

How Large Are Rents in the Labor Market? Job-Level Survey Evidence on the Reservation Wages of Workers and Their Employers*

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Abstract

We draw on a representative survey in Germany to measure worker beliefs about the size and distribution of rents in the labor market—a key symptom of imperfect competition of the labor market. Responses to questions about worker and firm reservation wages imply that job surplus is large, at 20% of wages for the median respondent, rejecting the frictionless benchmark with no job surplus. Most of the job surplus accrues to workers, with implied average bargaining power of 0.72. Worker surplus increases with age and tenure, while firm surplus is flat. Worker reservation wages identify separation elasticities that are high (above 4) for small wage cuts, and fall towards 2 for larger wage cuts.

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People go to the pub to celebrate when they get a job rather than greeting the news with the shrug of the shoulders that we might expect if labour markets were frictionless. And people go to the pub to drown their sorrows when they lose their job rather than picking up another one straight away.

— Alan Manning, 2003

1 Introduction

The key measure of the competitiveness of labor markets is the size and distribution of rents workers and firms earn on the job. A rent, or surplus, is the difference between the actually paid wage and the respective reservation wage: the minimum wage at which the worker would separate from the employer, or the maximum wage the employer would be willing to pay the worker. Reservation wages are a sufficient statistic for the parties' respective outside options. If labor markets are competitive—for instance, if workers can quickly find similar jobs or firms can replace workers costlessly—both parties' reservation wages equal the actually paid wage and rents are zero. Imperfect competition in the labor market, for example arising from search frictions or employer market power, manifests itself in the form of a gap between the firm and worker reservation wages. In models of, e.g., Nash bargaining over the wage, workers and firms split this surplus based on worker bargaining power. In models of monopsony, the distribution of workers' reservation wages gives the firm-specific labor supply curve, and wage-posting firms maximize profits and earn rents. Empirically, the size of rents and their distribution are usually indirectly inferred—by comparing value added and wages, by measuring the consequences of job loss, by structurally estimating specific models with parametric assumptions on micro data, or by using macro models, assumptions about the structure of hiring costs, and appealing to free entry.

We provide a direct and nonparametric measure of the size and distribution of rents in the labor market and use our results to revisit canonical theories of wage setting and

employment. We measure job-level surplus by leveraging a unique reservation wage survey of employed workers in the German Socio-Economic Panel (GSOEP) [which we also merge with administrative worker- and establishment-level data from IAB]. The survey asks each worker about the pay cut required to make her prefer to leave her current job, as well as about the maximum wage increase her employer would be willing to concede (in response to an outside job offer). On the basis of the worker's and firm's reservation wages and the actual wage, we provide nonparametric, job-level measures of the magnitude of surplus, its division between the worker and firm, and its distribution in the labor market.

Workers' responses imply that the size of rents in the labor market is substantial. The median respondent gauges joint job surplus to make up 20% of their salary, with a mean of 20.8% and a standard deviation of 14.8%. In absolute terms, median surplus is €7,500 and mean surplus €11,600. Our calculation uses the fact that the difference between the firm's and the worker's reservation wages gives a direct, nonparametric measure of the *joint surplus* of the job. Our results for the size of job surplus and thus the importance of imperfect competition in the labor market are on a similar order of magnitude as other, indirect estimates in the literature. Reviewing studies of hiring costs (e.g., Oi, 1962), search activity of the unemployed (e.g., Krueger and Mueller, 2010), and the costs of job loss (e.g., Jacobson, LaLonde, and Sullivan, 1993), Manning (2011) concludes that the size of overall rents in the labor market is about 15 to 30%.

In our data, most of the surplus accrues to workers: the median worker share of joint surplus is 0.77, with a mean of 0.72 and a standard deviation of 0.29. Our calculation uses the fact that the share of joint surplus going to the worker is equal to the worker surplus (the actual wage minus the worker's reservation wage), divided by the joint job surplus (the difference between the firm's reservation wage and that of the worker).

In the canonical Nash framework, which splits the pie following a fixed-shares rule, the worker share of joint surplus also gives the bargaining power parameter of the worker. Our

findings above therefore imply a high average bargaining power parameter of 0.72. Intuitively, while workers' reservation wages tend to be moderately below the actual wage, firms' reservation wages are much closer to the actual wage, and hence the implied worker bargaining power is high. Specifically, it is substantially larger than benchmarks in the rent-sharing literature, which typically bound worker bargaining power at 0.05 to 0.15 (for reviews, see, e.g., Card et al., 2018; Jäger et al., 2020). The high implied worker bargaining power we find is more in line with Manning's 2011 review, which concludes that most rents go to workers. It is also consistent with macro calibrations of worker bargaining power in matching (DMP) models, which often follow the Hosios condition of constrained efficiency.

A leading alternative bargaining model is employer competition with sequential auctions (Postel-Vinay and Robin, 2002; Cahuc, Postel-Vinay, and Robin, 2006), where workers renegotiate the wage if they receive outside offers. A key prediction of this model is that the worker share of surplus increases as a function of tenure. Consistent with this prediction, we find that the worker share of surplus rises with tenure (and age). Quantitatively, an additional ten years of tenure increases the worker share of surplus by 0.05 (SE 0.01). We [are in the process of] benchmark[ing] this slope against a calibrated model with employer competition, to be able to provide a formal quantitative test of this prediction. A key concern is that rebargaining may not occur in the vast majority of the labor market (although it may be prevalent in the academic job market for economists, for instance). We draw on a question that asks whether workers believe they would be able to renegotiate the wage if a suitable outside offer were to come along.

Turning to theories of implicit contracts, we study the analogous worker surplus share gradient with respect to age, motivated by theories that predict that workers' wage grows faster than their productivity over the lifecycle (Lazear, 1979). Here, we find a positive slope with respect to tenure and age. A ten-year increase in tenure is associated with an increase in (annual) worker surplus of about €1700. In contrast, firm surplus is completely flat with

respect to tenure. The results thus suggest that surplus increases moderately with tenure, and that all of the gains in surplus accrue to workers.

As a second worker-level measure of the degree of competitiveness of the labor market, we examine the distribution of rents from the perspective of a model of employer monopsony. Here, firms fill jobs with workers whose reservation wage is at most as high as the posted wage. The cumulative distribution function of the worker reservation wage gives the firm-specific labor supply curve at the separation margin. To account for heterogeneity in wages, we normalize the reservation wage by the worker's actual wage, constructing a reservation pay cut as in Mui and Schoefer (2021). We trace out a series of arc elasticities of the separation margin. We find elasticities of around 2 for large wage cuts, but very high local elasticities, implying that many workers are marginal to small changes in the firm-specific wage, but those elasticities drop quickly to about 4 for wage cuts about 10%. These numbers are on the higher end of existing estimates.

We provide several validation checks. In a first step, we show that low worker but not firm surplus predicts a higher intention to switch jobs. [We are about to receive both data for the 2020 wave of the German Socio-Economic Panel with the same set of questions asked among our 2019 respondents. We are also about to analyze a matched dataset linking our survey respondents' answers to their administrative labor market histories (SOEP-ADIAB). We will use both datasets to conduct the same type of validation check, but using actual rather than intended quit behavior as outcome.] Still, our design takes at face value workers' beliefs about surplus, which amounts, from the perspective of worker surplus, to knowing their outside options (and also accurately predicting firm values to assess firms' reservation wages). Specifically, it is conceivable that workers may be misinformed about outside options at other employers. In ongoing work, Jäger, Roth, Roussille, and Schoefer (2021) draw on GSOEP data to provide an empirical assessment of biased beliefs about outside options at other employers and draw implications for wage bargaining and job mobility.

Section 2 presents the survey data, the reservation questions, and the sample. Section 3 provides a conceptual framework for our surplus concepts and their relationship to the reservation wage questions, and presents the empirical evidence on the magnitude and distribution of job surplus, along with the implied worker bargaining power parameters. Section 4 interprets the distribution of worker surplus relative to the wage as a reservation wage cut and provides a nonparametric estimate of the separation elasticity to firm-specific wage cuts, a determinant of the firm-specific labor supply elasticity. Section 5 concludes.

2 Data and Sample

Our direct and nonparametric measures of rents in the labor market are drawn from a unique reservation wage survey of employed workers in the German Socio-Economic Panel (GSOEP) [which we also merge with administrative worker- and establishment-level data from IAB]. In this section, we describe by presenting the survey data, the reservation questions, and the sample.

2.1 German Socio-Economic Panel, merged to IAB Administrative Matched Employer-Employee Data

SOEP Innovation Sample We collected data in cooperation with the Innovation Sample of the German Socio-Economic Panel (SOEP-IS). The SOEP-IS is a longitudinal study that surveys a representative sample of the German population on a wide range of topics once a year. The sample design and core fieldwork are identical to that of the SOEP-Core samples.¹ The GSOEP is a highly representative survey. Its high representativeness is achieved through multi-month recontact strategies to maximize response rates.

¹See Zweck and Glemser (2018) for a discussion of the sampling method.

Given our focus on labor markets, our samples focused on people in full-time or part-time employment. Our survey was implemented in the 2019 and the 2020 wave.² Face-to-face interviews were conducted in private with each member of a household by trained interviewers. Our survey module took on average 5 minutes.³

The SOEP IS has some notable advantages compared to cheaper online survey providers:

- Probability-based sample allows us to reach a more representative sample than most online surveys.
- The face-to-face nature of the interviews results in higher quality of responses by allowing for clarifying questions, and decreasing non-response.
- The matching of a respondent to an occupation is done by professional coders. This is essential as it strongly decreases measurement error in occupations.

Linking Administrative Data: SOEP-ADIAB Our project is part of a project linking GSOEP survey data and individual-level administrative labor market data from IAB. GSOEP respondents were asked for consent to link their survey responses with their administrative labor market data. The linkage process has been completed. We expect to have access to the data by the end of April 2021.

2.2 Reservation Wage Questions

We cast the reservation wage survey questions in terms of wage cuts (for the worker) and wage increases (for the firm) relative to the current wage.

We elicit workers' reservation wages using a tailored question, which is shown below:

²See Zweck and Glemser (2020) for details of the 2019 Innovation Sample round.

³The results presented in the current version of the paper are based on the 2019 wave only and we will be supplemented by the 2020 wave by the end of the month. Additionally, we plan to use a unique link between the GSOEP survey data and individual-level administrative labor market data from IAB.

Worker’s reservation wage: maximum pay cut Imagine that your current employer would permanently cut wages. This wage cut results from a change of the CEO in the company and is independent of the economic conditions in your industry. At which wage cut would you quit your job within one year? I would quit my job if my current employer cut wages by more than $-X\%$.

Our question has several desirable features: First, our question fixes beliefs about the duration of the wage cut by explicitly stating that the wage cut is permanent. Second, we make it clear that the wage cut is not the result of an aggregate or industry specific-shock, but instead a firm-specific shock by explicitly mentioning that the wage cut results from a change of the CEO in the company. Third, we also fix beliefs about the time-frame within which the respondent would leave their job.

We measure directly workers’ beliefs about their employers’ reservation wages, i.e. the maximum anticipated pay rise firms would be willing to give using the following question:

Firm’s reservation wage: maximum anticipated pay raise Imagine that you consider switching to a different employer. What do you think: how much more would your current employer be willing to pay you to prevent that you switch to a different employer. My current employer would be willing to pay me up to $..%$ more to prevent that I switch to a different employer.

Our question thus directly allows us to measure firms’ reservation wages under the hypothetical scenario in which the worker would consider switching to another employer

2.3 Sample and Summary Statistics

Table 1 reports descriptive statistics for the sub-sample of the survey with reservation wage information. In particular, the analysis sample consists of all full-time workers with non-missing salary information, worker reservation wage, and firm reservation wage. We also apply the following selection rules to the remaining sample: we drop (i) 1 observation with negative salary, (ii) 1 observation with firm annual reservation salary $> \text{€}900,000$, (iii), 2 observations with worker annual reservation salary $< \text{€}100$, and (iv) 5 observations with missing answers to whether the worker’s firm would be open to re-negotiating in response to an outside offer. This leaves us with an analysis sample of 640 observations. The main restriction is full-time employment: the original sample contains workers from all labor force statuses. We have 901 respondents that are full-time employed.

3 Measuring Rents in the Labor Market

3.1 Conceptual Framework

We now provide a formal definition of rents/surplus and their relationship to actually paid wages and workers’ and firms’ reservation wages. The exposition closely follows Jäger, Schoefer, and Zweimüller (2018), who attempt to trace the role of surplus in guiding separations using a shift in workers’ outside options (an unemployment insurance benefit extension). [This section will be revised in future versions.]

Jobs and Surplus Each party $i \in \{W, F\}$ (the worker and the firm) has inside job value V_{In}^i (amenities, productivity,...), gross of the wage w (with which the parties can transfer utility in terms of, e.g., present values). For a job to be viable, the inside value net of the wage must amount to at least the (separation) outside value V_{Out}^i (unemployment, retirement, working for another firm, the value of a vacancy and hiring another worker,...). Rents, or

surplus, emerge in that worker surplus S^W and firm surplus S^F may be positive (e.g., with frictions), and must be non-negative for the job to be viable:

$$S^W(w, \mathbf{V}^W) = V_{\text{In}}^W + w - V_{\text{Out}}^W \geq 0, \quad (1)$$

$$S^F(w, \mathbf{V}^F) = V_{\text{In}}^F - w - V_{\text{Out}}^F \geq 0, \quad (2)$$

where $\mathbf{V}^i = (V_a^i)_{a \in \{\text{In}, \text{Out}\}}$, and we also use $\mathbf{V} = (\mathbf{V}^i)_{i \in \{W, F\}}$. Here, wages achieve transfers of utility that move the net surpluses of the parties while keeping joint surplus constant.

The two-dimensional surpluses can be collapsed to a one-dimensional, single *joint* job surplus concept, defined as: $S(\mathbf{V}) = \overbrace{V_{\text{In}}^W + V_{\text{In}}^F - V_{\text{Out}}^W - V_{\text{Out}}^F}^{S^W(w, \mathbf{V}^W) + S^F(w, \mathbf{V}^F)}$.

Reservation Wages Reservation wages \underline{w}^W for the worker and \bar{w}^F for the firm achieve zero surplus for the respective party, i.e., $S^W(\underline{w}^W, \mathbf{V}^W) = 0$ and $S^F(\bar{w}^F, \mathbf{V}^F) = 0$. This setup makes clear that the reservation wages of the firm and the worker are sufficient statistics of a wide class of potential values for outside options and the value of the job and surpluses. Joint surplus can be expressed as the difference in reservation wages, i.e., $S(\mathbf{V}) = \bar{w}^F - \underline{w}^W$.

The Bargaining View We can interpret the results through the lens of a simple bargaining model, with bilaterally efficiency, as in Nash bargaining.

The essence of bilaterally efficient wage bargaining is that the parties find a wage within the *bargaining set* of reservation wages $w \in [\underline{w}^W, \bar{w}^F]$, where $S^W(\underline{w}^W, \mathbf{V}^W) = 0$ and $S^F(\bar{w}^F, \mathbf{V}^F) = 0$, any of which implements the bilaterally efficient allocation: forming and maintaining matches that carry non-negative *joint* – rather than private – job surplus (i.e. whenever $\bar{w}^F \geq \underline{w}^W$). The wage splits this joint surplus between the worker and firm to satisfy both participation constraints.

Nash Bargaining A canonical bargaining protocol is Nash bargaining. Here, the worker [firm] receives their outside option (or reservation wage), plus fraction β [resp. $1 - \beta$], the party's bargaining power, of the surplus (the reservation wage difference):

$$\begin{aligned} & \max_w \left([V_{\text{In}}^W + w] - V_{\text{Out}}^W \right)^\beta \cdot \left([V_{\text{In}}^F - w] - V_{\text{Out}}^F \right)^{1-\beta} \\ \Rightarrow w^N &= [V_{\text{Out}}^W - V_{\text{In}}^W] + \beta \cdot S \\ &= \underline{w}^W + \beta \cdot [\bar{w}^F - \underline{w}^W]. \end{aligned}$$

We can also exploit a simple rearrangement of this expression, whereby we can measure the implied worker bargaining power parameter β :

$$\beta = \frac{w - \underline{w}^W}{\bar{w}^F - \underline{w}^W}. \quad (3)$$

3.2 Results

This section summarizes the distribution of worker, firm and joint surplus. We rely on the following definitions:

- joint surplus = firm reservation wage - worker reservation wage
- worker surplus = current wage - worker reservation wage
- firm surplus = firm reservation wage - current wage

where reservation “wages” are in terms of annual salaries. Note also that joint surplus = worker surplus + firm surplus, and worker surplus = $\beta \cdot$ (joint surplus). We sometimes express these quantities in percentages, by dividing them by the worker's current annual salary.

Surplus Figure 1 plots the distribution of rents in the labor market. The figure presents histograms of worker, firm, and total surplus. The left column reports the surplus in nominal terms with an annual horizon. The right column expresses surplus as a percent of workers' salaries—Panels (b) and (d) therefore represent simply the answers to the questions about reservation pay cut/raise for the worker/firm. Worker and firm surplus are calculated at the worker level based on the worker and firm reservation wages reported by workers. Total surplus is the sum of worker and firm surplus.

The figure makes clear that workers report that the size of rents in the labor market is substantial. The median respondent gauges joint job surplus to make up 20% of their salary, with a mean of 20.8% and a standard deviation of 14.8%. In absolute terms, median surplus is €7,500 and mean surplus €11,600. Our calculation uses the fact that the difference between the firm's and the worker's reservation wages gives a direct, nonparametric measure of the *joint surplus* of the job. Our results for the size of job surplus and thus the importance of imperfect competition in the labor market are on a similar order of magnitude as other, indirect estimates in the literature. Reviewing studies of hiring costs (e.g., Oi, 1962), search activity of the unemployed (e.g., Krueger and Mueller, 2010), and the costs of job loss (e.g., Jacobson, LaLonde, and Sullivan, 1993), Manning (2011) concludes that the size of overall rents in the labor market is about 15 to 30%.

The Distribution of Surplus In our data, most of the surplus accrues to workers: the median worker share of joint surplus is 0.77, with a mean of 0.72 and a standard deviation of 0.29. Figure 2 Panel (a) reports the distribution of the worker share of surplus.

Our calculation uses the fact that the share of joint surplus going to the worker is equal to the ratio of the actual minus worker's reservation wage, over the joint job surplus.

Nash Interpretation We also exploit the result above, whereby, under the assumption of Nash bargaining, we can measure the implied worker bargaining power parameter $\beta =$

$\frac{w-w^W}{\bar{w}^F-\underline{w}^W}$. As in Figure 2, worker and firm reservation wages are computed by subtracting the maximum acceptable percent pay cut and adding the maximum anticipated percent pay raise to the worker’s current annual salary, respectively. Hence, from the perspective of Nash bargaining, the distribution of surplus between the worker and the firm identify the Nash bargaining parameter.

Meta-Analysis: Comparison to Bargaining Power Estimates in the Literature

Interpreted through the lens of Nash bargaining, we find that workers believe that they have a relatively high bargaining power above 0.7 (despite considerable heterogeneity). In Figure 2 Panel (b), we compare the mean and median worker bargaining power parameters with existing calibration choices, chiefly in the macro literature. Our measured values fall squarely in that range. By contrast, our measured value is much higher than the worker bargaining power parameters that are implied by rent sharing estimates.

Surplus Heterogeneity Having documented variance in the distribution of surplus across workers, we next assess heterogeneity across several observable dimensions. Our first analysis is guided by different classes of models, which predict a positive relationship between tenure and worker surplus (Lazear, 1979) or the share of surplus going to workers (Cahuc, Postel-Vinay, and Robin, 2006).

We report results for the worker share of surplus in Figure 3 Panel (a). Longer tenure is indeed associated with a higher share of surplus going to workers. The slope implies that a ten year increase in tenure is associated with a 5 percentage point increase in the worker surplus share. In Panel (b), we find a similar, positive relationship between age and workers’ share of surplus with a slope of 0.003 implying that a ten year increase in age is associated with a three percentage point increase in workers’ surplus share.

We report results for worker, firm, and joint surplus in Figure 5 Panel (a). We find that joint surplus increases with age from around €10,000 at the beginning of the match with a

slope of about €160 per year. The increase in joint surplus is entirely driven by increases in *worker* surplus. A ten year increase in tenure is associated with a €1700 increase in annual worker surplus. In contrast, firm surplus is entirely flat in tenure. We find a similar although less pronounced relationship between the three surplus concepts and age and report results in panel (b).

Next, we study surplus and its division by education. Figure 3 Panel (b) reports the relationship between the worker share of surplus and years of education. The relationship is flat with a negative point estimate of -0.007 (SE 0.004). Strikingly, while we find no differences in surplus *shares* (interpreted as bargaining power in a Nash framework), we find sharp differences in surplus *levels* and report results in Figure 5 Panel (c). Joint surplus, measured at an annual frequency, increases by €1200 (SE €170) per year of education. Workers reap about two thirds of the increase in joint surplus by education levels.

We next assess the worker share of surplus by gender, following a long tradition of work documenting differences in bargaining power between men and women (Black and Strahan, 2001; Card, Cardoso, and Kline, 2015). We report results in Figure 4 Panel (a). We find similar perceived bargaining power of male and female workers. If anything, women perceive a slightly higher bargaining power compared to men. In particular, a higher share of women responds that they have all the bargaining power (i.e. that their employer is at their reservation wage). We plan to further explore to what extent this pattern of results might explain why on more conventional measures of bargaining power, e.g., identified through rent sharing, women seem to hold less bargaining power compared to men. An alternative interpretation is that female workers may be wrong about how much employers are willing to pay (consistent with evidence in Roussille, 2020).

Finally, we split workers by a measure of whether their wages are negotiable. The scenario we asked about is whether workers could use a substantially better paid outside offer as leverage in a wage negotiation with their current employer. We report results in Figure 4

Panel (b). We find a substantially higher share of the surplus going to workers in the group with *non-negotiable* wages. The difference appears to be driven by the share of workers who respond that their firm is at their reservation wage.

Validation Exercise In Figure 6, we present a validation exercise. We use an additional question that asks the worker about the probability that they will quit for another employer in the next three months. The graph shows that worker surplus has a robust, negative effect on the intention to quit; in contrast, firm surplus is not associated with a change in the probability to quit. Quantitatively, a ten percentage point increase in surplus is associated with a four percentage point decrease in the probability to quit for another employer in the next three months. This provides a first validation check that the surplus measures we construct predict behavior.

In a next step, we will use the panel structure from the 2020 wave of the GSOEP, where we track the original respondents. There, we will additionally look at *realized* turnover, as well as the persistence of the answer within a given respondent. Those data will become available in April, 2021. We will incorporate that additional data and those results in a public draft to be circulated ahead of the conference. We are also about to analyze a matched dataset linking our survey respondents' answers to their administrative labor market histories (SOEP-ADIAB). We will use both datasets to conduct the same type of validation check, but using actual rather than intended quit behavior as the outcome.

Comparison to Industry- and Firm-Level Measures of Rents Drawing on the matched SOEP-ADIAB data, we will further compare our measures of worker- and firm-level rents to more conventional estimates from the administrative data. First, we will measure the relationship between perceived markups above the reservation wage (wage-reservation wage)/reservation wage) and AKM pay premia in the administrative data. Second, we will analyze the relationship between worker surplus and separation rates at the establishment

as a revealed-preference (but hard to quantitatively interpret) measure of rents.

4 Employer Monopsony: the Firm-Specific Separation and Labor Supply Curves

As a second worker-level measure of the degree of competitiveness of the labor market, we view the distribution of rents from the perspective of a model of employer monopsony.

4.1 Conceptual Framework

In models of employer monopsony, firms fill jobs with workers whose reservation wage is at most as high as the posted wage. The cumulative distribution function of the worker reservation wage gives the firm-specific labor supply curve at the separation margin. To account for heterogeneity in wages, we normalize the reservation wage by the worker's actual wage, constructing a reservation pay cut as in Mui and Schoefer (2021). We can thereby trace out a series of arc elasticities of the separation margin.

4.2 Results

The Nonparametric Separation Curve Figure 7 reports the cumulative distribution function (CDF) of the reservation wage cuts as a fraction of actual wage in the survey. The CDF exhibits some clear mass points at round numbers and at increments of 0.05. These mass points will be smoothed out when we translate the curve into arc elasticities (where we report both raw and smoothed curves), and turn out to have minor effects on the shape of the curve.

Implied Separation Elasticities Figure 8 reports arc elasticities at the separation margin to firm-specific wage cuts. We find separation elasticities of around 2 for large wage cuts,

but very high local elasticities, implying that many workers are marginal to small changes in the firm-specific wage, but those elasticities drop quickly to about 4 for wage cuts about 10%. These numbers are on the higher end of existing estimates. The figure also reports, as horizontal lines, benchmarks from the literature. Clearly, the curve our survey traces out is not well described by any single elasticity: for small wage changes, many workers are at the margin, and hence report wanting to separate. By for larger wage cuts, the implied arc elasticity shrinks.

Overall, the curve confirms a substantial degree of monopsony, plausibly driven by worker heterogeneity, switching costs, or firm-specific amenities. Our reservation wage approach provides a sufficient statistic for all factors relevant to the separation curve.

Implied Firm-specific Labor Supply Elasticities Following the literature (e.g., Manning, 2003; Bassier, Dube, and Naidu, Forthcoming), we can transform the separation elasticity into the elasticity of labor supply by doubling it. One simple assumption leading to this result is an equality of the separation and recruitment elasticities; however, the result can also be obtained with heterogeneous separation and recruitment elasticities.

5 Conclusion

We have drawn on a representative survey in Germany to measure worker beliefs about the size and distribution of rents in the labor market. Responses to questions about worker and firm reservation wages imply that job surplus is large, at 20% of wages for the median respondent, rejecting the frictionless benchmark with no job surplus. Most of the job surplus accrues to workers, with implied average bargaining power of 0.72. Worker surplus increases with age and tenure, while firm surplus is flat. Worker reservation wages identify separation elasticities that are high (above 4) for small wage cuts, and fall towards 2 for larger wage

cuts.

Open questions we are actively investigating for inclusion in the next version are additional validation exercises (using the panel structure of the next GSOEP wave), the persistence of reservation wages across waves within a sampled individual, and heterogeneity. Moreover, we are working on a calibrated model of employer competition with sequential auctions (as in, e.g., Cahuc, Postel-Vinay, and Robin, 2006), and will benchmark our worker surplus share against those model-implied findings. Finally, our design takes at face value workers' beliefs about surplus, which amounts, from the perspective of worker surplus, to knowing their outside options (and also accurately predicting firm values to assess firms' reservation wages). Specifically, it is conceivable that workers may be misinformed about outside options at other employers. In ongoing work, Jäger, Roth, Roussille, and Schoefer (2021) draw on GSOEP data to provide an empirical assessment of biased beliefs about outside options at other employers and draw implications for wage bargaining and job mobility.

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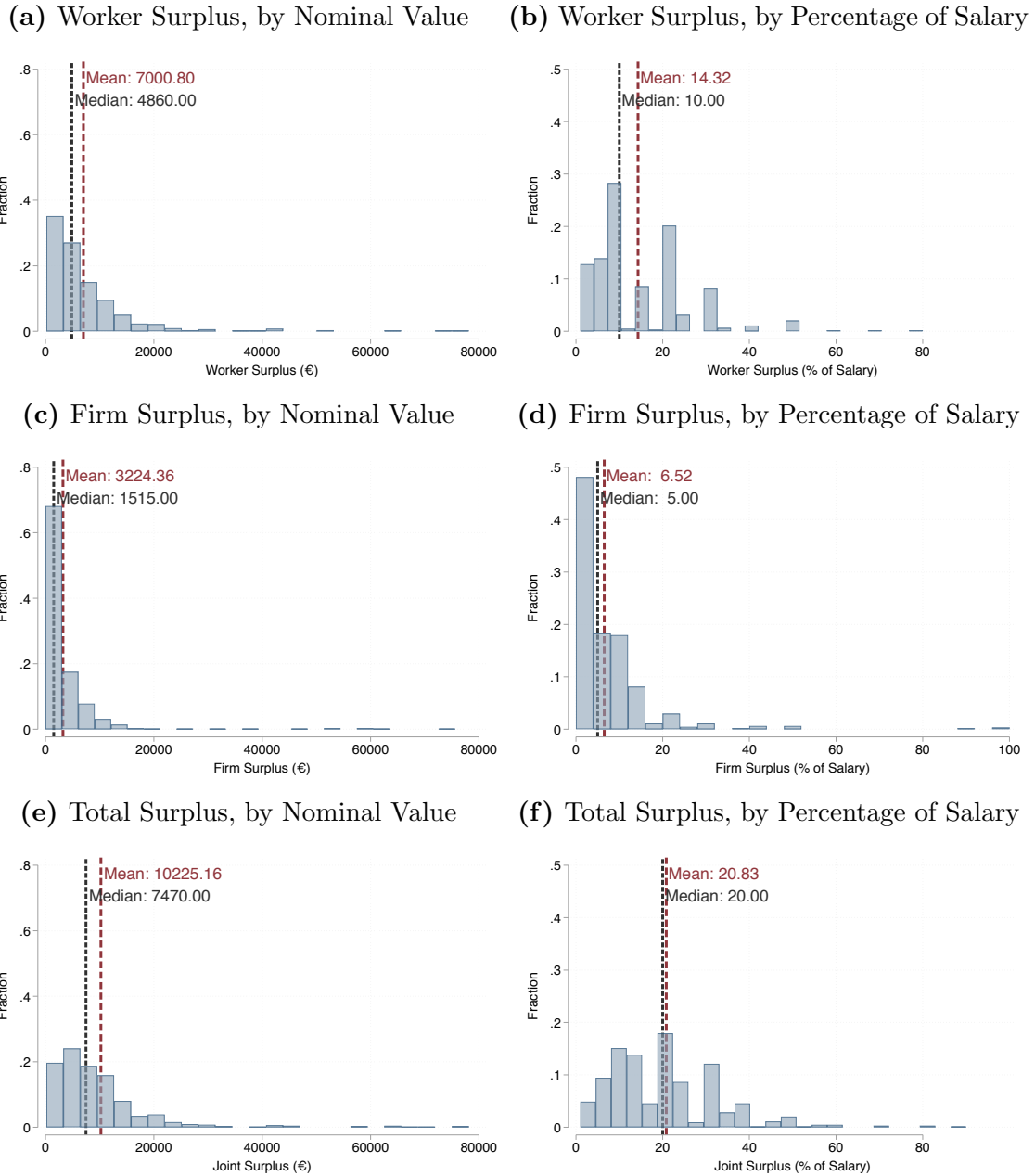
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Figures

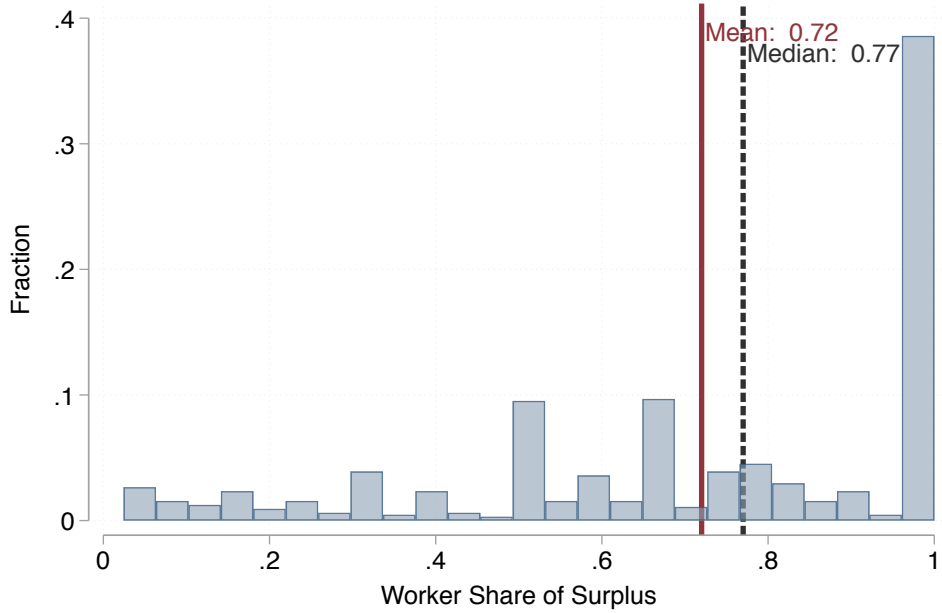
Figure 1: Distribution of Surplus



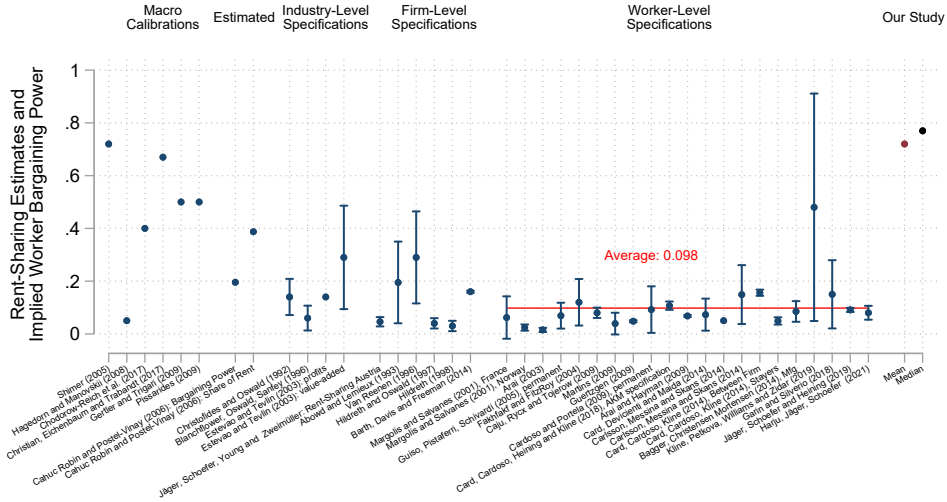
Note: The figure reports histograms of worker, firm, and total surplus. The left column reports the surplus in nominal terms with an annual horizon. The right column expresses surplus as a percent of workers' salaries. Worker and firm surplus are calculated at the worker level based on the worker and firm reservation wages reported by workers. Total surplus is the sum of worker and firm surplus.

Figure 2: Distribution of Job Surplus and Implied Bargaining Power

(a) Distribution of Worker Share of Surplus

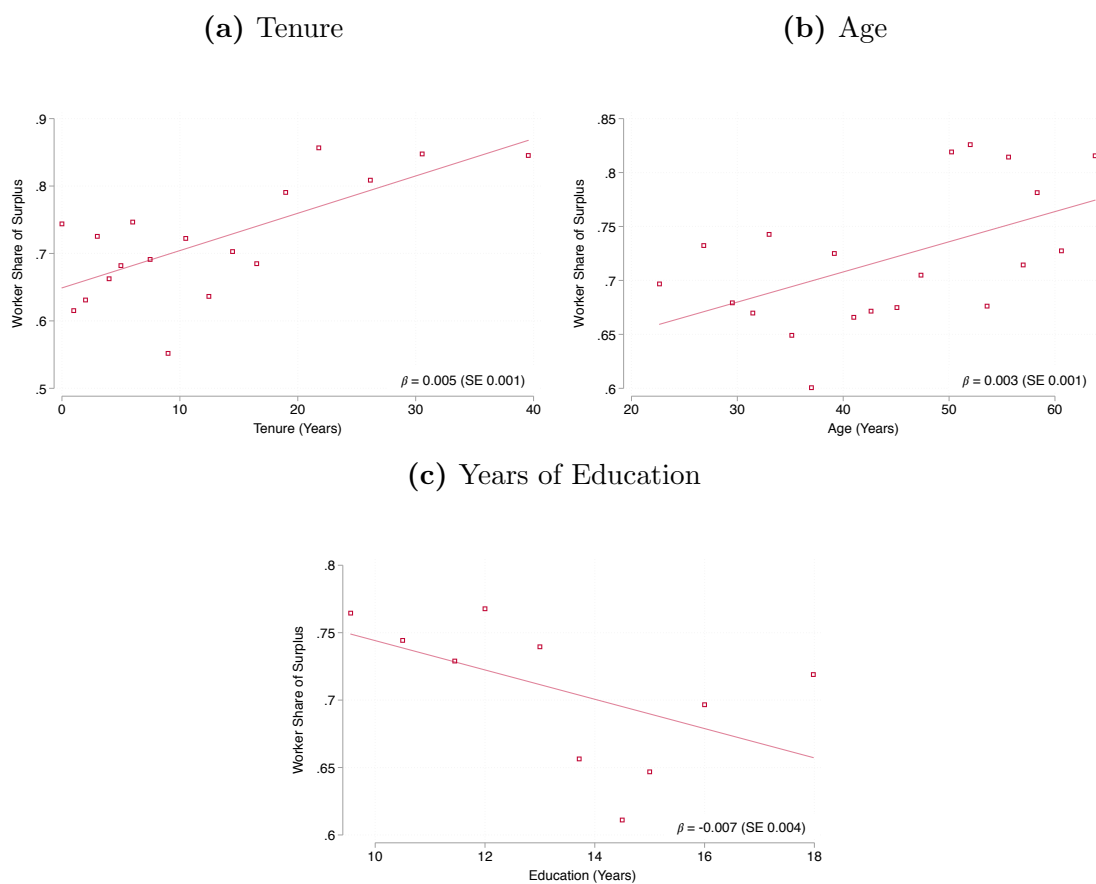


(b) Meta Analysis: Worker Bargaining Power and Rent Sharing Estimates



Note: Panel (a) reports the distribution of workers’ share of surplus. It is calculated as the ratio of a worker’s wage net of their reservation wage and total surplus, i.e. the difference between stated firm and worker reservation wages. Panel (b) situates the implied estimates of worker bargaining power relative to estimates in the literature. The rent-sharing estimates are taken from Jäger et al. (2020).

Figure 3: Heterogeneity of Worker Share of Surplus: Tenure, Age, and Education



Note: The figure reports binned scatter plots of the worker share of surplus plotted against tenure, age, and years of education. The worker share of surplus is calculated as the ratio of a worker's wage net of their reservation wage and total surplus, i.e. the difference between stated firm and worker reservation wages.

Figure 4: Heterogeneity of Worker Share of Surplus: Gender and Negotiable Wages

(a) Gender

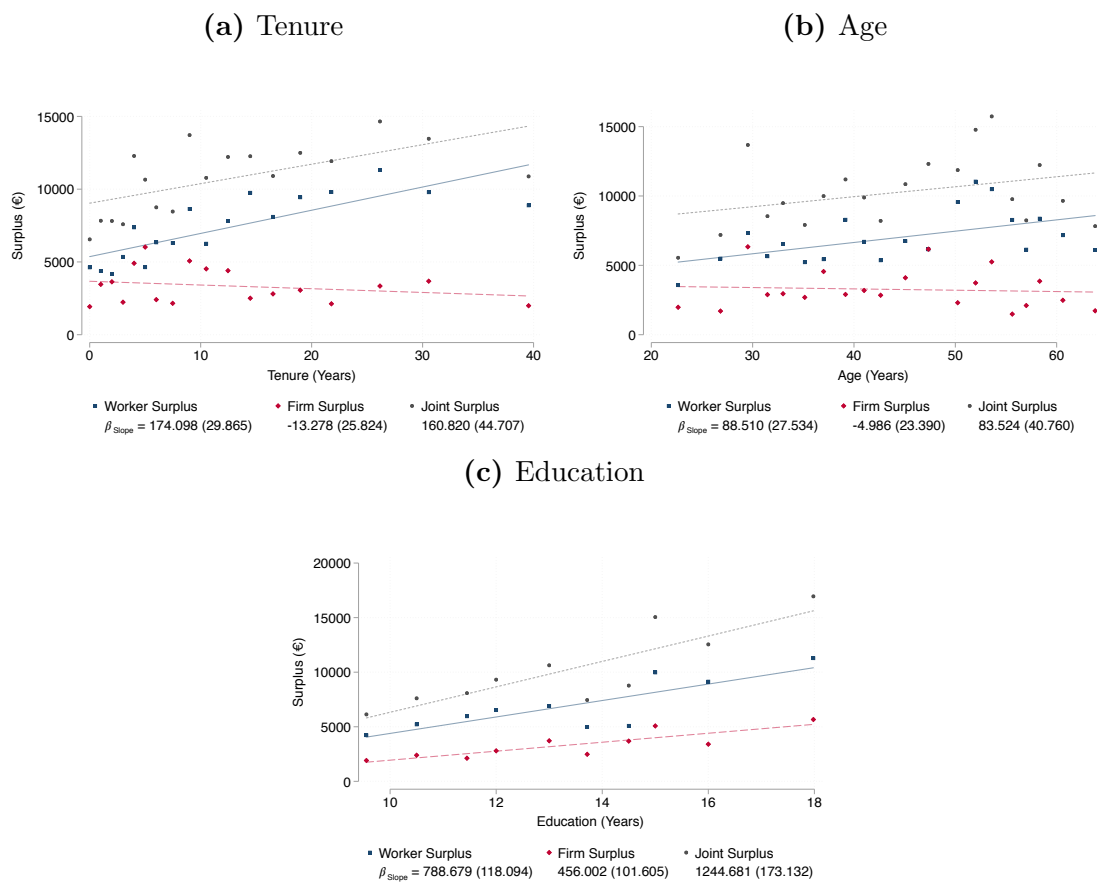


(b) Tenure



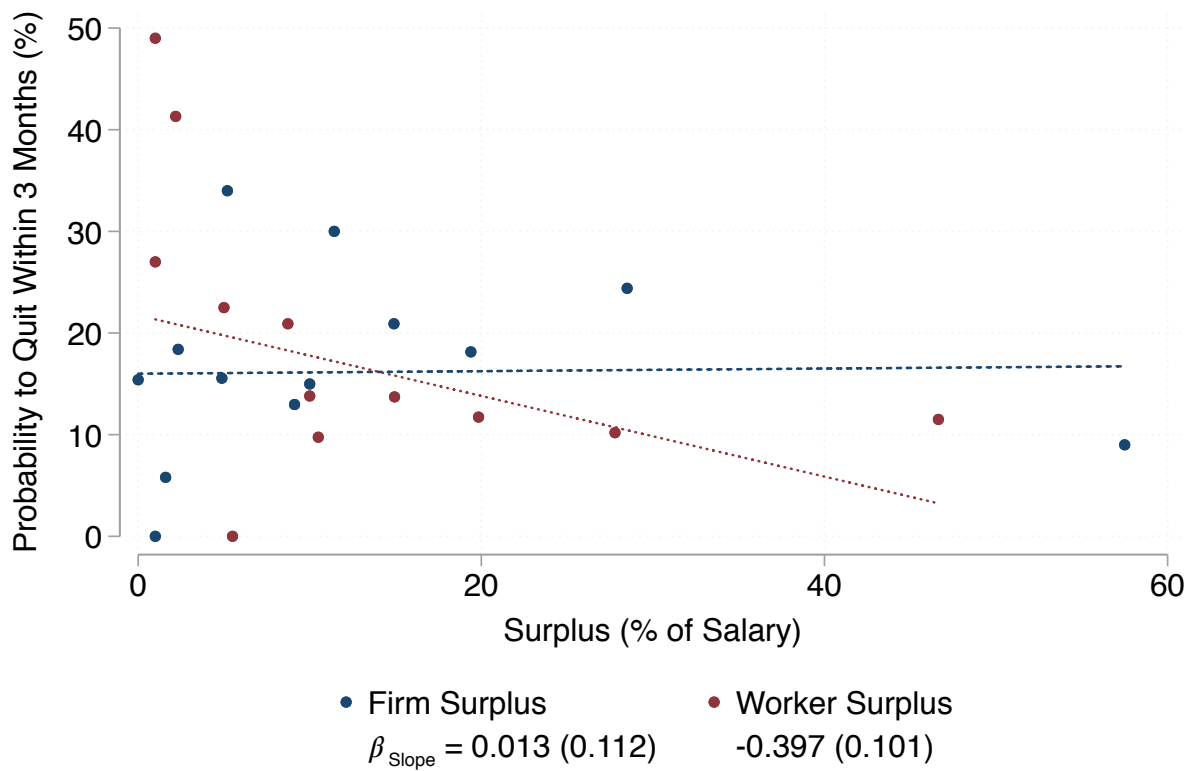
Note: The figure reports histograms of the worker share of surplus by gender in Panel (a) and by whether workers report being able to use an outside offer in wage negotiations in Panel (b). The worker share of surplus is calculated as the ratio of a worker's wage net of their reservation wage and total surplus, i.e. the difference between stated firm and worker reservation wages.

Figure 5: Heterogeneity of Worker, Firm, and Joint Surplus: Tenure, Age, and Education



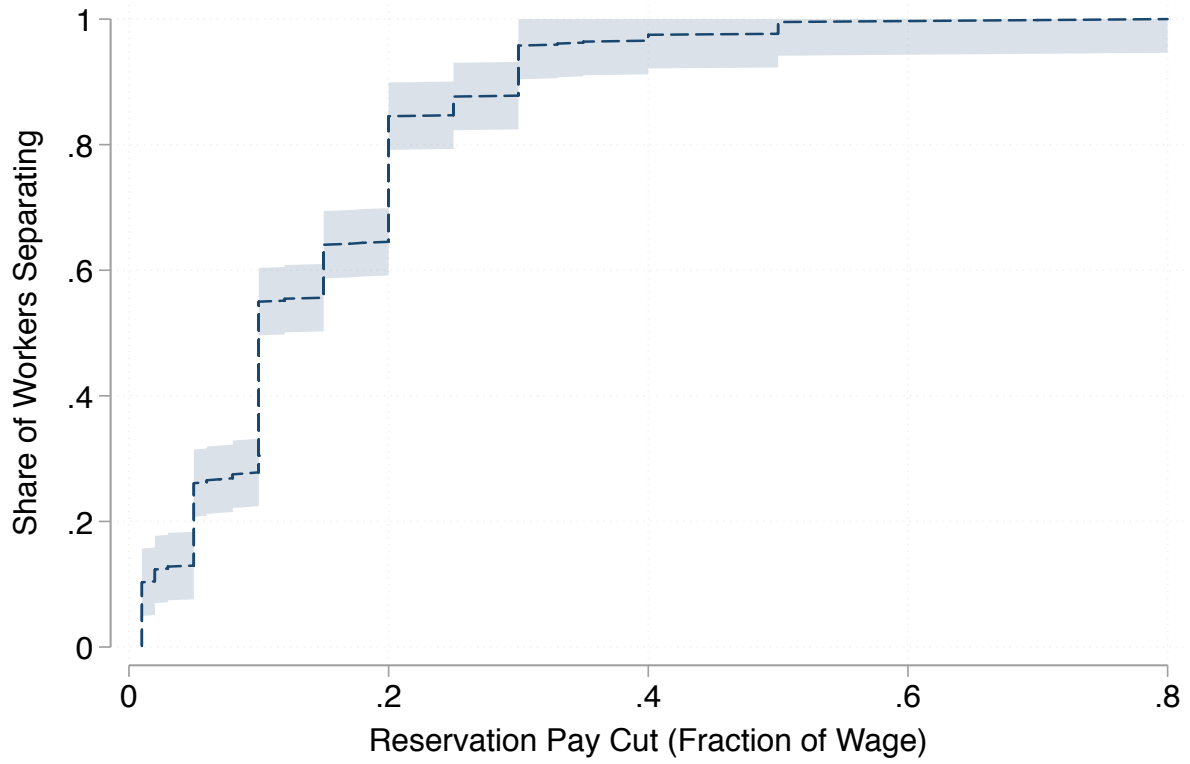
Note: The figure reports binned scatter plots of worker, firm, and joint surplus (€) against tenure, age, and years of education. Worker and firm surplus are calculated at the worker level based on the worker and firm reservation wages reported by workers. Total surplus is the sum of worker and firm surplus.

Figure 6: Validation Check: Intention to Quit and Surplus



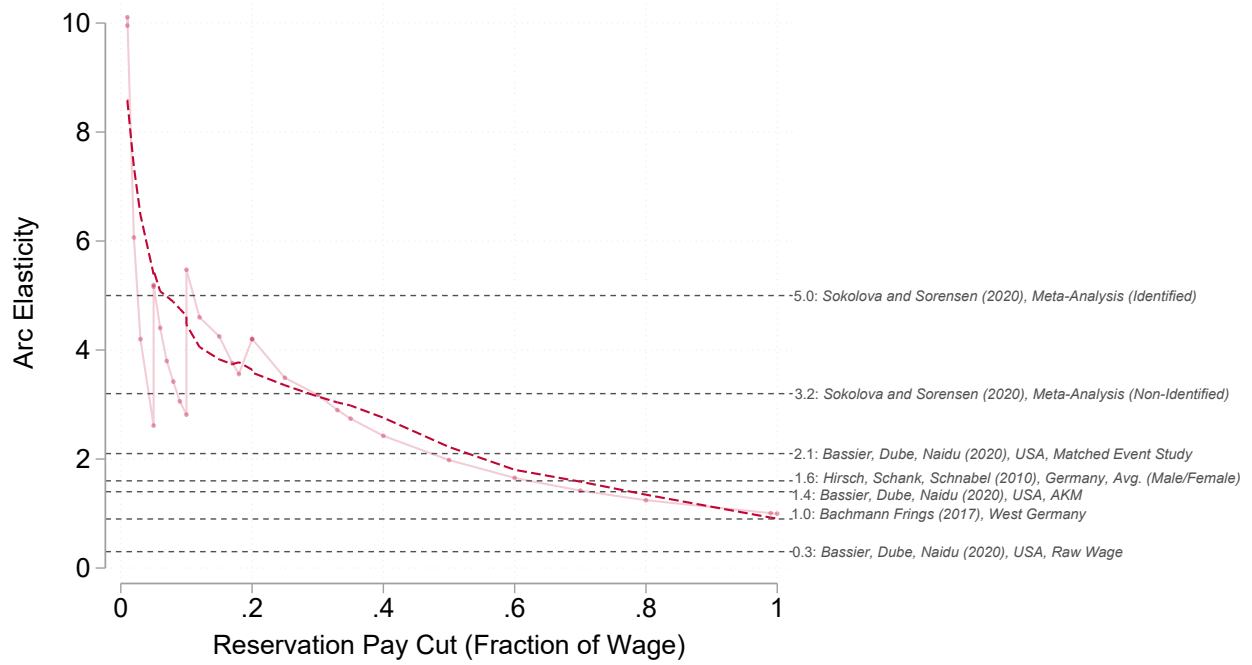
Note: The figure reports plots the intention to quit for another employer within three months against worker and firm surplus.

Figure 7: Cumulative Distribution Function



Note: The figure reports the cumulative distribution function (CDF) of the reservation wage cuts as a fraction of actual wage in the survey.

Figure 8: (Arc) Elasticity of Separations to Firm-Specific Wage Cuts



Note: The figure reports arc elasticities at the separation margin to firm-specific wage cuts.

Tables

Table 1: Summary statistics

	(1) Full Sample	(2) Full-time Employed Sample	(3) Analysis Sample (Cleaned)
Age (years)	54.85 (18.38)	45.06 (12.29)	43.60 (11.83)
Education (years)	12.49 (2.727)	13.13 (2.830)	13.13 (2.752)
Annual salary €	35599.5 (27741.0)	46520.5 (28453.9)	46514.9 (27783.8)
Tenure (years)	11.43 (11.28)	12.54 (11.40)	11.24 (10.72)
Married	0.562	0.545	0.522
Female	0.532	0.343	0.309
Employed full-time	0.327	1	1
Employed part-time	0.143	0	0
Wage negotiable	0.383	0.390	0.439
Worker surplus	6035.6 (7540.0)	7041.8 (8346.5)	7000.8 (8297.2)
Firm surplus	3581.8 (30098.9)	4588.8 (35881.2)	3224.4 (6992.2)
Joint surplus	9607.0 (31286.8)	11612.7 (37025.3)	10225.2 (12224.5)
<i>N</i>	2752	901	640

Note: The analysis sample is restricted to full-time workers with nonmissing salary information, and who responded to the worker and firm reservation wage question.