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Discriminatory Social Attitudes and Varying Gender Pay Gaps within Firms*

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Abstract

This study analyzes the relationship between discriminatory social attitudes and the variation of within-firm pay gaps by combining data on regional votes on gender equality laws with a data set of multi-establishments firms and their workers. The data set allows us for the first time to study gender pay gaps within the same firm across establishments located in regions with varying discriminatory social attitudes. Our results show that firms have larger pay gaps in regions with stronger discriminatory social attitudes. This result remains robust when we account for detailed worker and job characteristics and prevails for different subsamples. Thus we show that a relationship between discriminatory social attitudes and gender pay gaps prevails even after accounting for the sorting of women and men into different firms and occupations.

Introduction

A number of recent empirical studies find evidence for a persistent and strong relationship between discriminatory social attitudes and gender (or racial) pay gaps. These gaps prevail even after accounting for detailed individual characteristics such as education, occupation, and marital status (e.g., Charles and Guryan 2008; Charles, Guryan, and Pan 2009; Fortin 2005). Therefore, the authors typically interpret these results as evidence that social attitudes stipulate discriminatory pay gaps.[1]

However, such results could also be explained by the decision of women themselves. If women respond to discriminatory social attitudes by following more traditional gender roles, the relationship between discriminatory social attitudes and gender pay gaps may be a consequence of women self-selecting into different types of firms. Women who follow traditional gender roles may prefer firms with family-friendly work practices that offer lower wages, may invest less in job search, or prefer low commuting costs over high wages (e.g., Bender, Donohue, and Heywood 2005; Heywood, Siebert and Wei 2007; Keith and McWilliams 1999; Pissarides and Wadsworth 1994). As prior studies did not account for the unobserved heterogeneity of firms, it remains unclear whether women who are exposed to discriminatory attitudes indeed receive lower wages than comparable male coworkers or whether those women simply work in firms that pay lower wages to all their workers. Thus it remains unclear how differences in discriminatory attitudes translate into wage gaps.

Our paper contributes to the literature by studying gender wage gaps within firms but across establishments that are located in regions with distinct differences in discriminatory social attitudes. Doing so helps us to narrow down the number of explanations given in the previous literature. Thus far, few data sources have allowed researchers to observe variation in discriminatory attitudes within firms. Most studies rely on individual cross-section data without firm information, data that does not allow them to examine the effect of firms' wage-setting behavior. Therefore, we create a unique and innovative data source of multi-establishment firms that operate in one country but in different regions, whose workers are therefore exposed to different levels of discriminatory attitudes towards gender equality.

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[1] We define discriminatory pay gaps as women and men receiving unequal pay for equal work. Discriminatory pay gaps may, for example, be the result of employer, coworker, or customer discrimination, but they may also be a consequence of women having worse bargaining power than men.

The advantage of our data is that it allows us to observe the wages and employment of different establishments that act under precisely the same national regulations and technological standards (because they operate during the same period in the same country, the same industry, and the same firm), but that are exposed to the influence of differing social attitudes (because these establishments are located in different regions with different social attitudes towards gender equality).

To measure discriminatory social attitudes, we use two Swiss referenda on gender equality rights, both of which provide valid and highly reliable indicators. First, we follow Lalive and Stutzer (2010) by using information on regional votes on a 1981 amendment to the Swiss constitution on equal rights for women and men. Second, we use information on regional votes on a 2000 amendment to the Swiss constitution, stating that women should be fairly represented in the Federal administration. The outcomes of both referenda reliably measure regional differences in discriminatory social attitudes, because voters tend to reveal their true prejudices in secret votes with real legal consequences. We match the regional voting outcomes with the regional data of multi-establishments firms.

The main findings of the paper are the following: First, we find a relatively large within-firm relationship between social attitudes towards gender equality and the size of gender pay gaps across regions. The result prevails, even if we account for detailed observable worker and job characteristics. Moreover, we find no evidence that the regional sorting of firms with larger pay gaps in more discriminatory regions explains the within-firm correlation between discriminatory attitudes and firms' gender pay gaps. As a consequence, our results suggest that—within the same firms—gender pay gaps are larger for branches in regions with more discriminatory attitudes than in regions with less discriminatory attitudes, i.e., the gender pay gap is larger in establishments in a region where more people tolerate gender inequality than in a region where fewer people tolerate gender inequality.

Second, different industries may be exposed to different levels of product market concentration, which is likely to be a main determinant for an employer's potentials to discriminate against women (e.g., Hellerstein, Neumark, and Troske 2002). Therefore, we also provide a separate analysis for broad industry classes, finding the largest effect for the manufacturing sector, followed by commerce sector and the banking sector. In comparison to other industries in Switzerland, the manufacturing industry is characterized by a much higher market concentration and larger barriers to entry. Thus the results are consistent with the idea that a firm's product market power mitigates the relationship between social attitudes and

gender pay gaps.

We thus show that discriminatory attitudes are related to larger gender pay gaps, even after we account for both the unobserved heterogeneity of firms and observable worker and job characteristics. Therefore, our results suggest that the sorting of women and men into different firms, occupations, and jobs alone cannot account for the relationship between social attitudes and gender pay gaps. In other words, women indeed appear to earn lower wages than comparable male coworkers in regions where more people oppose gender equality rights.

Thus our results support a number of theories involving the discriminatory behavior of employers, manager, coworkers, or customers. If social attitudes, for example, stipulate the discriminatory tastes of local managers or customers, firms should pay more discriminatory wages in regions where more people oppose gender equality. To strategically adjust the pay-setting to the local discriminatory environment may even be efficient for firms if markets are not perfectly competitive (e.g., Lang and Lehmann 2012; Rosén 1997).

The remainder of the paper is organized as follows: Section I describes the theoretical background. Section II presents the empirical model. Section III describes the voting and the firm data. Section IV presents the estimation results. Section V concludes.

I.   Why should social attitudes influence the pay-setting behavior of firms?

A variety of mechanisms may cause a relationship between social attitudes toward gender equality and firms' pay-setting behavior. To provide the theoretical framework for the interpretation of our results, we now discuss the three main channels presented in the literature: (1) *employer discrimination*, i.e., social attitudes toward gender equality shape the discriminatory behavior of employers and managers and their consequent pay-setting patterns; (2) *customer and coworker discrimination, i.e.,* social attitudes shape the behavior of customers and coworkers, who are therefore more or less tolerant towards discrimination; and (3) *inequality due to individual preferences,* i.e., social attitudes change the individual worker's preferences and behavior.

Employer discrimination

The most prominent theory for explaining the relationship between social attitudes towards

gender equality and the pay-setting behavior of firms is the theory of "taste-based discrimination" (Becker 1971). Becker's theory argues that employers, coworkers, or customers have a certain taste for discriminating against women. If utility-maximizing employers or managers have distastes for hiring women, they are willing to hire women only for a wage below their productivity. However, the employers' taste for discrimination comes at a cost: Non-discriminatory firms can collect rents by hiring women for wages slightly above discriminatory wages. Therefore, competitive market forces must drive prejudice from the market such that the relationship between social attitudes and gender pay gaps disappears in the long run (Arrow 1972).

However, a number of recent theoretical papers argue that gender pay gaps can persist if markets are not perfectly competitive (e.g., Black 1995; Hirsch 2009; Lang and Lehmann 2012; Lang, Manove, and Dickens 2005; Rosén 1997; Rosén 2003; Sasaki 1999). For example, Black (1995) and Rosén (1997) develop equilibrium search models with prejudiced employers, who reduce outside options for all minority workers by influencing the number or quality of outside offers. If market frictions prevent the full segregation of the labor market, prejudiced firms survive and reduce women's outside options. As a consequence, gender pay gaps persist, because non-prejudiced employers also gain rents by paying discriminatory wages. Thus if markets are not perfectly competitive, all firms benefit by paying relatively lower wages for females than for males in regions where more people oppose gender equality rights.[2]

Although no study has shown whether firms adjust their pay-setting to their local discriminatory environment, a number of papers have provided evidence suggesting that gender pay gaps persist if firms have monopsony power and if search frictions are larger for women than for men (Bhaskar, Manning, and To 2002; Boal and Ransom 1997; Hirsch 2009; Hirsch et al. 2010; Manning 2008; Robinson 1969).[3]

Moreover, another related strand of the literature focuses on frictions in the product market to explain the persistence of discriminatory pay gaps. The main argument of this literature is that

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[2]Rosén (2003) presents a similar model in which prejudiced managers sacrifice their personal rents to discriminate against minority workers. Lang and Lehmann (2012) and Lang, Manove, and Dickens (2005) show that market frictions can lead to large discriminatory pay gaps, even if the market has only few prejudiced employers.

[3] Many of these papers rely on the idea that all firms, not only prejudiced ones, maximize profits if they exploit their monopsony power and discriminate against women if markets are not perfectly competitive.

higher levels of discrimination persist because the lack of product market competition and barriers of entry allows more discriminatory employers to continue to operate. A few studies have tested this hypothesis. For example, Hellerstein, Neumark, and Troske (2002) find that discrimination against women persists if firms have product market power. In particular, they argue that wages should reflect only gender-specific productivity differences in the absence of discrimination. Therefore, firms that employ relatively more women should not earn higher profits. In contrast, finding evidence that firms with relatively more female employees earn higher profits is consistent with gender discrimination. They find that among plants with high levels of product market power, those that employ relatively more women are relatively more productive. Other related papers find evidence for a negative correlation between product market concentration and a firm's employment of women (e.g., Ashenfelter and Hannan 1986).

Customer and coworker discrimination

Social prejudices towards gender equality may not only produce prejudiced employers or managers. Coworkers and customers may also be more prejudiced if social attitudes oppose gender equality rights. Thus firms that operate in regions where more people oppose gender equality rights may have additional costs, because male workers refuse to work with women or because prejudiced customers do not want to buy goods from women. Unlike employer discrimination, employee and customer discrimination directly translates into workers' pay and leaves firms' profitability unaffected, i.e. competitive forces do not eliminate discriminatory pay gaps in the long run. In sum, if social attitudes toward gender equality stipulate prejudices of coworkers and customers, firms may have larger pay gaps in regions where more people have discriminatory social attitudes and oppose gender equality rights[4].

Individual preferences

Social prejudices may not only produce prejudiced employers, coworkers, or customers; social prejudices may also directly influence the preferences and the stereotypical behavior of individuals. For example, a number of studies show gender-specific preferences for human capital investments and job choices (e.g., Bender, Donohue, and Heywood 2005; Blau and Kahn 2000; Blau and Kahn 2006; Brown and Corcoran 1997; Buser, Niederle, and

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[4] Nonetheless, employers may segregate work teams by gender or, if possible, hire women only into occupations with no customer contact, so that coworker and customer discrimination does not always result in persisting gender pay gaps (e.g., Altonji and Blank 1999).

Oosterbeek 2014; Clark 1997; Donohue and Heywood 2004; Konrad, Ritchie, Lieb, and Corrigall 2000; Sloane and Williams 2000). If social attitudes towards gender equality amplify the stereotypical behavior of women and men, social attitudes may directly influence the labor supply of individual workers (Akerlof and Kranton 2000).

First, fewer women may apply for stereotypically male jobs if more people oppose gender equality rights. Second, social attitudes against gender equality may detain women from undertaking large human capital investments, an undertaking essential for good performance in high-paying jobs. Third, social expectations may influence women's decision to withdraw entirely from the labor market (e.g., Charles, Guryan, and Pan 2009; Fernandez 2011; Fernandez, Fogli, and Olivetti 2004; Fortin 2005;). Fourth, social attitudes may influence how women and men negotiate their salaries (e.g., Barron 2003; Major 1994).

Thus social attitudes may influence the behavior and relative productivity of women and men and, therefore, the way in which women and men sort into jobs, or the way in which firms assign women and men to different positions. As for customer and employee discrimination, competitive market forces will not eliminate the direct influence of social attitudes towards the preferences of women and men. Therefore, firms may have larger pay gaps in regions where more people oppose gender equality rights.

II.   Estimation strategy

Our estimations are based on the following regression equation:

$$lnw_{i,e(j,r)} = \beta_0 + \beta_1 Female_i + \beta_2 Female_i \cdot A_r + \theta_j + \eta_r + \varepsilon_i \qquad (1)$$

where j denotes a firm with more than one local establishment e in more than two distinct regions r. All regions are characterized by different levels of social attitudes towards gender equality expressed as voter approval rates A_r. η_r describes regional pay differences affecting the pay of all individuals i. θ_j is a firm-specific match component. The coefficient β_1 measures general gender differences in pay, which are equal across all firms and regions. For example, β_1 may describe general gender-specific productivity differences, or countrywide discrimination against women. ε_i is a normally distributed error term. β_2 is the effect of main interest. Because we include firm fixed-effects, β_2 measures the within-firm correlation between voter approval rates and gender pays gaps.

If firms with generally larger gender pay gaps cluster mainly around regions where more people oppose gender equality rights, or mostly hire high paid men in regions with less discriminatory attitudes and low paid women in regions with more discriminatory attitudes, the coefficient estimate of β_2 in (1) may pick up these sorting effects. To investigate whether those types of sorting mechanisms explain the relationship between social attitudes and firms' gender pay gaps, we additionally estimate equation (2), which is essentially equation (1) augmented by interaction terms between the gender dummy and firm fixed effects:

$$lnw_{i,e(j,r)} = \beta_0 + \beta_2 Female_i \cdot A_r + \theta_j + \theta_j^f \cdot Female_i + \eta_r + \varepsilon_i^5 \tag{2}$$

If the described sorting mechanisms were to account for the relationship between social attitudes and gender equality rights, we expect a $cov(A_r, \theta_j^f) \neq 0$ and coefficient estimates of β_2 to be smaller in (2) than in (1).

If social attitudes indeed lead women and men to differently invest in human capital or sort in different jobs and occupations, observable job and worker characteristics should account for a large part of the relationship between voter approval rates and gender pay gaps. Therefore, we augment equation (1) by different job, and individual worker characteristics.

$$lnw_{i,e(j,r)} = \beta_0 + \beta_1 Female_i + \beta_2 Female_i \cdot A_r + Job \cdot \gamma_{i,e(j,r)} + Indiv \cdot \delta_{i,e(j,r)} + \theta_j +$$
$$\eta_r + \varepsilon_i \tag{3}$$

If job and individual characteristics were to account for much of the within-firm relationship between social attitudes towards gender equality and gender pay gaps, we would expect the coefficient estimate of β_2 to decrease in (3).

Because we analyze firms with establishments in different regions, our observations are grouped in non-nested clusters of firms and regions. If we were not to account for this clustering, we might massively underestimate standard errors, and consequently over-reject standard hypothesis tests, even if we clustered the standard errors at the regional level. Therefore, we follow Cameron and Miller (2010) and estimate standard errors that account for non-nested clustering at the firm and the regional levels. To ensure that the covariance matrix has full rank, we partial out the control variables.

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[5] Equation (2) does not contain the isolated gender dummy, as we cannot identify the average gender effect if interaction terms between firm fixed effects and the gender dummy are present.

III. Data

This section describes our data sets in detail. The first subsection describes the voting data, and the second subsection presents our data on the firms.

The voting data

We measure social attitudes towards gender equality by using voter approval rates across different regions, i.e., cantons, in Switzerland. More specifically, we use information on votes on two amendments of the Swiss constitution with regard to gender equality. First, we follow Lalive and Stutzer (2010) and use voting data on an amendment to the Swiss constitution on equal rights for women and men from 1981. However, this vote took place more than 10 years before the observation period of our firm data, and even though we expect that social attitudes change slowly over time, we cannot be certain that social attitudes do not change over the course of more than 20 years. The 1980s in particular was a period of substantial progress towards more gender equality in both the labor market and society in general. Such changes would be problematic for the interpretation of our results if the relative regional structure of social attitudes had changed substantially. For example, regional specific immigration from other countries might alter social attitudes towards gender equality in specific regions. Therefore, we also use information on regional votes on the 2000 amendment to the Swiss constitution on a fair representation of women in the federal government bodies, both legal and administrative. To clarify our strategy and provide the necessary background, we now present (a) more detailed information on the amendments to the Swiss constitution and (b) some descriptive statistics for both votes.

In 1981, Swiss voters had to decide whether to amend the Swiss constitution to reflect not only the equality of human beings in general but the equality of women and men in particular. More specifically, the amendment to the Swiss constitution contained the following clauses:
- "Men and women have equal rights."
- "Men and women have equal rights and duties in the family."
- "Men and women are entitled to equal pay for equal work."
- "Men and women are entitled to equal treatment and equal opportunities in education, schooling and vocational education, in employment and occupation."

We argue that the regional voter approval rates provide a measure for identifying social attitudes towards gender equality. Although we observe regional variation in social attitudes, the Swiss constitution applies to all regions. In other words, cantons whose voters rejected the amendment nonetheless have the legal obligation to abide by it. Therefore, the amendment has no legal consequences that differ across regions and, therefore, can be considered as an appropriate measure for social attitudes.

We use data on votes from the Swiss Federal Statistical Office on the equal rights amendment across the 26 Swiss cantons on June 14, 1981.[6] Overall, 60.3% of the voters favored the constitutional amendment, and 39.7% rejected it. Table 1 provides the voting results separately by canton.

—Table 1 about here—

The variation across cantons is substantial. While in Appenzell Inner Rhodes only about 30% of the voting population approved the amendment on equal rights, in Geneva more than 80% of the voting population approved it. In urban areas such as Zurich, the economic capital of Switzerland, only slightly more than 60% approved the amendment.

As both women and men participated in the voting, the approval rates should represent the opinion of both women and men within each region. Although actual voter approval rates for women and men are not available, given the anonymity of the ballot box, Table 2 shows the results of a post-vote survey on the voting behavior of women and men.[7]

The survey is provided by the Swiss Foundation for Research and Social Sciences and stems from a project called VoxIt, which has conducted post-voting surveys during the two or three weeks following all federal elections since 1977. The project infers information about Swiss voter behavior and political and social affinities. Although even the survey data for the question on gender equality is not representative and is available for only some cantons, the results show a pattern very similar to the actual voting presented in Table 1.

—Table 2 about here—

For example, in the real vote on the amendment, the cantonal approval rate was highest in

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[6] The information is available from the Swiss Federal Statistical Office under http://www.bfs.admin. ch/bfs/portal/de/index/themen/17/03/blank/data/05/01.html.

[7] For more information on the post-vote survey, see http://forsdata.unil.ch/projects/Voxit/ docu_xl_htmD/ListeVoxDispoD.htm?lang=e&menu=4.

Geneva at 85.2%, and the VoxIt data also shows Geneva with the highest approval rate, at 88.6%. St. Gallen and Aargau show low approval rates of 46.3% and 52.1%, respectively, in the real vote and relatively low approval rates of 63.4% and 68.4% in the VoxIt survey. As overall approval rates are almost always higher in the post-vote survey than in the real voting outcomes, the data supports survey data is being subject to a desirability bias. Nevertheless, the relative outcomes of both data sets are surprisingly similar.

An important outcome of the post-vote survey is that women's votes quite strongly match men's votes. Women have the lowest approval rates in St. Gallen and Aargau, whereas they have the highest approval rates in Geneva and Zurich. Therefore, the post-vote survey provides some additional indication that the votes proxy social attitudes that manifest in both women's and men's preferences in a particular region.

For our second measure for social attitudes, we use information on regional votes on the 2000 amendment to the Swiss constitution on a fair representation of women in all official federal bodies. The amendment stated that women should be fairly represented in all federal bodies, both legal (e.g., the parliament, the federal council and the federal court) and administrative (e.g., the federal administration, state owned and operated enterprises, and universities). As with the information for the vote on gender equality in the labor market, the data for the votes about the fair representation amendment comes from the Swiss Federal Statistical Office.[8] Although the two amendments differ in content, both cover an issue related to social attitudes towards gender equality. Specifically, we plausibly assume that the population's general feeling about gender equality affects both amendments in similar ways. Even if the absolute voting outcomes might not be comparable across the two amendments, the information nevertheless helps us clearly identify whether relative differences in social attitudes towards gender equality determine differences in the gender pay gap across regions.

Table 3 presents descriptive statistics on the voting outcome. In contrast to the amendment on gender equality, most Swiss voters (82.0%) rejected the amendment on the fair representation of women in the federal government. Nevertheless, the patterns across regions are very similar to those for the 1981 amendment. Therefore, the results indicate that the relative structure of social attitudes has not changed across cantons over time.

—Table 3 about here—

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[8] The information is available from the Swiss Federal Statistical Office at http://www.bfs.admin. ch/bfs/portal/de/index/themen/17/03/blank/data/07/01.html.

Table 3 reveals that the relative pattern for the 2000 amendment is astonishingly similar to that of the 1981 amendment (table 1). For example, Geneva has the highest approval rate for both amendments, whereas Appenzell Inner Rodes has the lowest. To clarify this relationship, Figure 1 compares the voting results for both amendments. The graph shows a strong positive relationship between both amendments, with a correlation between both variables of 87.11%. Thus the results strongly suggest that the relative structure of social attitudes did not change substantially over more than two decades.

The firm data

Our firm data stems from the Swiss Earnings Structure Survey (ESS), a survey covering a large number of firms. The ESS is based on two-level sampling (i.e., both firms and workers) and selects the firms from the Swiss "business and enterprise" register. This data is representative of all economic sectors except agriculture. The survey does not cover firms with fewer than 3 employees, nor does it provide information on trainees, apprentices, or workers who are paid only on commissions. Firms with fewer than 20 employees are required to report all employees. Firms with 20 and 50 employees are allowed to report only every second employee, and firms with more than 50 employees are allowed to report every third employee. However, the firms are required to select their reported workers randomly. The ESS has been conducted in biennially repeated cross-sections since 1994, and participation for firms is compulsory.

To identify multiple establishments of firms across cantons, we need information on workers' administrative cantonal districts. As the EES provides such information only for 1994 through 1998, we restrict our sample to that period. Unfortunately, the data only allows us to identify different establishments if they are located in different cantonal regions. Multiple establishments located in the same region appear in the data source as a single establishment. This restriction, however, is not decisive for the main focus of our analysis, i.e., to analyze the relationship between social attitudes towards gender equality and firms' pay-setting behavior.

At the firm level, we restrict our sample to companies in the private sector with establishments in more than one canton. To ensure that we can measure a gender pay gap within each establishment, we require that every establishment in our sample contains information about at least two employees and at least one woman and one man. Additionally,

we exclude all agricultural firms because the observations in our data are not representative for this sector. Moreover, some firms report different industry categorizations for establishments in different regions. We drop those firms from the sample. Given these restrictions, we have to drop the small canton Appenzell Inner Rhodes from our sample, as none of the establishments there match our restrictions.

At the employee level, we restrict the sample to full-time workers (i.e., workers with more than 30 working hours per week) who were older than 16 when they entered the firm and younger than 65 at the time of the survey. We only incorporate full-time workers in our analysis because part-time workers are likely to differ from full-time workers in terms of their unobserved productivity. Part-time working women in particular are likely to follow a very different career path than full-time working men. We are aware that this restriction is somewhat strong and that it excludes more women from our sample than men. However, our results do not change even when we use the entire sample of workers; indeed, the magnitude of the coefficient estimates becomes even bigger. Nevertheless, as we do not want to capture a part-time effect in our results, we present only the results for the restricted sample of full-time workers in this paper. Results for the unrestricted sample are available upon request.

Table 4 shows an overview of the observations of the restricted sample.

—Table 4 about here—

The restriction to employees without missing information for the included variables leaves us with 332,087 employees, of whom 109,058 are women and 223,029 are men. In total, we observe 1277 firms with 4457 establishments. Most firms in our sample have about four establishments in different cantons, with a maximum of 25—i.e., some firms have establishments in every canton included in our sample.

We use the following variables in our investigation: Workers' pay is measured as the standardized sum of gross monthly wages. This pay measure includes an employee's contribution to social insurance, payment in kind, regularly paid-out participation in sales and bonuses, and compensation for shift- and night-work. In addition, thirteen months of payments or yearly special payments are included pro rata. Although inflation in Switzerland is not high, we adjust wages according to the National Consumer Price Index. We obtain the workers' education in categories and convert them in years of education according to Wirz (2008). We have a measure for workers' years of tenure and weekly working hours. We know

whether workers are covered by a union contract and whether they are married. We can observe the workers' occupation in twenty-four categories and create five dummies for the workers' job position, ranging from no-management to upper management.

Descriptive statistics appear in Table 5 for all workers and for women and men separately. About 30% of our sample is female. Average weekly working hours are around 40. Men earn about 0.30 log points more than females. Men also have slightly more education, and their average tenure is about 3 years higher than that of women. While we find no large difference in the weekly working hours of men and women, men are substantially more often married and are more likely to hold a management position. This difference is most striking in top and upper management.

—Table 5 about here—

IV. Results

In the first subsection, before we turn to our main analysis investigating the relationship between voter approval rates and gender pay gaps, we analyze whether social attitudes towards gender equality influence how women and men sort into different firms or whether firms hire and assign women and men to different jobs within firms.

In the second subsection, we present our main estimates for the within-firm relationship between voter approval rates and gender pay gaps. Although we cannot present causal evidence for the relationship between voter approval rates and gender pay gaps, this subsection carefully discusses various mechanisms for explaining the relationship and presents evidence for different subsamples and industries. The third subsection shows estimates of the same type for a subsample of workers for whom we are able to observe their time-based and their performance pay component.

The effect of social attitudes towards job and firm segregation

Table 6 describes the results for the relationship between social attitudes and gender-specific firm segregation. The first column of Table 6 presents an OLS regression of voter approval rates on the share of women per establishment. Because all observations are grouped at the firm and regional level, estimated standard errors account for non-nested clustering. The

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results show a positive significant coefficient estimate, indicating that the average share of women per establishment increases in voter approval rates. Specifically, a 10 percentage point increase in voter approval rates is associated with a 1.8 percentage point increase in the share of women per establishment. Given that the average share of women per establishment is about 32 percent, this effect is substantial. The result is in line with Becker's model and other studies showing that social attitudes influence women's labor force participation.

— Table 6 about here —

After we account for firm-fixed effects in the second specification of Table 6, the point estimate decreases substantially and the effect turns insignificant. Thus the results suggest that regional social attitudes towards gender equality influence how women and men sort between but not within firms.

The third and fourth columns of Table 6 present similar OLS regressions of voter approval rates on the Duncan index on the establishment level. The Duncan index, a common measure for occupational segregation, can be interpreted as the percentage of women who would have to change occupations to achieve an occupational distribution similar to men. On average about 40 percent of women within the average establishment had to change occupation to achieve a distribution similar to men. Column three shows a negative coefficient estimate of voter approval rates, indicating that establishments are more segregated in socially more prejudiced regions. Although the point estimate is not particularly small, the effect is not significant. If we account for firm fixed effects, the point estimate decreases substantially. In summary, the results suggest that regional social attitudes towards gender equality influence how women and men sort between but not within firms.

Table 7 investigates the relationship between social attitudes towards gender equality and different individual outcome variables. The estimates stem from regressions of a female dummy, a continuous measure for voter approval rates, and an interaction term between both variables. All regressions contain region and firm fixed effects. Standard errors account for non-nested clustering.

The first column presents estimates from a regression on years of education. The second column presents a linear probability model, where the dependent variable is a dummy indicating whether an individual holds a management position or not. The third column describes a specification where the dependent variable is a measure for the average log pay

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within each occupation, for inferring whether women and men select into jobs with different pay levels. The fourth column shows the relationship between voter approval rates and the gender-specific probability of receiving performance pay.

As none of the interaction terms between voter approval rates and the gender dummy is significant, the results do not indicate that social attitudes have a strong influence on how firms assign women and men to different jobs within firms.

— Table 7 about here —

The effect of social attitudes towards gender pay gaps

Figure 2 graphically shows a regression of regional firm-internal gender pay gaps and the average regional approval rates in Switzerland. Specifically, the results in the figure stem from the following two-step procedure: First, using all observation, we predict gender pay gaps for each canton. As our interest lies in investigating the differences in gender pay gaps within firms, we account for firm fixed effects in the first stage. Second, we regress these predicted pay gaps on the regional shares of voter approval rates by collapsing the data to the 25 observations at the cantonal level. To take into account that the gender pay gaps are estimated with varying precision, we weight each of the 25 observations by the inverse of the coefficient variance of the first-stage regression.

— Figure 2 about here —

The figure suggests that the average gender pay gap is smaller in establishments in regions where more voters approved the equality rights amendment than in regions where fewer voters approved the equality rights amendment. More specifically, the gender pay gap is on average about 0.10 log points smaller in establishments in regions where about 80% of voters approved the equal rights amendment than in establishments located in regions where only about 40% did. The R-squared of this regression amounts to 0.449, indicating that more than half of the variation of gender pay gaps can be attributed to changes in voter approval rates.

However, the previous procedure does not display the within-firm effect of voter approval rates on gender pay gaps. Therefore, in the following analysis, we show the results of various specifications of equation (1) for the entire sample of observed workers. Table 8 presents the estimation results. The table shows six different specifications including different sets of

control variables.

The first column of Table 8 shows the results for specification (1), which does not include any control variables. The first row of the first column shows a within-firm gender pay gap of about 44 percentage points for an establishment in a hypothetical region where nobody approved the equality rights amendment. The second row displays the effect of main interest. The point estimate of the interaction term between voter approval rates and the indicator for females is 0.223. This value indicates that every 10 percentage-point difference in voter approval rate is associated with a 2.2 percentage-point decrease in the within-firm gender pay gap. For example, the cities of Lucerne and Basel-Stadt are of similar size and have a similar urban structure. The within-firm average gender pay gap is about 32 percentage points in an establishment in Lucerne, where about 50% of the voters approved the amendment. Yet the pay gap is only 28 percentage points in Basel-Stadt where about 72% of the voters approved it. Thus in our example the gender pay gap decreases by 4.8 percentage points and is therefore about 12% smaller in Basel-Stadt than in Lucerne.

As mentioned in the data section, the amendment for gender-specific equality rights took place in 1981—more than 10 years before our observation period. Therefore, in the second specification we replace the voting data on the 1981 amendment with voting data from the 2000 amendment for a fair representation of women in federal governmental bodies. The second column of Table 8 shows the results. The coefficient estimate of the interaction term between the approval rates of the 2000 amendment and the gender dummy is positive and highly significant. Specifically, a 10 percentage-point increase in voter approval rates is associated with a 3.8 percentage point decrease in the within-firm gender pay gap. The results of the 2000 amendment vote conclusively confirm our results for the 1981 amendment.

If firms with generally larger pay gaps sort into regions where more people oppose gender equality rights, and firms with smaller pay gaps sort into regions where fewer people oppose gender equality rights, our coefficient of main interest would pick up this firm sorting effect. Moreover, if firms generally hire many low-paid women in regions where more people oppose gender equality rights, our coefficient would also pick up this sorting effect. The third column of Table 8 shows the results of regression equation (2), which includes interaction

terms between the gender dummy and firm fixed effects. The coefficient estimate of the interaction term between the female dummy and voter approval rates does not change substantially. Nonetheless, the standard error in third specification is almost twice the size of the standard error in the first specification, because we added 1276 dummy variables.

The other potential explanation for finding a connection between social attitudes and firms' gender pay gaps is regional differences of women's labor supply or human capital investment. Therefore, the remaining three specifications stem from regression equation (3) and successively add further control variables to the regression. The fourth column of Table 8 shows that the inclusion of occupational dummies only modestly reduces the coefficient estimates of both variables. Therefore, occupational segregation appears not to be the major mechanism by which social attitudes influence the pay-setting behavior of firms.

The fifth specification examines how worker's job positions mitigate the relationship between voter approval rates and gender pay differentials. The job position is measured in five categories ranging from no management position to high and upper management position. The fifth column of Table 8 presents the results. After the inclusion of the dummies for the worker's job position, the magnitude of the average isolated gender pay gap decreases to about 36%. In contrast, the coefficient estimate of the interaction term between approval rates and the gender dummy increases slightly and now amounts to 0.257.

The sixth specification investigates to what extent observable individual worker characteristics mitigate the relationship between regional approval rates and firm-internal pay gaps. Therefore, we add variables for tenure, tenure squared, entry age, entry age squared, union, marital status, and years of education to the regression equation. To account for the gender specific effects of the workers' entry age on wages, we also interact the entry age variable with the gender dummy. The sixth column of Table 8 presents the results.

We find substantial effects of observable worker characteristics on the isolated gender pay gap, i.e., the coefficient of the female dummy indicating the isolated gender pay gap drops by about 0.12 log points, from 0.360 to about 0.235. The coefficient estimate of the interaction term between voter approval rates and the gender dummy also drops from about 0.257 log points to about 0.181. As particularly observable worker characteristics appear to mitigate the within-firm relationship between voter approval rate and gender pay gaps, we cannot rule out the possibility that regional social attitudes towards gender equality are related to unobserved regional gender-specific productivity differences, which persist even for women and men who

work in the same jobs and firms.

Nonetheless, even if we account for observable productivity related worker characteristics, the connection between firms' gender pay gaps and regional variation in voter approval rates remains relatively large and robust. Therefore, we cannot reject the possibility that regional differences in pay discrimination constitute the relationship between voter approval rates and the gender pay gap. On the one hand, local employers or managers may be more discriminatory in regions where more people oppose gender equality rights. On the other hand, more prejudiced customers and coworkers may populate more prejudiced regions and lead firms to adjust women's wages downward.

Some industries are characterized by strong product market concentration, while other industries require workers to have close customer contact. Therefore, analyzing the relationship between social attitudes towards gender equality and gender pay gaps by different industry categories may shed some light on mechanism behind this relationship. Table 9 presents the estimates by industry categories. The table shows the within-firm estimates of equation (1) for the following broad industry categories: manufacturing, commerce (including wholesale and retail), credit and banking, and a remainder category ("other"), containing firms in all remaining (smaller) industries in our sample. To test whether the effects differ by industry, we used third-order interaction terms between the industry dummy, the gender pay gap, and voter approval rates and the corresponding second-order interaction between all relevant variables.

— Table 9 about here —

We find the largest point estimate for the manufacturing sector (0.339 log points), directly followed by the commerce sector (0.213 log points). Although the two coefficient estimates are not significantly different from one another, they are both significantly larger than the point estimates for the banking sector (0.160 log points) and the remainder industries (0.046 log points).

The manufacturing sector in Switzerland is characterized by high market concentration, suggesting that firms in that sector have high product market power. Rutz (2013) indeed calculates Herfindal-Hirschman indices (HHI) of up to 720 for some manufacturing industries. In contrast, the HHI for the wholesale and commerce sectors only amounts to 114, and the credit sector has a HHI of 94. Moreover, capital intensities are substantially larger in

the manufacturing sector than in all other sectors of Swiss industry, suggesting high barriers to entry for the manufacturing sector. Therefore, the results are consistent with the results of Hellerstein, Neumark and Troske (2002), who find stronger gender discrimination for firms with product market power.

Time-based vs. performance pay

In this subsection, we analyze a subsample of workers whose pay consists of a performance pay and a time-based pay component, because social attitudes towards gender equality could have different effects on workers' performance pay component than on their time-based pay component. We now discuss the four most important reasons for such differences. The first two theories suggest more discrimination in the performance pay than in the time-based pay component. The last two theories suggest less discrimination in the performance than in the time-based pay component.

First, if performance pay components are tied to workers' productivity according to objective quantity measures and fixed rules, differences in performance pay components must reflect productivity differences. Consequently, managers face more difficulties in discriminating against women in the performance pay component than in the time-based component. Indeed, several empirical studies show that the wages of performance pay workers are more closely related to their observed and unobserved productivity than are the wages of workers under time-based pay (e.g., Lazear 2000; Lemieux, MacLeod, and Parent 2009).

Second, gender-specific differences in salary negotiations may result in a different effect for performance and time-based pay. A number of studies show that women perform worse in salary negotiations than men. If social attitudes towards gender equality amplify the gender-specific bargaining behavior, gender pay gaps may be larger under time-based pay than under performance pay, even if managers do not discriminate against women.

Third, if performance pay is based on the subjective evaluation of discriminatory managers, managers may even discriminate more under performance pay than under time-based pay.

Fourth, if performance pay is based on sales commission and customer discrimination matters, the relationship between social attitudes and gender pay gaps could also be stronger in the performance component than in time-based component.

We therefore analyze a subsample of workers for whom we are able to observe a time-based

pay component, which is based only on the contractual working hours, and a performance pay component, which includes bonus payments, gratification, and profit sharing. Unfortunately, for workers who are regularly paid by commission and piece rates, we are not able to distinguish the workers' performance pay component from the workers' time-based pay component. After we remove those workers from the sample of performance pay workers, 88,742 individual workers remain (table 10).

— Table 10 about here —

Thirty percent of the restricted sample of performance pay workers is female. Thus the distribution of women and men appears similar to that in the entire sample of workers. The time-based component of workers with performance pay is on average about 0.10 log points higher than the wages for the entire sample of the workers. This result holds for both women and men. The raw gender pay gap in time-based pay is about 0.25 log points and 0.35 log points for the performance pay component.

Tables 11 and 12 present the results. Table 11 shows the results for the time-based pay component. Table 12 shows the results for the performance pay component for those same workers.

— Table 11 about here —

— Table 12 about here —

The first specification of Table 11 shows the results without further control variables. The results show an isolated gender pay gap for the time-based pay component of about 0.394 log points. This value is very similar to the estimates from the entire sample in Table 8.

The result of main interest—the coefficient estimate of the interaction term between the female dummy and the voter approval rate—shows a positive significant estimate for the time-based pay component. The effect is with 0.174 log points slightly smaller than the effect for the entire sample (table 8). One possible explanation is that women working under performance pay are more competitive or more focused on their career, so that the gender pay gap is somewhat smaller for performance pay workers—even in the time-based pay component.

The first specification of Table 12 shows the same results for the performance pay component of those same workers. In contrast to the previous results for the time-based pay component,

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we do not find a significant effect of the interaction term on the performance pay component. Specification II of Tables 11 and 12 replaces the voting data on the 1981 amendment with the voting data of the 2000 amendment. The results are qualitatively similar to those in specification I Specification III incorporates all controls for observable job and worker characteristics, and shows a substantial reduction of the isolated gender pay gap for both the workers' performance pay and time-based pay component. In contrast, the coefficient estimate of the interaction term between the female dummy and the regional approval rate decreases only slightly for the time-based pay component, whereas the same interaction term remains insignificant for the performance pay component.

As previously argued, the nature of performance pay may differ strongly according to workers' jobs and sectors, e.g., workers may receive high subjective bonus payments in the banking sector, sales bonuses in commerce, or bonus payments for reaching productivity targets in the manufacturing sector. Therefore, Tables 13 and 14 present separate estimates for the four broad industry categories (manufacturing, commerce, credit, and others) for the workers' time-based pay component and performance pay component.

— Table 13 about here —

— Table 14 about here —

Table 13 shows the results for the time-based pay component. The point estimates for the manufacturing and commerce sector are large and significantly different from zero and also significantly different from the coefficient estimate of the remainder industries. The point estimate for banking and the remaining category for all other industries are small and not significantly different from zero.

Table 14 shows the results for performance pay. The most striking finding is the positive significant point estimate for the commerce sector. The payment of commerce workers may be more strongly related to their customer contact than in other sectors. In particular, if commerce workers are more likely to receive sales bonuses than other workers, the strong relationship between voter approval rates and the gender pay gap in the performance pay component may indicate that regional differences in customer discrimination drive the relationship between voter approval rates and gender pay gaps in this sector.

The results of Tables 13 and 14 support our assumption that social attitudes may have different effects on workers' time-based and performance pay components. For example,

managers may face more difficulties in discriminating against female manufacturing workers in their performance pay, because manufacturing workers produce output, which can be easily quantified. In contrast, in commerce it may be the customers who—because of their discriminatory social attitudes—want to discriminate against female workers, in which case the females' performance pay component could be strongly related to social attitudes towards gender equality.

V. Discussion and conclusion

We combine information on regional variation in social attitudes towards gender equality with a large data set of multi-establishment firms and workers to analyze the relationship between these social attitudes and firms' gender pay gaps. Therefore, we are able to observe the same firms under the influences of regional differences in social attitudes towards gender equality. Even after we account for unobserved firm heterogeneity, we find a strong relationship between social attitudes towards gender equality and gender pay gaps. In other words, the relationship between social attitudes towards gender equality and gender pay gaps remains, even after we take into account the possibility that social attitudes may lead women and men to segregate into entirely different firms. Thus the results show that firms pay more discriminatory wages in regions where more people have discriminatory social attitudes.

Our results are consistent with different theories on the relationship between social attitudes towards gender equality and gender pay gaps. First, discriminatory social attitudes could shape the self-image of women and men towards a more stereotypical role model, with men being the breadwinner and women being responsible for the household, so that discriminatory social attitudes lead women to sort into entirely different jobs, invest less in education, or exert less effort on the job, even if working in the same jobs and firms as men. Consequently, regional gender-specific productivity differences would then account for large shares of the relationship between social attitudes towards gender equality and gender pay gaps. However, if regional-specific productivity differences alone accounted for the relationship between social attitudes towards gender equality and gender pay gaps, supply side variables and workers characteristics should mitigate the relationship in a substantial way. But the results remain robust if we account for detailed worker and job characteristics, and we find no evidence that social attitudes towards gender equality influence how firms assign women and men to different jobs and occupations across regions.

Second, discriminatory social attitudes could lead prejudiced employers with a taste for discrimination to offer different employment options to women than to men, i.e., women receive fewer and worse job opportunities than men and have more difficulties finding equal employment under discriminatory social attitudes. If market frictions exist, all firms, both prejudiced and non-prejudiced, could then benefit by not raising women's wages to their marginal productivity (e.g., Black 1995; Lang and Lehmann 2012; Lang, Manove, and Dickens 2005; Rosén 1997; Rosén 2003; Sasaki 1999). Consequently, all firms have incentives to pay lower wages to women in regions where more people oppose gender equality rights than in regions where fewer people do. As we find a strong correlation of a within-firm gender wage gap with the discriminatory attitudes in the region in which each establishment is located, our results are consistent with the theory of employer discrimination in non-competitive markets. This is particularly so because the strongest relationship between social attitudes and gender pay gaps lies in the manufacturing sector, for which product market concentration and barriers to entry are the highest in Switzerland.

Third, our results are also consistent with the idea of coworker and customer discrimination, because coworkers and customers may be more prejudiced in regions where more people oppose gender equality rights enough so that firms have larger pay gaps in those regions. As we find the strongest relationship between voter approval rates and gender pay gaps in the performance pay of commerce workers, who have a lot of customer interaction, we conclude that customers' discriminatory attitudes may be particularly important for workers in the commerce sector.

However, a limitation of our study is that in the end we cannot fully distinguish among the different theories that we discussed. To do so, we would need more detailed information on the actual behavior and decision-making of employers and customers but, unfortunately, such data is not available. This limitation notwithstanding, our paper provides an important new insight into understanding the role of firms in the relationship between social attitudes and gender pay gaps.

References

Akerlof, George A., and Rachel E. Kranton. 2000. Economics and identity. *The Quarterly Journal of Economics* 115(3): 715-53.

Altonji, Joseph G., and Rebecca M. Blank. 1999. Race and gender in the labor market. *Handbook of Labor Economics* 3(3): 3143-259.

Arrow, Kenneth J. 1972. Some Mathematical Models of Race in the Labor Market. In Anthony H. Pascal (Ed.), *Racial Discrimination in Economic Life*, pp. 187-203. Lexington: Lexington Books.

Ashenfelter, Orley and Timothy Hannan. 1986. Sex discrimination and product market competition: The case of the banking industry. *The Quarterly Journal of Economics* 101(1): 149-74.

Barron, Lisa A. 2003. Ask and you shall receive? Gender differences in negotiators' beliefs about requests for a higher salary. *Human Relations* 56(6): 635-62.

Becker, Gary S. 1971. *The economics of discrimination*. Chicago, IL: University of Chicago Press.

Bender, Keith A., Susan M. Donohue, and John S. Heywood. 2005. Job satisfaction and gender segregation. *Oxford Economic Papers* 57(3): 479-96.

Bhaskar, Venkataraman, Alan Manning, and Ted To. 2002. Oligopsony and monopsonistic competition in labor markets. *The Journal of Economic Perspectives* 16(2): 15-174.

Black, Dan A. 1995. Discrimination in an equilibrium search model. *Journal of Labor Economics* 13(2): 309-33.

Blau, Francine D., and Laurence M. Kahn. 2000. Gender differences in pay. *The Journal of Economic Perspectives* 14(4): 75-99.

Blau, Francine D., and Laurence M. Kahn. 2006. The U.S. gender pay gap in the 1990s: slowing convergence. *Industrial and Labor Relations Review* 60(1): 45-66.

Boal, William M., and Michael Ransom. 1997. Monopsony in the labor market. *Journal of Economic Literature* 35(1): 86-112.

Brown, Charles, and Mary Corcoran. 1997. Sex-based differences in school content and the male-female wage gap. *Journal of Labor Economics* 15(3): 431-65.

Buser, Thomas, Muriel Niederle, and Hessel Oosterbeek. 2014. Gender, competitiveness, and career choices. *The Quarterly Journal of Economics* 129(3): 1409-47.

Cameron, A. Colin, and Douglas L. Miller. 2010. Robust inference with clustered data. Working Papers No. 107. Department of Economics, University of California, Davis.

Charles, Kerwin K., and Jonathan Guryan. 2008. Prejudice and wages: An empirical

assessment of Becker's the economics of discrimination. *Journal of Political Economy* 116(5): 773-809.

Charles, Kerwin K., Jonathan Guryan, and Jessica Pan. 2009. Sexism and women's labor market outcomes. Unpublished Working Paper.

Clark, Andrew E. 1997. Job satisfaction and gender: Why are women so happy at work? *Labour Economics* 4(4): 341-72.

Donohue, Susan M., and John S. Heywood. 2004. Job satisfaction and gender: An expanded specification from the NLSY. *International Journal of Manpower* 25(2): 211-38.

Fernandez, Raquel. 2011. Does Culture Matter? *Handbook of Social Economics* 1A: 481-510.

Fernandez, Raquel, Alessandra Fogli, and Claudia Olivetti. 2004. Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics* 119: 1249-99.

Fortin, Nicole M. 2005. Gender role attitudes and the labour-market outcomes of women across OECD countries. *Oxford Review of Economic Polics* 21(3): 416-38.

Hellerstein, Judith K., David Neumark, and Kenneth R. Troske. 2002. Market forces and sex discrimination. *The Journal of Human Resources* 37(2): 353-80.

Heywood, John S., Stanley W. Siebert, and Xiangdong Wei 2007. The implicit wage costs of family friendly work practices. *Oxford Economic Papers* 26(1): 1-26.

Hirsch, Boris. 2009. The gender pay gap under duopsony: Joan Robinson meets Harold Hotelling. *Scottish Journal of Political Economy* 56(5): 543-58.

Hirsch, Boris, Thorsten Schank, and Claus Schnabel. 2010. Differences in labor supply to monopsonistic firms and the gender pay gap: An empirical analysis using linked employer-employee data from Germany. *Journal of Labor Economics* 28(2): 291-330.

Keith, Kristen, and Abagail McWilliams, 1999. The returns to mobility and job search by gender. *Industrial and Labor Relations Review* 52(3): 460-477.

Konrad, Alison M., Edgar J. Ritchie, Pamela Lieb, and Elizabeth Corrigall. 2000. Sex differences and similarities in job attribute preferences: A meta-analysis. *Psychological Bulletin* 126(4): 593-641.

Lalive, Rafael, and Alois Stutzer. 2010. Approval of equal rights and gender differences in well-being. *Journal of Population Economics* 23(3): 933-62.

Lang, Kevin, and Jee-Yeon K. Lehmann. 2012. Racial discrimination in the labor market: Theory and empirics. *Journal of Economic Literature* 50(4): 959-1006.

Lang, Kevin, Michael Manove, and William T. Dickens. 2005. Racial discrimination in labor markets with posted wage offers. *The American Economic Review* 95(4): 1327-40.

Lazear, Edward P. 2000. Performance pay and productivity. *The American Economic Review* 90(5): 1346-61.

Lemieux, Thomas, W. Bentley Macleod, and Daniel Parent. 2009. Performance pay and wage inequality. *The Quarterly Journal of Economics* 124(1): 1-49.

Major, Brenda. 1994. From social inequality to personal entitlement: The role of social comparisons, legitimacy appraisals, and group membership. *Advances in Experimental Social Psychology* 26: 293-355.

MacLeod, W. Bentley. 2003. Optimal contracting with subjective evaluation. *The American Economic Review* 93(1): 216-40.

Manning, Alan. 2008. *Monopsony in motion.* Oxford, UK: Princeton University Press.

Pissarides, Christopher A., and Jonathan Wadsworth, 1994. On-the-job search: Some empirical evidence from Britain. *European Economic Review* 38(2): 385-401.

Robinson, Joan. 1969. *The economics of imperfect competition*. New York, NY: Macmillan St Martin's Press.

Rosén, Åsa. 1997. An equilibrium search-matching model of discrimination. *European Economic Review* 41(8): 1589-613.

Rosén, Åsa. 2003. Search, bargaining and employer discrimination. *Journal of Labor Economics* 21(4): 807-29.

Rutz, Samuel. 2013. Applying the theory of small economies and competition policy: The case of Switzerland. *Journal of Industry, Competition and Trade* 13(2): 255-72.

Sasaki, Masaru. 1999. An equilibrium search model with coworker discrimination. *Journal of Labor Economics* 17(2): 377-407.

Sloane, Peter J., and Hector Williams. 2000. Job satisfaction comparison earnings, and gender. *Labour* 14(3): 473-502.

Wirz, Aniela. 2008. Private returns to education versus education spill-over effects. *Empirical Economics* 34: 315-42.

VI. Tables and figures in the text
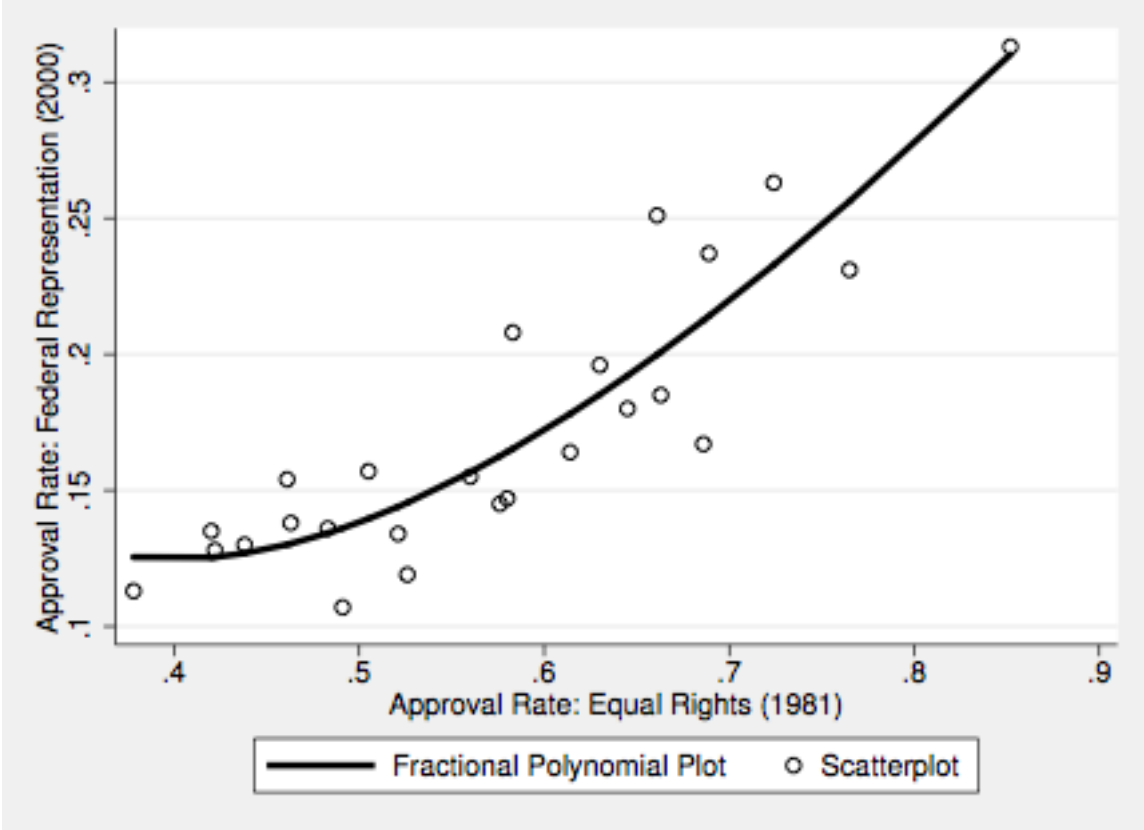
Figure 1. Relationship between Approval Rates
Notes: The voting data stem from the Swiss Federal Statistical Office.
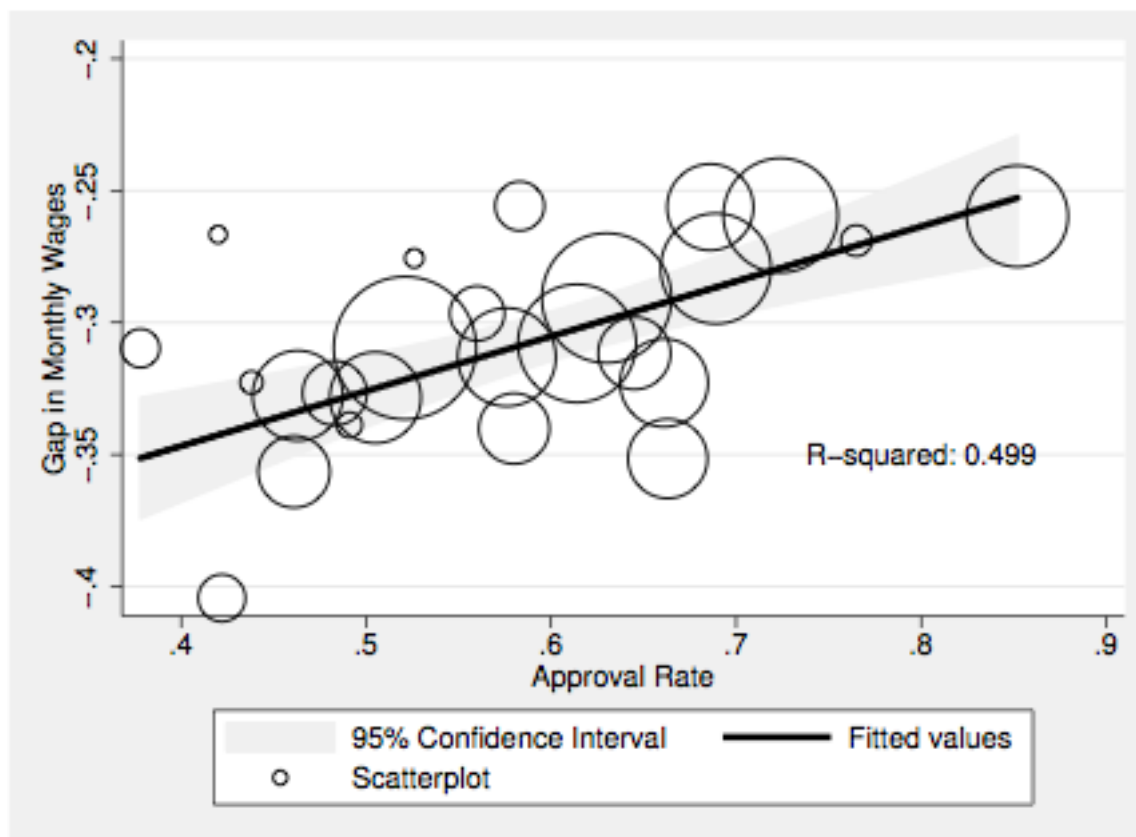
Figure 2. Monthly Wages and Approval Rates.

Notes: The firm and individual data are drawn form the Swiss Earnings Structure Survey 1994-1998.
The voting data stem from the Swiss Federal Statistical Office.

Table 1. Regional Voter Approval Rates: Equality Rights

Region	Total votes	In favor	Approval rate
Appenzell Inner Rhodes	2529	805	31.8%
Schwyz	20075	7594	37.8%
Glarus	8014	3362	42.0%
Appenzell Outer Rhodes	11244	4743	42.2%
Uri	8265	3616	43.8%
Valais	33084	15237	46.1%
St. Gallen	73620	34073	46.3%
Thurgau	40270	19469	48.3%
Nidwalden	7141	3508	49.1%
Lucerne	67982	34313	50.5%
Aargau	85950	44782	52.1%
Obwalden	5362	2818	52.6%
Graubünden	30054	16830	56.0%
Solothurn	88576	51029	57.6%
Zug	20554	11925	58.0%
Schaffhausen	28591	16673	58.3%
Bern	177168	108695	61.4%
Zurich	266619	168099	63.0%
Fribourg	28936	18674	64.5%
Neuchâtel	30399	20095	66.1%
Ticino	42915	28438	66.3%
Basel-Landschaft	44530	30540	68.6%
Vaud	78446	54073	68.9%
Basel-Stadt	44687	32354	72.4%
Jura	11040	8450	76.5%
Geneva	67536	57507	85.2%

Notes: The voting data stem from the Swiss Federal Statistical Office.

Table 2. Regional Voter Approval Rates by Gender

Region	All		Men		Women	
	Total votes	Approval	Total vote	Approval	Total vote	Approval
St. Gallen	101	63.4	48	56.3	53	69.8
Aargau	69	68.1	36	66.7	33	69.7
Bern	195	74.9	97	66.0	98	83.7
Basel-Landschaft	38	81.6	20	90.0	18	72.2
Zurich	204	82.8	109	79.8	95	86.3
Vaud	122	85.2	57	80.7	65	89.2
Basel-Stadt	54	87.0	27	77.8	27	96.3
Geneva	44	88.6	20	95.0	24	83.3

Notes: The voting data stem from the VoxIt.

Table 3. Regional Voter Approval Rates: Federal Representation

Region	Total votes	In favor	Approval rate
Appenzell Inner Rhodes	4283	302	7.1%
Schwyz	41805	4719	11.3%
Glarus	9653	1305	13.5%
Appenzell Outer Rhodes	17760	2273	12.8%
Uri	12827	1670	13.0%
Valais	60886	9405	15.5%
St. Gallen	121818	16859	13.8%
Thurgau	57124	7767	13.6%
Nidwalden	11662	1251	10.7%
Lucerne	106603	16694	15.7%
Aargau	140426	18842	13.4%
Obwalden	9538	1134	11.9%
Graubünden	44773	6945	15.5%
Solothurn	73716	10672	14.5%
Zug	29870	4403	14.7%
Schaffhausen	29836	6215	20.8%
Bern	288654	47248	16.4%
Zürich	339631	66411	19.6%
Fribourg	62694	11298	18.0%
Neuchâtel	36226	9088	25.1%
Ticino	56591	10453	18.5%
Basel-Landschaft	73146	12214	16.7%
Vaud	124920	29548	23.7%
Basel-Stadt	60232	15853	26.3%
Jura	18070	4174	23.1%
Geneva	94429	29571	31.3%

Notes: The voting data stem from the Swiss Federal Statistical Office.

Table 4. Observations

Individual	
Total	332087
Women	109058
Men	223029
Firm	
Firms	1277
Establishments	4457
Establishments per firm	
Median	4
Min	2
Max	25

Notes: The voting data stem from the Swiss Federal Statistical Office.

Table 5. Summary Statistics: Entire Sample of Workers

Variable	All	Female	Male
Log gross monthly wage	8.634	8.409	8.745
	(0.38)	(0.313)	(0.361)
Female (Dummy)	0.328	1.000	0.000
	(0.47)	(0.000)	(0.000)
Firm entry age	29.841	29.557	29.979
	(8.502)	(8.917)	(8.285)
Education in years	12.351	11.515	12.759
	(2.276)	(1.927)	(2.321)
Tenure	10.771	8.654	11.806
	(9.053)	(7.447)	(9.574)
Union (Dummy)	0.253	0.243	0.259
	(0.435)	(0.429)	(0.438)
Married (Dummy)	0.597	0.417	0.686
	(0.491)	(0.493)	(0.464)
Weekly working hours	40.734	40.097	41.045
	(2.065)	(2.952)	(1.34)
No management position	0.655	0.764	0.602
	(0.475)	(0.425)	(0.49)
Lowest management	0.126	0.133	0.122
	(0.332)	(0.339)	(0.328)
Lower management	0.134	0.078	0.162
	(0.341)	(0.269)	(0.368)
Middle management	0.067	0.022	0.089
	(0.25)	(0.146)	(0.285)
Top and upper management	0.018	0.003	0.025
	(0.131)	(0.054)	(0.155)

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. Standard errors are in parenthesis.

Table 6. Social Attitudes and Gender-Specific Firm Segregation

	Share Female:		Duncan index:	
	I	II	I	II
Average	0.328		0.422	
	(0.172)		(0.224)	
Approval Rate:	0.184**	-0.018	-0.091	-0.016
Equal Rights (1981)	(0.077)	(0.074)	(0.087)	(0.050)
Firm fixed effects	No	Yes	No	Yes
Region fixed effects	No	Yes	No	Yes
	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 7. Social Attitudes and Gender-Specific Job Segregation

	Education:	Management (1/0):	Average log pay in occupation:	Performance pay (1/0):
Female	-1.385***	-0.177***	-0.075**	-0.0188
	(0.252)	(0.028)	(0.030)	(0.035)
Approval Rate: Equal Rights (1981)	0.312	-0.019	0.039	-0.054
	(0.380)	(0.048)	(0.051)	(0.053)
Firm fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes
Observations:	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 8. Wage Regression (Monthly Wages of the Entire Sample)

Dependent variable:	log(monthly income)					
Specifications:	I	II	III	IV	V	VI
Female	-0.437***	-0.372***	-	-0.418***	-0.359***	-0.235***
	(0.020)	(0.011)		(0.013)	(0.024)	(0.032)
Female* Approval Rate: Equal Rights (1981)	0.223***	-	0.216***	0.208***	0.257***	0.181***
	(0.033)		(0.052)	(0.017)	(0.028)	(0.031)
Female* Approval Rate: Representation (2000)	-	0.379***	-	-	-	-
		(0.053)				
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	No	No	No	Yes	Yes	Yes
Job position	No	No	No	No	Yes	Yes
Prod. relevant characteristics	No	No	No	No	No	Yes
Female*Firm Fixed effects	No	No	Yes	No	No	No
Observations:	332087	332087	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. The dependent variable is monthly time- based wage for all workers. The control variables include tenure, tenure squared, firm entry age, entry age squared, education union status, marital status, job position and occupation. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 9. Wage regression by industry categories

| Dependent variable: | log (monthly income) | | | |
Industry categories:	Manufacturing	Commerce	Banking	Other
Approval Rate: Equal Rights (1981)	0.339***♭# (0.094)	0.213***♭# (0.062)	0.160***# (0.037)	0.046 (0.063)
Firm fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes
	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level. ♮Significantly different from "commerce" at 5% level; ♭ Significantly different from "banking" at the 5% level; # Significantly different from "other" at the 5% level.

Table 10. Summary Statistics: Performance Pay Workers

Variable	All	Female	Male
Log performance comp.	5.471	5.298	5.549
	(1.240)	(1.115)	(1.282)
Log time-based comp.	8.758	8.508	8.863
	(0.404)	(0.343)	(0.381)
Female (Dummy)	0.297	1.000	0.000
	(0.457)	(0.000)	(0.000)
Firm entry age	29.783	29.203	29.310
	(8.05)	(8.622)	(7.796)
Education in years	12.692	11.740	13.093
	(2.418)	(2.178)	(2.402)
Tenure	11.776	9.459	12.753
	(8.846)	(7.446)	(9.337)
Union (Dummy)	0.195	0.203	0.192
	(0.396)	(0.402)	(0.394)
Married (Dummy)	0.627	0.427	0.711
	(0.484)	(0.495)	(0.453)
Weekly working hours	40.779	40.124	41.057
	(1.976)	(2.957)	(1.268)
No management position	0.548	0.688	0.489
	(0.498)	(0.463)	(0.500)
Lowest management	0.143	0.164	0.133
	(0.350)	(0.37)	(0.340)
Lower management	0.198	0.116	0.233
	(0.399)	(0.319)	(0.423)
Middle management	0.092	0.030	0.118
	(0.289)	(0.171)	(0.323)
Top and upper management	0.019	0.002	0.026
	(0.137)	(0.047)	(0.160)

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. Standard errors are in parenthesis.

Table 11. Wage Regression III: Time-Based Pay Component

	I Base	II Representation	III Controls: Labor Market	IV Controls: Performance Pay
Female	-0.394***	-0.342***	-0.223***	-0.178***
	(0.029)	(0.021)	(0.042)	(0.049)
Female* Approval Rate: Equal Rights (1981)	0.174***	-	0.127**	0.172***
	(0.047)		(0.058)	(0.035)
Female* Approval Rate: Representation (2000)	-	0.290*** (0.098)	-	-
Firm fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes
Occupation	No	No	Yes	Yes
Job position	No	No	Yes	Yes
Prod. relevant characteristics	No	No	Yes	Yes
Observations:	88742	88742	88742	88742

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. The dependent variable is monthly time- based wage for all workers. The control variables include tenure, tenure squared, firm entry age, entry age squared, education union status, marital status, job position and occupation. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 12. Wage Regression III: Performance Pay Component

	I Base	II Representation	III Controls: Labor Market
Female	-0.478*** (0.159)	-0.434*** (0.096)	-0.321* (0.173)
Female* Approval Rate: Equal Rights (1981)	0.088 (0.238)	-	0.026 (0.225)
Female* Approval Rate: Representation (2000)	-	0.061 (0.397)	-
Firm fixed effects	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes
Occupation	No	No	Yes
Job position	No	No	Yes
Prod. relevant characteristics	No	No	Yes
Observations:	88742	88742	88742

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. The dependent variable is monthly time- based wage for all workers. The control variables include tenure, tenure squared, firm entry age, entry age squared, education union status, marital status, job position and occupation. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level.

Table 13. Time-based pay component by industry categories

Dependent variable:	log (time based pay component)			
Industry categories:	Manufacturing	Commerce	Banking	Other
Approval Rate: Equal Rights (1981)	0.208*** #	0.309*** # ♭	0.074	0.137
	(0.046)	(0.101)	(0.037)	(0.139)
Firm fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes
	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level. ♮Significantly different from "commerce" at the 5% level; ♭ Significantly different from "banking" at the 5% level; # Significantly different from "other" at the 5% level.

Table 14. Performance pay component by industry categories

Dependent variable:	log (performance pay component)			
Industry categories:	Manufacturing	Commerce	Banking	Other
Approval Rate:	-0.008	0.630**#	0.066	0.090
Equal Rights (1981)	(0.464)	(0.299)	(0.325)	(0.316)
Firm fixed effects	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes
	332087	332087	332087	332087

Notes: The firm and individual data are drawn from the Swiss Earnings Structure Survey 1994-1998. The voting data stem from the Swiss Federal Statistical Office. Non-nested standard errors are calculated at the region and firm level. * Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level. ♮Significantly different from "commerce" at the 5% level; ♭ Significantly different from "banking" at the 5% level; # Significantly different from "other" at the 5% level.