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# Are recruiters reluctant to hire part-time working men?

## Evidence from online labor market data

Daniel Kopp\*

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### Abstract

Part-time work is a popular way to reconcile work and family obligations. This study uses large-scale observational data from an online recruitment platform and an online job board to examine how easy it is to get a part-time job and whether this depends on the gender of a jobseeker. First, I relate the number of hours stated on job advertisements to the gender preferences of firms indicated in a confidential online form. Second, I analyze hiring decisions of recruiters who navigate through jobseeker profiles. I estimate contact penalties for male and female jobseekers looking for part-time jobs by applying supervised machine learning to control for all relevant jobseeker characteristics visible to recruiters and by exploiting within jobseeker changes of hours preferences over time. I find that recruiters prefer full-time over part-time workers and that the part-time penalty is much more pronounced for men than for women, even when comparing applicants for the same position. Hence, the gender differences cannot be explained by differences in job or workplace characteristics. Instead, the preponderance of evidence points towards bias coming from gender stereotypes.

*JEL Classification:* J16, J23, M51

*Keywords:* Recruitment, part-time, gender equality, hiring, online labor markets

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# 1 Introduction

The gap between men and women in the labor market has narrowed along several dimensions over the last decades (Goldin, 2014), but significant differences remain, in particular a very unequal distribution of paid and unpaid labor. Women are less often employed than men, and if they are, they work more often part-time. In return, they are responsible for the bulk of unpaid care and domestic work (OECD, 2017). The gender gap in hours worked on the job and hours spent on housework is closely related to gender gaps in other labor market outcomes (Alon et al., 2020; Blau and Kahn, 2017; Cha and Weeden, 2014; Denning et al., 2019). Hence, a more equal division of paid and unpaid labor between men and women is crucial to achieving greater gender equality. Increasing the share of part-time working men could be one way to get closer to this goal.<sup>1</sup> But how easy is it to find a part-time job? Are there differences between men and women? While we know a lot about worker preferences for part- or full-time positions (Lyonette, 2015; Mas and Pallais, 2020; Bell and Blanchflower, 2013), little is known about recruiter preferences for full- or part-time workers.

I address this gap by investigating whether recruiters prefer full- or part-time workers and how these preferences depend on the gender of a jobseeker. I draw on large-scale observational data from Job-Room, the online job and recruitment platform of the Swiss Public Employment Service. This platform combines two functionalities: Jobseekers can search for job opportunities by navigating through job ads posted by firms. And employers can screen the profiles of jobseekers registered with the Swiss Public Employment Service to find suitable candidates for their open positions. I draw on unique data generated by both functionalities.

First, I analyze 563,444 vacancies posted by employers on Job-Room between July 2018 and June 2021. Among other job requirements, all ads contain information on the number of working hours expressed in full-time equivalents (FTE).<sup>2</sup> In addition, firms can indicate a jobseeker’s preferred gender in a confidential online form.<sup>3</sup> 15,739 vacancies

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<sup>1</sup>Greater popularity of part-time work among men might also mitigate the existing downsides of part-time jobs, such as occupational downgrading (Connolly and Gregory, 2008; Manning and Petrongolo, 2008), a lower promotion likelihood (Deschacht, 2017; Francesconi, 2001; Russo and Hassink, 2008), and lower social security benefits (Doran et al., 2019), which so far affect predominantly women.

<sup>2</sup>Full-time equivalents express the number of hours as a percentage of a full-time position. E.g., a 50% part-time job requires half the working hours of a full-time job. In Switzerland, this is the usual way for companies to state the number of hours an employee has to work.

<sup>3</sup>The information is not published on the platform. It is only visible to caseworkers at the Swiss Public Employment Service who help registered jobseekers to find a job. Note that Job-Room provides only a binary option (male/female) for the preferred gender. The same holds for the gender self-identification when jobseekers register on Job-Room.

contain information on the preferred gender of a jobseeker. As of June 2020, I also know if, when and by whom a job ad was opened. I provide descriptive evidence on the job opportunities of jobseekers searching for a part-time job on Job-Room and assess the relationship between the number of working hours a job requires and the gender preferences of recruiters.

Second, I analyze click data from 43,352 recruiters screening the profiles of 313,566 different jobseekers on Job-Room between March and December 2017.<sup>4</sup> The recruiters carry out 452,729 search requests resulting in 17.4 million jobseeker profiles that appear on the results lists on the recruiters' computer screens. The profiles contain information on a variety of jobseeker characteristics, including gender and whether an individual is seeking a part-time or full-time position, expressed in FTEs. Since every click of recruiters has been recorded, I know which profiles they look at, how long they do so, and whom they eventually try to contact. Because the data can be linked to the unemployment register, I have even more information about jobseekers than recruiters do. I apply two complementary identification strategies to estimate the causal effect of a jobseeker's preferred number of hours on the likelihood to be contacted by a recruiter and how this effect depends on the gender of a jobseeker. Following Hangartner et al. (2021), I make use of the fact that I possess information on all jobseeker characteristics that are shown to recruiters on Job-Room and apply a conditional-on-observables identification strategy (Barnow et al., 1981). In particular, I apply the post-double-selection method, a machine-learning approach for variable selection developed by Belloni et al. (2012, 2014), to ensure that the model contains all job seeker characteristics that are systematically correlated with the contact likelihood, gender, and the jobseeker's preferred number of hours. The model also contains search fixed effects, implying that all coefficients are identified by comparing jobseekers who appear on the same results list and are evaluated by the same recruiter. Then I run ordinary-least-squares regressions. Assuming that only jobseeker characteristics visible to recruiters can influence their decision on whether to contact a jobseeker, I can estimate the causal effect of the preferred number of hours on the contact probability for men and women. High-powered placebo tests support the validity of the assumption. The second identification strategy exploits that more than 3,900 jobseekers on Job-Room change their preferred number of hours during the observation period. By running within-jobseeker regressions, identification of the causal effect of the preferred number of hours on the contact likelihood is based on comparing the contact likelihood of the same jobseeker before and after changing the preferred number of hours. Both

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<sup>4</sup>In Hangartner et al. (2021) we use the same data to assess ethnic and gender discrimination.

identification strategies yield very similar results.

The analysis leads to several findings. First, both job ad data and recruiter click data show that recruiters clearly prefer full-time over part-time workers. Companies post significantly more full-time than part-time jobs. Since the share of jobseekers looking for a part-time job is larger than the share of part-time jobs offered by firms, the ratio of jobseekers to vacancies is less favorable for jobseekers seeking part-time employment than for jobseekers looking for a full-time job. The analysis of the selection behavior of recruiters on Job-Room’s candidate search platform also shows that recruiters prefer full-time to part-time workers. In 24% of all search requests, recruiters specifically look for full-time workers. In contrast, in only 3% of the searches they restrict results to part-time workers. I draw on the remaining 73% of search requests, i.e. searches in which recruiters do not specify the required number of working hours ex ante, to estimate the effect of a jobseeker’s preferred number of working hours on the probability of being contacted by a recruiter. Once again, I find that recruiters prefer jobseekers looking for a full-time job over observationally identical jobseekers searching for a part-time position. The magnitude of the part-time penalty is inversely related to the preferred number of hours. The lower the desired number of hours, the larger the part-time penalty. Moreover, the estimated part-time penalty is large compared to the reduction in the contact likelihood triggered by a lack of work experience, a lack of language skills, or missing educational certificates. The findings suggest that firms are quite inflexible when it comes to accommodating workers’ wishes regarding working hours.

Second, the analyses of both data sets show that the part-time penalty is much more pronounced for men than for women. The percentage of part-time job ads on Job-Room that state a preference for women is nearly five times the percentage of part-time job ads with a preference for men. This gender gap cannot be explained by differences in gender preferences across industries, occupations, or firms. On the other hand, firms state more often a preference for men than for women when posting a full-time job. These results are corroborated by an analysis of the recruiter click behavior on the candidate search platform: Women seeking part-time jobs are 10% less likely to be contacted than women with identical characteristics who appear on the same results list but are looking for a full-time job. Men, on the other hand, face an average part-time penalty of 22%. Moreover, while the female part-time penalty increases linearly as the preferred number of hours decreases, the male part-time penalty rises sharply when male job seekers look for a job with slightly fewer hours than a full-time position. Men seeking 90% part-time jobs are at an even greater disadvantage than women looking for 50% part-time jobs.

I explore several mechanisms that could rationalize these findings. One possible explanation for why firms prefer full-time over part-time workers is related to their production technology. Some features of the production technology, such as high fixed costs per worker, could make hiring part-time workers more expensive than hiring full-time workers. Such an explanation is consistent with the inverse relationship between the preferred number of hours and the part-time penalty. On the other hand, I find no evidence that the part-time penalty in an occupation is related to indicators that, according to the literature, represent technologies that are (not) suitable for part-time work.

Moreover, it is extremely unlikely that technological features explain the gender differences in the part-time penalty. First, the analyses of the job ad and the recruiter click data show that the gender gap in the part-time penalty is not driven by differences across industries, occupations, firms, recruiters, or jobs. For instance, the gender differences in the part-time penalty estimated with the recruiter click data are identified by comparing male and female jobseekers with different hours preferences on the same results list. Since they are evaluated by the same recruiter in the same occupation and most likely compete for the same job, technological factors should affect them to the same degree and can not explain why recruiters treat men and women seeking part-time employment differently. Second, the sharp, non-linear increase in the male part-time penalty when deviating slightly from a full-time job is hard to reconcile with a technological explanation for the part-time penalty. This is because most technological explanations imply a smooth relationship between hours worked and the cost of hiring part-time workers, especially when hours worked are high.

A more likely explanation for the gender difference in the part-time penalty is based on theories of signaling and statistical discrimination (Spence, 1978; Arrow, 1973; Phelps, 1972; Aigner and Cain, 1977). In light of incomplete information, recruiters might use the number of hours a jobseeker wants to work as a signal for a worker's disutility of work, her motivation, or her productivity (Landers et al., 1996; Sousa-Poza and Ziegler, 2003). But why should they interpret a preference for part-time work differently depending on the gender of a jobseeker? I argue that beliefs about the distribution of unobserved characteristics of men and women seeking part-time work are likely to be influenced by gender stereotypes. Since women remain the primary caregivers in many households, recruiters are more likely to interpret their preference for part-time work as a necessity to balance work and household responsibilities rather than a sign of lack of commitment or motivation. Part-time working men, on the other hand, deviate from the male breadwinner norm. A preference for part-time work is therefore more likely to be interpreted as a



signal of low commitment, low ambition, or another deficiency that leads to difficulties in finding a full-time job.

Comparing jobseeker and worker characteristics that are possibly related to motivation or commitment, I find no evidence that part-time workers are less motivated or committed to their jobs than full-time workers, nor any evidence for gender differences. This raises doubts whether statistical discrimination based on accurate beliefs can explain the gender differences in the part-time penalty. Using the outcome of a popular vote on extending paternity leave as an indicator of the importance of traditional gender norms in a region, I find some—although not very robust—evidence that the relative disadvantage of men in seeking part-time employment compared to women is more pronounced in regions with more traditional gender norms. This finding and the documented pattern of the gender-biased part-time penalties are consistent with (implicit) biases due to gender stereotypes. Gender norms might therefore not only affect the decisions of jobseekers and workers (Fernández, 2013; Fernández et al., 2004; Bertrand et al., 2015; Blau et al., 2020) but also those of recruiters.

The findings have consequences for gender equality. A part-time penalty in hiring implies higher search costs and a reduction in the number of potential jobs for jobseekers seeking a part-time job. Hence, jobseekers looking for a part-time job have less outside options and therefore a weaker bargaining position than jobseekers searching for a full-time job. The (few) men who look for a part-time job are particularly affected, as their part-time penalty is even larger than that of women. However, the higher part-time penalty for men is also bad news for women, as it further reduces incentives for men to seek part-time jobs. This is an additional barrier to a more equal distribution of paid and unpaid work between men and women. Moreover, since many more women than men seek part-time employment, they are also heavily affected, even though their part-time penalty is lower than that of men.

This study adds to several literatures. First, it adds to the literature on the effects of low working hours on various outcomes such as promotions (Deschacht, 2017; Russo and Hassink, 2008), labor market segregation (Manning and Petrongolo, 2008; Connolly and Gregory, 2008), wages (Aaronson and French, 2004; Garnero et al., 2014), or social security benefits (Doran et al., 2019). However, to date there is little evidence on how the preferred number of working hours affects the job finding likelihood of jobseekers. An exception is Goos et al. (2019). Assessing the impact of automation on unemployed jobseekers with different task competencies, they also report a negative effect of a preference for part-time work on the job finding likelihood of unemployed jobseekers in Belgium.

Second, the study contributes to the vast literature on gender gaps in the labor market (for overviews see Bertrand, 2011; Blau and Kahn, 2017; Azmat and Petrongolo, 2014) and particularly to the increasing literature emphasizing the important role of gender differences in hours worked (Goldin, 2014; Denning et al., 2019; Gicheva, 2013). This literature attributes the gender gap in hours worked mainly to the different preferences of men and women for flexibility in the work schedule (Mas and Pallais, 2020; Goldin, 2014; Gicheva, 2013). My study focuses instead on the role of firms in determining the number of working hours of male and female workers. Consistent with my findings, few prior studies suggest that men who want to work part-time or who had a part-time job in the past experience greater difficulty at the workplace.<sup>5</sup> Since part-time work is often associated with family responsibilities, my study also relates to a literature in social psychology and personal economics investigating the effect of family-related employment interruptions on labor market outcomes of men and women (Albrecht et al., 1999; Theunissen et al., 2011; Rudman and Mescher, 2013; Allen and Russell, 1999). They find that these interruptions are usually more detrimental to men than to women.

Third, my study adds to a literature showing that workers can not freely choose their preferred number of hours due to hours constraints imposed by firms (Labanca and Pozzoli, 2022; Johnson, 2011; Chetty et al., 2011). If individuals are not free to adjust the number of hours worked at the intensive margin, labor supply adjustments occur primarily at the extensive margin. This has consequences for the design of welfare programs (Saez, 2002), but also for macroeconomic modeling. E.g., my findings support macroeconomic models based on indivisible labor (Hansen, 1985; Rogerson, 1988).

This study is organized as follows. In Section 2, I give a brief overview of the situation of part-time work in Switzerland. Section 3 describes the two data sources and provides some summary statistics. Sections 4 and 5 present the results of the empirical analyses of the job ad data and the recruiter click data, respectively. Section 6 discusses potential explanations for the empirical pattern documented in the previous sections and Section 7 concludes.

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<sup>5</sup>Becker et al. (2019) conduct a correspondence study in Germany, Switzerland, and Austria and investigate whether call-back rates depend on the family status of women and men. Although it is not the focus of their study, they report a much lower unconditional call-back rate for men applying for part-time jobs than for men applying for full-time jobs. In contrast, women applying to part-time jobs have almost the same call-back rate as women applying to full-time jobs. Pedulla (2016) investigates the impact of a history of part-time jobs on the likelihood of being invited to a job interview for men and women. He finds a negative effect for men but none for women. Backes-Gellner et al. (2011) find that part-time work puts men - but not women - at a disadvantage in accessing employer-provided training.

## 2 Part-time work in Switzerland

As in other OECD countries, women in Switzerland devote a much larger share of their total working time to unpaid work than men (see Figure B.1 in the Appendix). As a consequence, women exhibit a lower employment rate and a higher incidence of part-time work than men. However, in an international comparison, the employment rate of Swiss women is relatively high. Approximately 80% of all women between the ages of 15 and 64 have been economically active in 2019 according to the Swiss labor force survey. But a large share of them works only part-time. After the Netherlands, Switzerland has the second highest share of part-time workers in Europe, most of which are women (BFS, 2019). While 60% of employed women work part-time, only 18% of employed men do so (Swiss labor force survey 2019). The most important reason for women to take up part-time work is child-care, followed by other family obligations (BFS, 2019).<sup>6</sup>

In Switzerland, social security contributions per hour are not higher for part- than for full-time workers as is the case in some other countries (Boeri and van Ours, 2021). On the contrary, for part-time jobs that yield an income of less than 21,510 Swiss Francs per year (2021), employers do not have to pay contributions to the second pillar of the Swiss pension system making such work arrangements financially even more attractive compared to full-time jobs or part-time jobs with a high number of working hours.

## 3 Data sources

This study draws on data from Job-Room, the online job and recruitment platform of the Swiss Public Employment Service. Job-Room features a job posting platform, on which jobseekers can search for open vacancies, and a platform with jobseeker profiles, on which recruiters can search for candidates for their open positions. I use data from both functionalities to investigate whether recruiters prefer full- or part-time workers and whether their preferences depend on the gender of a jobseeker.<sup>7</sup>

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<sup>6</sup>Governmental subsidies for external child care are very low in Switzerland, making it relatively expensive for parents to send their children to a daycare center (Stern et al., 2015).

<sup>7</sup>This study is not the first to make use of these data. Data from the first platform have been used in a policy report by Bamert et al. (2021) to assess the implementation of the job vacancy notice obligation in Switzerland. Data from the second platform have been used by Hangartner et al. (2021) to investigate ethnic and gender discrimination.

### 3.1 Data from the job posting platform

Job-Room is one of the largest job posting platforms in Switzerland. Between July 2018 and June 2021, 563,444 vacancies have been posted on Job-Room. They cover all but one ISCO-2 occupations<sup>8</sup>. As Table 1 shows, occupations that usually require a lower skill level, e.g. elementary occupations, sales and service occupations, or craft occupations, are overrepresented on Job-Room compared to their share in overall employment. However, there are also a considerable number of posted job ads in occupations that usually require a higher skill level. E.g. 18% of all job ads search for managers, professionals, or technicians and associate professionals.

Table 1: Share of job ads posted on Job-Room in a given occupation and the corresponding share in total employment

	(1) Share job ads	(2) Share employment
Managers	0.021	0.104
Professionals	0.086	0.235
Technicians and associate professionals	0.071	0.195
Clerical support workers	0.107	0.092
Service and sales workers	0.215	0.159
Skilled agricultural, forestry and fishery workers	0.010	0.020
Craft and related trades workers	0.202	0.109
Plant and machine operators, and assemblers	0.044	0.043
Elementary occupations	0.243	0.043

Note: Column 1 shows the share of job ads posted in a given occupation on Job-Room. The sample covers job ads posted on Job-Room between July 2018 and June 2021. Note that 17.8% of the job ads have been assigned to more than one occupation. These job ads are counted more than once. Column 2 reports the employment share of the respective occupation. The employment share by occupation is computed using the Structural Survey of the Federal Statistical Office.

A large part of the information on the job ads has been codified, e.g. occupation, industry, location, firm size, type of work contract (limited/unlimited, temporary/permanent), whether the job exhibits special working conditions (night work, shift work, work from home, work on Sundays and public holidays), required language skills, experience, educational certificates, and drivers license, as well as the number of working hours expressed in FTE. Firms can also indicate a jobseeker's preferred gender in a confidential online form when submitting the job ad to Job-Room. This information is not published on the platform but should help caseworkers at the Swiss Public Employment Service to find jobs for the registered jobseekers. 5.2% of the job ads submitted to

<sup>8</sup>Only street and related trades and service workers are not covered

Job-Room during the observation period (29,150) contain information on the preferred gender. There is also a firm identifier in the data.

As of June 2020, the Swiss Public Employment Service started recording clicks on the job ads published on Job-Room. Hence, as of June 2020 I also know whether and when a job ad has been opened. Since the number of weekly working hours is stated quite prominently on the list of job ads a jobseeker sees after entering the search criteria (see Figure A.1 in the Appendix for a screenshot), this information is likely to affect the probability that she opens the ad. If the click stems from a jobseeker registered on Job-Room, I possess also some information on jobseeker characteristics.

### 3.2 Recruiter click data from the candidate search platform

The candidate-search platform of Job-Room provides employers with the profiles (online CVs) of jobseekers registered with the Swiss Public Employment Service. Recruiters can access the platform in order to search for candidates for their open vacancies. Jobseeker characteristics visible on the platform are entered by the case workers of the Swiss Public Employment Service. Registered jobseekers can opt out from showing their CV on the platform but only approximately 20% choose to do so.

Recruiters looking for candidates on Job-Room first have to specify search criteria that jobseekers should meet. Typical entries are occupation and place of work. They can also specify whether they search for full- or part-time workers. Gender cannot be entered as a search criterion. Figure A.2 in the Appendix shows a screenshot of this first selection step and Table B.5 in the Appendix reports summary statistics on all search criteria entered by recruiters apart from occupation.<sup>9</sup>

Second, recruiters get a list with at most 100 candidates who match the criteria. Figure A.3 in the Appendix shows a screenshot. Only exact matches are shown. On average, 38 jobseekers appear on a list. Each entry contains a fairly limited amount of information about the jobseeker: The desired weekly working hours (in FTE), gender, canton of residence, whether the jobseeker is immediately available, and, if the jobseeker entered the respective information, some additional skills.<sup>10</sup> Only information on additional skills are entered as unstructured text. All other information on Job-Room is presented in a structured (tabular) way. The textual information on additional skills has been encoded by a simple text mining algorithm.<sup>11</sup> 61% of all candidates make use of the possibility to

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<sup>9</sup>The occupational coverage is discussed later in this section.

<sup>10</sup>E.g., “Experience in long-term care, experience in Alzheimer and dementia care”.

<sup>11</sup>See Hangartner et al. (2021) for further details.

enter additional skills.

Third, recruiters can click on candidates appearing on the results list to access their profiles (see Figure A.4 in the Appendix for a screenshot). Recruiters open 23% of the profiles that appear on the results lists. The profiles comprise information about the occupations in which candidates are searching for jobs, the associated level of work experience, educational credentials, language skills, gender, place of residency, desired work region, driving licenses, and the number of hours a jobseeker wants to work. The preferred number of working hours is expressed in full-time equivalents FTE, ranging from 10% (about 4 hours a week) to 100% (about 40 hours a week). 100% is equivalent to a full-time job.<sup>12</sup> All information about a jobseeker visible on Job-Room is entered by a caseworker at the Swiss Public Employment Service. To invite a candidate for a job interview, recruiters must click on a contact button at the bottom of the candidate’s profile to access the contact information of the candidate or the regional employment agency where the candidate is registered. It is not possible to contact a candidate without a click on a contact button. Linking the recruiter click data to the unemployment register, Hangartner et al. (2021) show that a contact attempt by recruiters on Job-Room increases the job finding likelihood of jobseekers within the next few months.

Between March and December 2017, every click of recruiters screening the candidates on Job-Room has been recorded. The data contain information on the search criteria specified by recruiters, the characteristics of all jobseekers appearing on the results lists, the order of the lists, which of the jobseekers were selected for full profile view, how long the recruiters screened the profiles, and who they eventually tried to contact by clicking on the contact button. Since the data can be linked with the unemployment register, they contain not only information on jobseeker characteristics visible to recruiters but also on some characteristics that recruiters do not see on Job-Room (e.g. the age or the last insured wage).

After cleaning the data,<sup>13</sup> the final dataset contains 452,729 search requests carried

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<sup>12</sup>Private recruitment agencies registered on Job-Room can also see the nationality of a candidate. Moreover, if the jobseeker consents, they see the contact information of the jobseekers—including their names—and can contact them directly. All other recruiters must contact candidates through the regional employment agencies. The names of jobseekers have been classified according to their ethnic origin. See Hangartner et al. (2021) for more details. Although registered recruiters account for only 30% of all users, they are responsible for 73% of all search requests on Job-Room.

<sup>13</sup>Searches from automated bots, that scrape the platform in order to gather information on jobseekers, are dropped. The same holds for searches where no search criterion was specified (1.8% of all observations) and searches that take place within less than 10 seconds to the next search (3.4% of the remaining observations). In almost all of these cases, recruiters do not select a candidate but go back to re-specify the search criteria.

Table 2: Click behavior of recruiters on Job-Room’s candidate search platform

	(1) All searches	(2) No part-/full-time restrictions
Users (recruiters)	43,352	35,002
Jobseekers	313,566	298,842
Search requests	452,729	330,812
Jobseeker entries on result lists	17,399,496	13,580,557
Profile views	4,031,344	2,953,673
Contact attempts	1,795,109	1,284,349
Time on profile until first click (in sec.)*	9.1	9

\* Topcoding of outliers (longer than 120 seconds on a profile)

Note: This table summarizes the search behavior of recruiters on Job-Room between March and December 2017. Column 1 shows statistics for the entire sample while column 2 restricts the sample to search requests in which recruiters did not specify the number of preferred working hours as a search criterion.

out by 43,352 different recruiters screening the profiles of 313,566 different jobseekers (see column 1 of Table 2). Since many jobseekers appear on multiple lists, the total number of profiles appearing on the lists is 17,399,496, of which 4.03 million are selected by recruiters for full profile view. Almost 1.8 million contact attempts are reported. On average, recruiters stay 9.1 seconds on a profile until they decide to contact a candidate or leave the profile. The data contain little information about the recruiters other than an anonymous identifier, whether they are registered on Job-Room or not, and the information recruiters specify when entering the search criteria.

Table B.4 in the Appendix reports the occupations in which recruiters are searching for candidates on Job-Room and the occupations in which registered jobseekers are searching for jobs. The construction sector and manufacturing are overrepresented among the search queries, while trade, transport, and hotel and restaurants are underrepresented. Overall, lower-skilled occupations are overrepresented on the platform. However, there is still a decent amount of recruiters searching in occupations that usually require a higher skill level like technical and computer occupations or management, financial and legal occupations.

## 4 Analysis based on job ad data

### 4.1 Full-time versus part-time jobs

Firms posting job ads on Job-Room have to specify either the exact number of weekly working hours (expressed in FTE) or a range thereof. During the sample period, 69% of all vacancies advertised on Job-Room were full-time positions (=100% FTE), 19% part-time positions and 12% stated a range covering full- and part-time positions.<sup>14</sup> Figure B.2 in the Appendix reports the share of job ads covering a given level of FTE. Most of the advertised jobs are full-time positions. 81% of the ads consider jobseekers who search for a full-time position, while only 16% consider jobseekers who search for an 80% part-time job. Among part-time vacancies, jobs with higher weekly hours (50% FTE or more) are more common than those with lower weekly hours.

However, the low number of part-time jobs does not necessarily imply that it is more difficult to find part-time employment than full-time employment. The likelihood that someone receives a job offer also depends on the number of competitors for the job. Hence, Figure 1 shows the distribution of job ads posted on Job-Room over different working hours as well as the distribution of clicks on the job ads. The former represents the demand for part-time workers, the latter the supply of jobseekers looking for a part-time job.<sup>15</sup> The Figure shows that the supply of jobseekers looking for a part-time job is considerably larger than the demand for part-time workers. The share of clicks on full-time ads is considerably smaller than the share of full-time ads posted on Job-Room. The contrary holds for all part-time categories. As a consequence, the average number of clicks on part-time ads is much larger than the one on full-time ads, as Figure B.3 in the Appendix shows. While full-time ads receive 21 clicks on average, 50% part-time ads receive on average 47 clicks. Hence, on Job-Room, the competition for part-time jobs is much fiercer than the competition for full-time jobs.

Consistent with the higher incidence of part-time work among women, Figure B.4 in the Appendix shows that women are much more likely to open part-time job ads than men. Hence, women suffer more than men from the fierce competition for the few part-time positions.

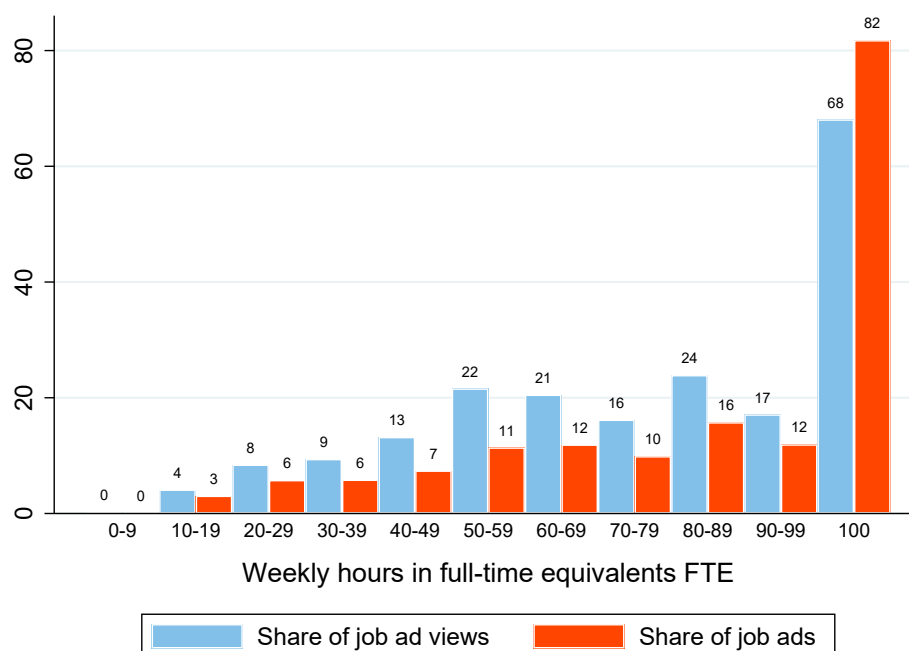
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<sup>14</sup>The main conclusions in this and the following section do not change if we exclude observations after the outbreak of the Corona pandemic in March 2020.

<sup>15</sup>Since clicks on job ads have only been recorded as of June 2020, the sample of job ads posted on Job-Room is also restricted to the period after June 1, 2020. However, the distribution of job ads is very similar to the one for the whole observation period, as shown in Figure B.2 in the Appendix.



Figure 1: Share of job ads and share of job ad views covering a certain level of weekly working hours (expressed in FTE)



*Notes:* The orange bars report the share of job ads appearing on Job-Room between June 2020 and June 2021 that cover a certain level of weekly working hours expressed in FTE. The sample consists of 229,874 job ads. The blue bars show the share of job ad views for a given FTE level during the same period. Before June 2020, no job ad views were recorded. Jobseekers opened 189,948 job ads during the observation period. Since some job ads state a range of possible working hours, they can appear in multiple categories. This is why the shares for both series do not add up to 100%.

Are there differences by occupation? Table B.1 in the Appendix reports the share of part-time ads on Job-Room and the share of clicks on part-time ads by occupation. Service and sales occupations, clerical support occupations, and elementary occupations exhibit the highest share of part-time ads. In contrast, part-time jobs are scarce in craft and related trades, agriculture, and management occupations. The discrepancy between the supply and demand for part-time workers is particularly large in occupations with a low share of part-time jobs. For example, the share of clicks on part-time jobs is more than twice as high as the share of part-time job ads for plant and machine operators and assemblers and almost three times as high for craft and related trades workers. Only for Managers, the demand for part-time workers seems to match the supply. In all other occupations, the supply of jobseekers looking for a part-time job exceeds the demand for part-time workers substantially.

What characterizes occupations with a high share of part-time jobs? Figure 2a shows a negative relationship between the share of part-time ads in an occupation and the male

share in employment. Hence, firms post more part-time positions in occupations with a high female share. Several factors could explain this pattern. First, firms could adjust the number of hours to the preferences of jobseekers in the respective occupation. As many more women exhibit a preference for part-time work, firms might offer more part-time jobs in female-dominated occupations, and vice versa. Second, jobseekers could sort into occupations in which the distribution of weekly working hours aligns with their preferences. As a consequence, men might sort into occupations with many full-time jobs and women into occupations with many part-time jobs. Third, firms could prefer women for part-time jobs and/or men for full-time jobs. This would make it more difficult for men (women) to enter occupations with many part-time (full-time) positions.

Figure 2: Part-time jobs per occupation and male share



*Notes:* Panel (a) plots the share of part-time job ads posted on Job-Room between July 2018 and June 2021 by ISCO 2-digit occupation against the male employment share in the respective occupation. Data on the male employment share come from the Swiss Earnings Structure Survey 2018. Only occupations with more than 50 observations are shown. The solid black line indicates the weighted (with the number of observations) least squares regression of the share of part-time job ads against the share of male workers in each occupation. The dashed black lines show the associated 95% confidence intervals. Panel (b) plots the share of part-time job ads posted on Job-Room by occupation against the share of job ads that prefer men among all job ads that exhibit a gender preference. The solid black line indicates the weighted (with the number of observations) least squares regression of the share of part-time job ads against the share of job ads preferring men. The dashed black lines show the associated 95% confidence intervals. The sample contains only occupations with at least 10 job ads with a gender preference.

## 4.2 Gender differences

Since firms that post vacancies on Job-Room can indicate whether they prefer men or women, I can look more closely at whether firms prefer women for part-time positions and/or men for full-time positions. Firms' gender preferences are not published on the

platform but are only visible for caseworkers at the Swiss Public Employment Service. This information should help the caseworkers to propose the right candidates to firms. Hence, there is an incentive for recruiters to state their preferences truthfully. Since information is not made public, social desirability should also not strongly affect their reporting behavior.

29,150 job ads, 5.2% of all ads posted during the observation period, contain a gender preference. 52% of these ads exhibit a preference for men and 48% for women. Table B.2 in the Appendix compares characteristics of firms that never state the preferred gender during the observation period with those of firms that report the preferred gender at least once. There are some differences, but they are not very large.<sup>16</sup>

Are the gender preferences of firms expressed when submitting a job ad related to the number of working hours of a job? At the occupational level, there is a clear negative relationship between the share of part-time jobs posted in an occupation and the share of job ads with a preference for men among all job ads with a gender preference (see Figure 2b). The more part-time positions in an occupation, the lower the share of job ads that favor men. The negative relationship between the share of part-time jobs in an occupation and the male share in employment observed in Figure 2a is therefore not only due to worker sorting.

In line with these findings, a descriptive analysis at the job ad level suggests that recruiters exhibit a clear preference for women if they have to fill a part-time position. Table 3 shows that only 1.4% of all part-time job ads state a preference for men, while 6.1%—more than four times as much—state a preference for women. Job ads covering a range of hours including full- and part-time positions also state more often a preference for women than for men (3.2% versus 1.7%). The opposite holds when it comes to full-time jobs, even though the gender differences are not as large as for part-time jobs. 3.2% of full-time job ads state a preference for men, only 1.4% prefer women.

To further assess the relationship between the number of working hours and the gender preferences of recruiters, I regress a dummy variable equal to one if a job ad expresses a preference for men on different sets of fixed effects and a categorical variable indicating whether the job is a part-time job, a job that can be done full- or part-time, or a full-time job. Table 4 reports the results. According to a model without controls (column 1), firms

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<sup>16</sup>E.g., firms operating in the accommodation and food service sector are overrepresented among firms that state a preferred gender. The opposite is true for private employment agencies. Smaller firms with less than 10 employees are slightly overrepresented among those firms that state a gender preference, but differences in the firm size distribution between the two groups are small. The same holds for the legal status of firms.

Table 3: Preferred gender in job ads on Job-Room by FTE category

	(1)	(2)	(3)
	Men	Women	no recorded preference
Full-time job	.032	.014	.95
Full- or part-time job	.017	.032	.95
Part-time job	.014	.061	.92

*Notes:* The Table reports the share of full-time job ads, part-time job ads, and job ads covering full- and part-time positions (e.g. 80%-100% FTE), that state a preference for men (column 1), women (column 2), or no gender preference (column 3). The sample covers all 563,444 job ads posted on Job-Room between July 2018 and June 2021.

posting a part-time job are 1.8 percentage points less likely to state a preference for men compared to firms posting a full-time job. This difference is large, given that only 3.2% of all full-time job ads state a preference for men (see Table 3). Firms posting job ads that cover a range of working hours including full- and part-time positions are 1.5 percentage points less likely to state a preference for men compared to firms posting full-time jobs. Accounting for job ad characteristics such as firm location, firm size, required education, or experience does not reduce the difference between full- and part-time positions in the likelihood that firms prefer male applicants. The same holds if we add industry fixed effects (column 3). Adding occupation fixed effects (column 4) reduces the gap somewhat but it remains large and highly significant. Hence, even within the same occupation and the same industry, firms that have to fill a part-time position are significantly less likely to search for men compared to firms that have to fill a full-time position. This is also true for job ads that cover a range of working hours including full- and part-time positions. Column (5) shows that this conclusion still holds if we add firm fixed effects, i.e., if we compare only job ads posted by the same firm in the same occupation. By replacing the dummy for a preference for men as dependent variable with a dummy for a preference for women, Table B.3 in the Appendix shows the mirror image of Table 4. Recruiters posting a part-time job are significantly more likely to state a preference for women than recruiters who have a full-time position to fill.

Overall, the analysis of the job ad data shows that the competition for part-time jobs is much fiercer than the competition for full-time jobs. This is particularly bad for women since they search more often for a part-time position than men. However, if a firm has a part-time position to fill, it is much more likely to look for female applicants than male applicants. The contrary holds for full-time positions. These results still hold even if we compare job postings from the same firm in the same occupation. The analysis thus

Table 4: Regression of a preference for men on working hours and different fixed effects

	(1)	(2)	(3)	(4)	(5)
Full-time job	ref.	ref.	ref.	ref.	ref.
Full- or part-time job	-.015*** (.0011)	-.016*** (.0011)	-.016*** (.0012)	-.01*** (.0012)	-.0071*** (.00087)
Part-time job	-.018*** (.00082)	-.022*** (.00082)	-.024*** (.001)	-.016*** (.001)	-.0088*** (.00089)
Job ad characteristics	No	Yes	Yes	Yes	Yes
Industry	No	No	Yes	Yes	Yes
Occupation	No	No	No	Yes	Yes
Firm fixed effects	No	No	No	No	Yes
Mean dependent variable	0.027	0.027	0.027	0.027	0.026
Observations	559,556	559,556	559,556	558,853	524,546

Note: The table reports results from ordinary least squares regressions of a dummy equal to one if the job ad states a preference for men on different sets of fixed effects, some ad specific controls, and a categorical variable indicating whether it is a part-time job, a job that covers a range of working hours including full- and part-time positions, or a full-time job. The latter is the reference category. The columns refer to different models with different control variables. Controls for job ad characteristics include firm location (canton), a dummy for a temporary job, dummies for special working conditions (night work, shift work, work from home, work on Sundays and public holidays), a categorical variable for the required experience, a categorical variable for the required education certificate, and firm size. Standard errors (in parentheses) are clustered at the firm level. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

provides initial evidence that men encounter greater difficulties than women in finding a part-time job. However, the analysis has some limitations. First, it is only based on the 5.5% job ads that explicitly state a gender preference. Although a descriptive analysis of firm characteristics has shown that there are only minor differences between firms that do and firms that do not state a gender preference, external validity might be an issue. Second, even though information on the preferred gender is not published on the platform, it is still possible that not all recruiters reveal their true preferences, e.g. because caseworkers can see the information. Third, it has been shown that attitudes about gender or ethnicity can be implicit (Bertrand et al., 2005; Hangartner et al., 2021) and might therefore not be reflected in the explicit statements of firms. The analysis based on the recruiter click data, presented in the next section, addresses these issues and allows to approach the question of whether recruiters prefer full- or part-time workers and whether these preferences depend on the gender of a jobseeker with a more rigorous causal design.

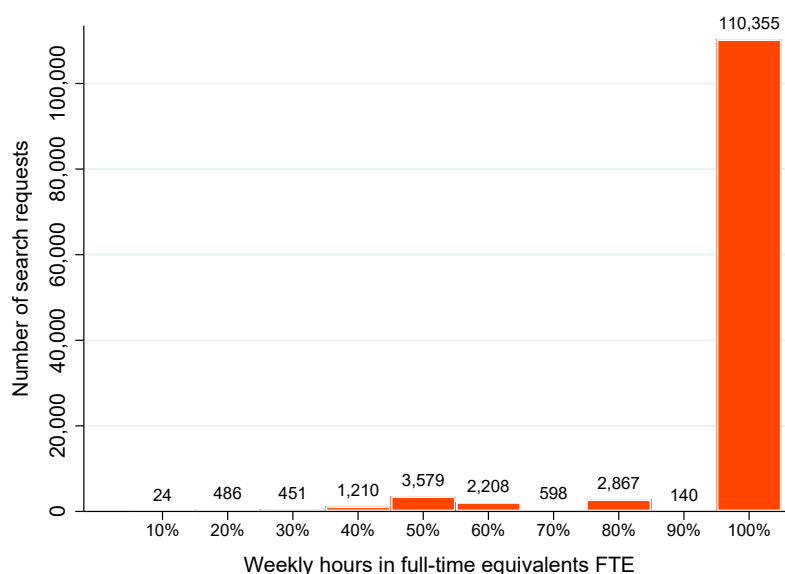
## 5 Analysis based on recruiter click data

The recruiter click data from Job-Room’s candidate search platform are particularly suited to answer these questions. Observing the selection behavior of recruiters who navigate through the profiles of job candidates with different hours preferences allows me to estimate the causal effect of a candidate’s preference for a certain number of hours on the contact likelihood. It also allows me to assess how this effect depends on the gender of a jobseeker. Since I possess the same—and even more—information about jobseekers as the recruiters do, I can control for everything that influences a recruiter’s decision on whether to contact a jobseeker or not.

### 5.1 Descriptive statistics

When entering the search criteria, recruiters can also filter by the number of hours a jobseeker wants to work. If they select 100% FTE, only jobseekers who look for full-time jobs are shown on the results list. In 27% of all search requests, recruiters filter search results by working hours. Figure 3 shows the distribution of these searches across the different FTE categories.

Figure 3: Distribution of search requests by number of weekly working hours (in FTE)



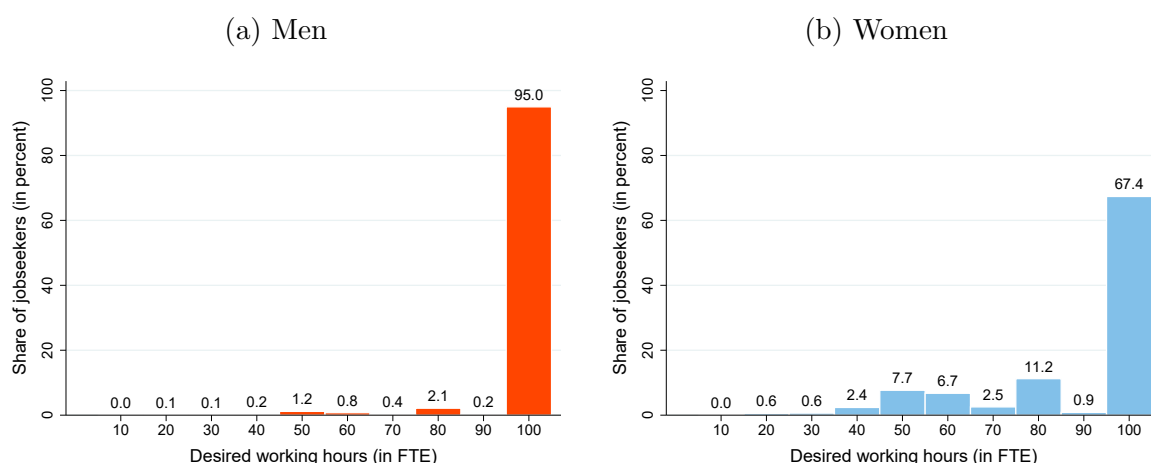
*Notes:* The figure shows the distribution of search requests by the number of weekly working hours (expressed in FTE) that recruiters entered as a search criterion. The sample consists of all search requests, in which recruiters enter working hours as a search criteria ( $n = 121,918$ ). The observation period is March 2017 to December 2017.

In 110,355 searches, recruiters restrict the candidate pool to jobseekers who search for a full-time job (=100% FTE). This corresponds to 90.5% of all search requests in which working hours have been entered as a search criterion. In the majority of the remaining search requests, recruiters restrict the candidate pool to jobseekers searching for a 50%, 80%, or 60% FTE job. Overall, the distribution looks similar to the distribution of vacancies (see Figure B.2).

How does this distribution compare to the distribution of jobseekers' preferences for the number of hours worked? Figure 4 reports the distribution of preferred working hours (in FTE) for men and women. Note that every jobseeker registering with the Swiss Public Employment Service has to state how many hours (s)he wants to work. This information is shown to employers on the results lists and the jobseekers' profiles. As expected, most men (95%) are looking for a full-time job. Those looking for a part-time position are usually looking for an 80% or 50% job. The picture looks different for women. Only 67% of all women want to work full-time, and a considerable share is looking for a job between 50% and 80% FTE.

Figure B.5 in the Appendix shows that on Job-Room, the share of clicks on part-time job ads is much higher than the share of jobseekers who state that they prefer part-time jobs. This is true for both men and women, but the discrepancy between stated preferences for working hours and click behavior is greater for men. This may indicate that hours preferences expressed to caseworkers underestimate actual preferences for part-time work, especially among men.

Figure 4: Distribution of male and female jobseekers by level of preferred FTE



*Notes:* The figure plots the share of male (panel a) and female (panel b) jobseekers registered on Job-Room by different levels of preferred weekly working hours (expressed in full-time equivalents FTE). Sample period is March 2017 to December 2017.

Do male and female jobseekers who search for a part-time job differ from jobseekers searching for a full-time position? Table B.6 in the Appendix shows descriptive statistics of jobseekers registered on Job-Room by gender and hours preferences. The characteristics shown at the top of the Table are visible to recruiters on the platform while those at the bottom are not. As expected, there are some notable gender differences, e.g., concerning the last occupation or the last insured wage. However, the differences between jobseekers searching for a full-time job and those searching for a part-time job are not that large. One exception is nationality. The share of Swiss citizens is much higher among jobseekers looking for part-time jobs. This holds for men and women. There are also differences between occupations. While the share of jobseekers searching for a part-time job is particularly large in education, health, and occupations in arts, jobseekers in manufacturing, craft, or construction are predominantly looking for full-time jobs.

## 5.2 Research design

I apply two different identification strategies to estimate the effect of the preferred number of working hours on the contact likelihood. First, I follow Hangartner et al. (2021) and apply a selection-on-observables strategy exploiting the fact that I observe all candidate characteristics visible to recruiters on Job-Room. The key assumption is that only these characteristics can influence recruiters' decisions whether or not to contact a jobseeker, while variables that are not displayed on Job-Room cannot. Importantly, I can test this assumption. First, by estimating the effect of variables on the contact likelihood, which are not visible on Job-Room but are likely to influence recruiters' hiring decisions if they were known to them (e.g. the age of a jobseeker). Second, by estimating the effect of education and work experience on the likelihood that recruiters open the profile of a jobseeker. Both variables are not visible on the results list when recruiters decide whether or not to open the profile. However, they are visible once the profile has been opened, and they have a large and significant effect on the contact likelihood conditional on profile view. Section 5.3 reports the corresponding placebo tests. They support the assumption that variables not visible to recruiters on Job-Room do not affect the selection decision.

I model the recruiter's decision to contact a jobseeker as a linear function of all jobseeker characteristics visible to recruiters on Job-Room that are systematically correlated with the outcome, the desired number of hours, or gender:

$$y_{i,s} = \beta_k hours_{i,s}^k + \beta_{k,f} hours_{i,s}^k * female_{i,s} + \rho female_{i,s} + \gamma X_{i,s} + \delta_s + \epsilon_{i,s} \quad (1)$$



The outcome of interest  $y_{i,s}$  is the probability that a recruiter in search  $s$  clicks on the contact button at the bottom of the profile of candidate  $i$ . Conditional on appearing on a results list, this likelihood is 10 percent. A click on the contact button has consequences for the jobseeker. Hangartner et al. (2021) show that it significantly increases the likelihood to leave unemployment within the next 3 months after the search request compared to another jobseeker on the same list whose contact button was not clicked.

$hours_{i,s}^k$  is a categorical variable for the number of hours jobseeker  $s$  wants to work expressed in FTE. It ranges from  $k \leq 50\%$  to  $k = 100\%$ . 100% corresponds to a full-time job while 50% corresponds to a part-time job with half the working hours of a full-time position.  $hours_{i,s}^k * female_{i,s}$  interacts the variable with a dummy indicating whether jobseeker  $s$  is a woman. Hence,  $\beta_{k,f}$  shows the differential effect of the number of preferred working hours on the contact likelihood for women compared to men.

The vector  $X_{i,s}$  contains all characteristics of jobseeker  $i$  visible to the recruiter in search  $s$ , as well as their second moments and those first-order interactions that are systematically correlated with the outcome, the number of preferred working hours, or gender.<sup>17</sup> I apply the post-double-selection method (Belloni et al., 2012, 2014) to select the set of first-order interactions that are correlated with the contact button click, the preferred number of hours, or gender: Based on a 20% random subsample<sup>18</sup> of all search requests, I use Lasso regressions to select interactions that are predictive of the outcome (a click on the contact button). Then, I use Lasso to select interactions that are useful for predicting gender or the preferred number of hours. The union of the interactions selected in the previous steps is then included as covariates in the model. The final model contains 2,307 (out of 6,768) covariates.  $X_{i,s}$  also contains flexible controls for the rank of a candidate on the search list even though the ranking of the list does not follow any predetermined rules.<sup>19</sup>

The model contains also search fixed effects  $\delta_s$ . They account for all characteristics that are constant within a given search request, such as occupation or recruiter characteristics. Hence, I only compare jobseekers on the same search list who meet the criteria entered by the recruiter. As a consequence, searches in which recruiters use the number

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<sup>17</sup>Note that most of the information on Job-Room is presented in a structured (tabular) way, which makes it relatively easy to control for it in a statistical model.

<sup>18</sup>The restriction of the sample is done for computational reasons and to facilitate reproducibility.

<sup>19</sup>I include controls for the absolute rank and the relative rank of a candidate. Since the total number of entries varies from search to search, a given absolute rank has different implications. For example, if a search list contains 15 entries, the 15th entry is the last one in the list. If the list contains 100 candidates, the 15th entry would still be among the first 20%. Hence, in addition to detailed indicators for the absolute rank, I also include dummies for each decile of the relative rank (= rank of a candidate divided by the total number of search results).

of working hours as a selection criterion do not contribute to the identification of the effect of the preferred number of hours on the contact likelihood because they exhibit no variation in the number of hours. Therefore, I restrict the sample to the 73% of search requests that do not use the number of working hours as a selection criterion.<sup>20</sup> Column 2 of Table 2 reports summary statistics for the restricted sample.

The second identification strategy exploits that several jobseekers change their preferred number of hours during the observation period. By replacing the search fixed effects from Equation 1 with jobseeker fixed effects, identification of the effect of the preferred number of hours on the contact likelihood stems exclusively from within jobseeker variation:

$$y_{i,s} = \beta_k hours_{i,s}^k + \beta_{k,f} hours_{i,s}^k * female_{i,s} + \gamma X_{i,s} + \delta_i + \epsilon_{i,s} \quad (2)$$

The main difference to Equation 1 is the subscript of  $\delta$ . By replacing the search fixed effects with jobseeker fixed effects, I implicitly control for all time-invariant jobseeker characteristics (observed and unobserved) that influence a recruiter’s decision. However, this implies that the effect of time-invariant characteristics, such as gender, cannot be identified. I include the same set of covariates in the model as in Equation 1 to control for the effect of variables visible to recruiters that may change simultaneously with the hour preferences. This analysis is based on the whole sample, including the 24% of search requests in which working hours are used as a selection criterion.

### 5.3 Validation of the research design

Both identification strategies rest on the assumption that I can control for all factors that are correlated with the outcome, the preferred number of hours, and gender. A crucial condition for the validity of this assumption is that only jobseeker characteristics visible to recruiters on Job-Room can influence their decision whether to contact a jobseeker or not. In this section, I test this assumption by running placebo tests.

First, exploiting the link between the click data and the unemployment register, I estimate the effect of age and a jobseeker’s last wage on the likelihood that a recruiter clicks on the contact button. Both variables are not shown on Job-Room but would most likely affect the hiring decision were they known to employers. E.g., there is plenty of evidence that age affects the hiring chances of jobseekers (Neumark, 2020, 2018).<sup>21</sup> If

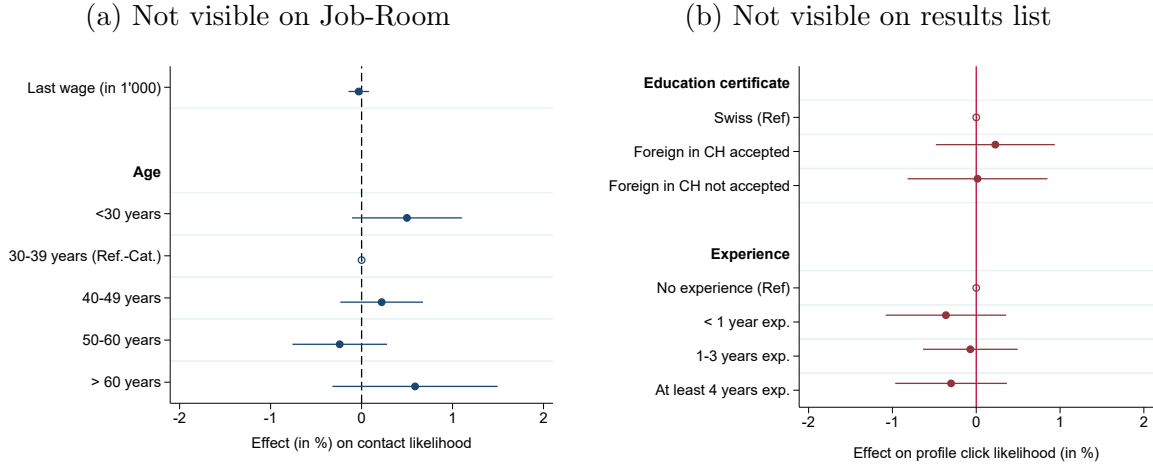
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<sup>20</sup>As a robustness check I also estimate the model based on the whole sample. It does not change the results.

<sup>21</sup>Assuming that the last wage reflects, at least in part, productivity differences across candidates, we would also expect it to influence hiring decisions if it were known to recruiters.

they had an effect on the contact likelihood, other unobserved variables that correlate with the contact likelihood and preferred hours could also influence recruiters' decisions and bias the estimates. However, as panel (a) of Figure 5 shows, all coefficients are not significantly different from zero.

Figure 5: Effects of characteristics not visible to recruiters on Job-Room



*Notes:* Panel (a) plots the effects, and associated 95% confidence intervals, of age and the last insured wage on the likelihood that a recruiter clicks on the contact button. Both characteristics are not visible on Job-Room. Coefficients are normalized with the mean contact rate. The sample covers all jobseeker profiles appearing in search results lists between March and December 2017 for which recruiters did not use working hours as a selection criterion. Standard errors are clustered at the recruiter level. Panel (b) plots the effects, and associated 95% confidence intervals, of the origin of the education certificate and work experience in the occupation in which a recruiter is searching for applicants on the likelihood that a recruiter clicks on the corresponding entry on the results list. Both characteristics are not displayed on the results list but only on the full profile. Coefficients are normalized with the mean of the dependent variable. The sample covers all jobseekers who do not report any additional skills and appear on the results lists between March and December 2017. Standard errors are clustered at the recruiter level.

Second, exploiting the sequential nature of the selection process on Job-Room, I estimate the effect of work experience and the origin of the education certificate, which are shown on the profile but not on the results list, on the probability that a recruiter clicks on the corresponding entry on the results list. These characteristics have a large and significant effect on the contact likelihood after recruiters have opened the profile of a jobseeker (see Figure B.6 in the Appendix). Hence, we would expect them to also affect the likelihood that recruiters click on the corresponding entry on the results list if they already had this information at this stage. However, Panel (b) of Figure 5 shows that neither work experience nor the origin of the education certificate have a significant effect on the likelihood that a recruiter clicks on the corresponding entry on the results list.<sup>22</sup>

<sup>22</sup>Note that the sample has been restricted to jobseeker who do not report any additional skills

Hence, the placebo tests support the assumption that variables not visible to recruiters on Job-Room do not affect their selection decisions. Conditional on controlling for all visible characteristics that are correlated with the contact likelihood, the preferred number of hours, or gender, I should therefore be able to identify the causal effect of the preferred number of hours and gender on the contact likelihood.

## 5.4 Results

How does the preferred number of working hours affect the likelihood to be contacted by a recruiter on Job-Room and does the effect depend on the gender of a jobseeker? In a first step, I report estimates based on Equation 1 without the interactions between gender and the preferred number of working hours. In a second step, I add the interactions to assess whether the preferred number of working hours differentially affects the contact likelihood for men and women. In a third step, estimates based on the within-jobseeker regression outlined in Equation 2 are reported.

As mentioned before, estimates from the first two steps are based on the subset of 73% of search requests that do not use the number of working hours as a selection criterion.<sup>23</sup> Since the vast majority of the remaining 27% of search requests exclude jobseekers looking for part-time employment (see Section 5.1), these estimates tend to underestimate the disadvantage of seeking part-time work because the disadvantage resulting from the first selection step is not taken into account. The estimates resulting from the within-jobseeker regression are based on all search requests.

### 5.4.1 Overall part-time penalty in hiring

Figure 6 plots the coefficients, and associated 95% confidence intervals, of the preferred number of working hours (expressed in FTE bins) on the contact likelihood. For better interpretability, all coefficients are normalized with the mean contact rate. Hence, they represent the effect in percent rather than percentage points. In the reference category are jobseekers looking for full-time jobs.

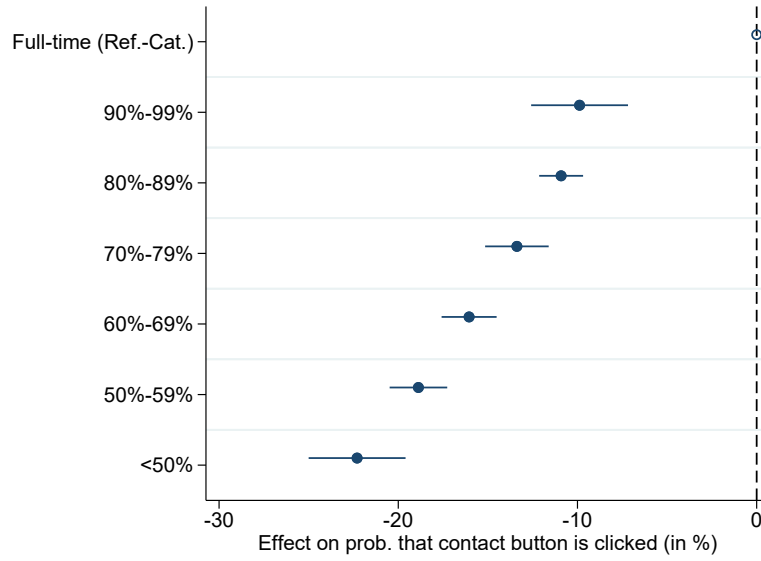
The figure shows that a preference for part-time work significantly reduces the contact likelihood compared to a preference for full-time work. The lower the preferred number of hours, the lower the contact likelihood, *ceteris paribus*. Looking for a 90% part-time

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because the unstructured text field that presents those additional skills is shown on the results list and may contain information on a candidate's work experience or education.

<sup>23</sup>As a robustness check, I also estimate the model based on the whole sample. The results remain the same.

Figure 6: Overall effect of the preferred number of working hours on the contact likelihood



*Notes:* The figure plots the coefficients, and associated 95% confidence intervals, of the preferred number of working hours on the likelihood that recruiters click on the contact button. The estimation model is the same as model 1 without the interaction between the number of working hours and gender. All coefficients are normalized with the average contact rate (9.4%). In the reference category are jobseekers searching for full-time jobs. Column (1) of Table B.7 in the Appendix displays the underlying numerical estimates. The sample includes all jobseekers who appear on the results lists of searches where recruiters do not use working hours as a search criterion. It covers the period from March to December 2017. Standard errors are clustered at the recruiter level.

position instead of a full-time job—a difference of only 4 hours a week—reduces the contact likelihood by 10%. The penalty increases to 22% for jobseekers searching for a part-time job with less than 50% FTE. Hence, even recruiters who do not restrict the pool of job candidates a priori to jobseekers looking for a full-time position have a strong preference for full-time workers. The effects are large. Figure B.6 in the Appendix compares the part-time penalty to the effects of other jobseeker characteristics visible to recruiters on Job-Room. Neither educational qualifications, work experience, language skills, nor soft- or IT skills have a similar influence on the contact likelihood as the preference for part-time work.

Figure B.7 in the Appendix assesses whether the effect of a preference for part-time work depends on the occupation. For the sake of precision, all part-time categories are aggregated into one part-time dummy. The coefficients are normalized with the average contact rate in the respective occupation. The colors indicate the skill level of an occupation according to the ISCO skill classification. There are several takeaways from Figure B.7. First, part-time penalties are not limited to specific occupations. In all occupations,

jobseekers looking for full-time jobs have an advantage compared to jobseekers with the same characteristics looking for part-time employment. Second, there is considerable heterogeneity in the magnitude of the part-time penalty across occupations ranging from 3% for protective services workers to 40% for other clerical support workers. Third, Management occupations exhibit rather large part-time penalties, whereas the disadvantage for part-time workers is relatively small for (health/legal/social/cultural) professionals. Otherwise, there is no clear pattern in terms of the skill level of an occupation.

In the vacancy data, we saw a negative relationship between the male share in an occupation and the share of part-time job ads. This could indicate that the part-time penalty is particularly pronounced in occupations with a high share of male workers. There is indeed a positive relationship between the part-time penalty and the share of male jobseekers appearing on the search lists in an occupation. But this relationship is not very strong, as Figure B.8 in the Appendix shows.

#### 5.4.2 Gender differences in the part-time penalty

Next, I assess whether the preferred number of working hours has a differential effect on the contact likelihood for men and women by estimating Equation 1. Figure 7 plots the respective coefficients, again normalized with the mean contact rate, and the associated 95% confidence intervals. In the reference category are male jobseekers searching for full-time jobs.

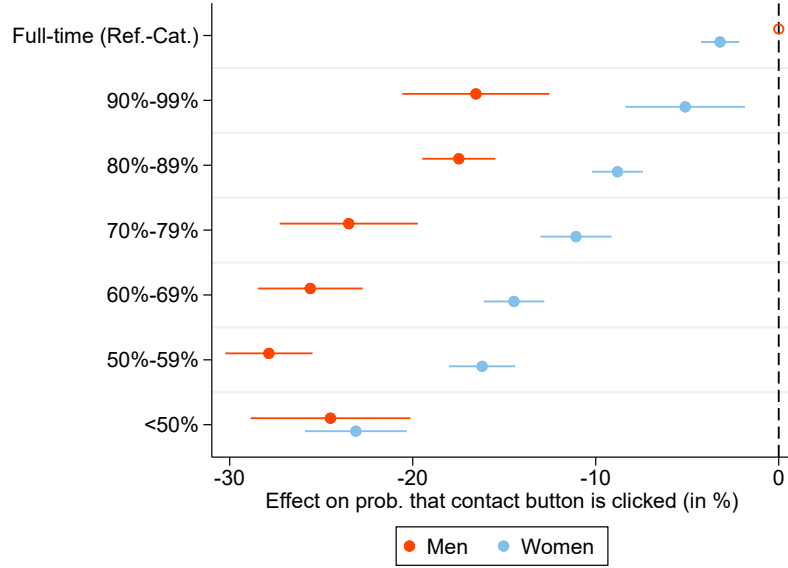
The figure shows that women looking for full-time jobs are 3.2% less likely to be contacted than men looking for full-time employment. However, as soon as recruiters evaluate jobseekers with a preference for part-time work, men experience a lower contact likelihood than women. For example, looking for a 70% part-time position instead of a full-time job reduces the contact likelihood for men by 23.5%. In contrast, women with the same part-time preferences experience a penalty of only 7.9% compared to women looking for a full-time job (and 11.1% compared to men looking for a full-time job). When all part-time categories are combined, the part-time penalty for women amounts to 10%,<sup>24</sup> while the part-time penalty for men amounts to 22%.

Not only the level but also the pattern of the part-time penalty differs between men and women. Women's likelihood of being contacted by a recruiter decreases linearly with a decrease in the preferred number of hours—from 2% for a 90% FTE part-time job to 23.5% for a part-time position with less than 50% FTE. For men, on the other hand, the

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<sup>24</sup>If women looking for full-time employment are in the reference group. The penalty amounts to 13% when the contact likelihood is compared to men looking for full-time jobs.

Figure 7: Effect of a preference for part-time work on the contact likelihood by gender



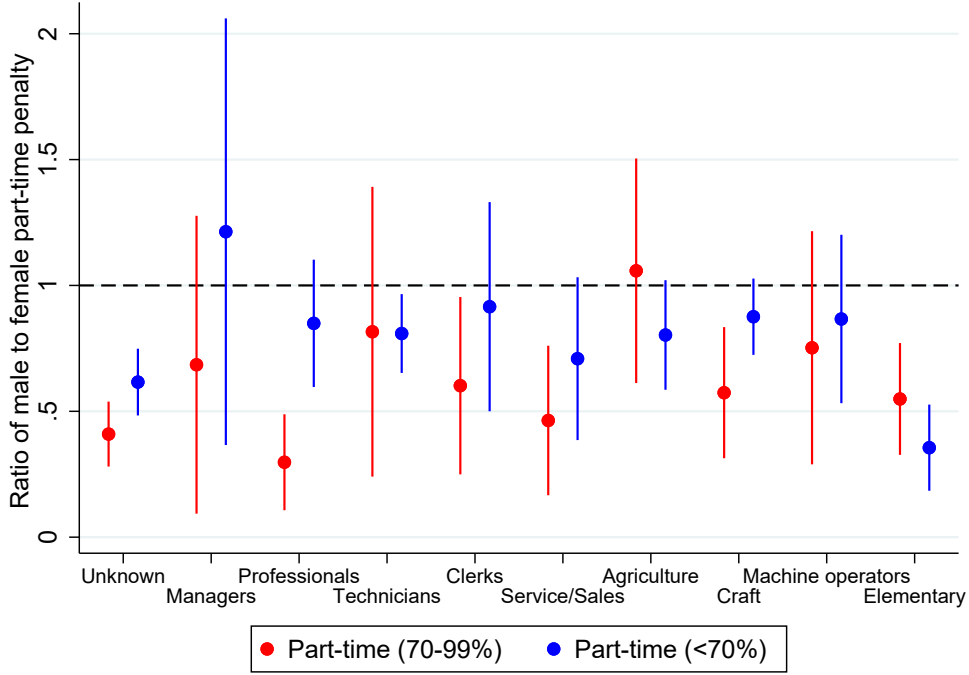
*Notes:* The figure plots the coefficients, and associated 95% confidence intervals, of a preference for different levels of part-time work on the likelihood that recruiters click on the contact button. The estimation model is outlined in Equation 1. All coefficients are normalized with the average contact rate (9.4%). In the reference category are male jobseekers searching for a full-time job. Column (2) of table B.7 in the Appendix displays the underlying numerical estimates. The sample includes all jobseekers who appear on the results lists of searches where recruiters do not use working hours as a search criterion. It covers the period from March to December 2017. Standard errors are clustered at the recruiter level.

relationship is highly non-linear. Their contact probability drops sharply as soon as they wish to work slightly less than 100% FTE. Men who search for a 90% part-time position already experience a penalty of 16.5% compared to men searching for a full-time job, even though the difference is only around 4 hours a week. A further reduction in the preferred number of hours does not further increase the gender gap. For jobseekers searching for part-time jobs with less than 50% FTE, the gender difference becomes even insignificant. Hence, while the part-time penalty for women is proportional to the desired reduction in hours, men searching for a part-time job seem to suffer an additional penalty unrelated to the desired number of hours, which kicks in as soon as they deviate from seeking full-time employment. I discuss possible reasons for the different patterns in Section 6.2.

Are the gender differences compounded by male and female jobseekers searching for jobs in different occupations with different average part-time penalties? That is not the case. First, as Figure B.8 shows, there is only a weak relationship between the part-time penalty and the share of male jobseekers in an occupation. Second, the relative disadvantage of male jobseekers searching for part-time jobs is not restricted to a few occupations. Figure B.9 in the Appendix reports part-time penalties by gender and

occupation group. In the reference category are male jobseekers looking for a full-time position in the same occupation. One difference between the aggregate estimates and the occupation-specific estimates is that in some occupations there are large differences in contact rates between male and female jobseekers seeking full-time jobs.<sup>25</sup> This makes it difficult to visually assess whether the gender gap in the part-time penalty varies across occupations. For this reason, Figure 8 reports the ratio of the female to male part-time penalty in all ISCO-1 occupation groups. The regression model is the same as model 1 except that I interact  $hours_{i,s}^k$ ,  $female_{i,s}$  and  $hours_{i,s}^k * female_{i,s}$  with occupation. Moreover, I aggregate the six part-time categories into two. Coefficients below 1 indicate a lower part-time penalty for women compared to men.

Figure 8: Ratio of female to male part-time penalty by occupation group



*Notes:* The figure plots the ratio, and associated 95% confidence intervals, of the female to male part-time penalty by ISCO-1 occupation. The regression model is the same as model 1 except that  $hours_{i,s}^k$ ,  $female_{i,s}$ , and  $hours_{i,s}^k * female_{i,s}$  are interacted with occupation. Moreover, the six part-time categories are aggregated into two. The reported coefficients show the ratio of the female part-time penalty for a given occupation ( $\beta_k hours_{i,s}^k * occupation_o + \beta_{k,f} hours_{i,s}^k * female_{i,s} * occupation_o$ ) and the male part-time penalty for the same occupation ( $\beta_k hours_{i,s}^k * occupation_o$ ). The associated standard errors are calculated based on the delta method.

<sup>25</sup>While men face a significant disadvantage when searching for full-time jobs as clerks or sales workers, women face a disadvantage when searching for full-time jobs as agricultural workers, craft workers or machine operators. This finding is in line with Hangartner et al. (2021), who show that gender discrimination is related to the share of female jobseekers in an occupation. While women suffer from penalties in male-dominated occupations, men suffer from penalties in female-dominated ones.



The part-time penalty for women is lower than for men in almost all occupation groups. The few estimates above one are very imprecisely estimated and far from being significantly different from one. The main conclusions do not change if we use a more detailed occupational classification. Figure B.10 in the Appendix plots the distribution of the ratio of the female to male part-time penalty—now aggregated into one part-time category—over ISCO-2 occupations. Since the estimates are very noisy in certain occupations due to few observations, I apply empirical Bayes shrinkage to shrink the estimated ratios toward their overall mean (Koedel et al., 2015; Herrmann et al., 2016). The figure supports the notion that the relative disadvantage of male jobseekers in finding part-time employment compared to female jobseekers is not limited to a few occupations. 75 percent of the ISCO-2 occupations exhibit a ratio below one, and none of the ratios larger than one is significantly different from one. Table B.8 in the Appendix reports the associated numerical values as well as the values of the unshrunk estimates.

How robust are the estimates presented in Figure 7 to different specification choices? Figure B.11 in the Appendix shows that the results are robust to including searches in which recruiters use the number of hours as a selection criterion (panel a). They are also robust to restricting the sample to candidates who do not report any additional skills (panel b),<sup>26</sup> and to including detailed occupation fixed effects instead of search fixed effects (panel c).

An alternative way to investigate whether men experience greater difficulty getting part-time jobs than women is to estimate the effect of gender on the contact likelihood for search requests, in which recruiters explicitly search for part-time workers. Column 3 of Table 5 reports the respective estimates. As a benchmark, columns 1 and 2 report estimates for the effect of being a woman on the contact likelihood for search requests, in which recruiters do not restrict the candidate pool to either full- or part-time workers.<sup>27</sup> Consistent with the findings based on the job ad data, column 3 shows that recruiters trying to fill a part-time position have a strong preference for women. They are 12% more likely to contact a woman than a man with the same characteristics. In contrast, recruiters who do not restrict the candidate pool ex-ante to full- or part-time workers

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<sup>26</sup>The reason for this test is that the unstructured text used to report additional skills might contain information correlated with the contact likelihood, gender, and the preferred number of hours. If the algorithm applied to encode this text failed to capture all relevant information, the results could be biased. To rule out such bias, I restrict the sample to the 39% of profiles, which do not contain any additional skills.

<sup>27</sup>This is the same sample as the one used to estimate the coefficients reported in Figure 7. The model in column 1 also contains an interaction between gender and the part-time dummy, while the one in column 2 only includes the baseline effects of gender and a preference for part-time work.

show a slight preference for men (see columns 1 and 2). In contrast to the results based on the job ad data, recruiters explicitly looking for full-time workers also favor women. But the effect is relatively small (see column 4).

Table 5: Effect of being a woman on the contact likelihood for search requests in which recruiters (do not) restrict the candidate pool to part- or full-time workers

	(1)	(2)	(3)	(4)
	Not restricted	Not restricted	Only part-time	Only full-time
Men	ref.	ref.	ref.	ref.
Women	-3.25*** (.53)	-1.23** (.5)	12.1** (4.9)	3.24** (1.5)
Part-time	-21.7*** (.92)	-14.7*** (.6)		
Part-time*Women	11.8*** (.86)			
Mean dep. Var.	0.09	0.09	0.04	0.14
Observations	13,561,699	13,561,699	237,247	3,570,426

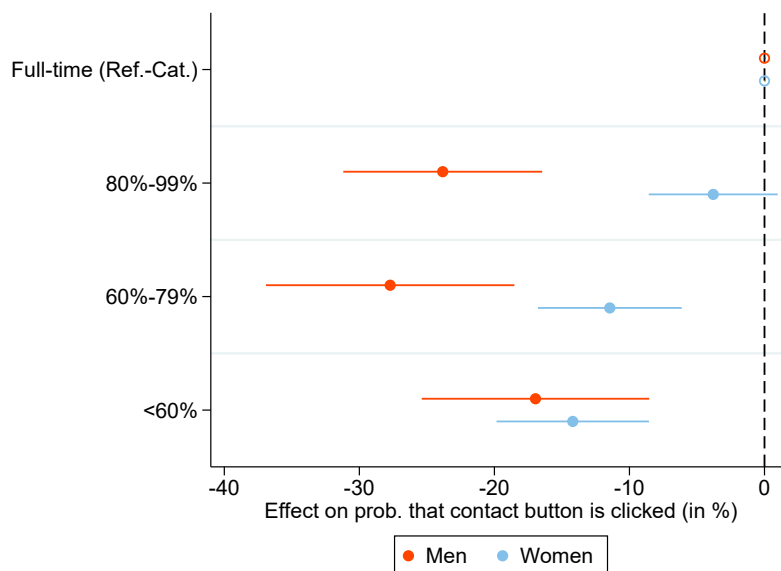
Note: This table shows the effect of being a woman on the contact likelihood for searches in which recruiters do not use hours as a selection criterion (columns 1 and 2), searches in which recruiters restrict the pool of candidates to part-time workers (column 3), and searches in which recruiters restrict the candidate pool to full-time workers (column 4). In contrast to the model in column 2, the model in column 1 contains an interaction between gender and the part-time dummy. The other covariates are the same as those reported in Equation 1. The part-time effect and its interaction with gender can only be estimated in the sample without restrictions. All coefficients are normalized with the mean contact rate in the respective sample.

The second identification strategy applied in this section exploits the fact that 3,901 jobseekers change their preferred number of working hours during the observation period. By replacing the search fixed effects in Equation 1 with person fixed effects, I compare the contact rates of the same jobseeker before and after the change, thereby controlling for all time-invariant characteristics. Since jobseekers might modify some information on their profiles when changing their preferred number of working hours, I include the same set of covariates as in Equation 1 to flexibly control for all characteristics that are correlated with the contact likelihood, the preferred number of hours, or gender. The effect of the preferred number of hours on the contact likelihood is now exclusively identified by the 3,901 jobseekers who change their hours preferences during the observation period.<sup>28</sup> To counter this loss in power, I aggregate the six part-time levels into three. Figure 9 plots the corresponding coefficients and associated 95% confidence intervals. The results look very similar to those based on Equation 1. A preference for part-time work reduces the

<sup>28</sup>As jobseekers do not change their gender during the observation period, the baseline gender effect is not identified.

contact likelihood considerably. This part-time penalty is much more pronounced for men than for women unless jobseekers want to work very few hours (less than 60% FTE).

Figure 9: Part-time effect on the contact likelihood for men and women with jobseeker fixed effects



*Notes:* The figure plots the coefficients, and associated 95% confidence intervals, of the preferred number of working hours (expressed in FTE) on the contact likelihood when estimating Equation 2. Due to the person fixed effects, the effect of the preferred number of working hours is identified by the 3,901 jobseekers (1,184 men and 2,717 women) who change their hours preferences during the observation period. Since jobseekers do not change their gender during this time period, the baseline gender effect is not identified. Hence, in the reference category are men and women searching for a full-time position. The dependent variable is the likelihood that a recruiter clicks on the contact button. All coefficients are normalized with the mean of the dependent variable. The sample covers all jobseeker profiles appearing in a results list between March and December 2017. Standard errors are clustered at the recruiter level.

The finding that men face larger difficulties than women in finding a part-time job is consistent with the fact that the share of workers considered overemployed in Switzerland is larger for men than for women. Workers are considered overemployed if they want to work fewer hours than they actually do.<sup>29</sup> According to the 2017 Swiss Labor Force Survey, 38% of employed men say they would prefer to work fewer hours, while only 29% of women do.

<sup>29</sup>While underemployment is a widely discussed phenomenon (Bell and Blanchflower, 2013), overemployment is much less so, even though surveys show that there is a considerable share of workers who want to work *less* than they actually do (EU Commission, 2018).

## 6 Mechanisms

How can the findings of the previous sections be rationalized? I first discuss possible explanations for the general disadvantage of jobseekers searching for part-time jobs relative to jobseekers looking for full-time positions. I then discuss the reasons for the gender differences documented in Section 5.4.2.

### 6.1 Possible explanations for the overall part-time penalty

Several studies question the assumption of the canonical labor supply model that workers are free to choose their preferred working hours as a result of hours constraints imposed by firms (Labanca and Pozzoli, 2022; Johnson, 2011; Chetty et al., 2011; Altonji and Paxson, 1988). A popular explanation for such constraints is that firms' technologies require workers to work a certain number of hours. Factors related to the production technology, e.g., high fixed costs per worker or high coordination costs, could also explain why recruiters prefer full- over part-time workers. Fixed costs per worker, including administrative costs of maintaining records for each employee, costs for the job infrastructure, or recruitment and firing costs, lead to a disproportionate increase in total labor costs when working hours are increased at the extensive instead of the intensive margin (Garnero et al., 2014). Consequently, firms have incentives to increase hours worked per employee as much as possible by hiring full- instead of part-time workers.<sup>30</sup> Part-time work could also lead to higher coordination costs if it is costly to hand over clients to other workers (Briscoe, 2007) or to transmit information to colleagues (Goldin, 2014).<sup>31</sup> The assumption that features of the production technology can explain the part-time penalty is also consistent with the inverse relationship between the part-time penalty and the preferred number of hours documented in Section 5.4.1. With (high) fixed costs per worker, total costs per worker increase if workers work fewer hours. Communication costs might also increase if workers work fewer hours because more workers must be hired to keep total hours constant, which could complicate communication.

However, the empirical literature on the relationship between labor costs and part-

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<sup>30</sup>The opposite logic applies when firms face a drop in demand: In the presence of high fixed costs per worker, firms tend to adjust their labor demand by reducing the number of workers rather than the number of hours worked per worker (see Boeri and Bruecker, 2011).

<sup>31</sup>However, Goldin and Katz (2016) show that technological and organizational changes, in particular an extensive use of information technology systems and standardization of products and services, increased substitutability among pharmacists and thereby contributed to a reduction of the pay penalty for part-time work in the pharmaceutical sector. This demonstrates that production technologies are not exogenously given but can be adapted to make a workplace more suitable for part-time work.

time work yields ambiguous results (e.g., Skinner, 1999; Edwards and Robinson, 2004; Kelliher and Anderson, 2010). Moreover, if technological factors were the only driver of the part-time penalty, we would expect the latter to be related to indicators for technologies that are (not) suitable for part-time work. Based on the economic literature, Table C.1 in the Appendix proposes four such indicators at the occupational level: The share of workers with a high degree of time autonomy, the share of workers with a high degree of decision-making freedom, the incidence of shift work, and the incidence of overtime. I relate various measures of these indicators to the estimated part-time penalties per occupation and test whether the relationship goes in the expected direction. Section C.1 in the Appendix presents the results. Overall, I find no evidence that the part-time penalty in an occupation is related to these indicators. Hence, while theoretical considerations provide plausible reasons for technology as a major driver of the part-time penalty in hiring, the empirical evidence is not as clear-cut. In the next section, I shed further light on possible mechanisms for the part-time penalty in hiring by discussing explanations for the gender differences documented in Section 5.4.2.

## 6.2 Possible explanations for the gender difference

Two reasons speak against a technological explanation for the gender difference in the part-time penalty documented in Section 5.4.2.

First, the analyses of the job ad and the recruiter click data show that the gender gap in the part-time penalty is not driven by differences across industries, occupations, firms, recruiters, or jobs. E.g., the effect of the number of preferred working hours on the contact likelihood presented in Figure 7 is identified by comparing jobseekers on the same results list. This implies that they all meet the same search criteria, are evaluated by the same recruiter, and are very likely to compete for the same job. Hence, technological factors should affect all jobseekers on the list to the same degree and can therefore not explain why recruiters treat men and women seeking part-time employment differently.

Second, technological explanations for a preference for full-time workers usually imply a smooth relationship between hours worked and the cost of hiring part-time workers, especially when the number of hours worked is high. For example, a production function with fixed costs per worker would yield a smooth curve of costs per hour worked at high levels of working hours under the assumption that productivity does not depend on hours. This does not fit the pattern of a sharp, non-linear increase in the part-time penalty that we observe when men deviate slightly from a full-time job. If we relax the assumption

that productivity does not depend on the number of hours worked, the pattern of the male part-time penalty would imply a sudden increase in output per hour once the threshold of 36 hours per week (about 90% FTE) is reached. This seems arbitrary and is not supported by empirical studies.<sup>32</sup>

Moreover, repeating the exercise from the previous section by relating indicators for technologies that are (not) suitable for part-time work to the estimated part-time penalties for men and women at the occupational level, I find no evidence for a relationship between these indicators and the male part-time penalty and only weak evidence for an association between some of the indicators and the female part-time penalty. Section C.2 in the Appendix presents the respective results.

What are other possible explanations for the gender bias in the part-time penalty documented in Section 5.4.2? One possible explanation is related to theories of signaling and statistical discrimination (Spence, 1978; Arrow, 1973; Phelps, 1972; Aigner and Cain, 1977). In light of incomplete information, recruiters could use the number of hours a jobseeker is willing to work as an indicator of some valuable but unobservable characteristics. For example, Landers et al. (1996) argue that a preference to work few hours might signal a higher disutility of work. Hence, recruiters could interpret a preference for part-time work as a sign of a jobseeker's low commitment, motivation, or ambition.<sup>33</sup> There is also evidence that a person's gender can matter for the interpretation of a signal. For example, Sarsons (2017a) shows that gender influences how physicians interpret information about surgeon performance. And Sarsons (2017b) shows that the gender of an economist affects the signal of a co-authored paper about individual ability.

Why should the signal to search for a part-time job depend on the gender of a jobseeker? Part-time work is often associated with family responsibilities because it is one of the most popular ways to reconcile work and family life (Blau and Kahn, 2013; Lyonette, 2015; Mas and Pallais, 2020). Since women are still the primary caregiver in many households, recruiters could interpret their preference for part-time work as necessary to reconcile work and household duties without drawing any conclusions about their commitment or motivation. On the other hand, men are still the main breadwinner in many households, and a preference to work part-time is more likely interpreted as a sign of low

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<sup>32</sup>On the contrary, several empirical studies investigating the relationship between hours and productivity find a decreasing rather than increasing marginal productivity of hours above a certain threshold (Collewet and Sauermann, 2017; Pencavel, 2015; Shepard and Clifton, 2000). However, the estimates are derived from very peculiar settings, which might not be representative of other contexts.

<sup>33</sup>Recruiters might also interpret the preferred number of working hours as a productivity signal. According to Sousa-Poza and Ziegler (2003), productive individuals are often perceived as hard-working since many people believe that workers who like their job and work a lot tend to be good at it.

commitment, low ambition, or another deficiency that leads to difficulties in finding a full-time position.

There is evidence along these lines: Eagly and Steffen (1986) found that part-time work among women is interpreted as a commitment to domestic duties, while part-time work among men indicates difficulty in finding full-time employment. Other studies have shown that part-time working men are perceived as less competent (Etaugh and Folger, 1998) or less agentic (Eagly and Steffen, 1986) than their full-time working peers. For women, those differences are much smaller or non-existent. Consequently, men who look for part-time work might face stronger resistance from employers than women. This is consistent with Van Osch and Schaveling (2020), who found that part-time working men reported less career goal progress, less professional ability development, and less promotion speed than their full-time working counterparts, while no differences between part- and full-time working women have been found. Other studies report that men trying to reconcile work and family responsibilities face stronger resistance from employers than women, resulting in fewer reward recommendations or lower performance ratings (Rudman and Mescher, 2013; Allen and Russell, 1999; Butler and Skattebo, 2004; Berdahl and Moon, 2013), or a depressed wage development (Theunissen et al., 2011; Albrecht et al., 1999).

Differences in the interpretation of a signal due to the gender of a jobseeker can be caused by actual differences in the distribution of the relevant unobserved characteristics or by inaccurate beliefs (Bohren et al., 2019). Suppose statistical discrimination based on true beliefs was the reason for the differential treatment of male and female jobseekers searching for part-time positions. In that case, jobseekers looking for part-time jobs should have worse unobserved characteristics than those searching for a full-time job, and this gap should be larger for men than for women. Such unobserved characteristics can include ambition, motivation, or (future) firm attachment.<sup>34</sup>

It is beyond the scope of this study to provide a comprehensive assessment of whether this is actually the case. However, Table B.9 in the Appendix shows how men and women and full-time and part-time workers (jobseekers) differ with respect to some characteristics that might be related to worker (jobseeker) motivation or engagement. Overall, I find

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<sup>34</sup>For example, Backes-Gellner et al. (2011) show that working part-time constitutes a serious disadvantage for men (but not for women) to get access to employer-provided training. They explain this by the larger gap in tenure between full- and part-time working men compared to full- and part-time working women. Hence, for men, part-time work could indicate lower future firm attachment. However, the fact that part-time working men have, on average, a lower tenure than full-time working men could also be due to the resistance of employers to employ part-time working men. Hence, the direction of the causality is not clear.

no evidence that part-time workers (jobseekers) are less motivated or less committed to their jobs than full-time workers, nor that there is a gender gap. E.g., jobseekers looking for a part-time job on Job-Room are equally mobile as jobseekers looking for a full-time job, both in terms of occupational and regional mobility. This holds for men and women. Men searching for a part-time job report a similar willingness to work on Sundays or public holidays as men searching for a full-time position. They are less willing to work at nights, but the same is true for women. The slightly higher absenteeism of part-time employees compared to full-time employees is offset by the higher likelihood of overtime. As a consequence, the share of actual hours in normal hours is the same. This holds again for men and women. There is also no clear pattern concerning participation in training. While full-time workers participate more often in professional training, part-time workers participate more often in extra-professional training. The pattern is again very similar for men and women. These results are consistent with the findings from a large meta-analysis on the differences between full- and part-time workers. Thorsteinson (2003) reports very few differences between full- and part-time workers in terms of job satisfaction, organizational commitment, and intention to leave the firm, irrespective of the workers' gender. He only reports some differences in terms of job involvement.<sup>35</sup> Hence, suggestive evidence does not support the notion that statistical discrimination based on accurate beliefs causes the gender differences in part-time penalties documented in Section 5.4.2.

However, people sometimes hold inaccurate beliefs about the distribution of unobserved characteristics of a group, which can be caused by a lack of information or stereotypes (Bohren et al., 2019). Indeed, several studies show that stereotypes can lead to unequal treatment across gender.<sup>36</sup> The role congruity theory (Eagly and Karau, 2002) provides a theoretical foundation for the notion that gender stereotypes may influence recruiters' beliefs about men and women searching for part-time work. The theory assumes that people evaluate gender-role congruent behavior more favorably than gender-role incongruent behavior.<sup>37</sup> Men searching for a part-time job depart from the male bread-

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<sup>35</sup>A more recent study on the differences between part-time and full-time employees in the financial services industry comes to very similar conclusions (Clinebell and Clinebell, 2007).

<sup>36</sup>For example, Sarsons (2017a) shows that differences in the treatment of male and female surgeons by physicians cannot be explained by gender differences in surgeons' abilities but are likely due to gender stereotypes that lead to attribution biases. And studies from social psychology indicate that violations of traditional gender roles are an important reason why men experience greater difficulties than women when making their caregiving responsibilities salient on the job (Rudman and Mescher, 2013; Allen and Russell, 1999; Butler and Skattebo, 2004; Berdahl and Moon, 2013).

<sup>37</sup>This evaluation might be conscious or unconscious. In fact, stereotypes can have important implicit modes of operation that can lead to implicit biases (Greenwald and Banaji, 1995; Chugh, 2004).



winner norm and do not conform to the behavior of a stereotypical man.<sup>38</sup> The contrary holds for part-time working women. This could explain why recruiters refrain from hiring men who seek part-time employment but not from hiring women. Hence, gender norms might not only affect the decisions of jobseekers and workers (Fernández et al., 2004; Bertrand et al., 2015; Blau et al., 2020) but those of recruiters as well.

Since I have very little information about individual recruiters, let alone their beliefs, it is difficult to directly test whether stereotypes actually cause the gender gap in the part-time penalty. A workaround is to aggregate the data at the regional level. Several studies use regional variation in the outcome of popular votes in Switzerland as a proxy for regional differences in norms and attitudes and show that differences in gender norms across regions are related to the behavior of firms and workers in the respective area (Lalive and Stutzer, 2010; Janssen et al., 2016; Kuhn and Wolter, 2019). I build on this evidence and use cantonal variation in the outcome of a popular vote on a law that aimed to extend parental leave for fathers as an indicator of the importance of traditional gender norms in a canton.<sup>39</sup> Since extended paternity leave for fathers contradicts the male breadwinner norm, the outcome of the vote is arguably a valid indicator of the importance of traditional gender norms.

Figure 10 relates the share of voters in a canton who voted against extending the right to parental leave for fathers to two measures of the relative disadvantage of men in finding a part-time job in the corresponding canton: Panel a relates the outcome of the vote to the share of part-time job ads posted on Job-Room with a preference for men among all part-time job ads with a gender preference in the respective canton. Panel b relates it to estimates of the male and female part-time penalties in a given canton based on the recruiter click data. One difficulty of such an exercise is that people might not vote in the canton where they work. Hence, recruiters selecting candidates for a firm in a given canton might live (and vote) in another canton. Another difficulty is that the cantonal level could be too aggregated since it masks considerable heterogeneity in voting behavior within cantons. Unfortunately, in the recruiter click data, information on firm location is only available at the cantonal level,<sup>40</sup> and the data on job postings is too noisy

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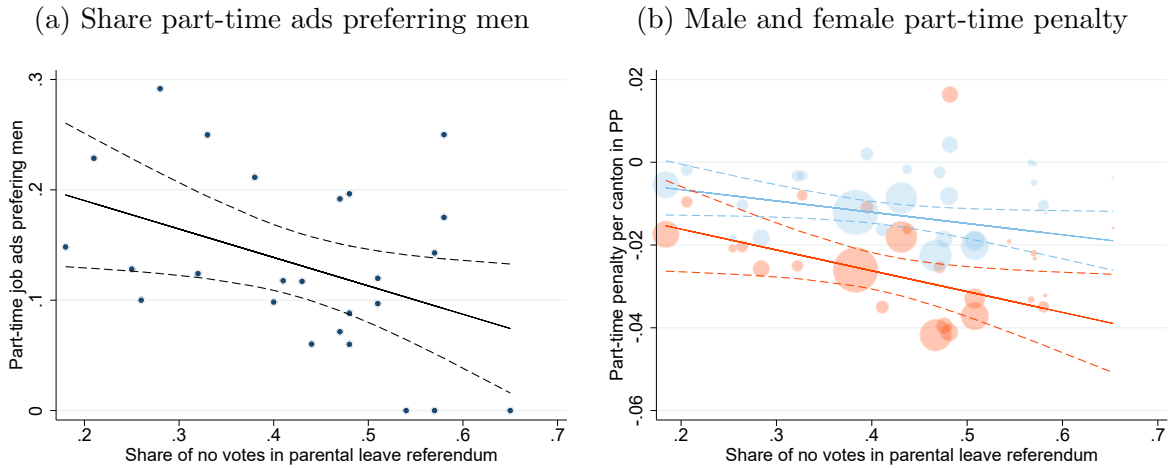
<sup>38</sup>Several studies show that the male breadwinner norm is still prevalent and that traditional gender norms can affect economic outcomes like the relative income within households (Bertrand et al., 2015) or the labor supply decisions of women (Fernández et al., 2004).

<sup>39</sup>The law aimed to extend paternity leave for fathers from one day to two weeks. Because the law was subject to a referendum, the Swiss electorate had to vote on it on September 27, 2020. It was approved with an approval rate of 62%. However, there has been considerable heterogeneity across cantons, with the share of no votes ranging from 18% in the canton of Vaud to 65% in Appenzell Inner Rhodes.

<sup>40</sup>Moreover, the information is only available if recruiters enter either firm location or a jobseeker's

at a more disaggregated level. To increase the likelihood that recruiters live in the canton where they work, I restrict the sample on job postings to small and medium firms,<sup>41</sup> and drop recruitment agencies. Finally, the analysis is only correlational. Local gender norms approximated by voting behavior may be correlated with other factors that vary at the regional level and that are simultaneously correlated with the degree to which recruiters prefer women over men for part-time jobs. Thus, the analysis provides only suggestive evidence.

Figure 10: Relationship between the regional share of no votes in a parental leave referendum and the disadvantage of men (and women) searching for a part-time job



*Notes:* The figure relates the share of voters in a canton who voted against extending the right to parental leave for fathers to two measures of the relative disadvantage of men in finding a part-time job: Panel (a) relates it to the share of part-time job ads posted on Job-Room with a preference for men among all part-time job ads with a gender preference in the respective canton. The sample has been restricted to small and medium firms, and recruitment agencies have been dropped. Panel (b) relates it to estimates of the male (in orange) and female (in light blue) part-time penalty in a given canton estimated based on the recruiter click data. The male and female part-time penalties are calculated by aggregating the different part-time categories in Equation 1 into one dummy and interacting this dummy, the gender dummy, and their interaction with indicators for the different cantons. The size of the markers corresponds to the number of observations in a given canton. In both panels, the solid lines indicate the ordinary (weighted) least squares regression of the dependent variable on the y-axis against the share of no votes in the referendum. The dashed lines show the associated 95% confidence intervals.

The conclusion from Figure 10 is not very clear. Panel (a) shows that cantons with a higher vote share against an extension of paternity leave (i.e., cantons with more conservative gender norms) tend to exhibit a lower share of part-time job ads with a preference for men. This result supports the notion that gender norms play an essential role in explaining the difficulties of men in finding part-time jobs. However, Figure B.12a in the

place of residence as a search criterion. They do either one or the other in 62 percent of all searches.

<sup>41</sup>The reason is that larger firms are more likely to have multiple establishments in different cantons, which increases the likelihood that recruiters recruit candidates for establishments in other cantons.

Appendix shows that the relationship becomes weaker if we weight the data with the number of part-time job ads in a given canton. Panel (b) shows that the male part-time penalty per canton (in orange) estimated with the recruiter click data is negatively related to the share of voters voting against extending parental leave for fathers. This pattern is also consistent with a prominent role of gender norms in explaining men’s difficulties in finding part-time jobs. The female part-time penalty per canton (in light blue) exhibits a similar pattern but the relationship is weaker. However, once we normalize the part-time penalties per canton with the mean of the average contact rate in the respective canton, the male and female differences in the steepness of the slope disappear, as Figure B.12b in the Appendix shows.

## 7 Conclusions

This study draws on large-scale observational data from an online recruitment platform and an online job board in Switzerland to investigate whether recruiters prefer full- or part-time workers and whether these preferences depend on the gender of a jobseeker.

First, I analyze detailed information on 563,444 vacancies posted on Job-Room, the professional job and recruitment platform of the Swiss Public Employment Service. All job ads contain information on the number of working hours. In addition, firms can indicate a jobseeker’s preferred gender in a confidential online form. This allows me to assess whether firms prefer men or women when posting a part-time job.

Second, I analyze click data from 43,352 recruiters navigating through 313,566 jobseeker profiles on the candidate search platform of Job-Room. The profiles contain, among other things, information about the preferred number of working hours of a jobseeker. I observe several million recruiters’ decisions about whether to contact a jobseeker or not. I estimate the effect of the number of preferred working hours on the likelihood of being contacted by a recruiter. Since I have all the information about jobseekers available to the recruiters, I can flexibly control for all jobseeker characteristics related to the contact likelihood, the gender of a jobseeker, and the preferred number of working hours. This allows me to estimate the causal effect of a jobseeker’s preference for part-time work on the contact likelihood, as well as its interaction with the gender of a jobseeker.

The analyses of both job postings and recruiter click data show that recruiters prefer full-time workers to part-time workers and that this part-time penalty is more pronounced for men than for women. The percentage of part-time job ads on Job-Room that state a preference for women is nearly five times the percentage of part-time job ads with a

preference for men. This gap cannot be explained by differences in gender preferences across industries, occupations, or firms. The analysis of the recruiter click data shows that a man looking for a 70% part-time job experiences a 23.5% lower contact probability than a man with identical characteristics looking for a full-time job. In contrast, a woman with the same part-time preferences experiences a penalty of 7.9% compared to a woman looking for a full-time job.

I provide evidence that the gender differences in the part-time penalty cannot be explained by differences in the production technology. Moreover, comparing jobseeker and worker characteristics that are likely to be related to motivation or commitment, I find no evidence that part-time workers are less motivated or committed to their jobs than full-time workers, nor any evidence for gender differences. This casts doubt on whether statistical discrimination based on accurate beliefs can explain the gender differences in the part-time penalty. Instead, the pattern of male and female part-time penalties is consistent with biases due to gender stereotypes. Since a stereotypical man is supposed to work full-time to sustain his family, men searching for a part-time job might arouse suspicion and trigger concerns that they lack motivation or ambition, or have another deficiency leading to difficulties in finding a full-time position. On the other hand, a part-time working woman conforms to her traditional role and is, therefore, likely to experience less backlash from recruiters. However, due to data limitations, I can only provide weak direct evidence of this mechanism by relating the regional part-time penalty to regional outcomes of a referendum on extending paternity leave for fathers. More research is needed to assess why recruiters are more hesitant to employ male part-time workers than female ones in more depth.

The findings of this study have consequences for gender equality. First, a part-time penalty in hiring implies higher search costs and a reduction in the number of potential jobs for jobseekers who prefer part-time work. I also show that competition for part-time jobs is fiercer than for full-time jobs on Job-Room because there are more jobseekers looking for part-time employment than there are part-time jobs available. Hence, jobseekers looking for a part-time job have less outside options and therefore a weaker bargaining position (Hall and Krueger, 2010) than jobseekers looking for a full-time job.

The (few) men seeking part-time employment are the most affected, as their part-time penalty is even larger than that of women. However, this is also bad news for women since the larger part-time penalty for men reduces their incentives to search for part-time jobs. Vandello et al. (2013) indeed found that despite highly valuing work flexibility, men are less likely than women to seek such flexibility for fear of the reactions of superiors

or colleagues. Hence, the high part-time penalty for men might constitute an additional obstacle to a more equal division of paid and unpaid labor by gender. Moreover, since many more women than men are looking for part-time jobs, they are heavily affected overall, even though their part-time penalty is less than that of men.

This study highlights the importance of considering recruiters' preferences when discussing ways to better reconcile work and family life to achieve a more equal division of paid and unpaid labor. However, more research is needed to better explore the mechanisms behind the (gender differences in the) part-time penalty and to find effective ways to reduce it.

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# Appendix

## A Job-Room screenshots

Figure A.1: Job platform. Results list

The screenshot displays a job platform interface with a search bar at the top containing 'Nurse X' and filters for 'Competencies, skills' and 'Canton, Work location' set to 'Zürich (ZH) X'. On the left, a sidebar shows '432 Positions' and filter options for 'Sort by relevance', 'Employers', 'Contract type', 'Workload from/to', and 'Online since'. The main area lists several job postings:

- Dipl. Pflegefachfrau/-mann HF/FH 70-100 %** (07.12.2022) by **Spitex zur Mühle AG**. Location: Zollikon (ZH). Contract: 70% - 100%, immediately, Permanent. Description: Die Spitex zur Mühle ist eine mehrfach ausgezeichnete private Spitex-Organisation mit hohen Ansprüchen an Menschlichkeit und Qualität. Unsere Mitarbeitenden betreuen anspruchsvolle Kunden zwei bis 24 Stunden täglich. 70 Mitarbeiterinnen und Mitarbeiter stehen Menschen jeden Alters, die bedin...
- Fachexpertin/Fachexperte Pflege 60-100% für die interdisziplinäre Intermediate Care Abteilung** (06.12.2022) by **Universitätsspital Zürich**. Location: 8000 Zürich (ZH). Contract: 60% - 100%, By agreement, Permanent. Description: Das Universitätsspital Zürich ist eines der grössten Spitäler in der Schweiz. Unsere über 8'600 Mitarbeitenden und rund 700 Auszubildende setzen sich täglich für das Wohl unserer Patienten ein. Knapp 43'000 stationäre Patientinnen und Patienten und rund 700'000 ambulante Konsultationen pro Jahr zeugen von...
- Pflegefachperson 50-100% für das Rhythmologie-Labor** (06.12.2022) by **Universitätsspital Zürich**. Location: 8000 Zürich (ZH). Contract: 50% - 100%, By agreement, Permanent. Description: Das Universitätsspital Zürich ist eines der grössten Spitäler in der Schweiz. Unsere über 8'600 Mitarbeitenden und rund 700 Auszubildende setzen sich täglich für das Wohl unserer Patienten ein. Knapp 43'000 stationäre Patientinnen und Patienten und rund 700'000 ambulante Konsultationen pro Jahr zeugen von...
- Dipl. Pflegefachperson 20-100% für die interdisziplinäre IMC** (06.12.2022) by **Universitätsspital Zürich**. Location: 8000 Zürich (ZH). Contract: 20% - 100%, By agreement, Permanent. Description: Das Universitätsspital Zürich ist eines der grössten Spitäler in der Schweiz. Unsere über 8'600 Mitarbeitenden und rund 700 Auszubildende setzen sich täglich für das Wohl unserer Patienten ein. Knapp 43'000 stationäre Patientinnen und Patienten und rund 700'000 ambulante Konsultationen pro Jahr zeugen von...
- Pflegefachperson HF/FH 80-100% für die Kardiologie** (06.12.2022) by **Universitätsspital Zürich**. Location: 8000 Zürich (ZH). Contract: 80% - 100%, By agreement, Permanent. Description: Das Universitätsspital Zürich ist eines der grössten Spitäler in der Schweiz. Unsere über 8'600 Mitarbeitenden und rund 700 Auszubildende setzen sich täglich für das Wohl unserer Patienten ein. Knapp 43'000 stationäre Patientinnen und Patienten und rund 700'000 ambulante Konsultationen pro Jahr zeugen von...
- Dipl. Pflegefachperson HF/FH Herzchirurgie 80-100%** (06.12.2022) by **Universitätsspital Zürich**. Location: 8000 Zürich (ZH). Contract: 80% - 100%, By agreement, Permanent. Description: Das Universitätsspital Zürich ist eines der grössten Spitäler in der Schweiz. Unsere über 8'600 Mitarbeitenden und rund 700 Auszubildende setzen sich täglich für das Wohl unserer Patienten ein. Knapp 43'000 stationäre Patientinnen und Patienten und rund 700'000 ambulante Konsultationen pro Jahr zeugen von...

Figure A.2: Candidate search platform. First step: Specify search criteria

**Search a candidate**

**Job title:**

**Firm location:**

**Place of residence:**

**Availability:**

**Work volume:**

**Type of work:**

**Education level:**

**Origin of education certificate:**

**Work experience:**

**Special skills:**

**Driving license category:**

**Language skills:**

mündlich schriftlich

Figure A.3: Candidate search platform. Second step: Select from results list

Sort

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 70%, Geschlecht: weiblich, Wohnkanton: ZH, Verfügbarkeit: nach Vereinbarung  
*Praktikum im Sept. 2005 bis Jan. 2006*

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 40%, Geschlecht: weiblich, Wohnkanton: GL, Verfügbarkeit: nach Vereinbarung

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 100%, Geschlecht: weiblich, Wohnkanton: AG, Verfügbarkeit: nach Vereinbarung  
*Ausweis Pflegeassistentin Eidg. Titel Mitarbeit in der Grundpflege Betreuung und Aktivierung Hausarbeiten Administrative Arbeiten*

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 100%, Geschlecht: männlich, Wohnkanton: AG, Verfügbarkeit: ab sofort  
*Angeleiteter Strassenbauer sucht eine neue Herausforderung im Pflegebereich Bereits ein Praktikum absolviert*

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 80%, Geschlecht: weiblich, Wohnkanton: ZH, Verfügbarkeit: ab sofort

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 100%, Geschlecht: männlich, Wohnkanton: AG, Verfügbarkeit: nach Vereinbarung  
*Anerkennung von SRK liegt für Pflegehelfer*

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 60%, Geschlecht: weiblich, Wohnkanton: ZH, Verfügbarkeit: ab sofort

**Pflegeassistent / Pflegeassistentin**  
Arbeitspensum: 100%, Geschlecht: männlich, Wohnkanton: AG, Verfügbarkeit: ab sofort  
*- Erfahrung in der Langzeitpflege- Alzheimer/Demenabteilung*

**Care assistant**  
Work volume: 100%, gender: male, canton of residence: AG, availability: Immediately  
Experience in long-term care, experience in Alzheimer and dementia care

Figure A.4: Candidate search platform. Third step: Screen profile, reveal contact info

Jobs a candidate is looking for	
Job title	Night duty
Educational qualifications	None
Years of experience	Less than a year
Job title	Cleaning worker
Educational qualifications	None
Years of experience	More than 1 year
Job title	Care assistant
Educational qualifications	None
Job title	Courier
Educational qualifications	None

The candidate's language skills	
Albanian	Oral: very well; Writing: well
German	Oral: very well; Writing: well

Other characteristics	
Availability	By arrangement
Type of work	Not specified
Gender	Female
Desired work volume	40%
Desired contract type	Unlimited
Highest education level	Secondary Level I – ISCED 2
Desired work region	Major region 4 (ZH, SH, TG, SG, AI, AR, GL, GR)
Nationality	Swiss
Driving license category	B

Contact information	
Name	Name of the candidate
<b>Show contact information</b>	

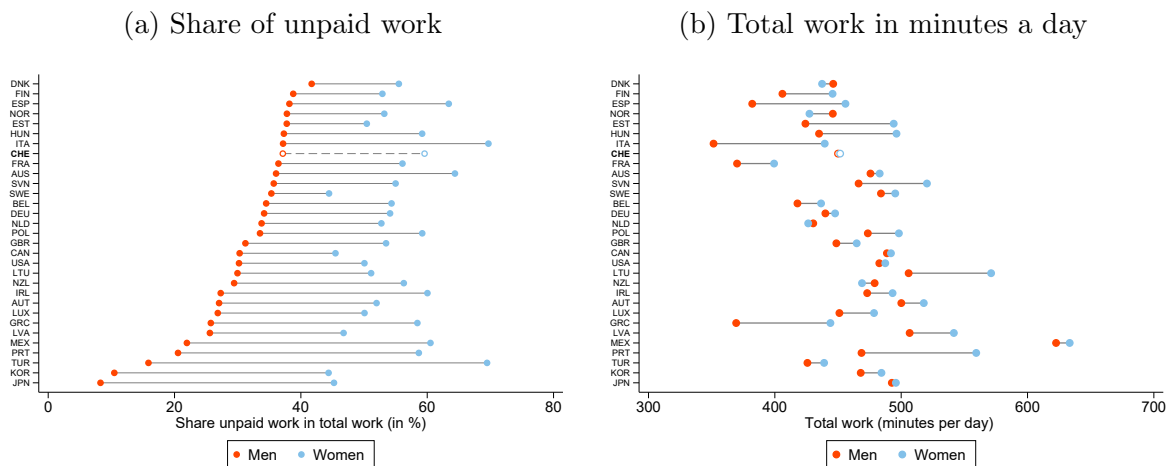
Contact employment agency for further information	
Adresse	RAV Rütli, Joweid Zentrum 1, 8630 Rütli ZH
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## B Additional tables and figures

Figure B.1: Distribution of unpaid work and total work among men and women



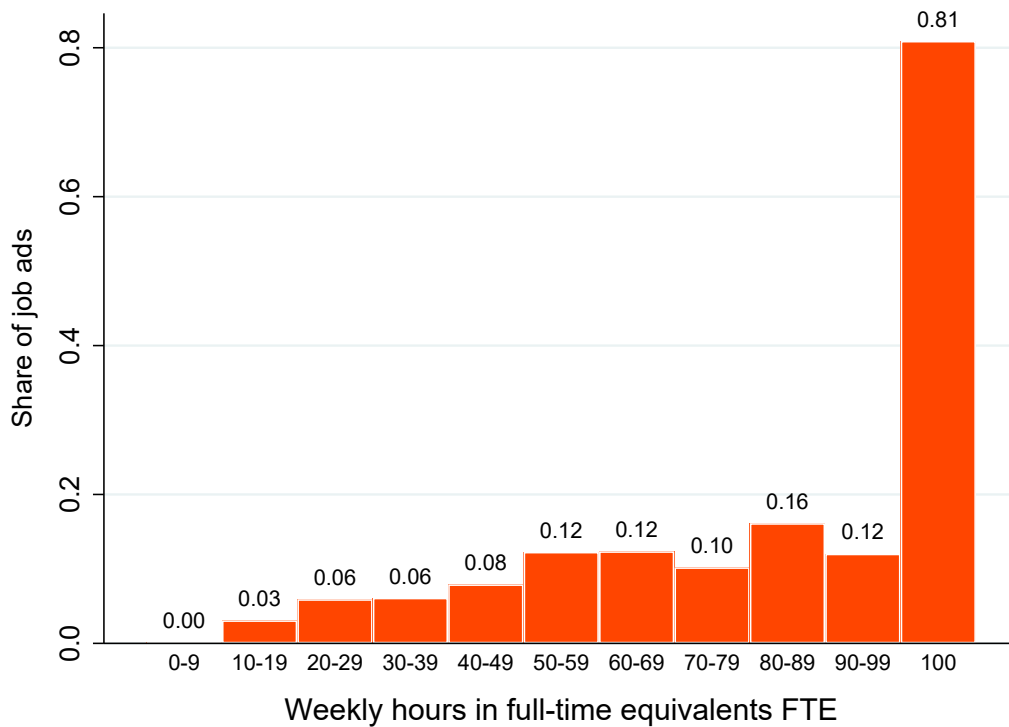
*Notes:* Panel (a) plots the share of unpaid work in total hours worked for men and women in several OECD countries including Switzerland (bold label, hollow marker and dashed line). Panel (b) reports the total working time for men and women in the same countries, measured in minutes per day. Data is from the OECD. Only data for Switzerland is from the Swiss Statistical Office since the OECD does not report the respective data for Switzerland. The Swiss data had to be converted from hours per week to minutes per day.

Table B.1: Share of part-time job ads and share of clicks on part-time job ads by occupation groups

	(1) Part-time ads	(2) Part-time clicks	(3) # obs
Managers	.074	.074	9,015
Professionals	.2	.29	40,532
Technicians and associate professionals	.18	.26	34,840
Clerical support workers	.28	.42	54,559
Service and sales workers	.33	.41	130,230
Skilled agricultural, forestry and fishery workers	.057	.11	5,494
Craft and related trades workers	.014	.04	119,327
Plant and machine operators, and assemblers	.086	.2	25,392
Elementary occupations	.21	.28	143,316

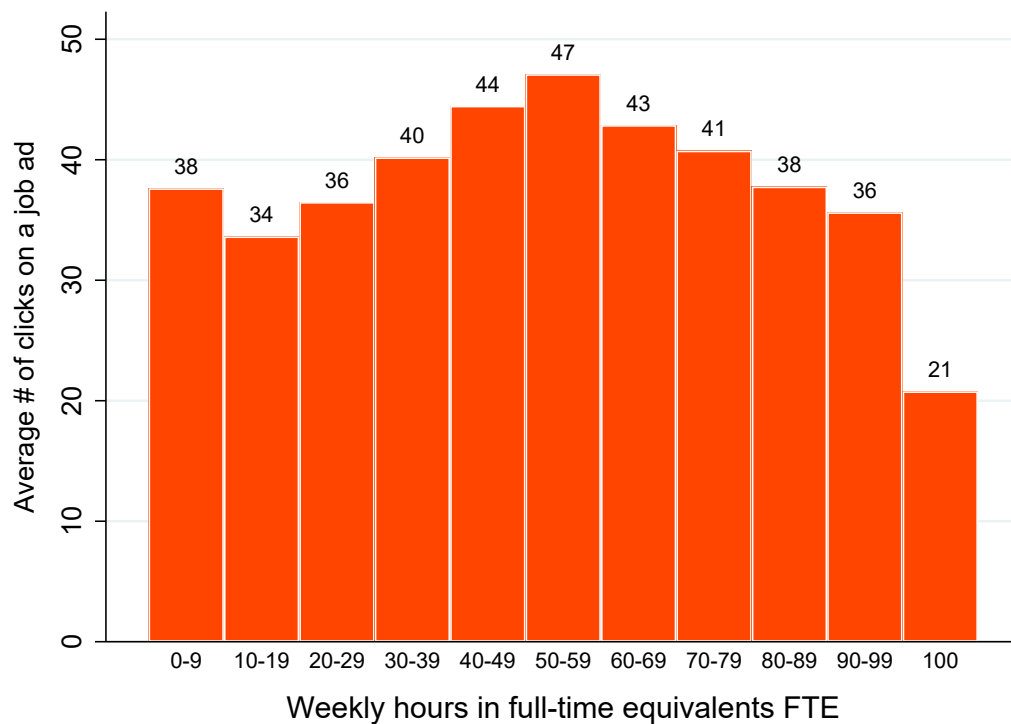
*Notes:* Column 1 shows the share of part-time job ads posted on Job-Room between July 2018 and June 2021 by ISCO-1 occupation. The sample consists of 563,444 job ads. Column 2 reports the share of clicks on part-time job ads in the respective occupation between June 2020 and June 2021. This sample consists of 189,848 job ads. In both columns, I consider only job ads that exclusively cover part-time jobs. Job ads that cover part- and full-time positions are not counted. The number of observations shown in column 3 refer to all job ads posted on Job-Room between July 2018 and June 2021.

Figure B.2: Share of job ads covering a given level of working hours (expressed in FTE)



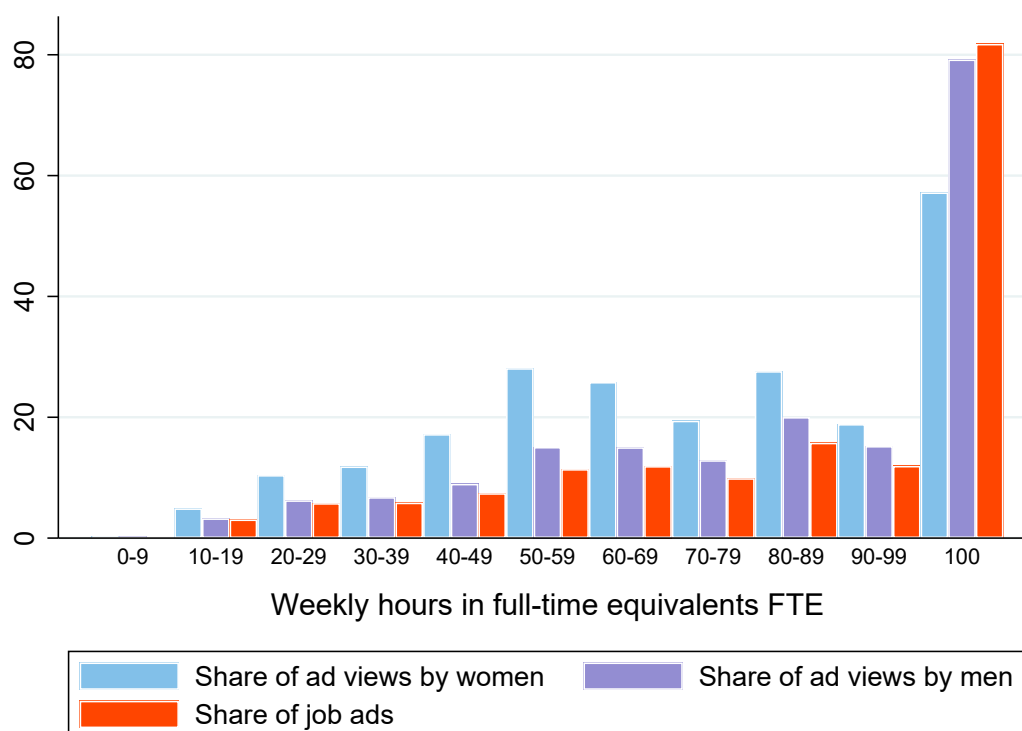
*Notes:* The figure shows the share of the 563,444 job ads posted on Job-Room between July 2018 and June 2021 that cover a certain level of weekly working hours expressed in FTE. Note that 12% of the job ads state a range of possible working hours and appear in multiple categories.

Figure B.3: Average number of clicks on job ads by number of weekly working hours (expressed in FTE)



*Notes:* The bars show the average number of clicks on a job ad by number of weekly working hours (expressed in FTE). The sample consists of 229,874 ads appearing on Job-Room between June 1, 2020 and July 31, 2021. Job ads that have never been clicked on are also included in the sample. Note that some job ads state a range of possible working hours and can therefore appear in multiple categories.

Figure B.4: Share of job ads and job ad views by gender covering a given level of working hours (expressed in FTE)



*Notes:* The orange bars report the share of job ads appearing on Job-Room between June 2020 and June 2021 that cover a given level of weekly working hours expressed in FTE. The sample consists of 229,874 job ads. The blue (purple) bars show the share of job ad views for a given level of weekly working hours by women (men) over the same period. Prior to June 2020 no job ad views were recorded. The sample consists of 189,948 job ads opened during the observation period. Since some job ads state a range of possible working hours, they can appear in multiple categories. This is why the shares for both series do not add up to 100%.

Table B.2: Characteristics of firms that never state the preferred gender and characteristics of firms that state the preferred gender

	(1) never	(2) sometimes
<i>Industry</i>		
Manufacturing	.11	.13
Construction	.051	.061
Wholesale and retail trade	.11	.12
Transportation and storage	.021	.021
Accommodation and food service activities	.17	.26
Information and communication	.023	.0047
Financial and insurance services	.019	.0059
Real estate activities	.011	.0081
Professional, scientific and technical activities	.067	.034
Administrative support activities	.031	.049
Private employment agencies	.22	.17
Public administration	.018	.0093
Education	.014	.0048
Human health and social work activities	.059	.046
Arts, entertainment and recreation	.013	.011
Other service activities	.039	.046
No information	.024	.02
<i>Firm size</i>		
1-9 employees	.43	.5
10-49 employees	.2	.19
50-249 employees	.014	.017
>=250 employees	.094	.092
No information	.26	.2
<i>Legal status</i>		
Private company	.15	.2
Stock company	.5	.47
Limited liability company	.23	.26
Public sector	.034	.017
Other/no information	.088	.05
Observations	74557	13663

Notes: The Table reports the distribution of firms over industry, firm size categories, and legal status for firms that never state the preferred gender in the observation period (column 1), and firms that sometimes state the preferred gender (column 2). The sample covers 88,220 different firms posting 563,444 job ads on Job-Room between July 2018 and June 2021.

Table B.3: Regression of expressing a preference for women for a job on part-/full-time status and different fixed effects

	(1)	(2)	(3)	(4)	(5)
Full-time job	ref.	ref.	ref.	ref.	ref.
Full- or part-time job	.018*** (.0013)	.017*** (.0013)	.0093*** (.0012)	.0026** (.0012)	.006*** (.001)
Part-time job	.047*** (.0018)	.044*** (.0016)	.034*** (.0015)	.021*** (.0014)	.015*** (.0013)
Job ad characteristics	No	Yes	Yes	Yes	Yes
Industry	No	No	Yes	Yes	Yes
Occupation	No	No	No	Yes	Yes
Firm fixed effects	No	No	No	No	Yes
Mean dependent variable	0.025	0.025	0.025	0.025	0.023
Observations	559,556	559,556	559,556	558,853	524,546

Note: The table reports results from regressing a dummy equal to one if the job ad states a preference for women on different sets of fixed effects, some ad specific controls and a categorical variable indicating whether it is a part-time job, a job that covers a range of working hours including full- and part-time positions, or a full-time job. The latter is the reference category. The different models reported in columns 1-5 differ by the set of controls included in the estimation. Controls for job ad characteristics include firm location (canton), a dummy whether it is a temporary job, dummies for special working conditions (night work, shift work, work from home, work on Sundays and public holidays), a categorical variable for the required experience, a categorical variable for the required education certificate, and firm size. Standard errors (in parentheses) are clustered at the firm level.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table B.4: Occupations selected by recruiters and last occupation of candidates

	# recruiters	% searches	% candidates
Construction workers	10812	34	12
Manufacturing and craft workers	10399	18	13
Agricultural and forestry workers	11989	13	1.8
Technical and computer occupations	7767	11	7.5
Management, financial and legal occup.	7443	6.1	17
Occupations in trade and transport	7145	6	17
Unclassified	7093	4.8	5.3
Hotel/restaurant and personal service occup.	5587	4.3	17
Education, health and occupation in arts	4486	3.9	11

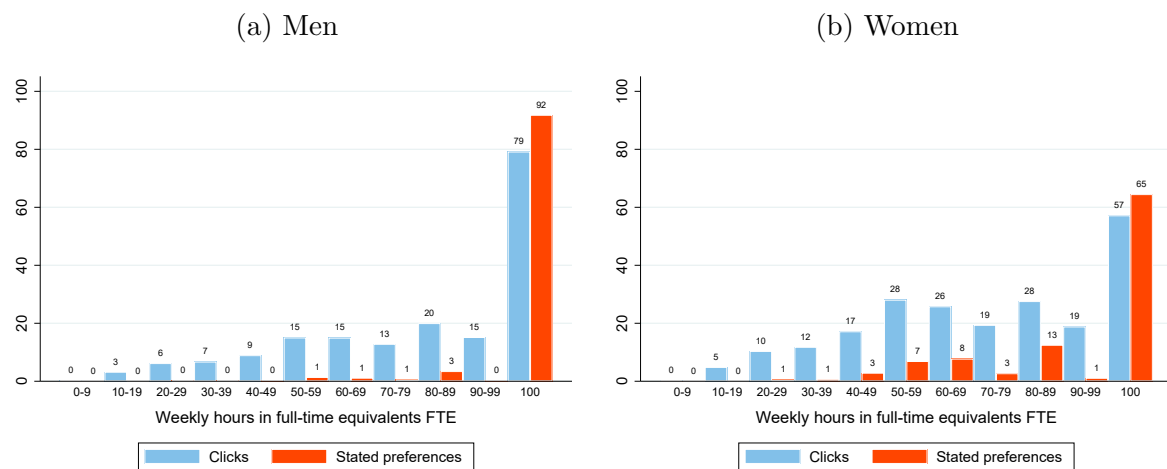
Note: The table shows the number of different recruiters searching for candidates in SBN-1 occupations during our sample period from March until December 2017 (column 1), the relative appearance of the occupations in the search queries (column 2), and the share of registered jobseekers on Job-Room with a last job in the respective occupation (column 3).

Table B.5: Selected search categories, March - December 2017

	(1) Share selected	(2) Share within cat.
Job title (occupation)	84.64	
Place of residence of job seekers	50.17	
Work location	41.85	
<i>Zurich</i>		25.52
<i>Bern</i>		18.85
<i>Argovia</i>		11.40
...		
Origin of diploma	27.42	
<i>CH</i>		68.12
<i>Foreign, recognized in CH</i>		24.69
<i>Foreign, Not recognized in CH</i>		5.03
<i>None</i>		2.17
Working hours	26.88	
<i>Full-time</i>		90.48
<i>Part-time 50-90%</i>		7.73
<i>Part-time &lt; 50%</i>		1.79
Availability	22.33	
<i>Immediately</i>		92.57
<i>By arrangement</i>		7.43
Language skills	23.25	
<i>German</i>		55.31
<i>CH-German</i>		15.91
<i>French</i>		11.49
<i>English</i>		8.53
...		
Experience	21.45	
<i>&lt; 1 year</i>		4.99
<i>1-3 years</i>		36.96
<i>&gt; 3 years</i>		58.05
Drivers license	13.36	
Special skills	13.79	
Education level	1.59	
Type of work (night/shift work, ...)	0.98	

*Notes:* The table reports the search criteria (and the most important sub-categories) entered by the recruiters on Job-Room during the sample period from March to December 2017. Note, that a recruiter may select different categories. E.g. Recruiters enter in 42% of all search queries the work location. As a result, only candidates willing to work in the respective canton are shown in the results list. 26% of the recruiters who specify the work location search candidates for a firm located in Zurich. Around 15 percent of the users do not select one of the predefined job titles.

Figure B.5: Distribution of job ad clicks and stated hours preferences over weekly working hours for male and female jobseekers



*Notes:* The figure plots the distribution of job ad clicks (in blue) and stated hours preferences (in red) over different levels of weekly working hours (expressed in full-time equivalents FTE) for men (left panel) and women (right panel). Stated hours preferences are known because every jobseeker registering with the Swiss Public Employment Service has to state how many hours (s)he wants to work. Sample period is June 2020 until June 2021.



Table B.6: Descriptive statistics by part- and full-time status and gender

	Women		Men	
	Full-time	Part-time	Full-time	Part-time
<b>Visible to recruiters</b>				
Swiss citizen	.55	.69	.48	.73
Regional mobility (No of cantons)	4.2	4.1	4.5	4.5
Occup. mobility (No of occupations)	3.1	3.1	3.2	3.2
<i>Work experience</i>				
None	.29	.28	.23	.29
< 1 year	.065	.042	.063	.06
1-3 years	.17	.12	.15	.15
> 3 years	.47	.56	.55	.5
<i>Education</i>				
No information	.044	.044	.054	.037
Primary education	.01	.0086	.011	.0067
Lower secondary education	.2	.16	.23	.12
Upper secondary education	.52	.57	.51	.55
Bachelor's or equivalent level	.1	.12	.11	.17
Master's or equivalent level	.1	.078	.069	.092
Doctoral or equivalent level	.023	.016	.017	.024
<i>Language skills</i>				
Very good German skills	.46	.57	.43	.62
Very good Swiss German skills	.19	.25	.17	.29
Very good English skills	.24	.2	.19	.26
Very good French skills	.32	.3	.28	.28
Very good Italian skills	.12	.11	.13	.1
<i>Occup. last job</i>				
Agricultural and forestry workers	.014	.0073	.022	.02
Manufacturing and craft workers	.084	.047	.17	.13
Technical and computer occupations	.029	.019	.11	.13
Construction workers	.006	.0017	.21	.071
Occupations in trade and transport	.2	.21	.14	.17
Hotel/restaurant and personal service occup.	.23	.22	.12	.1
Management, financial and legal occup.	.2	.21	.14	.15
Education, health and occupation in arts	.16	.22	.052	.18
Unclassified	.076	.068	.037	.045
<b>Not visible to recr.</b>				
Age	37	42	39	41
Insured monthly earnings (in 1'000 CHF)	3.1	2.3	3.5	2.5
Unemployment duration (in days)	323	342	298	324
Share married	.35	.56	.44	.37
Observations	89011	43131	172261	9163

*Notes:* The table shows descriptive statistics of female (columns 1 and 2) and male (columns 3 and 4) jobseekers registered on Job-Room, whose profile appeared at least once in a search list between March and December 2017. It splits the sample further by jobseekers searching for a full- (columns 1 and 3) or a part-time job (columns 2 and 4). Characteristics reported at the top of the table are visible to recruiters, while those at the bottom are not. Work experience refers to the occupation, in which the jobseeker appears most frequently on a search list.

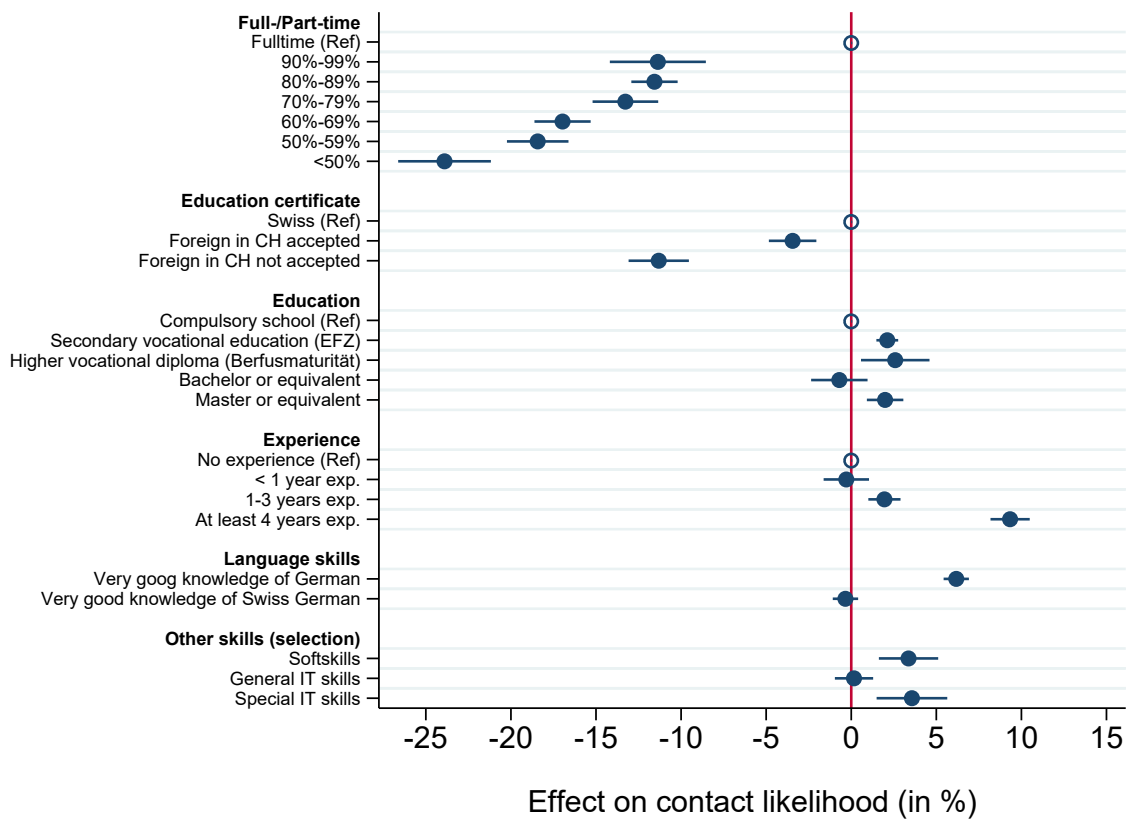
Table B.7: Effect of a stated preference for part-time work on the probability of a contact attempt by gender

	(1)	(2)
Full-time	ref.	ref.
90%-99%	-9.88*** (1.4)	-16.5*** (2.1)
80%-89%	-10.9*** (.63)	-17.5*** (1)
70%-79%	-13.4*** (.9)	-23.5*** (1.9)
60%-69%	-16*** (.78)	-25.6*** (1.5)
50%-59%	-18.9*** (.82)	-27.9*** (1.2)
<50%	-22.3*** (1.4)	-24.5*** (2.2)
Female		-3.21*** (.54)
Female # 90%-99%		14.6*** (2.5)
Female # 80%-89%		11.9*** (.99)
Female # 70%-79%		15.6*** (2)
Female # 60%-69%		14.3*** (1.4)
Female # 50%-59%		14.9*** (1.3)
Female # <50%		4.59** (2.2)
Mean dep. Var.	0.09	0.09
Observations	13,561,643	13,561,643

*Notes:* The table reports the effects (in %) of stating a preference for (different levels of) part-time work on the likelihood that the contact button has been clicked conditional on appearing in a results list. Column (1) shows the overall effect of part-time work obtained by estimating Equation 1 without the interactions between gender and the part-time categories. Jobseekers searching a full-time position are the reference category. Column (2) reports part-time coefficients interacted with gender obtained by estimating Equation 1. Here, male jobseekers searching for a full-time position are the reference category. Standard errors (in parentheses) are clustered at recruiter level.

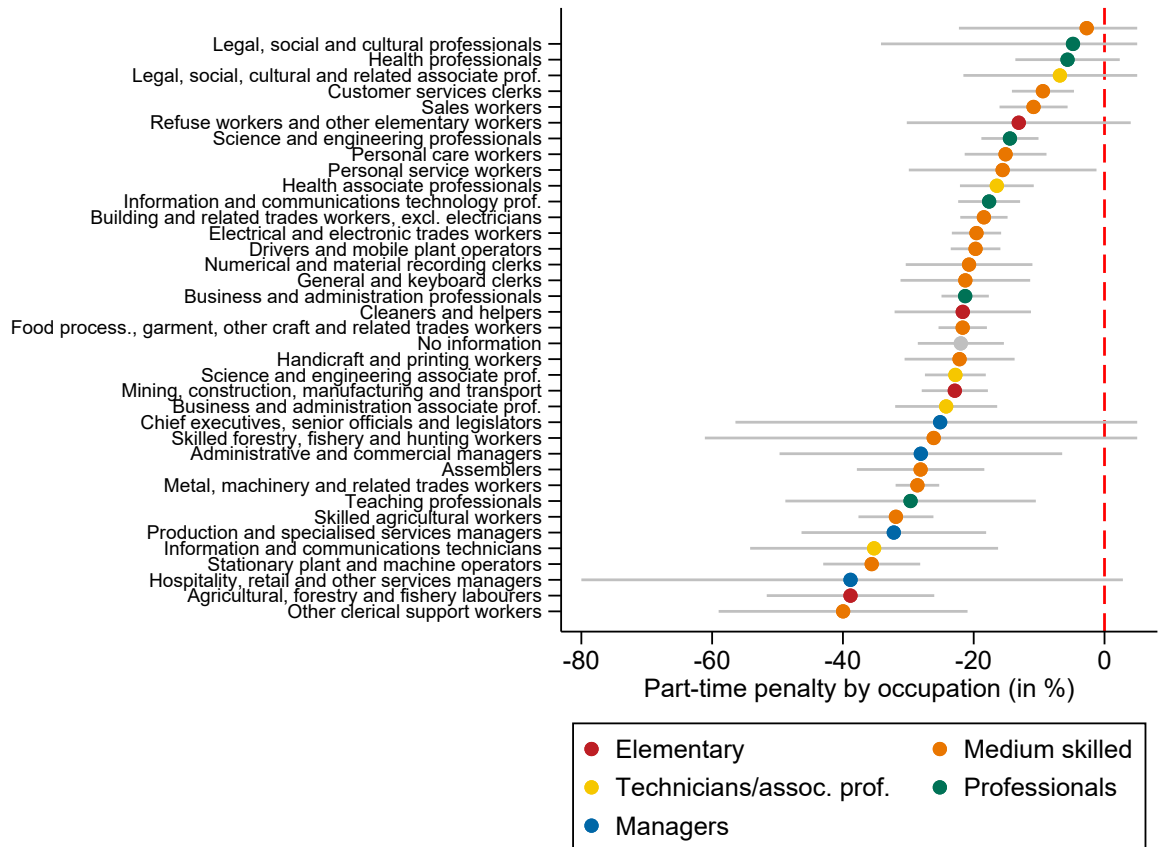
\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Figure B.6: Effects of different jobseeker characteristics on the contact likelihood



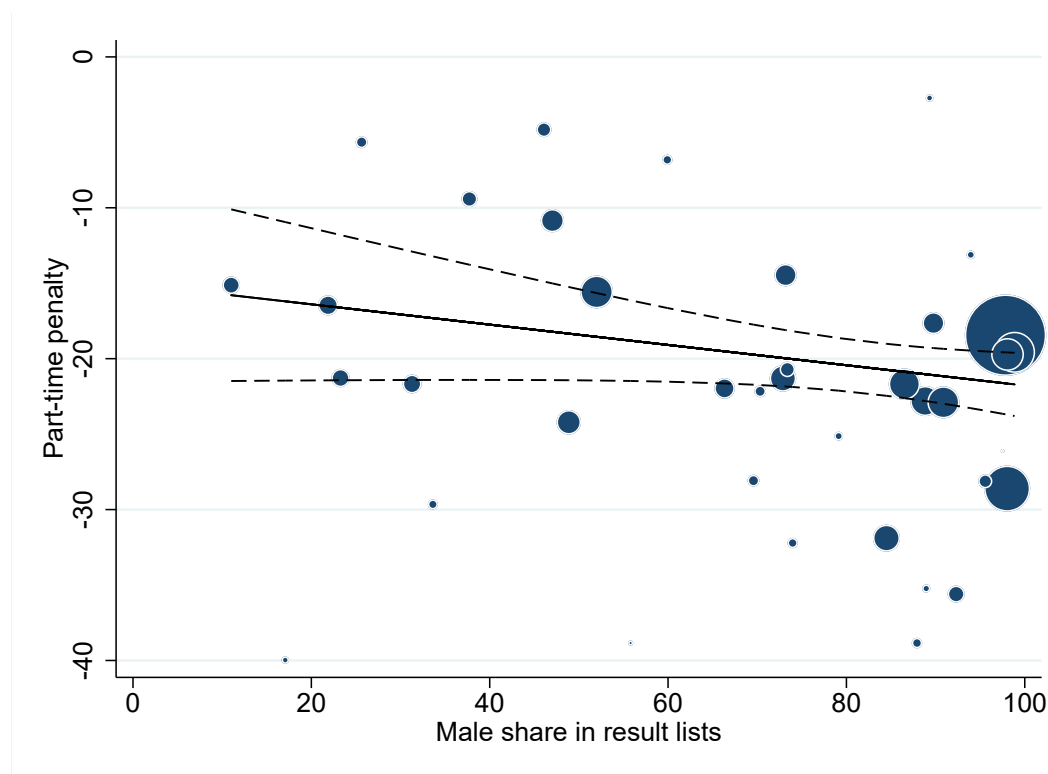
*Notes:* The figure plots the coefficients, and associated 95% confidence intervals, of different jobseeker characteristics visible to recruiters on Job-Room. In contrast to the regression model shown in Equation 1, this model does not contain first order interactions because the main effects of the different variables could not be interpreted were they additionally part of some interactions. Dependent variable is the likelihood that a recruiter clicks on the contact button. All coefficients are normalized with the average contact rate (9.4%). The sample covers all jobseeker profiles appearing on the results lists of search queries between March and December 2017 where recruiters did not restrict the candidate pool to jobseekers looking for full- or part-time jobs. Standard errors are clustered at recruiter level.

Figure B.7: Overall effect of a preference for part-time work on the contact likelihood by occupation



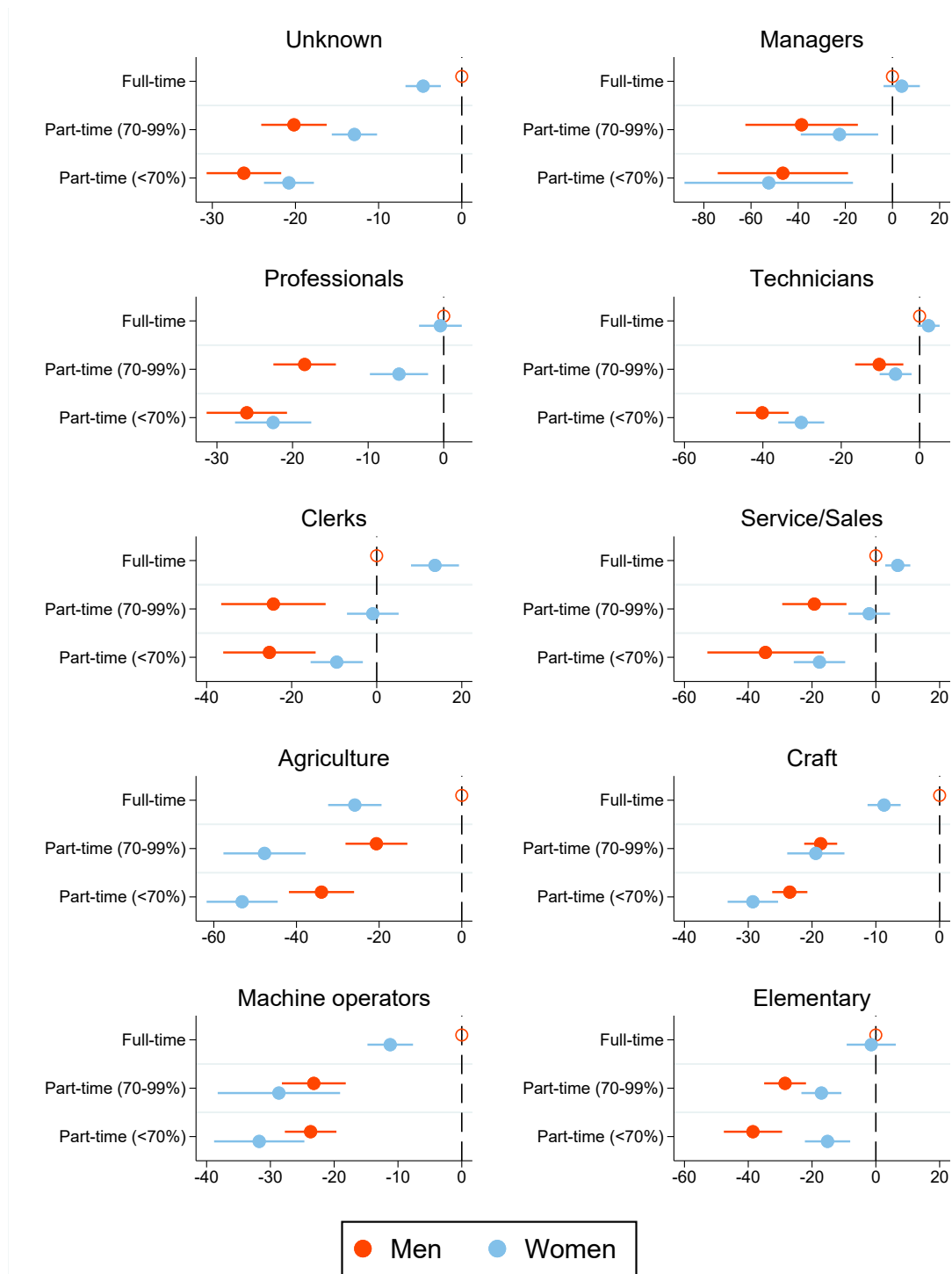
*Notes:* The figure plots the coefficients of a preference for part-time work, and associated 95% confidence intervals, by occupation (following the ISCO-2 classification). Dependent variable is the likelihood that recruiters click on the contact button. In contrast to the regression model shown in Equation 1, this model aggregates the six part-time categories into one part-time dummy, which has not been interacted with gender but instead with indicators for ISCO-2 occupations. In the reference category are jobseekers searching for a full-time job in the same occupation. Coefficients are normalized with the average contact rate in the respective occupation. The colors indicate the skill-level of an occupation (according to the ISCO skill classification). Note that I cut Confidence Intervals at -80 and +5. The sample covers all jobseeker profiles appearing in the results lists of search queries between March and December 2017 where recruiters did not restrict the candidate pool to jobseekers looking for full- or part-time jobs. Standard errors are clustered at the recruiter level.

Figure B.8: Relationship between the part-time penalty in an occupation and the share of men in the results lists



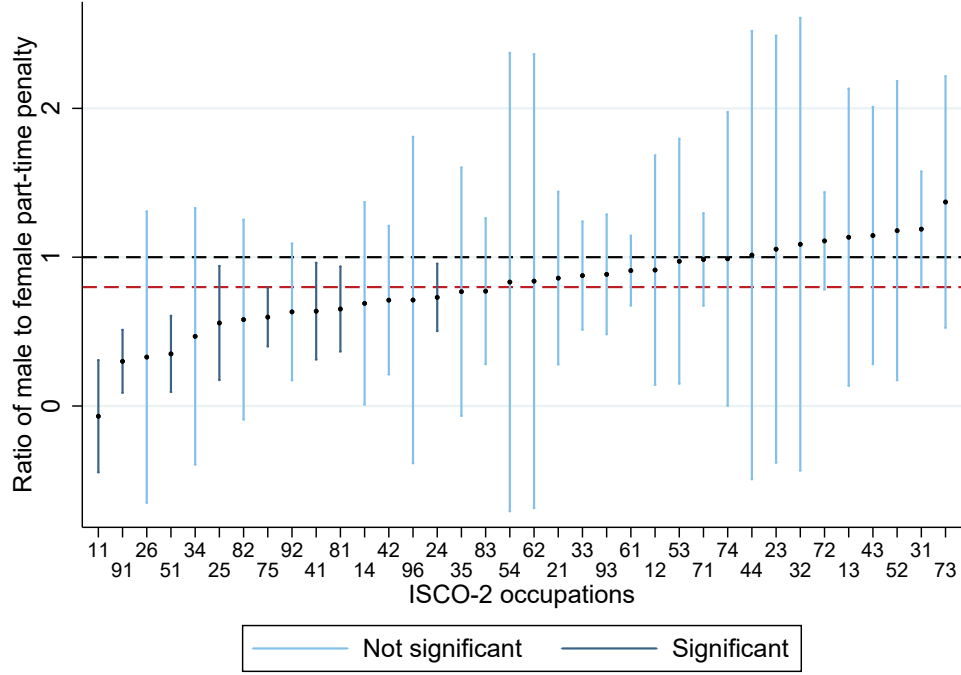
*Notes:* The figure plots the overall part-time penalty in an ISCO-2 occupation against the share of men in the results lists of the respective occupation. The part-time penalties are calculated by estimating Equation 1, except that the six part-time categories are aggregated into one part-time dummy. This dummy has not been interacted with gender but instead with indicators for ISCO-2 occupations. All coefficients are normalized with the mean of the average contact rate in the respective occupation. The size of the markers corresponds to the number of observations in an occupation. The black solid line indicates the ordinary least squares regression of the estimated part-time penalty against the male share in the respective occupation. The dashed lines show the associated 95% confidence intervals.

Figure B.9: Effect of working part-time vs. full-time (in %) on the contact likelihood for men and women by occupation



*Notes:* The figure plots the coefficients, and associated 95% confidence intervals, of the preferred number of hours (expressed in FTE) by broad occupation groups (following the ISCO-1 level classification). The regression model is the same as the one shown in Equation 1 except that I interact the part-time categories and gender (and their interaction) with occupation. Moreover, I aggregate the six part-time categories into two. In the reference category are male jobseekers searching for a full-time job in the same occupation. Dependent variable is the likelihood that a recruiter clicks on the contact button. All coefficients are normalized with the average contact rate in the respective occupation. Standard errors are clustered at the recruiter level.

Figure B.10: Ratio of the female to male part-time penalty by ISCO-2 occupation



*Notes:* The figure plots the ratio, and associated 95% confidence intervals, of the female to male part-time penalty by ISCO-2 occupations. The regression model is the same as the one shown in Equation 1 except that the part-time categories ( $\beta_k hours_{i,s}^k$ ), gender ( $female_{i,s}$ ) and their interaction ( $\beta_{k,f} hours_{i,s}^k * female_{i,s}$ ) have been interacted with occupation (i.e.  $occupation_o$ ). Moreover, the six part-time categories have been aggregated into one. The reported coefficients are calculated by dividing the female part-time penalty in an occupation ( $\beta_k hours_{i,s}^k * occupation_o + \beta_{k,f} hours_{i,s}^k * female_{i,s} * occupation_o$ ) by the male part-time penalty in the respective occupation ( $\beta_k hours_{i,s}^k * occupation_o$ ). The associated standard errors are calculated based on the delta method. Since the estimates are noisy in some occupations due to the low number of observations, I apply empirical Bayes shrinkage (Koedel et al., 2015; Herrmann et al., 2016) to shrink the estimated ratios towards their mean (0.817). The values of the shrunk and unshrunk estimates as well as their standard errors are shown in Table B.8 in the Appendix. The dashed horizontal red line indicates the mean of the ratios. Confidence intervals, which are significantly different from 1 are shown in dark blue while those that are insignificantly different from 1 are shown in light blue.

Table B.8: Ratio of the female to male part-time penalty by ISCO-2 occupation

	<b>Shrunk</b>		<b>Not shrunk</b>	
	Ratio	S.E.	Ratio	S.E.
Chief executives, senior officials and legislators	-.069	.19	-.12	.2
Cleaners and helpers	.3	.11	.29	.11
Legal, social and cultural professionals	.33	.5	.06	.62
Personal service workers	.35	.13	.34	.13
Legal, social, cultural and related associate prof.	.47	.44	.34	.52
Information and communications technology prof.	.56	.2	.54	.2
Assemblers	.58	.34	.53	.38
Food process., garment, other craft and related trades workers	.6	.1	.59	.1
Agricultural, forestry and fishery labourers	.63	.23	.62	.24
General and keyboard clerks	.64	.17	.63	.17
Stationary plant and machine operators	.65	.15	.65	.15
Hospitality, retail and other services managers	.69	.35	.66	.38
Customer services clerks	.71	.25	.7	.27
Refuse workers and other elementary workers	.71	.56	.63	.75
Business and administration professionals	.73	.12	.73	.12
Information and communications technicians	.77	.43	.75	.49
Drivers and mobile plant operators	.77	.25	.77	.26
Protective services workers	.83	.79	.95	2.3
Skilled forestry, fishery and hunting workers	.84	.78	.98	2.1
Science and engineering professionals	.86	.3	.87	.32
Business and administration associate prof.	.88	.19	.88	.19
Mining, construction, manufacturing and transport	.89	.21	.89	.21
Skilled agricultural workers	.91	.12	.91	.12
Administrative and commercial managers	.91	.39	.94	.45
Personal care workers	.97	.42	1	.49
Building and related trades workers, excl. electricians	.98	.16	.99	.16
Electrical and electronic trades workers	.99	.5	1.1	.63
Other clerical support workers	1	.77	2.1	1.9
Teaching professionals	1.1	.73	1.8	1.5
Health associate professionals	1.1	.78	2.7	2.1
Metal, machinery and related trades workers	1.1	.17	1.1	.17
Production and specialised services managers	1.1	.51	1.3	.64
Numerical and material recording clerks	1.1	.44	1.3	.52
Sales workers	1.2	.51	1.4	.65
Science and engineering associate prof.	1.2	.2	1.2	.2
Handicraft and printing workers	1.4	.43	1.6	.5
Observations	36	36	36	36

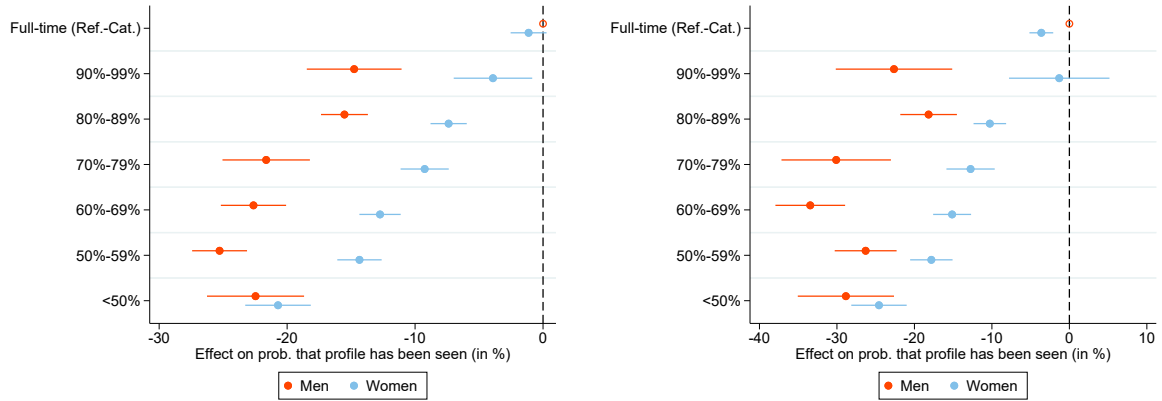
*Notes:* The table reports the shrunk and unshrunk ratio of the female part-time penalty to the male part-time penalty by occupation as well as the standard error. See notes in Figure B.10 for additional explanations.



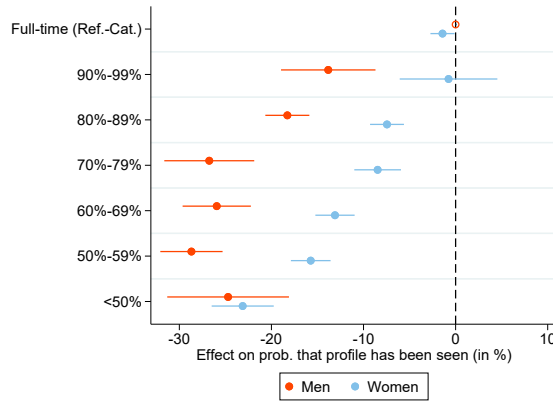
Figure B.11: Robustness

(a) Including searches with hours as criteria

(b) No profiles with additional skills



(c) With occupation fixed effects



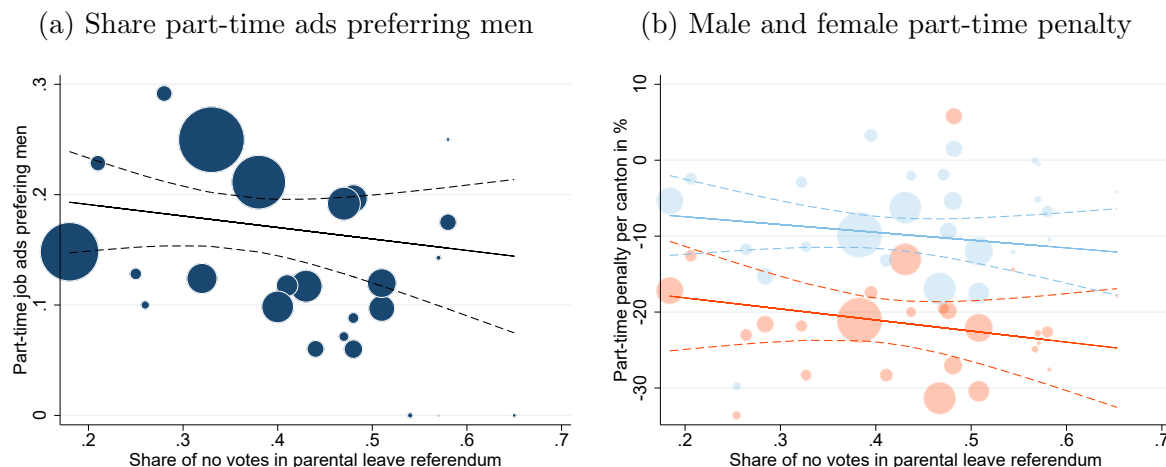
*Notes:* The figure shows three robustness tests for the finding provided in Figure 7. All three panels show the effect of the number of preferred working hours (expressed in full-time equivalents FTE), and associated 95% confidence intervals, on the likelihood that recruiters click on the contact button. All coefficients are normalized with the respective mean of the dependent variable. In the reference category are male jobseekers searching for a full-time job. Standard errors are clustered at the recruiter level. Panel (a) includes also those search requests in the sample in which recruiters do use hours worked as a selection criteria. Panel (b) reports results for a sample without profiles that report additional skills. Panel (c) shows estimates based on a model with occupation fixed effects instead of search fixed effects.

Table B.9: Descriptive statistics by part- and full-time status and gender

	<b>Men</b>		<b>Women</b>	
	(1) Full-time	(2) Part-time	(3) Full-time	(4) Part-time
<b>Jobseekers</b>				
Occup. mobility (# of occupations)	3.18	3.20	3.13	3.13
Regional mobility (# of cantons)	4.49	4.50	4.17	4.14
Willing to work on Sundays/public holidays	0.11	0.10	0.12	0.09
Willing to do night work	0.08	0.05	0.05	0.03
<b>Workers</b>				
Absences (in % of normal hours)	0.04	0.05	0.05	0.06
Overtime (in % of normal hours)	0.02	0.04	0.01	0.03
Actual hours (in % of normal hours)	0.98	0.98	0.96	0.97
Participation in professional training	0.69	0.61	0.67	0.59
Participation in extra-professional training	0.22	0.26	0.32	0.34
Number of observations (jobseekers)	172208	9215	89006	43137

*Notes:* The table shows some characteristics of jobseekers searching for a full- or part-time job (upper panel) and some characteristics of full- or part-time workers (lower panel) by gender. Data on jobseekers are from the unemployment register. The data on absences from work, overtime, actual and normal hours are from the Work Volume Statistics conducted by the Federal Statistical Office (FSO). The figures refer to the year 2017. The lower panel shows also information on participation in non-formal professional and extra-professional training in the year 2016. This data come from the Swiss Adult Education Survey, a survey conducted every five years by the FSO.

Figure B.12: Robustness: Relationship between the regional share of no votes in a parental leave referendum and the relative disadvantage of men searching for a part-time job



*Notes:* The Figure relates the share of voters in a canton who voted against extending the right to parental leave for fathers to two measures of the relative disadvantage of men in finding a part-time job: Panel (a) relates it to the share of part-time job ads posted on Job-Room with a preference for men among all part-time job ads with a gender preference in the respective canton. The sample has been restricted to small and medium firms, and recruitment agencies have been dropped. In contrast to Figure 10a, data points have been weighted with the number of part-time job ads in a given canton. Panel (b) relates it to estimates of the male (in orange) and female (in light blue) part-time penalty in a given canton estimated based on the recruiter click data. The male and female part-time penalties are calculated by aggregating the different part-time categories in Equation 1 into one dummy and interacting this dummy, the gender dummy, and their interaction with indicators for the different cantons. The size of the markers corresponds to the number of observations in a given canton. In contrast to Figure 10b, coefficients are normalized with the mean of the average contact rate in the respective canton. In both panels, the solid lines indicate the weighted least squares regression of the dependent variable on the y-axis against the share of no votes in the referendum. The dashed lines show the associated 95% confidence intervals.

## C The part-time penalty and indicators for technologies that are (not) suitable for part-time work

This section explores the relationship between the part-time penalty and indicators for technologies that are (not) suitable for part-time work at the occupational level. Based on the economic literature, Table C.1 proposes four rough indicators for technologies that are (not) suitable for part-time work: The degree of time autonomy a worker enjoys, the degree of decision-making freedom, the incidence of shift work, and the incidence of overtime. In addition, the table proposes different measures to operationalize these indicators.

Table C.1: Indicators for production technologies that are (not) suitable for part-time work

Indicator	Explanation
Degree of time autonomy	Goldin (2014) argues that jobs in which workers have low time pressure and do not have to constantly meet strict deadlines are better suited for working low hours because workers do not have to be around at particular times. The same holds for jobs in which workers are free to choose the start and end of their working day and in which it is easy for them to take time off at short notice. Moreover, a high degree of time autonomy is a sign that the work process requires little coordination among workers, which makes it easier to work part-time. Hence, we would expect a smaller part-time penalty in occupations with more time autonomy. I measure the degree of time autonomy with the following four indicators: 1) Share of workers who report being very flexible in determining the start and the end of their working hours. 2) Share of workers who report being able to take one or two hours off at short notice. 3) Share of workers who say they often or very often suffer from time pressure at work. 4) Share of workers who say they can influence the order of their tasks. Data for all four measures come from the Swiss labor force survey conducted by the Federal Statistical Office.
Degree of decision making freedom	Goldin (2014) states that workers who enjoy a lot of decision making freedom are less likely to have close substitutes. It is easier to replace a worker with another if workers have to follow clear guidelines and predetermined procedures. If workers cannot be easily replaced by other workers, it becomes more important that they are present at all times. Hence, jobs in which workers enjoy a great deal of decision-making freedom seem not particularly suitable for part-time work. I measure the degree of decision-making freedom with the share of workers reporting that they can influence the content of their tasks. Data source is the Swiss labor force survey.
Incidence of shift work	Fernández-Kranz and Rodríguez-Planas (2021) argue that reducing working hours is more costly for firms in occupations with a high incidence of shift work. Shift work enables firms to produce or provide services 24 hours a day. It is important that shifts are standardized and harmonized, which leaves little room for maneuver to accommodate different work schedules. Hence, it should be more difficult to accommodate part-time schedules in an occupation with a high incidence of shift work. I measure the incidence of shift work with the share of workers who work shift according to the Swiss labor force survey.
Incidence of over-time	In the absence of fixed costs per worker, it is cheaper for firms to hire new workers at a normal wage rate instead of paying an overtime premium for existing workers when they need to expand production. The contrary holds when firms face high fixed costs per worker. Then it pays off to pay the overtime premium instead of hiring new workers. Hence, a high incidence of overtime pay in an occupation might hint at a production technology with high fixed costs per worker (Hamermesh, 1996), which makes it more costly to hire part-time workers. I measure the incidence of overtime with two indicators: 1) the share of workers who worked more than contractual hours in the week before responding to the Swiss labor force survey. 2) The share of overtime pay in the total wage bill as reported by firms in the Swiss earnings structure survey. Both surveys are conducted by the Swiss Statistical Office.

## C.1 The overall part-time penalty and indicators for technologies that are (not) suitable for part-time work

In this section, I relate these indicators to the overall part-time penalty in an occupation by running bivariate regressions of the latter on the former. The respective coefficients are reported in Table C.2. Details on the estimation of the part-time penalties by occupation are in the table notes. Column 2 of the table shows the sign of the coefficient that we would expect based on the theoretical considerations in Table C.1 if technology were the main reason for the part-time penalty. Figures C.1 and C.2 provide a visualization of these regressions by relating the indicators to the estimated part-time penalty by occupation.

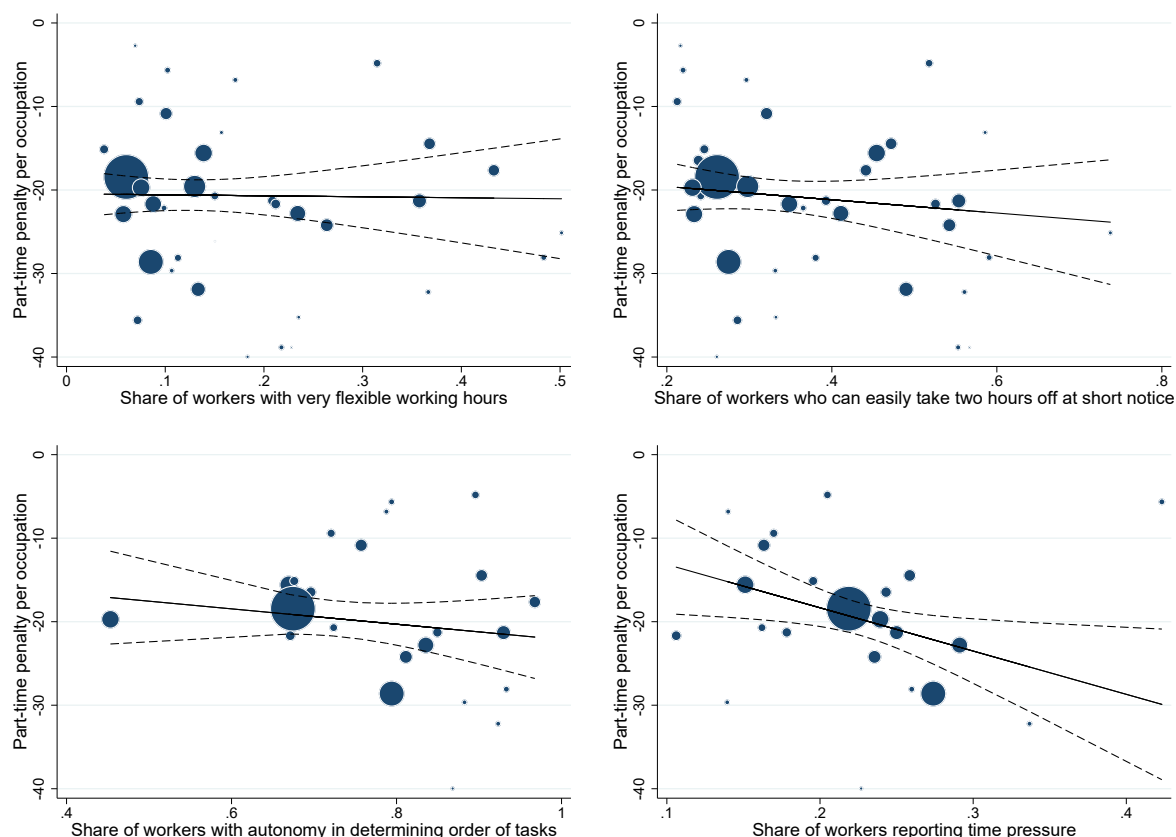
Table C.2 reports no significant relationship between the part-time penalty and the share of workers with very flexible working hours. The same holds for the relationship between the part-time penalty and the share of workers who can take hours off at short notice and the share of workers with autonomy in determining the order of tasks. The estimated coefficients are even negative for all three regressions. This is the opposite of what we would expect if technology were a major driver of the part-time penalty (see Table C.1). The estimated coefficient has the expected sign when we relate the part-time penalty to the share of workers reporting time pressure. This is also the only coefficient that is statistically significantly different from zero. There is no significant relationship between the part-time penalty in an occupation and the share of workers reporting autonomy in determining the content of their tasks. The same holds for the relationships between the part-time penalty in an occupation and the share of shift workers, the share of workers working overtime, and the share of overtime pay in the total wage bill. Two of the four coefficients have even the wrong sign. Hence, this analysis does not provide empirical support for the hypothesis that technological factors are the main drivers of the differences in part-time penalties across occupations.

Table C.2: Relationship between the part-time penalty in an occupation and indicators for technologies that are (not) suitable for part-time work

	(1) Coefficient (SE)	(2) Expected sign
Share of workers with very flexible working hours	-1.19 (9.5)	+
Share of workers who can take hours off at short notice	-7.94 (9)	+
Share with autonomy in determining order of tasks	-9.19 (9.5)	+
Share of workers reporting time pressure	-51.8** (23)	-
Share with autonomy in determining content of tasks	-4.37 (14)	-
Share of workers working shift	4.69 (8.5)	-
Share of workers working overtime	.353 (8)	-
Share of overtime pay in total wage bill	-2.86 (6.6)	-

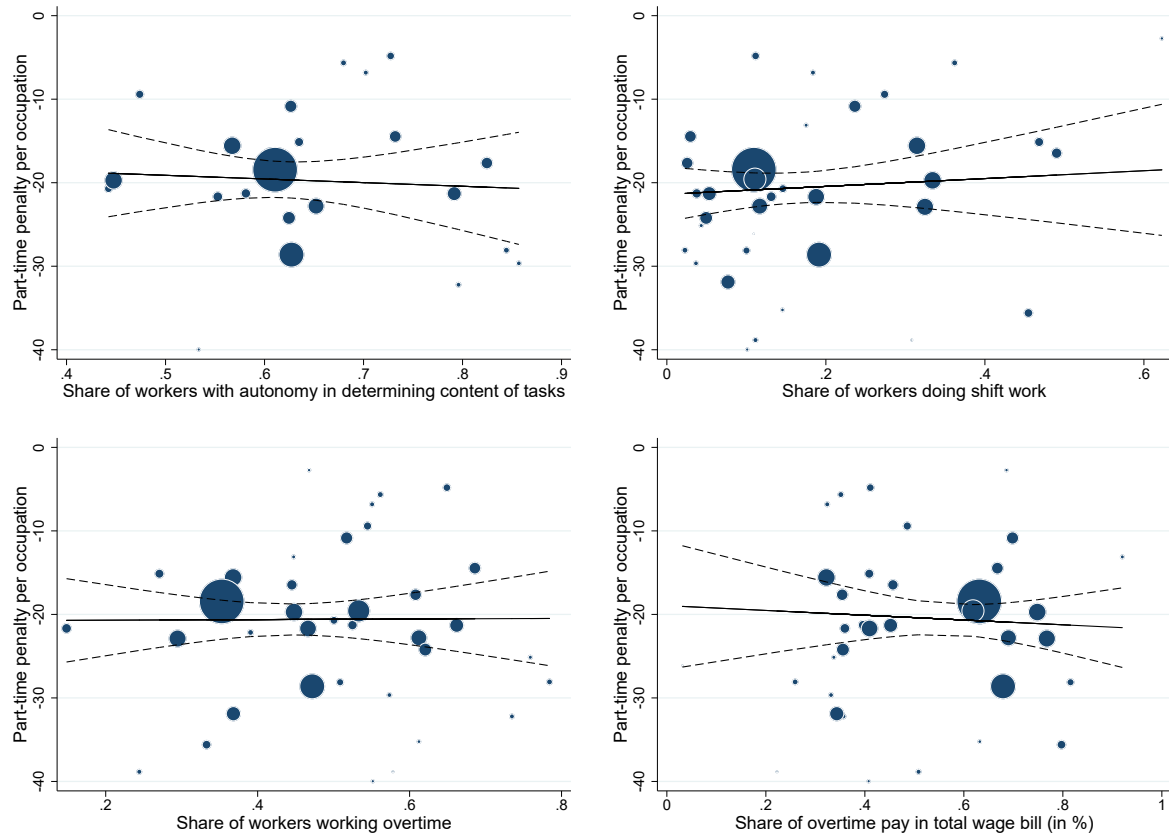
*Notes:* The table reports results of bivariate weighted least squares regressions of the part-time penalty in an occupation on different indicators for technologies that are (not) suitable for part-time work. Column 1 reports the estimated coefficients for the different indicators as well as the standard errors. Column 2 reports the sign of the coefficients that we would expect if the relationship were driven by technological factors. See Table C.1 for an explanation. Note that the more negative the coefficient for the part-time dummy, the larger the part-time penalty. Hence, a negative coefficient implies a positive relationship between an indicators and the part-time penalty. The part-time penalties by occupation are estimated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy with indicators for the different occupations. The part-time penalties are normalized with the mean of the average contact rate in the respective occupation. The number of observations per occupation are used to weight the estimates.

Figure C.1: Relationship between the part-time penalty in an occupation and indicators for technologies that are (not) suitable for part-time work



*Notes:* The figure provides a visualization of the correlations reported in Table C.2. The different panels plot the part-time penalty in an ISCO 2-digit occupation on the y-axis against indicators of technologies that are (not) suitable for part-time work. These indicators are discussed in Table C.1. Part-time penalties per occupation are calculated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy with indicators for the different occupations. The part-time penalties are then normalized with the mean of the average contact rate in the respective occupation. The size of the markers corresponds to the number of observations in a given occupation. The blue solid line indicates the ordinary least squares regression of the estimated part-time penalty against the value of the indicator in the respective occupation. The dashed lines show the associated 95% confidence intervals.

Figure C.2: Relationship between the part-time penalty per occupation and indicators for technologies that are (not) suitable for part-time work



*Notes:* The figure provides a visualization of the correlations reported in Table C.2. The different panels plot the part-time penalty in an ISCO 2-digit occupation on the y-axis against indicators of technologies that are (not) suitable for part-time work. These indicators are discussed in Table C.1. Part-time penalties per occupation are calculated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy with indicators for the different occupations. The part-time penalties are then normalized with the mean of the average contact rate in the respective occupation. The size of the markers corresponds to the number of observations in a given occupation. The blue solid line indicates the ordinary least squares regression of the estimated part-time penalty against the value of the indicator in the respective occupation. The dashed lines show the associated 95% confidence intervals.

## C.2 The part-time penalties for men and women and indicators for technologies that are (not) suitable for part-time work

In this section I assess whether indicators for technologies that are (not) suitable for part-time work, are related differently to the female and male part-time penalties in an occupation. Table C.3 reports the coefficients of bivariate regressions of the male (column 1) or female (column 2) part-time penalty in an occupation on the various indicators. Column 3 reports the sign of the coefficient that we would expect if the



production technology were the main driver of the differences in the part-time penalties across occupations (see Table C.1). Figures C.3 and C.4 provide again visualizations of those regressions by relating the indicators to the estimated part-time penalties for men and women in an occupation.

The relationship between the female part-time penalty in an occupation and the share of workers with flexible work schedules goes in the direction predicted by the theoretical considerations presented in Table C.1, but is not statistically significantly different from zero. In contrast, the male part-time penalty is statistically significantly different from zero and has the opposite sign that we would expect if technology were the main driver of the part-time penalty.

A very similar gender pattern can be observed for most of the other indicators: The male coefficient often has the opposite sign that would be expected if technology were the main driver of differences in part-time penalties across occupations. However, only in three out of eight cases it is significantly different from zero. The female coefficient, on the other hand, has often the “correct” sign, even though only one out of eight coefficients is significantly different from zero.

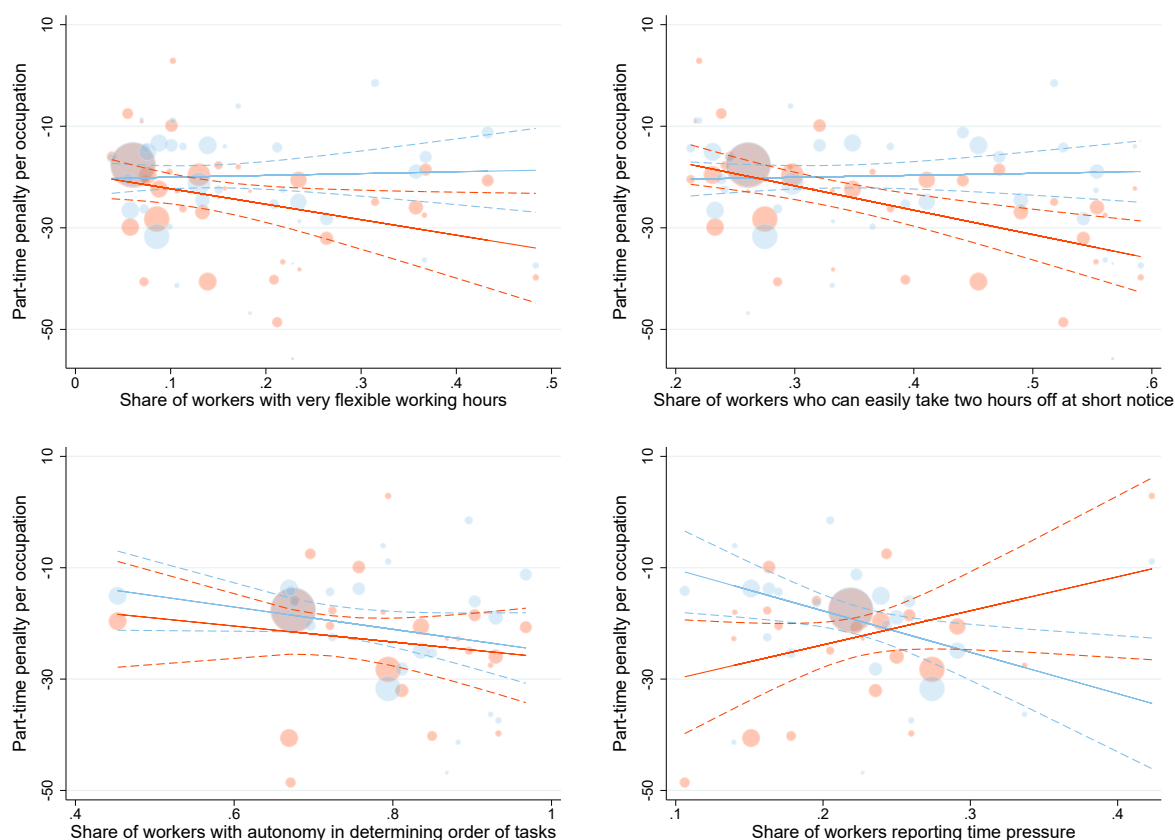
Taken together, the empirical analysis presented in this section provides no evidence to support the hypothesis that technological factors are an important determinant of the male part-time penalty. In fact, the estimated coefficients have often the opposite sign that we would expect if technology were an important determinant. The female part-time penalty, on the other hand, has almost always the “correct” sign but the relationship is often weak and rarely statistically significantly different from zero.

Table C.3: Relationship between the male and female part-time penalty in an occupation and indicators for technologies that are (not) suitable for part-time work

	(1) Men	(2) Women	(3) Expected sign
Share of workers with very flexible working hours	-30.5** (15)	3.59 (11)	+
Share of workers who can take hours off at short notice	-47.9*** (13)	3.9 (11)	+
Share with autonomy in determining order of tasks	-14.3 (16)	-20 (12)	+
Share of workers reporting time pressure	61.1 (41)	-74.4** (30)	-
Share with autonomy in determining content of tasks	2.14 (23)	-10.3 (18)	-
Share of workers working shift	-3.48 (14)	2.19 (10)	-
Share of workers working overtime	.549 (13)	-5.97 (9.6)	-
Share of overtime pay in total wage bill	22** (10)	-9.36 (7.7)	-

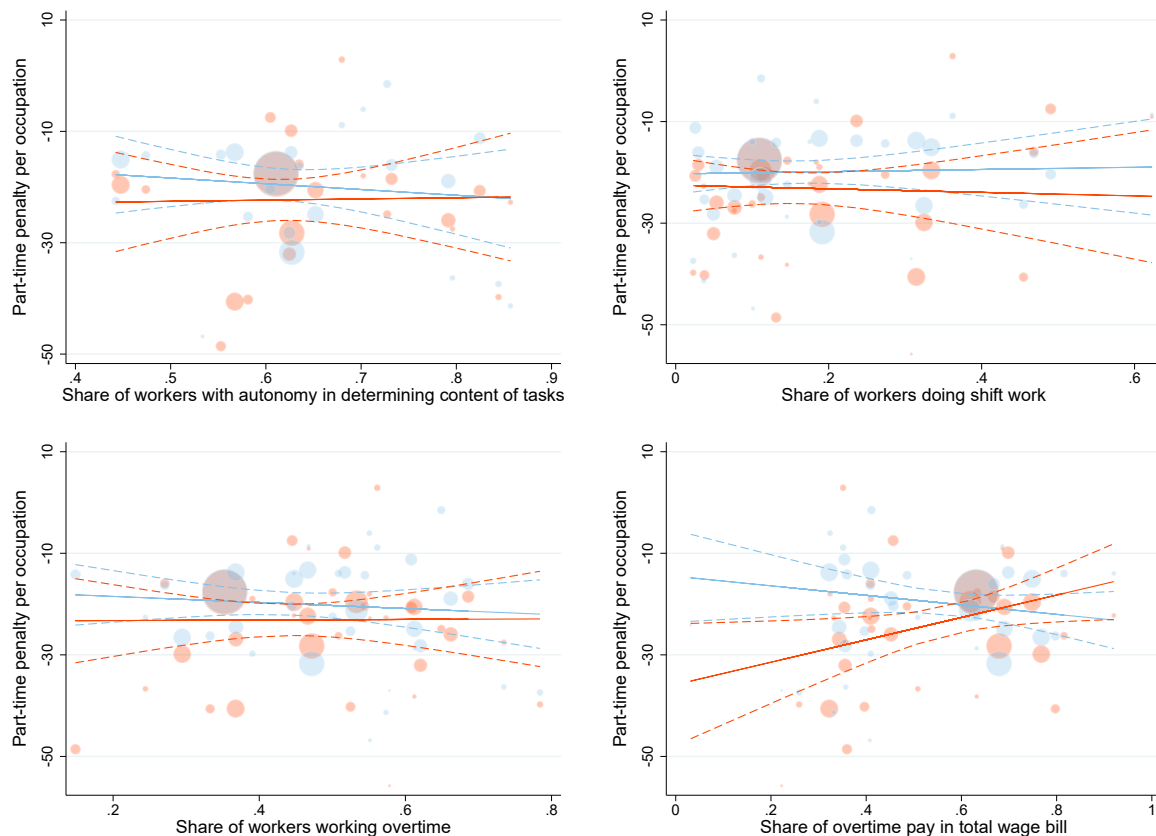
*Notes:* The table reports the results of bivariate weighted least squares regressions of the male and female part-time penalty in an occupation on different indicators for technologies that are (not) suitable for part-time work. Column 1 reports the coefficients for men and column 2 for women. The different indicators are discussed in Table C.1. Male and female part-time penalties per occupation are calculated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy, the gender dummy, and their interaction with indicators for the different occupations. The part-time penalties are then normalized with the mean of the average contact rate in the respective occupation. The number of observations per occupation are used to weight the estimates. Column 3 reports the sign of the coefficients that we would expect if the relationship were driven by technological factors. See Table C.1 for an explanation. Note that the more negative the coefficient for the part-time dummy, the larger the part-time penalty. Hence, a negative coefficient implies a positive relationship between an indicators and the part-time penalty.

Figure C.3: Relationship between the male and female part-time penalty in an occupation and indicators for technologies that are (not) suitable for part-time work



*Notes:* The figure provides a visualization of the correlations reported in Table C.3. The different panels plot the male and female part-time penalty in an ISCO 2-digit occupation on the y-axis against indicators of technologies that are (not) suitable for part-time work. Those indicators are discussed in Table C.1. Male and female part-time penalties per occupation are calculated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy, the gender dummy, and their interaction with indicators for the different occupations. The part-time penalties are then normalized with the mean of the average contact rate in the respective occupation. The size of the markers corresponds to the number of observations in a given occupation. The blue (red) solid line indicates the ordinary least squares regression of the estimated part-time penalty for women (men) against the value of the indicator for the respective occupation. The dashed lines show the associated 95% confidence intervals.

Figure C.4: Relationship between the male and female part-time penalty per occupation and indicators for technologies that are (not) suitable for part-time work



*Notes:* The figure provides a visualization of the correlations reported in Table C.3. The different panels plot the male and female part-time penalty in an ISCO 2-digit occupation on the y-axis against indicators of technologies that are (not) suitable for part-time work. Those indicators are discussed in Table C.1. Male and female part-time penalties per occupation are calculated by aggregating the different part-time categories in Equation 1 into one part-time dummy and interacting this dummy, the gender dummy, and their interaction with indicators for the different occupations. The part-time penalties are then normalized with the mean of the average contact rate in the respective occupation. The size of the markers corresponds to the number of observations in a given occupation. The blue (red) solid line indicates the ordinary least squares regression of the estimated part-time penalty for women (men) against the value of the indicator for the respective occupation. The dashed lines show the associated 95% confidence intervals.