact that, on average, employees in Germany wish to work fewer hours than they currently do. This suggests that employees' baseline preference is a reduction in working hours. Consequently, lower working hours among colleagues may reinforce this existing preference, while higher working hours may exert upward pressure on preferences. Furthermore, the asymmetric effects between treatment groups, along with heterogeneous treatment effects across subgroups, indicate that the observed effects cannot be solely attributed to anchoring. Our results illustrates the significance of social context for preference formation and emphasises the importance of collective action for working time policy, in particular working hours reductions.

Furthermore, our results point to methodological challenges that need to be considered when analysing and interpreting working time preferences. This is based on the contrast we found between behaviour in the experiment and the stated motives. The quantitative text analysis identifies "workload", "current strain", "income", "length of the working week" and "leisure time" as key topics. Although the effect found in the experiment is peer-driven, the quantitative text analysis reveals that the reasons named for the decisions are predominantly personal. This highlights that preferences are socially determined, even if they are rationalised in individualistic terms.

The paper is organised as follows. Section 2 reviews the relevant literature. Section 3 describes the data base and outlines the methodology. Section 4 presents our findings, Section 5 discusses the results and their implications and Section 6 concludes.

2 Literature

2.1 Theoretical Framework

We build on the principle that preferences are endogenous and are therefore shaped by the social and economic context (Bowles, 1998; Philp et al., 2005; Sen, 1977). Research on working hours preferences focuses predominantly on individual determinants of working hours preferences and less on social context (Antal et al., 2024). Common determinants in the literature include gender, parenthood, educational level and income. Contextual factors include current working hours, country-specific income level and inequality (Antal et al., 2024). Adding on these results, which are primarily based on quantitative analyses, a small body of qualitative studies explore factors underlying working hours preferences. For instance, Gerold and Nocker (2020) identify leisure and family time as well as financial security as prevalent topics in their study of Austria. Moreover, qualitative studies show that interviewees emphasise personal choice in determining their working hours (Campbell and van Wanrooy, 2013; Lewis, 2003). Thereby, Campbell and Van Wanrooy (2013) note that respondents have difficulty naming the social context and pressures that influence their decisions. Although the importance of context for preference formation is widely emphasised in the literature, studying the effect of context on preference formation and decision-making remains challenging.

How peers can play an important role in working time decisions becomes particularly clear when working time decisions are viewed as a collective action problem. For individuals it might be rational to target longer working hours than their peers (Jauch, 2020). With working longer hours, however, they create the risk for others of falling behind which increases the pressure to also increase working hours (Schor, 1998). As a result, everyone ends up working longer hours without experiencing any improvement in their relative position. Frank (1997) describes such collective action problems with the concept of a positional treadmill. The strive to improve or at least maintain relative position leads to a cycle of escalating efforts without getting ahead, just like running on a treadmill. In terms of working hours this means a cycle of increasing working hours.

The collective action problem of working hours is rooted in the norms and beliefs of a society. These norms include the ideal worker image, which reflects the requirement of long working hours, high commitment, and high availability for work (Drago et al., 2009; Gascoigne et al., 2015). While adhering to the norm results in rewards, such as promotions, deviating from it incurs penalties, such as restricted salary increases (Drago et al., 2009). Thus, working longer hours may serve as a strategy to advance an individual's career oppor-

tunities. In this context, working hours can serve as a signal for individual abilities or effort (Akerlof, 1976; Anger, 2008; Frederiksen et al., 2018). Haight (1997) refers to long working hours as conspicuous exhaustion, which is considered to be necessary for demonstrating work effort when the relevant output is not observable. Multiple studies reinforce this idea by analysing the association between long working hours and career progression (Frederiksen et al., 2018; Gicheva, 2013; Pfeifer, 2010). Hereby, not only the amount of absolute working hours matters but also the relative amount. Thus, individuals may extend their working hours to advance their careers. This can lead to "competitive presenteeism", where individuals stay longer than their colleagues to improve their career prospects (Simpson, 1998). Akerlof (1976) prominently describes this with an analogy of a rat race.

Working hours can not only be a signal, but also a status symbol themselves. Collewet et al. (2017) demonstrate that peer working time affects individual working hours. They conclude that working time is a source of status. Similarly, Bellezza et al. (2016) find that being busy is perceived as a sign of high human capital and high status. They refer to the demonstration of busyness as conspicuous consumption of time. Thus, working hours can serve as a status symbol, with busyness acting as a "badge of honour" (Gershuny, 2005).

Working long hours, more precisely working longer hours than others, is an important component of maintaining and improving an individual's relative social position. We therefore argue that employees react to their colleagues' working hours and adjust their working time preferences accordingly.

2.2 Survey Experiments

Survey experiments are an effective method for exploring how context shapes decision-making and have been used in previous literature to analyse working time decisions. Thus far, three studies stand out as the sole foundational survey experiments, consistently demonstrating that peers influence working time preferences.

An initial survey on the importance of relative standing for working hours decisions was conducted by Landers et al. (1996). The survey involved 133 associates and 121 partners from two law firms. The associates were asked to choose between three fixed options affecting working hours and pay. After indicating their initial preferences, participants were split into two groups. One group was informed that most of their colleagues had increased their hours, while the other group was informed that they had decreased them. The results show that the choices respondents made were influenced by the changes in working hours of their colleagues.

Based on the study of Landers et al. (1996), Eastman (1998) analyses the role of colleagues' working hours for individual working hours decisions. In a survey of 104 graduate business students, survey participants were informed that their compensation is proportional to the hours they work in the long run and were then asked how many hours they would work when their colleagues would work 20, 30, 40, 50, 60, or the same number of hours they choose. Eastman finds that the majority of respondents adjust their desired working hours depending on how many hours their colleagues would work.

In a similar manner, Pingle and Mitchell (2002) conducted a survey among 319 university students. They let respondents choose from varying hypothetical work-income combinations and provided information on the most frequently chosen combination. In the first task, participants were given scenarios where the most frequently chosen working hours varied, while hourly wages remained the same. This led to higher income for those opting for longer hours. In the second task, participants were given scenarios where the most frequently chosen working hours stayed constant, but hourly wages were altered, resulting in differing income levels for the same hours worked. As a result, they find that participants choices depend on the choices of others indicating relative concerns for income. Additionally, they identify age, competitiveness, ethnicity, satisfaction with social acceptance, satisfaction with religious fulfilment, and frequency of gambling as factors influencing relative concerns for income.

These three studies represent critical contributions to the field, providing evidence that peers influence working time preferences. However, these studies face three main limitations. Firstly, all studies base their surveys on a small sample size and a very specific population with two of them surveying students and one of them lawyers. Thus, they are not representative of a wider spectrum of employees. Secondly, all three surveys were conducted in the US. The results cannot be easily transferred to other institutional contexts, as the labour market institutions and work norms differ considerably. The third notable limitation lies in the methodology employed, particularly the practice of presenting all participants with all items, as in Eastman (1998) and Pingle and Mitchel (2002). This approach may lead to rationalising behaviour among participants, which is also pointed out by Eastman (1998) himself.

We address these limitations with the following methodological adjustments. We use a representative sample of German employees and employ a between-subject design. Additionally, we aim to design the treatment in such a way that it is realistic for the respondents and incorporate a question that enables us to measure the magnitude of the observed effects.

3 Methods

3.1 Sample

To test whether employees react to the working hours of their colleagues by adjusting their working time preferences, we conducted an information provision experiment. The survey experiment is part of a larger online survey (CAWI) which was fielded between 01 October and 24 October 2024 (Behringer et al., 2024).[1] The sample consists of full-time and part-time employees between the ages of 18 and 65 in Germany. Respondent recruitment was carried out by survey research company Bilendi, which also programmed the survey based on our design. Respondents who failed either of the two attention checks or who classified as speeders were excluded during the data cleaning process. The clean sample consists of 5022 respondents. The survey is representative in terms of age, gender, federal state, full or part-time employment and net household income.

Only those respondents who had previously indicated in the survey how much time they actually work were able to take part in the experiment, as this information is needed to construct the treatment. In the analysis, observations where either the actual or preferred number of hours was missing were dropped. To exclude extreme outliers in actual and preferred working hours, we identify the 99th percentile and remove observations exceeding this threshold. The final sample for the analysis of the experiment consists of 4450 respondents.

3.2 Experimental Design

We conducted a survey experiment employing a between-subjects design. Participants were randomly assigned to one of three treatment groups. Each group received a hypothetical scenario in which they could freely choose their working hours. The participants were informed of the number of hours that the majority of colleagues have decided to work. The exact number of hours given to the participants depended on the actual working hours worked by each participant, which they previously indicated in the survey. Depending on the treatment group, participants were informed that most of their colleagues work (1) 20% more, (2) 20% fewer or (3) the same number of hours as they do. For instance, in case a participants indi-

[1]The experiment was pre-registered in the AEA RCT Registry (Westrich, 2024), where the experimental design was documented in advance, with some results diverging from the pre-specified hypotheses. Ethical approval was obtained from the Ethics Committee of the Faculty of Social Sciences at the University of Duisburg-Essen.

cated 40 actual working hours, they were informed that the majority of their colleagues chose to work (1) 48, (2) 32 or (3) 40 hours a week. They were then asked how many hours per week they would choose to work if they took into account that their earnings would change in line with their working hours. An English translation of the treatment text is provided below (for screenshots see Figure A1):

> Imagine that there is a reorganisation in your company and all employees can decide their own weekly working hours. The majority of your colleagues decide to work X hours a week, including overtime.
>
> How many hours per week would you work including overtime if you consider that your earnings would change according to your working hours?

After respondents indicated their preferred working hours, they were asked to state some key reasons for choosing the number of indicated hours. The English translation reads as follows (for a screenshot see Figure A2):

> For what reasons did you decide to work X hours per week?

Our experimental design allows us to identify a causal effect of colleagues' working hours on individual working hours decisions and to shed light on the motivations behind preference formation through the open question. As part of the wider survey, questions were asked about employment, attitudes, and socio-demographic characteristics. These additional questions allow us to examine heterogenous effects.

In the larger survey, the survey experiment was embedded within questions on working conditions. The transition between these questions and the survey experiment and back was seamless, ensuring a natural flow throughout the survey. After an initial set of screening and quota-setting questions, participants responded to a series of questions regarding working hours and conditions. The preceding questions also included three small survey experiments. Following the survey experiment on colleagues' working hours, respondents continued with questions on working conditions before moving on to questions about their attitudes and socio-demographic characteristics. This placement ensured that participants were not primed by attitudinal questions, and the randomisation in the survey experiment minimised potential priming effects from earlier experiments.

3.3 Attrition and Balance Analysis

We analyse attrition rates for two questions across the treatment groups to assess potential differential dropout that could bias the results. The first question of interest is the actual

working time of participants. Answering this question determined whether respondents take part in the experiment. Attrition rates range from 4.5% to 5.5% across the treatment groups, with no statistically significant differences observed (Table A1). The second question of interest is the one that asks about the outcome variable, preferred working hours. Attrition rates range from 5.4% to 6.7% across the treatment groups, with no statistically significant differences observed (Table A2). These findings suggest that attrition is unlikely to introduce systematic bias in the comparison of treatment effects.

To ensure the random assignment of participants successfully created comparable groups, we conduct balance tests on baseline characteristics across the treatment groups. Specifically, we compare variables such as age, gender, income, and education level using F-tests and χ^2 tests. All baseline characteristics are well-balanced, with no statistically significant differences observed between groups, indicating negligible imbalance (Table A3). These results confirm that randomisation was effective in achieving comparable groups prior to the intervention.

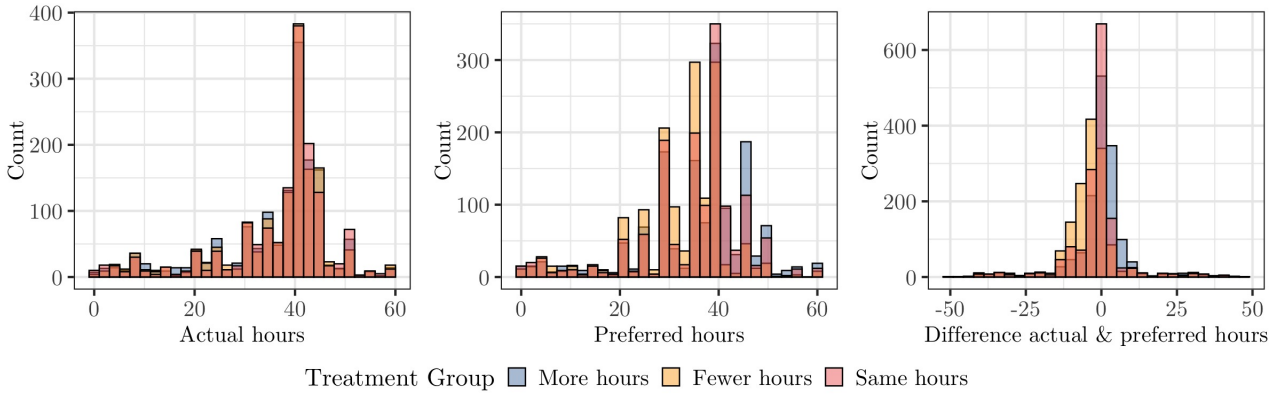
4 Empirical Analysis

4.1 Effects of Experimental Treatment

This section presents the results of the survey experiment, focusing on the effects of the treatments on respondents' preferred working hours. The analysis examines differences between the treatment groups, highlighting the causal impact of the intervention.

Figure 1 shows the distribution of actual and preferred working hours across treatment groups. Actual working hours refer to the hours respondents work in real life asked for before the treatment, while preferred working hours reflect the number of hours they indicated in the experiment after the treatment. The distribution of actual working hours is strongly left skewed and single-peaked at 40 hours. The distribution across treatment groups shows substantial overlap. As for actual working hours, the distribution of preferred working hours peaks around 40 working hours, but is broader distributed. The *fewer hours* treatment group is overrepresented on the left and the *more hours* treatment group is overrepresented on the right of the distribution. This trend becomes even more clear when looking at the difference between actual and preferred working hours. Taking the difference takes into account that preferred working hours depend on actual working hours. In case actual working hours are not completely identical distributed by randomisation, this effect is deducted. The distribution of the difference peaks around 0 hours and is slightly left skewed indicating that most

respondents want to work less than their actual working hours. A clear difference between the treatment groups is evident with the*fewer hours* treatment group being overrepresented on the left, the *same hours* treatment group being overrepresented in the middle and the *more hours* treatment group being overrepresented on the right. These descriptive results already indicate that the treatment had an influence on preferred working hours.

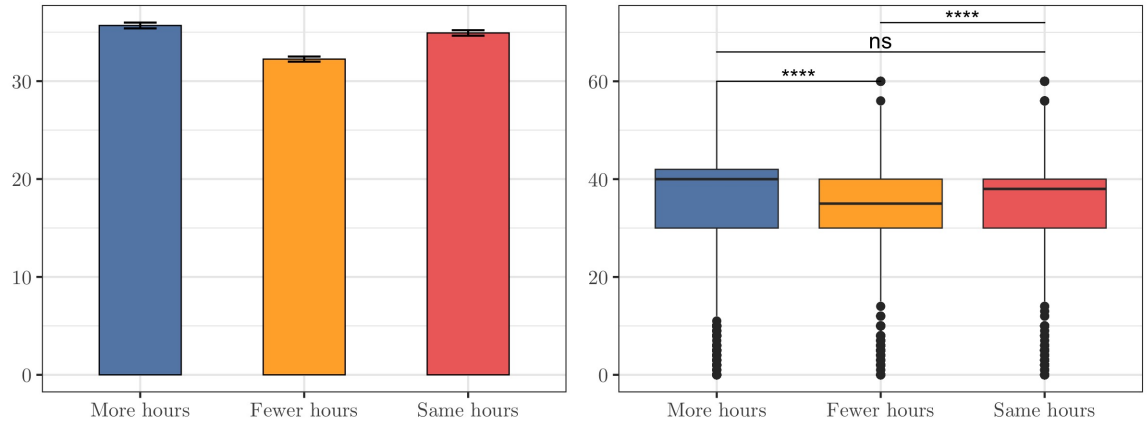


Note: The histograms illustrate the distribution of working hours in the sample, showing the count of data points. Colours indicate treatment groups; transparency is used to show overlapping distributions. Data: Behringer et al. (2024), own calculations.

Figure 1: Distribution of Working Hours by Treatment Group

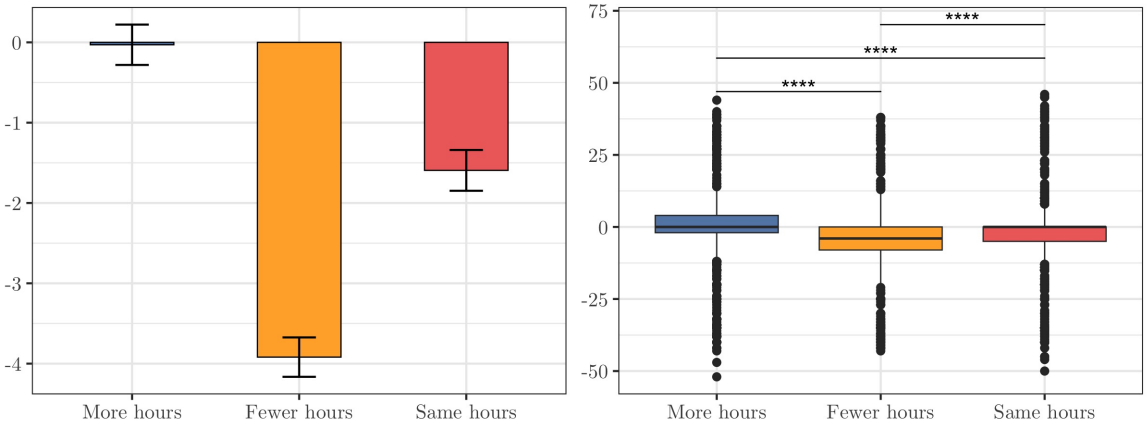
To test whether there were significant differences in the means of the three treatment groups, we conduct an ANOVA, which yields a significant result. In the next step, we use Tukey's HSD (Honest Significant Difference) post-hoc test to compare all possible pairs of group means. Figure 2 depicts the means and distribution of preferred working hours showing which mean values are significantly different. With 35.7 hours the *more hours* treatment has the highest mean value for preferred working hours, the *same hours* treatment group with 34.9 the second highest and the *fewer hours* treatment group with 32.3 hours the lowest. The differences in the means between the *more* and *fewer hours* treatment groups as well as between the *same* and *fewer hours* treatment groups are significant, while the difference between the *more* and *same* treatment group is not.

Figure 3 provides the same visualisation for the difference between actual and preferred working hours. The difference between actual and preferred hours is negative across all treatment groups. The difference is the highest for the *fewer hours* treatment group with -3.9 hours, the second highest for the *same hours* treatment group with -1.6 hours and the lowest for the *more hours* treatment group with -0.03 hours being close to 0. Each pairwise group comparison shows a significant difference in their means.



Note: The bar plot presents the mean preferred working hours across treatment groups. The boxplot displays the distribution of preferred working hours across the treatment groups. Significant pairwise differences in means between groups were determined using Tukey's HSD post-hoc test following a significant ANOVA. Data: Behringer et al. (2024), own calculations.
*p.adj<0.05; **p.adj<0.01; ***p.adj<0.001,****p.adj<0.0001

Figure 2: Preferred Hours by Treatment Group



Note: The bar plot presents the mean difference between actual and preferred working hours across treatment groups. The boxplot displays the distribution of this hours difference across the treatment groups. Significant pairwise differences in means between groups were determined using Tukey's HSD post-hoc test following a significant ANOVA. Data: Behringer et al. (2024), own calculations.
*p.adj<0.05; **p.adj<0.01; ***p.adj<0.001,****p.adj<0.0001

Figure 3: Difference Between Actual and Preferred Hours by Treatment Group

To assess the robustness of the results and relax the assumption of normality, we perform a Kruskal-Wallis test, a non-parametric method that compares the rank sums across groups, followed by Dunn's test for pairwise comparisons of mean ranks (Tables A3 and A4). All mean differences remain significant. Additionally, the difference in preferred working hours

between the *more hours* and the *same hours* treatment groups becomes significant in this test, albeit at a low level.

We examine whether the results also hold within subgroups, such as gender, age and educational level (Table A4). For most subgroups, the differences between the treatment groups remain significant. Hence, the effect is not driven by one particular group. Groups for which the differences between treatment groups are not significant include individuals who work less than 20 hours a week and individuals who earn less than €2000 a month. These groups are likely to correlate with each other. In the group of individuals working less than 20 hours, the preferred working hours for all treatment groups are far higher than the actual working hours, which indicates that other reasons, such as subsistence, play a greater role in the preferred hours than the working hours of colleagues. Exceptions are also found for occupational positions. Differences between treatment groups are significant for civil servants and white-collar workers but not for apprentices and blue-collar workers. This may be due to differences in pay or the different nature of the work and working time arrangements.

To refine our analysis, we estimate the treatment effect on preferred working hours:

$$Preferred\ Hours_{\mathrm{i}} = \beta_0 + \beta_1 Treatment_{\mathrm{i}} + X_{\mathrm{i}}\delta + \epsilon_{\mathrm{i}}$$

Preferred Hours denotes the number of weekly working hours chosen after the treatment. *Treatment* is a categorial variable taking the values 1-3 with 1 indicating the the *more hours* treatment, 2 indicating the *fewer hours* treatment, and 3 indicating the *same hours* treatment. The latter constitutes the reference level. X is a vector of control variables:

1. Gender
2. Age
3. Educational level
4. Employment status
5. Sector
6. Labour income
7. Household income
8. Collective agreement
9. Actual weekly working hours
10. Children in household under the age of 14
11. Belief in hard work

For a more detailed description of the control variables see Table A5 in the Appendix.

The regression results in Table 1 confirm that the treatment has a significant effect on the desired working hours. Compared to the *same hours* treatment, receiving the *fewer hours* treatment leads to a decrease in preferred working hours by 2.7 hours and receiving the *more hours* treatment to an increase by 1.1 hours. This highlights that the effect of the treatment is stronger for the *fewer hours* treatment.

Table 1: Regression Results

	Dependent variable:
	Preferred Hours
Fewer	-2.71^{***}
	(0.31)
More	1.12^{***}
	(0.31)
Constant	6.68
	(4.33)
Socio-demographic controls	Yes
Observations	4,068
R^2	0.44
Adjusted R^2	0.43

Note: The dependent variable is the number of weekly working hours chosen after the treatment. The independent variables consist of the treatment groups, with the *same hours* treatment serving as the reference category. Data: Behringer et al. (2024).
*p<0.1; **p<0.05; ***p<0.01

This analysis is based on the idea that how an individual's working hours compare to those of others plays a key role in maintaining and improving their relative social position, as well as advancing their career prospects. However, working hours also directly influence income. Hence, the effect of colleagues' working hours may be entirely driven by income comparisons. Therefore, in the next step of our analysis, we examine this channel and analyse whether income comparisons with colleagues mediate the relationship between colleagues' working hours and individual working hour preferences. To examine this, we conduct a subsample analysis of individuals with either a high or low degree of income comparison with colleagues. The degree of income comparison with colleagues is based on the following question:

> When evaluating the amount of your income, it is also important to compare it with the gross income of other people. If you think about your personal gross income in comparison to other groups: How important is it for you to compare your gross income with c) that of your colleagues in the company?

Answers are given on a 7-point Likert scale. High income comparison with colleagues is defined as a value greater than the median, low income comparison to colleagues is defined as a value equal or smaller than the median. Table 2 presents the results of the subgroup analysis. The treatment effects are significant for both groups. We find that individuals who compare their income to a higher extent to their colleagues react less to the *fewer hours* treatment and more strongly to the *more hours* treatment. Hence, they tend to want to work longer hours across treatments. These results suggest that income comparisons are a mediating factor between colleagues' working hours and preferred working hours, but do not solely account for the effect.

Table 2: Regression Results by Income Comparison With Colleagues

	Dependent variable:	
	Preferred Hours	
	Low Comparison	High Comparison
Fewer	-2.91^{***}	-2.07^{***}
	(0.39)	(0.56)
More	0.98^{***}	1.54^{***}
	(0.38)	(0.57)
Constant	11.02^{**}	-16.65^{*}
	(5.11)	(9.27)
Socio-demographic controls	Yes	Yes
Observations	2,807	1,164
R^2	0.44	0.46
Adjusted R^2	0.43	0.43

Note: The sample is divided into two groups according to the degree of income comparisons with colleagues. The dependent variable is the number of weekly working hours chosen after the treatment. The independent variables consist of the treatment groups, with the *same hours* treatment serving as the reference category. Data: Behringer et al. (2024).
*p<0.1; **p<0.05; ***p<0.01

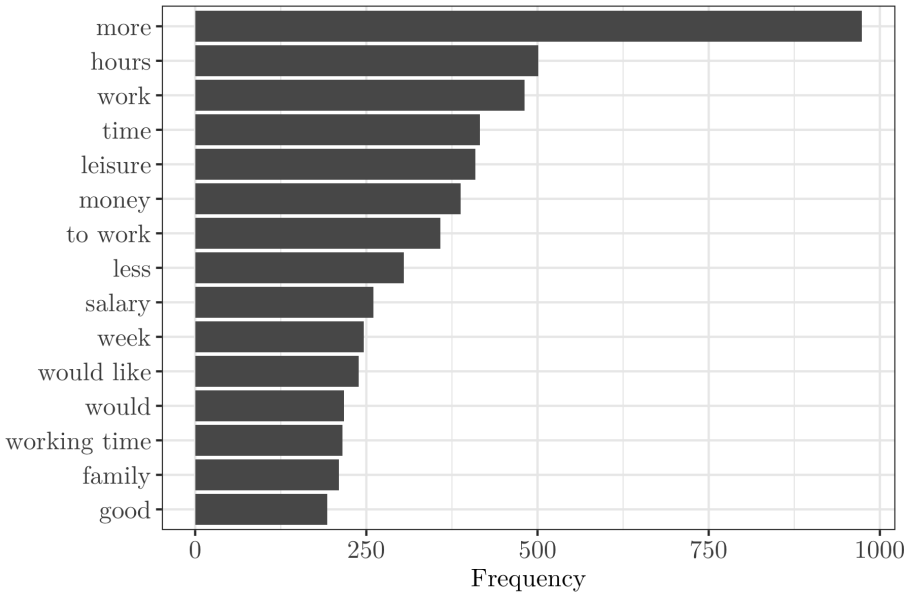
A subgroup analysis of age groups is conducted next, as age may influence work priorities, financial situations, and other factors that may affect how colleagues' working hours shape working hours preferences. The treatment effects are significant for all three age groups (Table A6). We find that the youngest age group (18-35) reacts most strongly to the treatment compared to the other age groups. This suggests that younger individuals are more sensitive to how their working hours compare to those of others. These results highlight that not all social groups react equally strongly to the working hours of colleagues.

The results of the survey experiment reveal that colleagues' working hours have a causal effect on individuals' preferences for working hours, as initially indicated by the ANOVA test. The strongest effect is observed in the *fewer hours* treatment. Further analysis, including ANOVA tests for subgroups, the Kruskal-Wallis test, and regression analyses, confirm the robustness of these findings.

4.2 Quantitative Text Analysis

The experimental evidence demonstrates that colleagues' working hours causally affect working hours preferences. To further explore this, the following section examines the underlying reasons respondents provided for their indicated working hours preferences in the experiment. This section presents the results of the quantitative text analysis of responses to the open-ended survey question on these underlying reasons. By systematically examining the textual data, we identify key terms, patterns of expression and recurring themes, that provide deeper insights into participants' motives. Of our clean sample, 4004 respondents answered the open question, which is 90% of the sample. We preprocess the text data by tokenising the text, removing stopwords and punctuation, setting the text to lower bound and by word stemming.

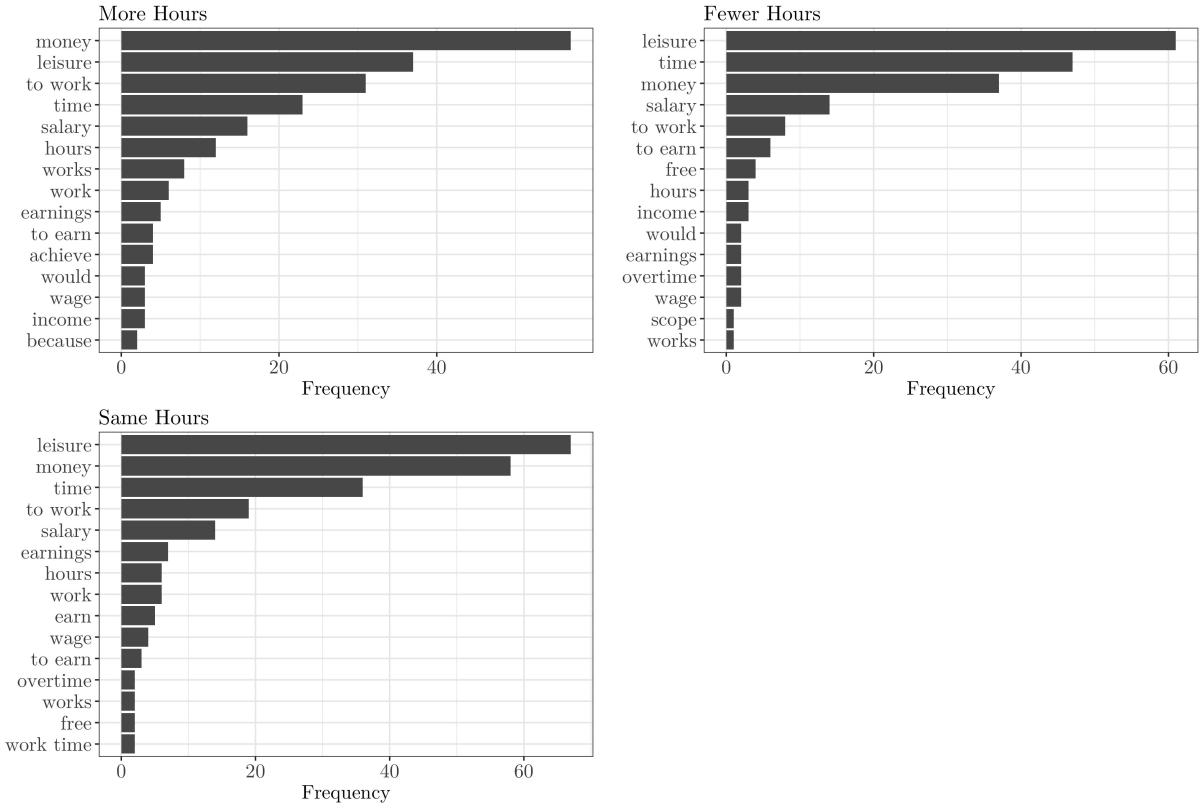
In a first step, we conduct a frequency analysis to identify the most commonly used words. The most frequently used word is "more," followed by terms such as "hours," "work," "time," "leisure time," and "money." These words reflect the underlying trade-off in working time decisions between leisure time and income (Figure 4).



Note: The frequency plot displays the top 15 most frequent words in the answers. The y-axis represents individual words, and the x-axis indicates their frequency of occurrence. Own translation, for original output in German see Figure A5 in the Appendix.

Figure 4: Word Frequencies

Given that "more" is the most frequently used word, we analyse the context in which the word appears to understand what respondents wanted more of and whether this differs across treatment groups. Specifically, we examine the word frequencies of the terms that follow the word "more". A comparison of the three most frequent words reveals noticeable differences between the treatment groups (Figure 5). In the *more hours* treatment group, the three most frequent words are "money", "leisure", and "to work". For the *less hours* treatment, the order shifts to "leisure", "time", and "money". The *same hours* treatment represents an intermediate case with "leisure", "money", and "time" as the most frequent words. The differences between treatment groups suggest that the treatment not only affects working hours preferences but also the underlying reasoning. Taken together, the word frequencies point to considerations regarding leisure time and income as prevalent topics in the responses.



Note: The frequency plots display the top 15 most frequent words that follow the word 'more' within each treatment group. The y-axis represents individual words, and the x-axis indicates their frequency of occurrence. Own translation, for original output in German see Figure A6 in the Appendix.

Figure 5: Frequencies of Words Following "More" by Treatment Group

For a more nuanced understanding of thematic structures, we apply Latent Dirichlet Allocation (LDA), a probabilistic topic modelling approach. LDA identifies representative words for each topic based on their probabilistic occurrence across the corpus. It enables researchers to inspect representative responses or documents associated with each topic. To determine the optimal number of topics for our LDA model, we employ a combination of statistical metrics considering topic distinctiveness (Cao et al., 2009), entropy balance (Arun et al., 2010), statistical fit of the model (Griffiths and Steyvers, 2004) and coherence (Deveaud et al., 2014) (Figure A7). A balance between the different metrics is achieved between a number of topics from 5-10. After qualitative inspection of the topics, we opt for 5 topics. We use the Gibbs sampling method and set alpha parameter to 0.1, reflecting the assumption that each response is associated with only a few topics, which aligns with the observation that most respondents provided only a few words or a single sentence.

Table 3 presents the results of the LDA topic model with the top 10 words and the top 2 citations that are most closely associated with the respective topics. The labels of the topics are given manually based on the representative words and responses. Topic 1 is primarily concerned with workload and includes keywords such as "good", "working time" and "to suit". Responses in this category often address the question of whether tasks can be completed during working hours, with one respondent noting "To cope with the current workload, I actually need a slightly higher number of hours than I currently do". Topic 2 revolves around the current strain of work. This topic is represented by terms like "work", "more", "hours" and "already". Topic 3 is labelled income and focuses primarily on financial considerations. Top words associated with this topic are "more", "money", "low" and "salary". Respondents discuss financial losses when working hours are reduced and financial gains when working hours are extended, with one remarking "less means too much financial loss" and another one stating "it's better to work more and earn more". Topic 4 captures general considerations on the length of the working week with keywords such as "hours", "week", "per", and "day". Topic 5 is centred around leisure time and is represented by words like "time", "more", "leisure" and "family". The answers here emphasise the need for time for household work and private contacts, with one respondent noting "I want or need more time off so that I still have enough time to cope with everyday life (shopping, cooking, cleaning, etc.)". The results show that the reasons given by the respondents for their working hours decision in the experiment have different thematic focuses and are anchored in the contexts of the respondents. It is also noticeable that treatment of the survey experiment, the working hours of colleagues, is not reflected in one of the topics.

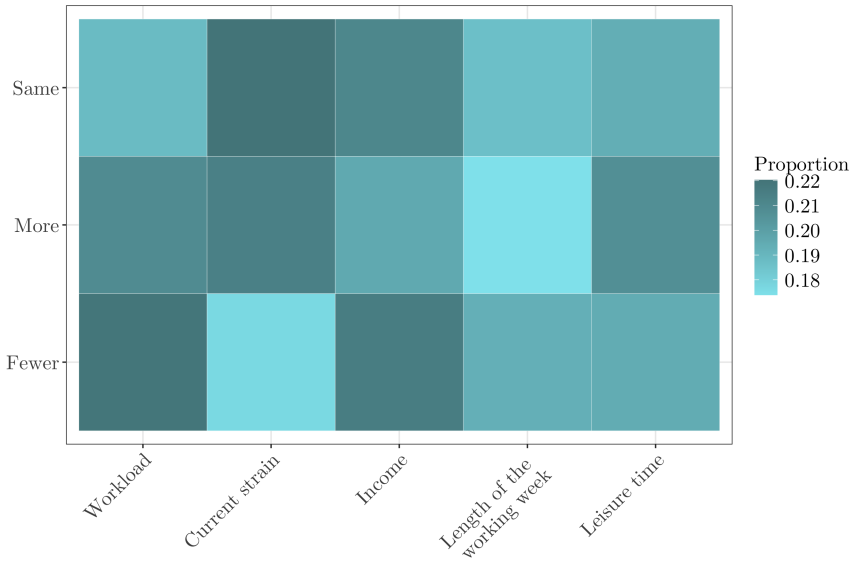
In a next step, we analyse how the frequency of topics differs between treatment groups. The heat map in Figure 6 reveals notable variations in the prevalence of each topic between treatment groups. For the *same hours* treatment group, the most frequent topic is current strain followed by income. The *more hours* treatment group also shows a high frequency for the topic current strain followed by workload and leisure time. In the *fewer hours* treatment group, which exhibited the strongest response in working hours preferences to the treatment, workload and income emerge as the most prevalent topics. This may stem from concerns about whether reducing hours would still ensure sufficient income and a manageable workload. The heat map provides a clear visual representation of how different information about colleagues' working hours can affect not only the decision but also the underlying motivations, even though the treatment, working hours of colleagues, itself is not included.

Table 3: Topics based on LDA topic model

	Label*	Top Words	Top Citations
Topic 1	Workload	”good”, “working time”, “to suit”, “good”, ”would be”, ”work”, ”wage”, “earnings”, “enough”, ”time”	”To cope with the current workload, I actually need a slightly higher number of hours than I currently do. This would be a realistic number of hours per week” ”I do well with my working hours, especially with regard to the assigned tasks. In addition, a reduction in income associated with a reduction would not be acceptable”
Topic 2	Current strain	”work”, ”more”, ”to work”, ”hours”, ”already”, ”salary”, ”would like”, ”gladly”, ”less”, ”overtime”	”I currently have a 41-hour week. Nobody is really productive for 41 hours straight, so my work output would not be significantly reduced. I would also like to work even less, but I don’t want to give up my salary.” ”Because I work just as much now. As a teacher, you work a lot of overtime that isn’t paid (preparation and follow-up work for lessons, conferences, parent-teacher meetings, administrative tasks such as analysing absences, correcting exams, etc.). If I could get paid for the 60 hours I already work anyway, great!”
Topic 3	Income	”more”, ”money”, ”less”, ”salary”, ”would like”, ”leisure”, ”to work”, ”earn”, ”balance”, ”work”	”Less means too much financial loss, more means too much strain” ”I don’t earn much, so I don’t want to lose any extra money. it’s better to work more and earn more”
Topic 4	Length of working week	”hours”, “week”, “per”, “would be”, “day”, “to work”, “days”, “4”, “more”, ”overtime”	”My contract actually states 39 hours per week. In reality, I regularly work about 3 to 5 hours overtime per week. The question stated how much I would work including overtime if the company would leave it to us. I would therefore work 40 hours a week including overtime and, if necessary, reduce my regular working hours to 35 hours a week and would try to only work overtime in exceptional cases.” ”That way I would have a 4-day week with just under 9 hours a day (8.45 hours). I currently have the same, only with 5 days a week and in the end around 41 - 42 hours a week.”
Topic 5	Leisure Time	”time”, ”more”, ”leisure”, ”family”, ”enough”, ”work”, ”money”, ”would like”, ”important”, ”private”	”I want or need more time off so that I still have enough time to cope with everyday life (shopping, cooking, cleaning, etc.). I also have a daily commute to work, which takes up a lot of time. There’s hardly any time left.” ”- enough time for private appointments (doctor, friends, family, sport) - still enough money available”

*Labels manually given

Note: Own translation, for original output in German see Table A7 in the Appendix.



Note: The heat map displays the proportions of each topic across different treatment groups. The rows represent the relative proportion of each topic, while the columns represent the identified topics. The colour intensity increases with the relative proportion.

Figure 6: Heat map of Topic Proportions by Treatment Group

Building on the finding of the preceding survey experiment that colleagues' working hours influence preferred working hours, we investigate how the working hours of colleagues were reflected in respondents' answers. Specifically, we conducted a targeted search for terms such as "colleagues," "all," and "others" (German dictionary: colleagues = "kolleg*", others = "alle", "anderen"). The analysis reveals that while these topics, or at least their associated terms, do appear in responses, they do so infrequently. Specifically, "colleagues" is mentioned just over 30 times and "others" just over 70 times. By comparison, terms like "leisure" or "money" appear more than 300 times. Among responses mentioning colleagues, workplace cooperation and teamwork emerge as the dominant themes. Relative position is referenced infrequently and indirectly, with respondents expressing a preference not to work more or fewer hours than their colleagues. Thus, while colleagues' working hours identified as a causal factor in the experiment are acknowledged in some responses, other topics remain more prevalent.

5 Discussion

Our findings contribute to understanding the role peers play in working hours decision. By using a survey experimental approach, we are able to identify a significant causal effect of colleagues' working hours on individual working hours decisions. We can confirm the results of previous studies for the US for the German context and underscore the relevance of context for preference formation and decision-making.

The hypothesis tests and regression results show that the treatment effect is larger for the *fewer hours* treatment than for the *more hours* treatment. This may be due to adaptive preferences, where desires unconsciously adjust to existing constraints. External constraints, such as caring responsibilities or working time regulations, may limit respondents' ability to increase their working hours more than to reduce them. Additionally, the larger effect observed for the *fewer hours* treatment is consistent with the fact that a large proportion of employees in Germany are overemployed, and on average, employees prefer to work fewer hours than they currently do (Beckmannshagen and Schröder, 2022). Thus, the average baseline preference is to reduce working hours. This suggests that lower working hours among colleagues may reinforce this existing preference, while higher working hours may exert upward pressure on preferences. However, on average, working hours preferences in the experiment do not exceed respondents' current working hours. This indicates that respondents are reluctant to increase their current working hours, which would further widen the gap between their desired and actual hours. Thus, the upward pressure exerted by colleagues' working hours is counterbalanced by a general preference for reduced working hours.

Based on these findings, we can infer that colleagues or other peers' working hours form a constraint for a reduction of preferred working hours, or taken further, also actual working hours reduction. This illustrates that a reduction in working hours cannot be achieved individually but requires collective action, such as collective agreements or working hours regulations.

Exploring a channel through which colleagues' working hours might influence working hours preferences, we find that individuals who compare their income more intensely to colleagues react more strongly to the *more hours* treatment and less strongly to the *fewer hours* treatment. This suggests that individuals with higher relative income concerns are less willing to accept a decline in their relative income position and are more inclined to maintain or improve their relative position by reducing their working hours less. While relative income concerns may help explain part of the observed effect, they do not account for it entirely.

We use a representative sample of German employees and employ a between-subject design. While this enables us to address limitations of the previous literature, the information treatment design does not allow us to rule out that our effect is partly driven by anchoring effects. Nonetheless, our results strongly suggest that pure anchoring cannot explain the effects alone. Anchoring effects are typically symmetrical. In contrast, we find that the effect sizes differ between the *fewer* and the *more hours* treatment. These asymmetrical effects cannot be explained by different baselines, as the number of hours given in the treatment are based on the actual working hours of the respective respondent. The difference between the *more hours* treatment and their actual working hours is equal to the difference between the *fewer hours* treatment and their actual working hours, which should lead to the same anchoring effect. In addition, heterogeneous treatment effects between subgroups suggest that the effect is influenced by factors other than anchoring, such as the difference between individuals who compare their income to a higher or lower extent to their colleagues. This clearly shows that income comparisons play a role for the treatment effect, which rules out sole anchoring. We conclude that potential anchoring does not compromise the validity of our results.

Our quantitative text analysis of open responses on the motives behind working hours preferences in the experiment enriches our understanding of working hours decision-making. We identify "workload", "current strain", "income", "length of the work-week" and "leisure time" as key topics in the responses. Taken together with word frequencies, considerations regarding income and leisure time, hence, the income-leisure trade-off, seem to be the predominant topics. The identified topics correspond to previous research (Gerold and Nocker, 2018; Lott and Windscheid, 2023).

While we can identify a causal link between colleagues' working hours and working hours decisions, they are only slightly reflected in the reasons given by the respondents. Although the effect found in the experiment is unambiguously peer-driven, the reasons named for the decisions are predominantly personal. This is in line with results from qualitative studies (Campbell and van Wanrooy, 2013; Gerold and Nocker, 2018) on working time preferences. Campbell and Van Wanrooy (2013) show that respondents emphasise personal choice and struggle naming social context and pressures influencing their decisions. The absence of factors in the responses that go beyond the personal choice could possibly be explained by social desirability or subconscious influence. This illustrates that social influences on preference formation can be easily overlooked in the study of working hours decisions. This is critical as they play a crucial role for labour supply decisions and are important for policy

design, as our survey experiment shows.

Combining quantitative and qualitative data has proven useful for providing a more nuanced understanding of the tension between personal and contextual influencing factors. Future studies can build on similar mixed methods approaches to, for instance, analyse in more detail how contextual factors affect individual motivations behind the preferences. The quantitative analysis of responses to an open-ended question has the major advantage to be based on a representative sample of German employees, but provided concentrated rather than in-depth responses. Future research could enrich our findings by using qualitative methods, which are based on small-n samples. In this way, they could shed light on deeper motivations for preference formation and specifically target the social context as an explanatory factor.

6 Conclusion

This study demonstrates the value of integrating survey experiments with quantitative text analysis to uncover both causal patterns and contextual insights into the role of social context in the formation of working hours preferences. In this paper, we examined how colleagues' working hours influence individual working time preferences.

The results of our survey experiment show a causal link between colleagues' working hours and individual working hours preferences. Thereby, the treatment effect is strongest for the *fewer hours* treatment. The quantitative text analysis of the reasons for choosing the number of working hours in the experiment identifies "workload", "current strain", "income", "length of the working week" and "leisure time" as key topics. The frequencies of these topics differ by treatment group indicating that topics in the responses are affected by the treatment. While we can show that social context in form of colleagues' working hours causally affect working hours preferences, the reasons given by the respondents are primarily personal. Combining these two methodological approaches, we can therefore show that preferences are socially determined, even if they are rationalised in individualistic terms.

Our findings point to two key implications: Firstly, they illustrate that colleagues' or other peers' working hours form a constraint for a reduction of preferred working hours and further actual working hours reduction. This emphasises the importance of collective action for working time policy. Secondly, the predominance of personal reasons in the responses shows that social influences on preference formation can be easily overlooked. Therefore, our results highlight methodological challenges that need to be considered when analysing and interpreting working time preferences.

References

Akerlof, G. (1976). The economics of caste and of the rat race and other woeful tales. *The Quarterly Journal of Economics*, 599–617.

Anger, S. (2008). Overtime work as a signaling device. *Scottish Journal of Political Economy*, *55*(2), 167–189.

Antal, M., Lehmann, B., Guimaraes, T., Halmos, A., & Lukács, B. (2024). Shorter hours wanted? A systematic review of working-time preferences and outcomes. *International Labour Review*, *163*(1), 25–47. https://doi.org/10.1111/ilr.12406

Arun, R., Suresh, V., Veni Madhavan, C. E., & Narasimha Murthy, M. N. (2010). On Finding the Natural Number of Topics with Latent Dirichlet Allocation: Some Observations. In D. Hutchison, T. Kanade, J. Kittler, J. M. Kleinberg, F. Mattern, J. C. Mitchell, M. Naor, O. Nierstrasz, C. Pandu Rangan, B. Steffen, M. Sudan, D. Terzopoulos, D. Tygar, M. Y. Vardi, G. Weikum, M. J. Zaki, J. X. Yu, B. Ravindran, & V. Pudi (Eds.), *Advances in Knowledge Discovery and Data Mining* (pp. 391–402, Vol. 6118). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-13657-3_43

Becker, G. S. (1976). *The economic approach to human behavior*. The University of Chicago Press.

Beckmannshagen, M., & Schröder, C. (2022). Earnings inequality and working hours mismatch. *Labour Economics*, *76*, 102184. https://doi.org/10.1016/j.labeco.2022.102184

Behringer, J., Van Treeck, T., & Westrich, Z. (2024). Befragung: Ungleichheit und Arbeit in Deutschland.

Bellezza, S., Paharia, N., & Keinan, A. (2016). Conspicuous Consumption of Time: When Busyness and Lack of Leisure Time Become a Status Symbol. *Journal of Consumer Research*, ucw076. https://doi.org/10.1093/jcr/ucw076

Bowles, S. (1998). Endogenous preferences: The cultural consequences of markets and other economic institutions. *Journal of economic literature*, *36*(1), 75–111.

Campbell, I., & van Wanrooy, B. (2013). Long working hours and working-time preferences: Between desirability and feasibility. *Human Relations*, *66*(8), 1131–1155. https://doi.org/10.1177/0018726713478641

Cao, J., Xia, T., Li, J., Zhang, Y., & Tang, S. (2009). A density-based method for adaptive LDA model selection. *Neurocomputing*, *72*(7-9), 1775–1781. https://doi.org/10.1016/j.neucom.2008.06.011

Collewet, M., de Grip, A., & de Koning, J. (2017). Conspicuous work: Peer working time, labour supply, and happiness. *Journal of Behavioral and Experimental Economics*, *68*, 79–90. https://doi.org/10.1016/j.socec.2017.04.002

Deveaud, R., SanJuan, E., & Bellot, P. (2014). Accurate and effective latent concept modeling for ad hoc information retrieval. *Document numérique*, *17*(1), 61–84. https://doi.org/10.3166/dn.17.1.61-84

Drago, R., Wooden, M., & Black, D. (2009). Long Work Hours: Volunteers and Conscripts. *British Journal of Industrial Relations*, *47*(3), 571–600. https://doi.org/10.1111/j.1467-8543.2009.00717.x

Eastman, W. (1998). Working for Position: Women, Men, and Managerial Work Hours. *Industrial Relations*, *37*(1), 51–66.

Frank, R. H. (1997). The Frame of Reference as a Public Good. *The Economic Journal*, *107*(445), 1832–1847. https://doi.org/10.1111/j.1468-0297.1997.tb00086.x

Frederiksen, A., Kato, T., & Smith, N. (2018). Working hours and top management appointments: Evidence from linked employer-employee data.

Gascoigne, C., Parry, E., & Buchanan, D. (2015). Extreme work, gendered work? How extreme jobs and the discourse of 'personal choice' perpetuate gender inequality. *Organization*, *22*(4), 457–475. https://doi.org/10.1177/1350508415572511

Gerold, S., & Nocker, M. (2018). More Leisure or Higher Pay? A Mixed-methods Study on Reducing Working Time in Austria. *Ecological Economics*, *143*, 27–36. https://doi.org/10.1016/j.ecolecon.2017.06.016

Gerold, S., & Stein, U. (2020). *Are working hours a new driver of inequality? On the relation between hours inequality, earnings inequality, and collective bargaining in Germany* (tech. rep.). IMK Working Paper.

Gershuny, J. (2005). Busyness as the Badge of Honor for the New Superordinate Working Class. *Social Research: An International Quarterly*, *72*(2), 287–314. https://doi.org/10.1353/sor.2005.0026

Gicheva, D. (2013). Working long hours and early career outcomes in the high-end labor market. *Journal of Labor Economics*, *31*(4), 785–824.

Griffiths, T. L., & Steyvers, M. (2004). Finding scientific topics. *Proceedings of the National Academy of Sciences*, *101*(suppl_1), 5228–5235. https://doi.org/10.1073/pnas.0307752101

Haight, A. D. (1997). Padded Prowess: A Veblenian Interpretation of the Long Hours of Salaried Workers. *Journal of Economic Issues (Association for Evolutionary Economics)*, *31*(1), 29.

Jauch, M. (2020). The rat race and working time regulation. *Politics, Philosophy & Economics*, *19*(3), 293–314. https://doi.org/10.1177/1470594X20927894

Landers, R. M., Rebitzer, J. B., & Taylor, L. J. (1996). Rat race redux: Adverse selection in the determination of work hours in law firms. *The American Economic Review*, 329–348.

Lewis, S. (2003). The integration of paid work and the rest of life. Is post-industrial work the new leisure? *Leisure Studies*, *22*(4), 343–345. https://doi.org/10.1080/0261436031000159413 1

Lott, Y., & Windscheid, E. (2023). *4-Tage-Woche: Vorteile für Beschäftigte und betriebliche Voraussetzungen für verkürzte Arbeitszeiten* (tech. rep.). Hans- Böckler-Stiftung, Wirtschafts- und Sozialwissenschaftliches Institut (WSI). Düsseldorf.

Pfeifer, C. (2010). Determinants of promotions in an internal labour market. *Schmalenbach Business Review*, *62*(4), 342–358.

Philp, B., Slater, G., & Harvie, D. (2005). Preferences, power, and the determination of working hours. *Journal of Economic Issues*, *39*(1), 75–90.

Pingle, M., & Mitchell, M. (2002). What motivates positional concerns for income? *Journal of Economic Psychology*, *23*(1), 127–148. https://doi.org/10.1016/S0167-4870(01)00070-8

Schor, J. (1998). Time, Labour and Consumption: Guest Editor's Introduction. *Time & Society*, *7*(1), 119–127. https://doi.org/10.1177/0961463X98007001007

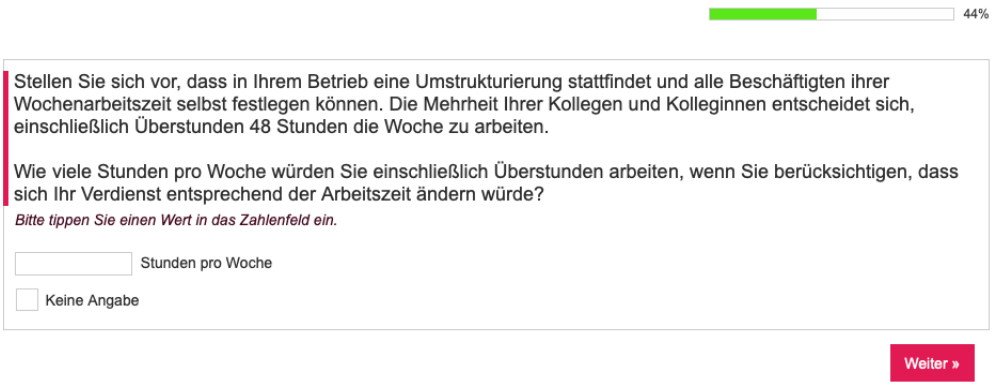
Sen, A. K. (1977). Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy & public affairs*, 317–344.

Simon, H. A. (1955). A behavioral model of rational choice. *The quarterly journal of economics*, 99–118.

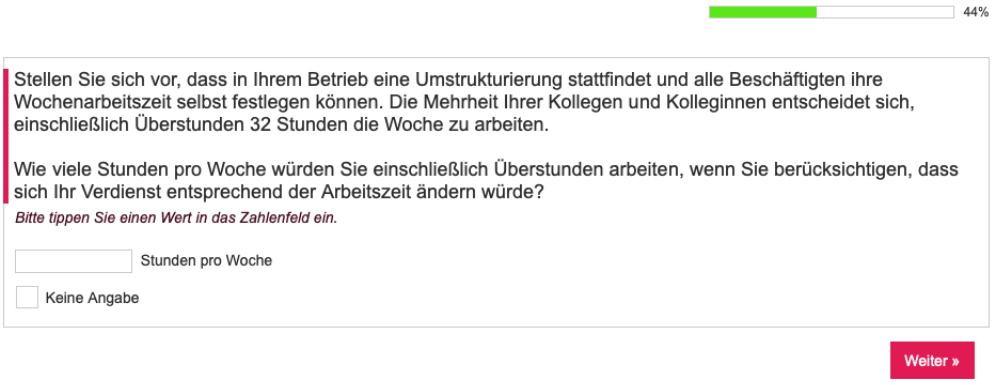
Simpson, R. (1998). Presenteeism, power and organizational change: Long hours as a career barrier and the impact on the working lives of women managers. *British journal of management*, *9*, 37–50.

Westrich, Z. (2024). How Colleagues' Working Time Affect Working Hours Decisions. https://doi.org/10.1257/rct.14510-1.0

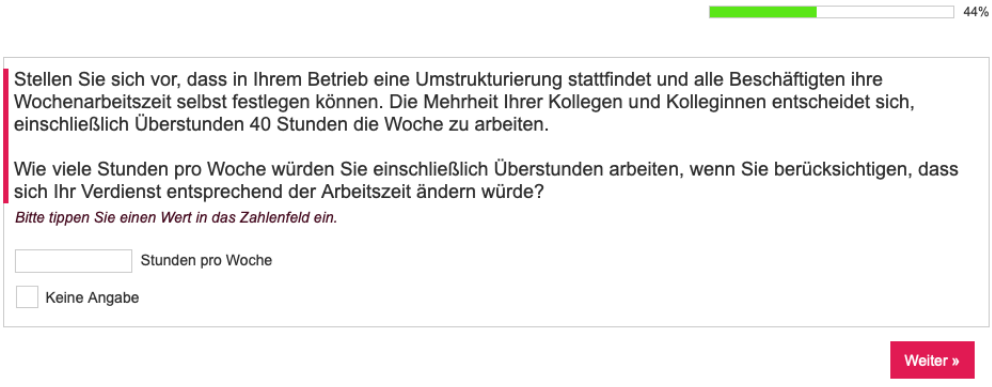
Appendix



(a) More hours treatment



(b) Fewer hours treatment



(c) Same hours treatment

Figure A1: Screenshots: Treatment and Question

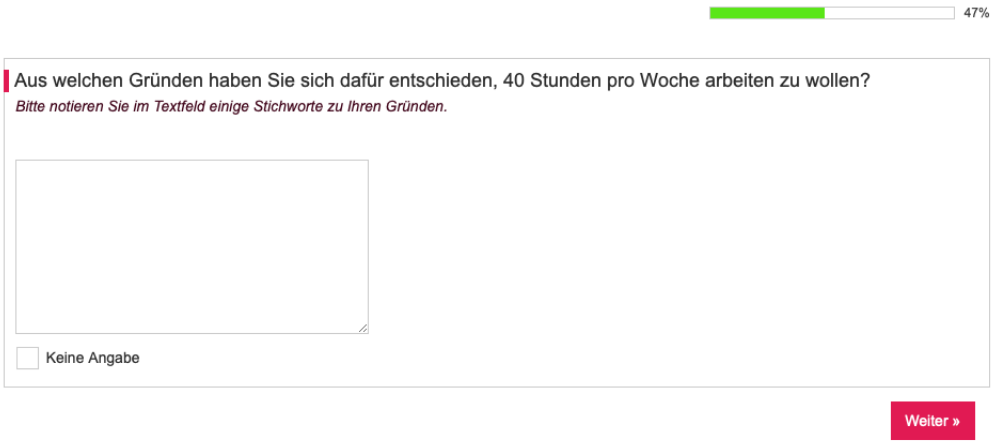


Figure A2: Screenshot: Open-ended Question

Table A1: Attrition: Actual Working Hours

Treatment	Fewer hours		More hours		Same hours		
Variable	N	Percent	N	Percent	N	Percent	Test
Question	1651		1692		1679		X2= 1.717
... Answered	1561	94.5%	1616	95.5%	1592	94.8%	
... Not answered	90	5.5%	76	4.5%	87	5.2%	

Note: This table presents attrition rates for the question on respondents' actual working hours, asked prior to the treatment. Differences in attrition between groups were assessed using a χ^2 test to determine statistical significance.
* p<0.1; ** p<0.05; *** p<0.01

Table A2: Attrition: Preferred Working Hours

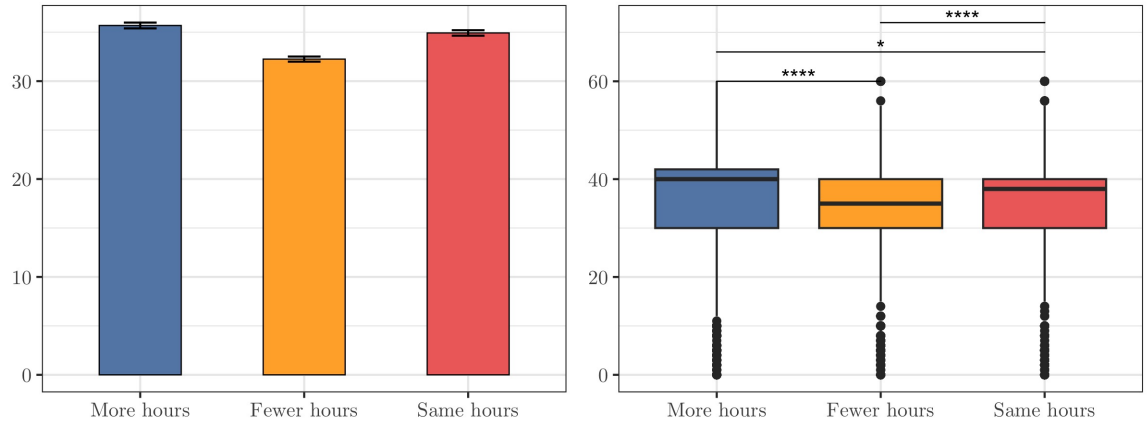
Treatment	Fewer hours		More hours		Same hours		
Variable	N	Percent	N	Percent	N	Percent	Test
Question	1561		1616		1592		X2= 2.559
... Answered	1476	94.6%	1509	93.4%	1486	93.3%	
... Not answered	85	5.4%	107	6.6%	106	6.7%	

Note: This table presents attrition rates for the question on respondents' preferred working hours, asked after the treatment. Differences in attrition between groups were assessed using a χ^2 test to determine statistical significance.
* p<0.1; ** p<0.05; *** p<0.01

Table A3: Balance Test

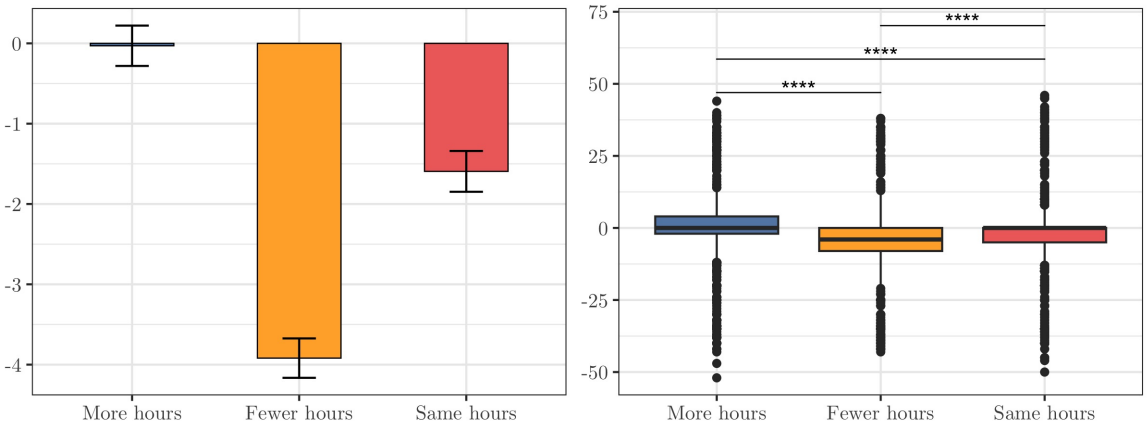
Treatment	Fewer hours		More hours		Same hours		
Variable	N	Mean	N	Mean	N	Mean	Test
Gender	1462		1496		1478		X2= 2.89
... Female	714	48.8%	684	45.7%	701	47.4%	
... Male	748	51.2%	812	54.3%	777	52.6%	
Age	1462	44.164	1496	44.108	1478	43.97	F= 0.103
Education	1462		1496		1478		X2= 13.418
... Currently in training	26	1.8%	23	1.5%	25	1.7%	
... Vocational training	672	46%	675	45.1%	668	45.2%	
... Master craftsman or technician training	100	6.8%	107	7.2%	100	6.8%	
... Technical college degree	101	6.9%	115	7.7%	130	8.8%	
... Bachelor	181	12.4%	194	13%	175	11.8%	
... Master	285	19.5%	297	19.9%	307	20.8%	
... PhD / Habilitation	22	1.5%	27	1.8%	17	1.2%	
... Other professional qualification	44	3%	27	1.8%	31	2.1%	
... No professional qualification	31	2.1%	31	2.1%	25	1.7%	
Employment Status	1462		1496		1478		X2= 4.361
... Full-time	1106	75.6%	1137	76%	1126	76.2%	
... Part-time	307	21%	317	21.2%	306	20.7%	
... Marginal	24	1.6%	21	1.4%	15	1%	
... Vocational Training	25	1.7%	21	1.4%	31	2.1%	
Gross Labor Income	1462		1496		1478		X2= 10.022
... Under 1000 Euro	19	1.3%	29	1.9%	14	0.9%	
... 1000 to 2000 Euro	141	9.6%	153	10.2%	154	10.4%	
... 2000 to 3000 Euro	313	21.4%	313	20.9%	299	20.2%	
... 3000 to 4000 Euro	333	22.8%	343	22.9%	356	24.1%	
... 4000 to 5000 Euro	376	25.7%	353	23.6%	356	24.1%	
... 5000 to 6000 Euro	138	9.4%	162	10.8%	152	10.3%	
... 6000 Euro and over	142	9.7%	143	9.6%	147	9.9%	
Actual Working Hours	1462	36.198	1496	35.692	1478	36.526	F= 2.182

Note: This table presents balance tests on baseline characteristics across treatment groups, using F-tests and χ^2 tests to assess significant differences.
* p<0.1; ** p<0.05; *** p<0.01



Note: The bar plot presents the mean preferred working hours across treatment groups. The boxplot displays the distribution of preferred working hours. Significant pairwise differences in mean ranks between groups were determined using Dunn's post-hoc test, with p-values adjusted for multiple comparisons using the Bonferroni method, following a significant Kruskal-Wallis test. Data: Behringer et al. (2024), own calculations.
*p.adj<0.05; **p.adj<0.01; ***p.adj<0.001,****p.adj<0.0001

Figure A3: Preferred Hours by Treatment Group (non-parametric)



Note: The bar plot presents the mean difference between actual and preferred working hours across treatment groups. The boxplot displays the distribution of this hours difference. Significant pairwise differences in mean ranks between groups were determined using Dunn's post-hoc test, with p-value adjusted for multiple comparisons using the Bonferroni method, following a significant Kruskal-Wallis test. Data: Behringer et al. (2024), own calculations.
*p.adj<0.05; **p.adj<0.01; ***p.adj<0.001,****p.adj<0.0001

Figure A4: Difference Between Actual & Preferred Hours by Treatment Group (non-parametric)

Table A4: Means by Subgroups

		More	Fewer	Same	
	Actual Working Hours	Preferred Hours	Preferred Hours	Preferred Hours	ANOVA
All	36.13	35.69	32.25	34.92	<0.001
Gender					
Male	38.23	38.11	34.38	36.87	<0.001
Female	33.79	32.8	30.03	32.77	<0.001
Age					
18 to 35	36.53	36.64	31.47	35.58	<0.001
36 to 50	36.39	35.45	32.96	35.24	<0.001
51 to 65	35.48	35.18	32.07	33.94	<0.001
Educational Level					
Vocational	35.51	34.86	32.1	34.51	<0.001
College / University	37.53	37.36	32.98	36.12	<0.001
Other	34.53	33.79	30.01	32.73	0.03
Working Hours					
Under 20	8.96	20.89	18.69	20.43	0.46
20 to 30	23.69	25.27	22.46	25.24	<0.001
30 to 40	37.21	36.18	33.27	34.58	<0.001
40 and over	44.85	42.34	36.85	40.83	<0.001
Occupational Position					
Apprentices	34.71	32.46	29	34.53	0.88
Blue-collar workers	36.38	35.11	32.99	34.26	0.02
Civil servant	40.42	40.13	34.97	38.22	<0.001
White-collar workers	35.81	35.51	32.02	34.76	<0.001
Gross Labour Income					
Under 2000 Euro	31.89	30.32	28.54	31.71	0.30
2000 to 3000 Euro	35.78	35.1	31.77	34.9	<0.001
3000 to 4000 Euro	35.99	36.23	31.93	34.27	<0.001
4000 to 5000 Euro	36.9	36.86	32.64	35.64	<0.001
6000 Euro and over	38.18	37.52	34.8	36.68	<0.001
Income Comparison With Colleagues					
High	36.54	36.35	32.82	35.28	<0.001
Low	36.05	35.5	32.1	34.81	<0.001

Note: This table presents the means of actual and preferred working hours across treatment groups for various subgroups. The last column reports p-values from ANOVA tests assessing differences in means within each subgroup.

Table A5: Control Variables

Variable	Description
Gender	A dummy variable indicating the gender
Age	Age + Age^2
Educational Level	A categorial variable with the levels: (1) Currently in training (2) Vocational training, vocational school (3) Master craftsman or technician training (4) Technical college degree (5) Bachelor's degree (6) Master's degree or comparable degree (Diplom, Magister) (7) Doctorate or habilitation completed (8) Other professional qualification (9) No educational qualification (and not currently in training)
Employment Status	A categorial variable with the levels: (1) Full-time employee (2) Part-time employment (including partial retirement) (3) Marginally or irregularly employed (also "mini-jobs" and integration measures) (4) Trainee
Sector	A categorial variable with the levels: (1) Agriculture, forestry and fishing (2) Mining, energy and water supply (3) Manufacturing industry (4) Construction (5) Trade and commerce (6) Transportation and logistics (7) Hospitality (8) Information and communication (9) Financial and insurance services (10) Real estate and housing (11) Public administration, defense, social security (12) Education and teaching (13) Health and social work (14) Arts, entertainment and recreation (15) Other services (also provided by liberal professions)

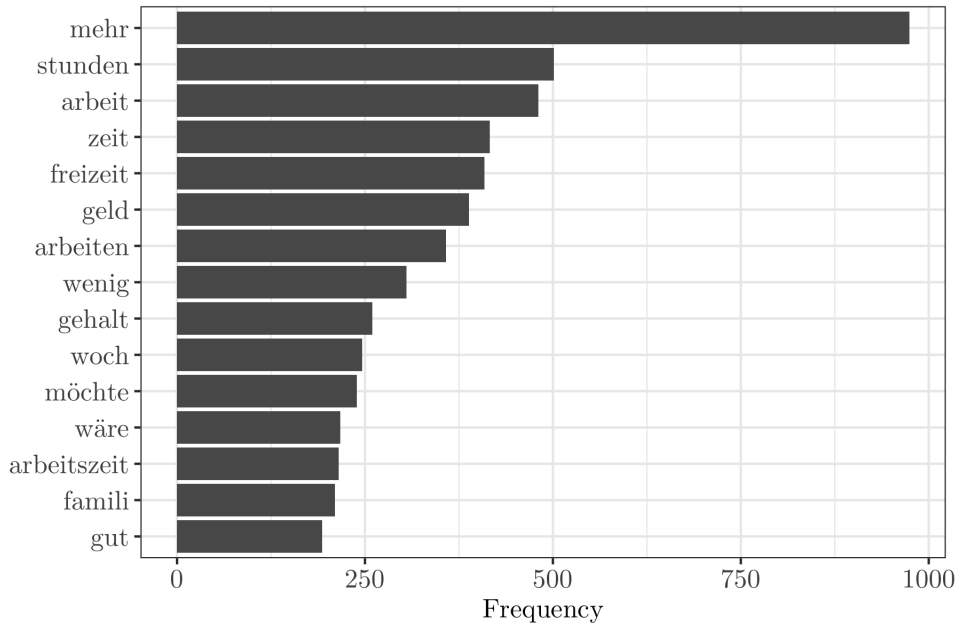
Table A5: Control Variables

Variable	Description
Labour Income	A categorial variable with the levels: (1) less than 500 Euro (2) 500 to under 1,000 euros (3) 1,000 to under 1,500 euros (4) 1,500 to under 2,000 euros (5) 2,000 to under 2,500 euros (6) 2,500 to under 3,000 euros (7) 3,000 to under 3,500 euros (8) 3,500 to under 4,000 euros (9) 4,000 to under 4,500 euros (10) 4,500 to under 5,000 euros (11) 5,000 to under 5,500 euros (12) 5,500 to under 6,000 euros (13) 6,000 euros and more
Collective agreement	A dummy variable indicating whether a collective agreement applies in their work
Actual working hours	Number of actual weekly working hours including overtime
Children under 14	Number of children in the household under the age of 14
Belief in hard work	Categorical variable indicating agreement on a 7-point Likert scale with the following statements: You have to work hard for success.
Household income	A categorial variable with the levels: (1)less than 500 Euro (2) 500 to under 1,000 euros (3) 1,000 to under 1,500 euros (4) 1,500 to under 2,000 euros (5) 2,000 to under 2,500 euros (6) 2,500 to under 3,000 euros (7) 3,000 to under 3,500 euros (8) 3,500 to under 4,000 euros (9) 4,000 to under 4,500 euros (10) 4,500 to under 5,000 euros (11) 5,000 to under 5,500 euros (12) 5,500 to under 6,000 euros (13) 6,000 euros and more

Table A6: Regression Results by Age

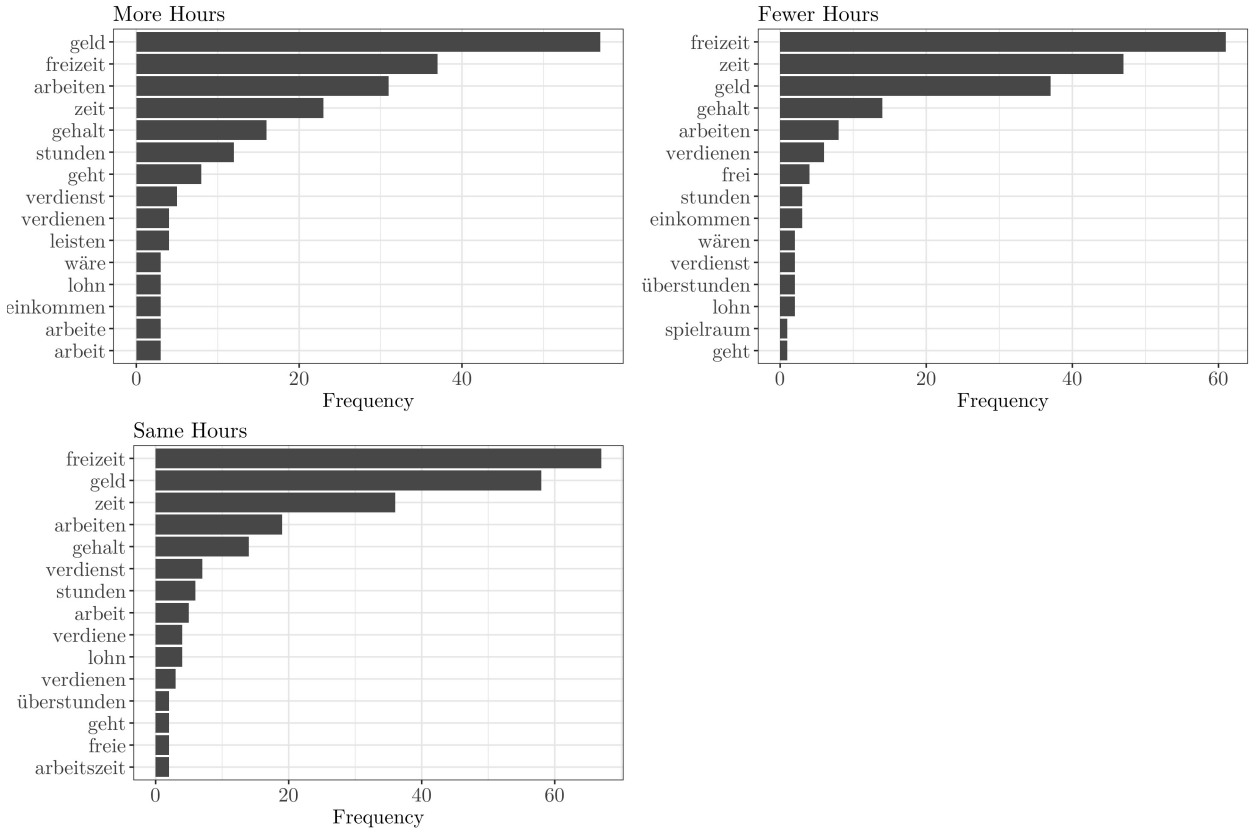
	Dependent variable:		
	Preferred Hours		
	Age 18-35	Age 35-50	Age 50-65
Fewer	-3.24^{***}	-2.73^{***}	-2.33^{***}
	(0.68)	(0.49)	(0.52)
More	1.42^{**}	1.14^{**}	1.36^{***}
	(0.67)	(0.49)	(0.51)
Constant	15.86^{**}	2.34	-25.03^{***}
	(7.12)	(7.44)	(9.25)
Socio-demographic controls	Yes	Yes	Yes
Observations	1,003	1,683	1,382
R^2	0.39	0.45	0.53
Adjusted R^2	0.35	0.43	0.51

Note: The sample is divided into three age groups. The dependent variable is the number of weekly working hours chosen after the treatment. The independent variables consist of the treatment groups, with the *same hours* treatment serving as the reference category. Data: Behringer et al. (2024).
*p<0.1; **p<0.05; ***p<0.01



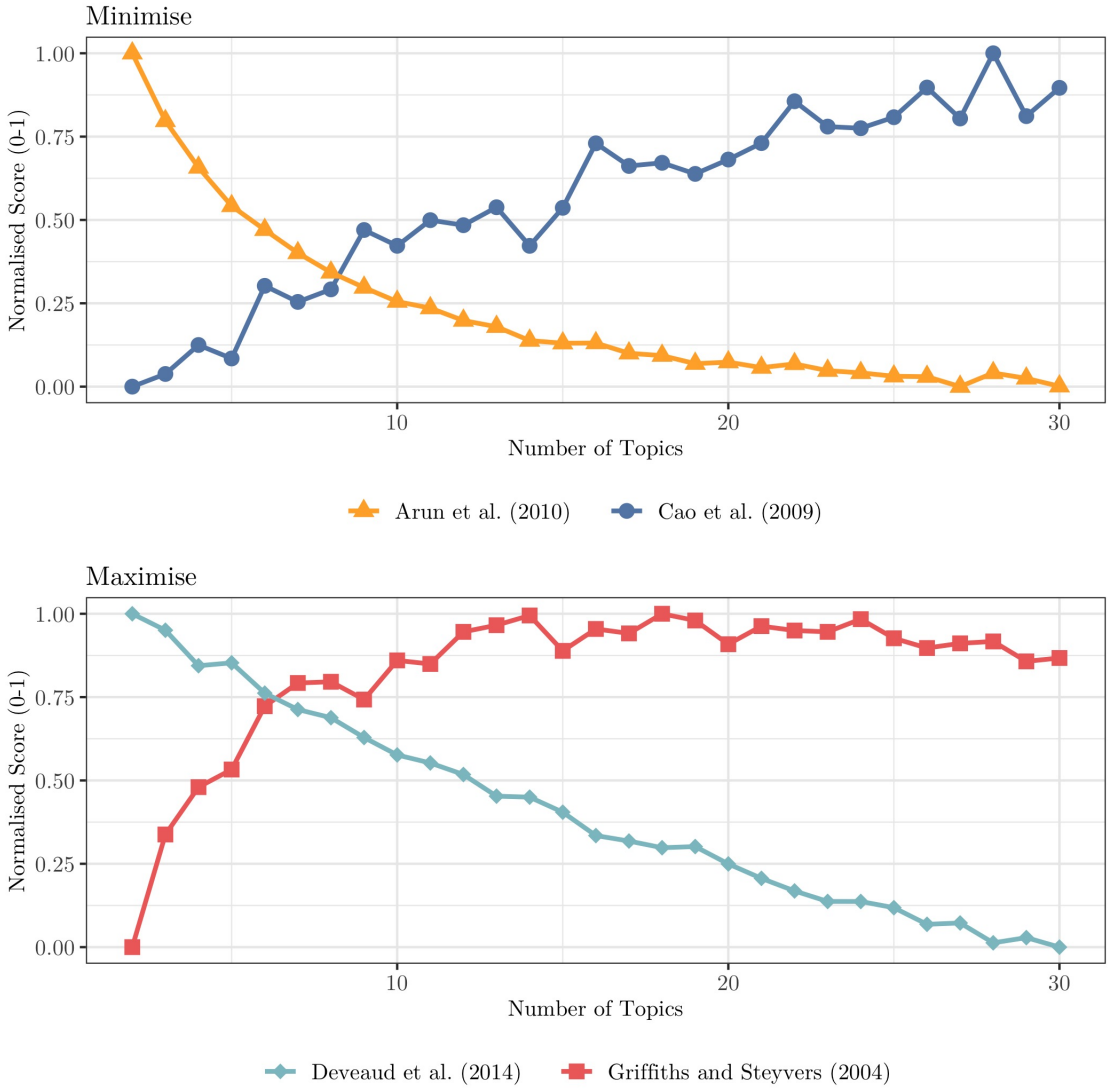
Note: The frequency plot displays the top 15 most frequent words in the answers. The y-axis represents individual words, and the x-axis indicates their frequency of occurrence.

Figure A5: Word Frequencies (German)



Note: The frequency plot displays the top 15 most frequent words that follow the word 'more' within each treatment group. The y-axis represents individual words, and the x-axis indicates their frequency of occurrence.

Figure A6: Frequencies of Words Following "More" by Treatment Group (German)



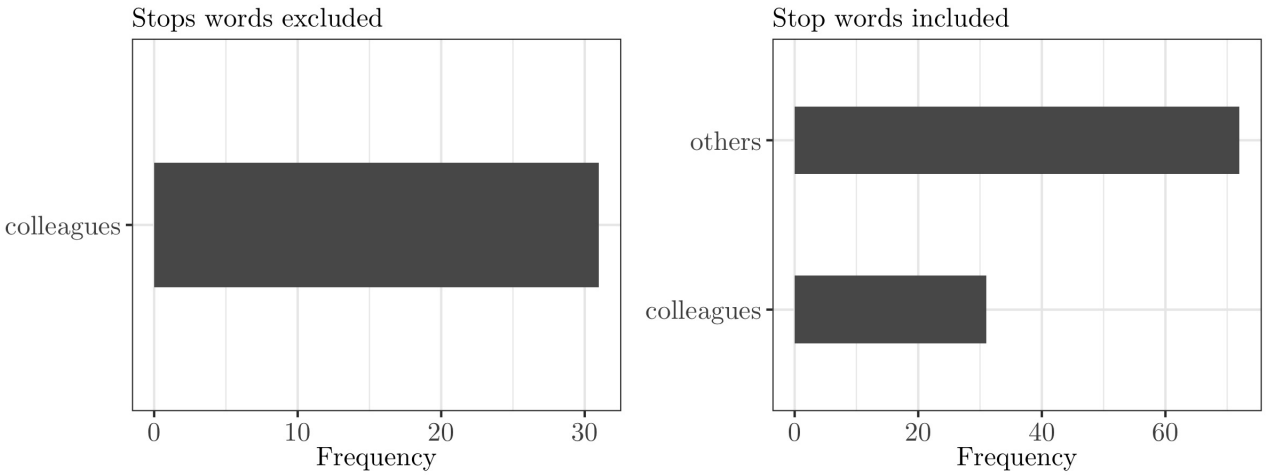
Note: The plot presents the normalized scores (ranging from 0 to 1) for four statistical metrics considering topic distinctiveness (Cao et al., 2009), entropy balance (Arun et al., 2010), statistical fit of the model (Griffiths and Steyvers, 2004) and coherence (Devaud et al., 2014). The lines represent the performance of each method. In the upper plot, the optimal number of topics corresponds to the lowest score, indicating better performance, while in the lower plot, the optimal number is identified by the highest score.

Figure A7: Metrics by Number of Topics

Table A7: Topics based on LDA topic model (German)

	Label*	Top Words	Top Citations
Topic 1	Workload	"gut","arbeitszeit", "passt", "gute", "wäre", "arbeit", "gehalt", "verdienst", "reicht", "zeit"	"Um das aktuelle Arbeitsaufkommen zu bewältigen benötige ich eigentlich eine etwas höhere Stundenzahl als aktuell. Dies wäre eine realistische Wochenstundenzahl" "Ich komme mit meiner Arbeitszeit insbesondere im Hinblick auf die zugewiesenen Aufgaben gut hin. Zudem wäre eine mit einer Reduzierung verbundene Einkommensreduzierung nicht akzeptabel"
Topic 2	Current strain	"arbeit", "mehr", "arbeiten", "stunden", "schon","gehalt", "möchte", "gern", "wenig", "überstunden"	"Ich habe zurzeit eine 41- Stunden Woche. Niemand ist wirklich die 41 Stunden durchgehend produktiv, daher würde sich mein Arbeitsoutput nicht signifikant verringern. Ich würde auch gerne noch weniger arbeiten, möchte aber nicht auf mein Gehalt verzichten." "Weil ich jetzt genauso viel arbeite. Als Lehrkraft macht man sehr viele Überstunden, die nicht bezahlt werden (Vor-und Nachbereitung des Unterrichts, Konferenzen, Elterngespräche, Verwaltungstätigkeiten wie Fehlzeitenauswertung, Korrekturen von Arbeiten usw.). Wenn ich die 60h, die ich sowieso schon arbeite entsprechend bezahlt bekäme, wunderbar!"
Topic 3	Income	"mehr", "geld", "wenig","gehalt", "möchte", "freizeit","arbeiten", "verdi- enen","balanc","work"	"Weniger bedeutet zu hohe finanzielle Einbußen, mehr bedeutet zu hohe Arbeitsbelastung" "ich verdiene nicht viel, will ich auch nicht zusätzlich geld verliren. besser ist mehr arbeiten und mehr verdienen"
Topic 4	Length of working week	"stunden", "woch", "pro", "wäre", "tag", "arbeiten", "tage", "4", "mehr", "überstunden"	"Eigentlich stehen in meinem Vertrag 39 Stunden pro Woche. Tatsächlich arbeite ich regelmäßig pro Woche ca 3 bis 5 Überstunden. In der Fragestellung hieß es wieviel ich inkl Überstunden arbeiten würde wenn das Unternehmen uns überlassen würde. Daher würde ich inklusive Überstunden 40 Wochenstunden arbeiten und ggf die regelmäßige Arbeitszeit auf 35 Stunden pro Woche reduzieren und würde versuchen, Überstunden nur im Ausnahmefall zu erbringen." "So hätte ich eine 4 Tage Woche mit knappen 9 Stunden pro Tag (8,45 Stunden). Das habe ich momentan auch nur 5 Tage die Woche und am Ende ca.41 - 42 Stunden pro Woche"
Topic 5	Leisure Time	"zeit", "mehr", "freizeit", "famili", "genug", "arbeit", "geld", "möchte", "wichtig", "privat"	"Ich möchte bzw. brauche mehr Freizeit, damit ich noch genügend Zeit habe, um den Alltag zu bewältigen (Einkaufen, kochen, putzen usw.). Ich habe auch noch einen Arbeitsweg, den ich täglich bewältigen muss und der viel Zeit wegnimmt. Da bleibt kaum noch Zeit übrig." "- genug Zeit für Private Termine (Arzt, Freunde, Familie, Sport) - trotzdem ausreichend Geld zur Verfügung"

*Labels manually given



Note: The frequency plots display the occurrence of selected terms, including 'colleagues' (captured by the search term 'kolleg') and 'others' (captured by the terms 'anderen' and 'alle'). The search for 'others' required the inclusion of stop words.

Figure A8: Word Frequencies on Colleagues

ifso working paper

ifso working papers are preliminary scholarly papers emerging from research at and around the Institute for Socio-Economics at the University of Duisburg-Essen.

All **ifso working papers** at uni-due.de/soziooekonomie/wp

ISSN 2699-7207

UNIVERSITÄT DUISBURG ESSEN

Open-Minded

ifso institute for socio-economics

Institute for Socio-Economics
University of Duisburg-Essen

Lotharstr. 65
47057 Duisburg
Germany

uni-due.de/soziooekonomie
wp.ifso@uni-due.de