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Social Norms and Gendered Occupational Choices of Men and Women: Time to Turn the Tide?

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Social Norms and Gendered Occupational Choices of Men and Women: Time to Turn the Tide? *

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October 2022

We analyze the relationship between social gender norms and adolescents' occupational choices by combining regional votes on constitutional amendments on gender equality with job application data from a large job board for apprenticeships. Results show that adolescent males in regions with stronger traditional social gender norms are more likely to apply for typically male occupations. This finding does not hold for females, suggesting that incentivizing men to break the norms and choose gender-atypical occupations (e.g., in healthcare) can be even more effective in accelerating advancement toward gender equality in the labor market than incentivizing women to choose STEM occupations.

Keywords: occupational gender segregation; social norms; occupational choice

JEL Classifications: J24, J16, I24, M59

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1. Introduction

Occupational choice is a major decision in an individual's life, with consequences for later labor market outcomes (e.g., Kidd & Goninon, 2000). However, despite great advancement toward gender equality in the past half-century, individuals often severely restrict their choices to gender-typical occupations (e.g., electrician for men and childcare worker for women). The resulting occupational gender segregation remains a persistent feature of western industrialized labor markets and constitutes one of the main explanations for gender inequality in labor market outcomes (e.g., Barron & West, 2013; Stier & Yaish, 2014). While a large literature documents the patterns of gendered occupational choices (e.g., Alonso-Villar et al., 2012; Charles & Bradley, 2009; Fernandez & Friedrich, 2011; Jarman et al., 2012), researchers and policy makers still debate the reasons for the persistence of gendered choices.

One theoretical explanation for gender differences in occupational choices lies in identity and social norms (Akerlof & Kranton, 2000). Social norms, which are shared beliefs about what members of a certain group should and should not do, motivate individuals to adapt their self-image and life choices to what appears appropriate for their group (Akerlof & Kranton, 2000; Bertrand, 2011). When an individual's actions do not conform to prevailing social norms, that individual will suffer a loss of identity and experience discomfort (Akerlof & Kranton, 2000).

While empirical studies have analyzed the role of social norms in various behaviors and decisions (e.g., Fernández, 2013; Janssen et al., 2016), the relationship between social norms and occupational choices remains largely unexplored. This lack of evidence is particularly surprising given the strong empirical evidence that the occupational gender segregation fosters gender differences in labor market outcomes (such as the gender pay gap), increases labor market rigidity, and limits the optimal allocation of workers' talents and skills to occupations

(Anker, 1997; Blau & Kahn, 2017; Cortes & Pan, 2018; Hegewisch et al., 2010). While the occupational gender segregation is not driven solely by individuals' choices (but possibly also by factors such as discrimination), individuals' choices can explain a substantial part of gender gaps in the labor market (Fluchtmann et al., 2021). Thus, a better understanding of these gendered occupational choices and the potential role of social gender norms is essential. By providing evidence on the role of gender norms for occupational choice, our paper improves this understanding and thus closes the existing research gap.

This article investigates the role of social gender norms in the occupational choice process of adolescents and analyzes whether these norms relate to the gender typicality of occupational choices. Following Akerlof and Kranton (2000), we expect individuals in regions with stronger traditional social gender norms to suffer a higher utility loss when they work in occupations typically associated with the opposite gender. Thus, we hypothesize that adolescents living in regions with stronger traditional social gender norms are more likely to choose gender-typical occupations and less likely to choose gender-atypical ones.

To analyze this relationship, we use an innovative combination of data sources in a unique setting. To measure occupational choices, we use process-generated job application data from a job board that covers the large majority of the universe of job ads and of adolescents' first job applications immediately after leaving compulsory school. We draw on data from Switzerland, because the Swiss vocational education and training (VET) system constitutes an ideal setting for studying unconfounded occupational choices of adolescents. Two-thirds of the Swiss adolescent population participate in this VET system¹ and, at about age 15 (during their last year of compulsory school), have to choose their training occupation from more than 200 apprenticeship occupations that adhere to nationally defined and binding curricula.² As each VET training program features an on-the-job apprenticeship part at a training firm (about 75% of total training time), the adolescents have to apply for an apprenticeship position in their

preferred occupation at a training firm in the same way that any worker has to apply for a regular job. Apprenticeships are advertised by training firms primarily on online job boards, and the applications an adolescent submits for particular apprenticeships reveals his or her occupational choice.

Our data stems from the largest Swiss apprenticeship job board, which covers 90% of the online job market for apprenticeship positions. It not only provides information on the region in which an adolescent lives but also reveals realized occupational choices, that is, real applications that an adolescent has submitted to a potential training firm. In contrast to earlier research, these job applications for the first time allow us to investigate how gender norms relate to real occupational choices, which on one hand go beyond occupational aspirations (i.e., dreams and hopes measured through self-reported survey questions; e.g., Jaik & Wolter, 2019; Kuhn & Wolter, 2019) and on the other are not yet confounded by firms' hiring decisions (compared to realized occupational matches; e.g., Pan, 2015).³

To measure regional differences in social norms on gender equality, we use several regional voting results on constitutional referenda on gender equality in Switzerland. The most accurate and undistorted proxy for social norms on gender equality comes from the 1981 referendum, in which the Swiss population voted on whether to constitutionally guarantee the equality of women and men in society. In our main specification, we use the regional disapproval rate of this referendum as a proxy for the strength of traditional gender norms (i.e., the tolerance for gender inequality) in that region. However, we also use the voting results of more recent referenda on gender-related issues (such as gender quotas in public institutions or the introduction of paternity leave) in robustness tests and find that our results are very robust.

Given that votes on such constitutional amendments have real legal consequences, the regional voting outcomes constitute a highly valid measure for regional differences in social gender norms that—unlike survey-based measures—is unconfounded by socially desirable

answers (Lalive & Stutzer, 2010). Combining the regional voting data as a proxy for social norms on gender equality with the individual job application data allows us to match individual occupational choices to the gender norms in the adolescents' regions.

We find that adolescent males in regions with stronger traditional gender norms are indeed less likely to apply for gender-atypical occupations and more likely to apply for gender-typical ones. However, this relationship does not hold for adolescent females, suggesting that adolescent males align their occupational choices more strongly with regional gender norms than adolescent females do. This somewhat surprising finding may result from the success of longstanding and various educational policy measures aimed at raising girls' interest in traditionally male STEM⁴ occupations on one hand—and the absence of similar measures for boys' interest in female occupations in sectors such as health and care on the other. As our results represent the entire Swiss job market for apprenticeship positions and are unconfounded by firms' hiring decisions, these results underscore the importance of social norms for occupational choices in general and of policies motivating all adolescents—but males in particular—to choose non-traditional, gender-atypical occupations and thereby increase equality in a variety of labor market outcomes.

2. Social Gender Norms: Theory and Background

We derive our hypotheses from Akerlof and Kranton's (2000) theory of identity economics, which incorporates the psychological and sociological concept of identity (e.g., Stets & Burke, 2000; Tajfel, 1981; Turner, 1985) into an economic theory. They define identity as an individual's self-image and sense of belonging to certain social categories. These categories are associated with social norms,⁵ which are prescriptions for how members of the respective social category should behave. According to Akerlof and Kranton's (2000) theory, if individuals deviate from these social norms, they experience a loss of identity. As identity

directly enters the utility function in this theory, a loss of identity decreases utility. Conversely, if individuals conform to social norms, their utility increases.

“Man” and “woman” are two such social categories, each associated with social norms for how men and women should behave. According to Akerlof and Kranton (2000), occupations are also associated with the social categories “man” and “woman.” As a result, when individuals work in occupations typically associated with the opposite gender, they both violate social norms and suffer utility costs.

However, while all cultures and regions have some degree of gender-specific behavioral prescriptions (Reskin & Bielby, 2005), the strength of these gender norms varies both over time and by region (Janssen & Backes-Gellner, 2016; Janssen et al., 2016; Munnich & Wozniak, 2019). Therefore, this paper analyzes overall regional patterns in gender norms and occupational choices. The transmission of these regional norms to adolescents occurs through different channels (e.g., the family, peers, school teachers, education, and their interaction) and has been studied extensively in prior research (for an overview see Bisin & Verdier, 2011).

Following Akerlof and Kranton’s (2000) theory, individuals in regions with stronger traditional gender norms likely suffer higher utility costs when they work in occupations typically associated with the opposite gender. Likewise, individuals in those regions likely gain more utility when they work in occupations typically associated with their own gender. We expect that the job application behavior of adolescents entering VET reflects these differences in utility. Thus, we hypothesize that adolescents living in regions with stronger traditional gender norms are more likely to apply for gender-typical occupations and less likely to apply for gender-atypical ones.

Previous studies find support for the importance of gender norms for different life decisions and labor market outcomes. Examples include women’s labor force participation (Antecol, 2000; Fernández, 2013; Fernández & Fogli, 2009; Fortin, 2015; Grewenig et al.,

2020), fertility (Fernández & Fogli, 2006, 2009; Guinnane et al., 2006), marriage formation and the division of home production (Bertrand et al., 2015), child care choices (Barigozzi et al., 2018), provision of paid and unpaid care services (Folbre, 2012), the gender pay gap (Janssen et al., 2016; Lalivé & Stutzer, 2010), human capital acquisition (Kosteas, 2013), entrepreneurship (Feldmann et al., 2022), and broad educational decisions, such as choosing a level of study or a major in STEM (Favara, 2012; Humlum et al., 2012; Humlum et al., 2019; Osikominu et al., 2019; Zafar, 2013).

Closest to our research question are studies on the importance of gender norms for occupational aspirations (Kuhn & Wolter, 2019) on one hand and realized occupational matches (Pan, 2015) on the other. Kuhn and Wolter (2019) combine survey data on the occupational aspirations of students aged 13-14 in the Swiss canton of Bern with voting results for several constitutional referenda on gender equality issues. They find that while the strength of gender norms relates to a lower probability of aspiring to a gender-typical occupation, other factors (e.g., the regional occupational structure) also contribute to explaining gender-typical aspirations. While providing valuable insights into the role of social norms, Kuhn and Wolter (2019) focus their analysis on occupational aspirations. However, such occupational aspirations—as Jaik and Wolter (2019) indicate—can differ substantially from actual choices.

Furthermore, Pan (2015) focuses on individuals in actual occupations, which are the results of a match of their own decisions and decisions of their potential employers to hire them or not (i.e., actual occupations differ from unconfounded individual decisions). She finds that tipping points (i.e., thresholds of the percentage of women in an occupation in which rapid feminization is occurring) are lower in U.S. regions where men hold stronger traditional gender norms (measured as sexist attitudes) and thus have a greater aversion to working in the same occupations as women. However, in comparison to our study of individual job applications,

studies of actually realized occupations potentially suffer from confounding individuals' (supply-side) decisions and the employers' (demand-side) decisions.

In terms of the occupational choice process, our study is situated between these two studies, that is, between pure aspirations and realized occupations. Thus, we identify the occupational goals to which adolescents have demonstrated a level of commitment by putting forth the substantial effort of applying for apprenticeships. Our data on occupational choices in apprenticeship applications allows us to analyze the unconfounded relationship between gender norms and real occupational choices that go beyond aspirations but are not yet confounded with demand side decisions of firms.

3. Data

The job application data

We use proprietary data from Yousty.ch, the largest private online job board for apprenticeship positions in Switzerland. Around 90% of all online job advertisements for apprenticeship positions in Switzerland are posted on Yousty.ch—which therefore covers almost the entire market. With online search for apprenticeship positions having become common for adolescents over the past decade (Granato, 2013), the Yousty.ch data are representative for the Swiss job market for apprenticeship positions. In addition to posting job advertisements, Yousty.ch also provides, free of charge, job application advice and career service information about the over 200 different training occupations. Likewise, firms can advertise their apprenticeship positions at no cost but have to pay Yousty.ch if they want to use a premium plan with additional features (e.g., appearance in the top search results or getting live application statistics).⁶

Adolescents can apply for open apprenticeship positions via an application link. For the majority of job advertisements (about 70%), this link leads to a standardized application form

on Yousty.ch. Our dataset contains these direct applications.⁷ The application process (a) is very standardized and thus the same across occupations, firms, and regions, (b) follows a uniform structure, and (c) typically requires as application materials the three simple elements cover letter, CV, and school transcripts. Therefore, large differences across occupations or regions that could cause differences in application costs for gender-(a)typical apprenticeship positions and that could thus bias our results are unlikely to occur.

More specifically, our dataset contains detailed information on all applications processed via Yousty.ch between January 2016 and July 2019. For each adolescent, the dataset contains gender, age, and postcode of residence.⁸ For each job advertisement, the dataset contains the training occupation and the postcode of the firm's training location. In our analysis, we include applications with complete information on the adolescent's age, residence, training location, and training occupation. Moreover, we restrict the analysis to users within the typical age range (13 to 18) of apprenticeship applicants. We consider only applications during the first year in which an adolescent applies for an apprenticeship position, because the few cases with applications in later years do no longer represent adolescents' unconfounded initial choices.⁹ Through this restriction, we also avoid potential autocorrelation problems in our analyses. Our final estimation sample contains 39,863 users with 201,308 applications for apprenticeship positions. Table A1 in the Appendix shows descriptive statistics for this sample.

Additional datasets

We supplement the Yousty.ch application data with two additional data sources. First, to measure gender norms we follow Lalivé and Stutzer (2010) and Janssen et al. (2016) and use regional voting outcomes of constitutional referenda on gender equality issues.¹⁰ In our main analysis, we use the 1981 referendum in which the Swiss population voted on whether to constitutionally guarantee the equality of women and men in society, because this referendum provides the most accurate and undistorted proxy for social norms on gender equality.

The 1981 constitutional amendment, which would guarantee the equality of women and men, 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, vocational education, employment, and occupation.*

Overall, the disapproval rate, which serves as our measure for the strength of traditional gender norms, was 39.7%, with substantial regional variation (from 0% to 100% across municipalities,¹¹ which constitute the smallest administrative regional unit in Switzerland).¹² Because the Swiss constitution is legally binding across Switzerland, individuals and firms have the legal obligation to abide by it even in municipalities in which voters rejected the amendment. Figure 1 shows the regional variation in our gender norms measure across municipalities. The figure highlights the regional differences in gender norms, with the most traditional municipalities located in north-eastern, central, and south-western Switzerland (darkest shades of green) and the least traditional ones in western, northern, and south-eastern Switzerland (darkest shades of red).

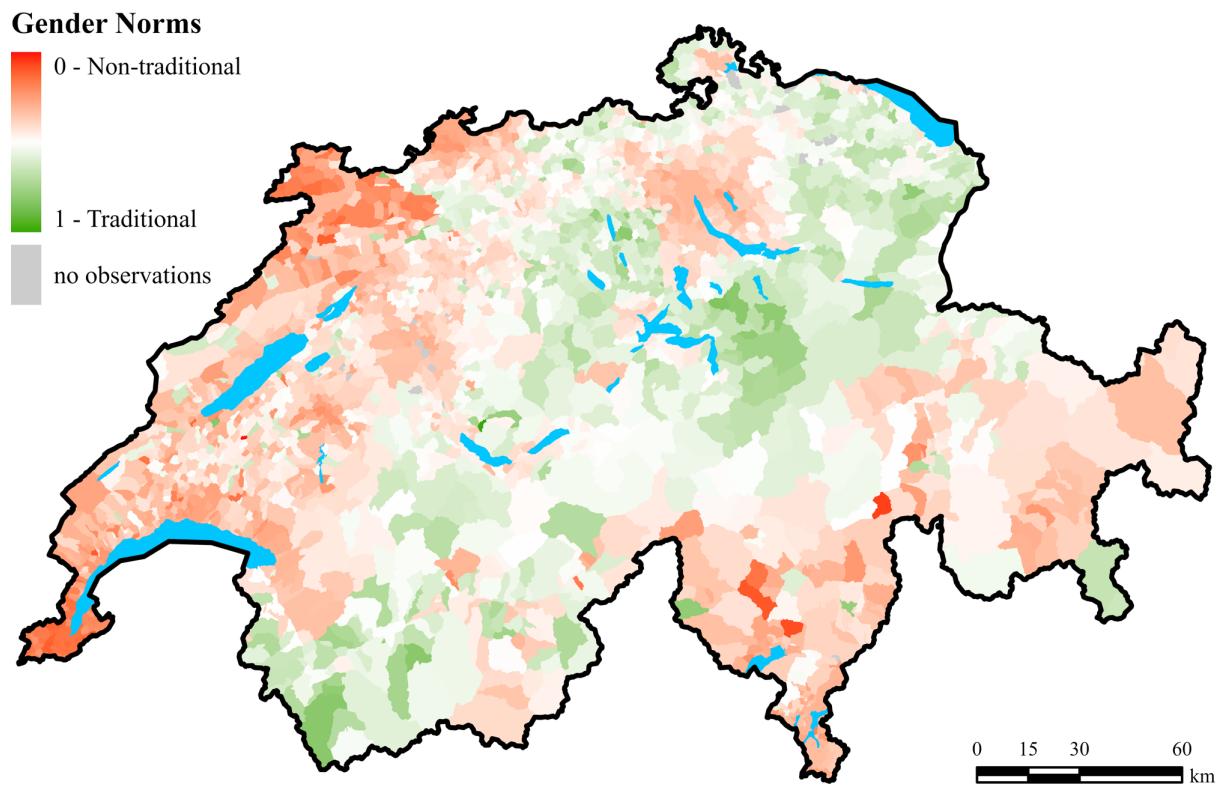


Figure 1. *Regional variation in social gender norms across municipalities.*

Source: Authors' illustration with voting data from the Swiss Federal Statistical Office.

Notes: The figure shows the strength of traditional social gender norms expressed as the voter disapproval rates on the 1981 gender equality amendment in each municipality (i.e., the fraction of a municipality's population that voted against the gender equality amendment).

Previous studies have shown that regional voting outcomes constitute a valid measure for regional differences in gender norms, because (unlike survey measures) votes reflect individuals' true attitudes through entailing real legal consequences and through the anonymity of the vote (Janssen et al., 2016; Lalive & Stutzer, 2010; Osikominu et al., 2019). However, merging past information on social norms from 1981 with recent labor market outcomes likely entails measurement error and leads to lower bound estimates (Lalive & Stutzer, 2010). Therefore, we also consider three more recent voting outcomes on gender equality issues in robustness checks. First, we use voting data from a 2000 constitutional amendment for fair representation of women within federal government institutions and administrations (e.g., federal council, parliament, federal court, federal administration, and federal universities). Second, we use voting data from a 2013 constitutional amendment on family policy, an amendment promoting the reconciliation of family and work life by ensuring a sufficient supply of supplementary childcare services. Third, we use voting data from a 2020 constitutional amendment introducing a two-week paternity leave. These three constitutional referenda thus represent alternative measures of regional gender norms and complement the 1981 referendum.

The 2000, 2013, and 2020 voting outcomes correlate strongly with the 1981 voting outcome. Figures A1 a–c in the appendix transfer Janssen et al.'s (2016) canton-level analysis on the persistence of gender norms to the municipality level (the regional level at which we measure gender norms), that is, they plot the 1981 voting outcome against the three later voting outcomes for all municipalities in our regression sample. The plots reveal a positive linear relationship between the 1981 disapproval rate and the later disapproval rates through consistent upward slopes of the prediction plots.¹³ Furthermore, the distributions of the differences between each of the three more recent disapproval rates and the 1981 disapproval rate (Figure A1d in the appendix) are strongly centered around the mean and normally distributed, thus emphasizing that the more recent disapproval rates are very similar to the 1981

disapproval rate. This evidence underscores the persistence of regional gender norms over time, thus complementing previous analyses that demonstrate the persistence of social norms in general (e.g., Cantoni et al., 2019; Gruneau, 2022) and of gender norms in Switzerland in particular (Janssen et al., 2016; Kuhn & Wolter, 2019).

Given this empirical evidence on the persistence of gender norms over time, we argue that the 1981 constitutional referendum is the most accurate proxy for investigating the relationship between regional gender norms and occupational choices for three reasons. First, in contrast to the more recent votes on gender equality issues, the 1981 amendment had no direct consequences other than gender equality before the law. In the 1981 referendum, voters thus directly reveal their opinion on gender equality, because they could not favor or reject the constitutional amendment for other reasons (e.g., a voter could be in favor of paternity leave to get a personal benefit through a few weeks off work but not for reasons of gender equality). Second, by using votes from 1981 that predate our observation period (2016–2019), we avoid a potential reverse-causality bias. For example, if occupational choice affects gender norms, using the 2020 referendum could lead to biased results because some of the adolescents in our sample are among the voters. The 1981 referendum does not suffer from this issue. Third, as we expect earlier referenda to provide lower-bound estimates (Lalive & Stutzer, 2010), using the 1981 referendum is the most conservative approach to answering our research question. Therefore, in Section 5 we use the 1981 referendum for our main specification and establish the robustness of our findings to using the 2000, 2013, and 2020 referenda in alternative specifications.

As our second additional data source, we use data from the Social Protection and Labor Market (SESAM) survey from 2005 through 2015 to construct measures for the gender typicality of an occupation and control variables for labor market characteristics. SESAM combines data from the Swiss Labor Force Survey with information from various social benefit

registers. SESAM, which is representative for the Swiss population aged 15 and older, comprises around 70,000 interviews a year for the period we cover. The survey provides occupational codes at the most disaggregated level of the Swiss Standard Classification of Occupations (SBN2000). Following Eggenberger et al. (2018), we assign each apprenticeship occupation in our job application data to one of 140 unique SBN2000 codes. Consequently, we observe 140 different occupations, which we then classify as more or less gender-typical depending on the percentage of female or male workers in each occupation.¹⁴

4. Empirical Strategy

To test our hypothesis on the relationship between social gender norms and the gender typicality of occupational choices, we proceed in several steps. To measure the gender typicality of an occupation, we use the percentage of same-gender employees in an occupation as reported in the SESAM data. To measure the gender typicality of adolescents' occupational choices, we calculate the average gender typicality of the occupations for which adolescents apply (Figure A2 in the appendix shows the regional variation across municipalities for this gender-typicality measure). We then classify adolescents' applications as gender-typical (applications to typically female occupations for adolescent females and typically male occupations for adolescent males), gender-atypical (applications to typically male occupations for adolescent females and typically female occupations for adolescent males), or gender-mixed, based on the average gender typicality of their applications.¹⁵ We run regressions separately for adolescent females and males, as previous studies have shown that men and women potentially differ in the extent to which they align their behavior with social norms (e.g., Barth et al., 2015; Gianetttoni et al., 2015; OECD, 2021; Osikominu et al., 2019). The following regression equation shows our estimation strategy in detail:

$$(1) \quad GT_{i[jt]} = \beta_0 + \beta_1 GenderNorms_j + \beta_2 X_{i[jt]} + \beta_3 t + \mu_i$$

where the dependent variable GT_{ijl} is one of three dummy variables indicating the gender typicality of the occupation(s) that adolescent i applies for.

An adolescent's applications are defined as *gender-typical* if the average percentage of same-gender employees in the apprenticeship occupation(s) for which the adolescent applies is above 70%, as *gender-atypical* if this percentage is below 30%, and as *gender-mixed* if this percentage ranges between 30% and 70%. These thresholds for the gender typicality of occupations correspond to the standard thresholds both in research (i.e., in the economic and sociological literature on the gender typicality of occupations; Hultin, 2003; Joy, 2006; Leuze & Strauß, 2016) and practice (e.g., the definition of gender-typical occupations by Germany's anti-discrimination agency¹⁶). This operationalization allows us to analyze how social norms affect occupational choices at the ends of the gender-typicality distribution.

$GenderNorms_j$ denotes the strength of traditional gender norms expressed as the voter disapproval rates on the 1981 gender equality amendment in the municipality j where adolescent i lives (i.e., the fraction of a municipality's population that voted against the amendment). $GenderNorms_j$ thus ranges between 0 and 1, with values closer to 1 denoting a higher disapproval rate and therefore stronger traditional gender norms.

Like gender norms, labor market characteristics vary at the regional level and affect adolescents' occupational choice. For example, an adolescent female's occupational choice might depend on the local industrial composition. She might choose a health occupation over a STEM occupation in a region with a low number of open apprenticeship positions in STEM (and thus high competition for these positions), although she would prefer a STEM occupation. Moreover, local labor market characteristics and gender norms might be interdependent (e.g., due to employers also sharing these norms). To account for such effects in our estimations, we include control variables representing these local labor market characteristics in the vector X_i .

Following Pfister et al. (2021), we define an adolescent's local labor market as the area within a 25 kilometer (km) (15.5 miles) commuting radius¹⁷ of an adolescent's residence.¹⁸

The vector X_i contains a set of measures for four local labor market characteristics. First, drawing on Buchs and Helbling (2016) and Faberman and Kudlyak (2019), we include the total number of advertised apprenticeship positions in the labor market of municipality j in school year t as a measure for overall labor demand. Second, as a measure for the gender composition of the local labor supply, we control for the number of applications from individuals of the same gender as adolescent i in the local labor market of municipality j in school year t . Third, we include eight indicators of occupational tightness (one for each occupational field in the SBN2000 nomenclature) as measures for the relationship between the number of advertised apprenticeship positions and the number of adolescents applying for apprenticeship positions within each occupational field. Fourth, gender tightness represents a measure for the concentration of same-gender apprenticeship applicants. We calculate both the third and fourth measures (i.e., the eight indicators for occupational tightness and gender tightness) at the level of municipality j 's local labor market in school year t as follows (thus using the intuition of Azar et al., 2020):

$$(2) \quad OccTight_{jt}^f = \frac{\frac{N_{fjt}^{open}}{N_{fjt}^{open} + N_{-fjt}^{open}}}{\frac{N_{fjt}^{appl}}{N_{fjt}^{appl} + N_{-fjt}^{appl}}}$$

$$(3) \quad GenderTight_{g[i]jt} = \frac{\frac{\sum_{o=1}^{140} N_{ojt}^{open} s_o^g}{\sum_{o=1}^{140} N_{ojt}^{open}}}{\frac{N_{gjt}^{appl}}{N_{gjt}^{appl} + N_{-gjt}^{appl}}}$$

where f denotes one of eight occupational fields, o denotes one of 140 occupations (with each occupation o belonging to one of the eight occupational fields f), and g denotes an adolescent i 's gender. N^{open} indicates the number of open apprenticeship positions (e.g., N_{fjt}^{open} indicates the number of open apprenticeship positions for occupations belonging to occupational field f in the local labor market of municipality j during school year t), and N^{appl} indicates the number of applications for apprenticeship positions (e.g., N_{gjt}^{appl} indicates the number of applications from adolescents of gender g in the local labor market of municipality j during school year t). S_o^g is the percentage of employees with gender g in occupation o as calculated from the SESAM data (observation years 2005–2015) and ranges between 0 and 1.

Consequently, from Equation (2) we retrieve eight indicators, $OccTight_{jt}^f$, for occupational tightness, that is, one for each of the eight occupational fields f . At the local labor market and school year level, the numerator of $OccTight_{jt}^f$ represents the number of open apprenticeship positions in occupational field f relative to the total number of open apprenticeship positions, and the denominator represents the number of applications for apprenticeship positions in occupational field f relative to the total number of applications. Therefore, if $OccTight_{jt}^f > 1$, the demand for apprentices in occupational field f compared to all other occupational fields $-f$ exceeds the supply, and the opposite holds if $OccTight_{jt}^f < 1$.

Put differently, if $OccTight_{jt}^f > 1$, the competition for apprenticeship positions in occupational field f is lower than that in other occupational fields $-f$ and higher if $OccTight_{jt}^f < 1$. For example, consider a municipality j in year t where firms offer five apprenticeship positions in the occupational field “technical and IT occupations” ($f = 3$) during year t in the municipality j 's local labor market (i.e., $N_{fjt}^{open} = 5$), and these firms receive a total of 12 applications for these positions (i.e., $N_{fjt}^{appl} = 12$). Moreover, firms offer 22 apprenticeship positions in other

occupational fields $-f$, for which they receive 31 applications. In this scenario, $OccTight_{jt}^{f=3} = 0.663$, that is, the number of advertised apprenticeship positions in “technical and IT occupations” in relation to the number of adolescents interested in apprenticeship positions from this occupational field is scarcer than in other occupational fields.

The same logic applies to the indicator of gender tightness $GenderTight_{g[i]jt}$, which we also measure at the local labor market and school year level. The numerator represents the average percentage of same-gender employees in the occupations for which apprenticeship positions are open, and the denominator is the average percentage of same-gender applications for apprenticeship positions. Therefore, if $GenderTight_{g[i]jt} > 1$, the (expected) demand for same-gender apprentices exceeds the supply of same-gender apprentices, and the opposite holds if $GenderTight_{g[i]jt} < 1$.

Finally, we control for time trends common to the entire economy. To do so, we include fixed effects for the school year t during which an adolescent applies for apprenticeship positions.¹⁹ Taken together, the local labor market controls and the school year fixed effects we include in our estimations account for a variety of factors that might influence adolescents’ occupational choices independently of gender norms.

5. Results

The first subsection presents our main results, the estimates for the relationship between social gender norms and the gender typicality of occupational choices. The second subsection checks the robustness of our findings by providing four alternative specifications of our model. The third subsection provides an extension, analyzing the costs that adolescents are willing to bear to avoid the disutility resulting from not conforming to social norms when applying for particular apprenticeship occupations.

Social norms and gender typicality of occupational choices

The OLS results in Table 1 show that the occupational choices of adolescent males correspond to our theoretical expectations—the more traditional the gender norms, the higher the probability of adolescent males’ applying for gender-typical occupations and the lower the probability of their applying for gender-atypical ones. In contrast, the occupational choices of adolescent females do not correspond with our hypothesis. In the OLS regressions, the dependent variables are our three gender-typicality dummies: gender-atypical, gender-typical, and gender-mixed applications. For each dependent variable, Table 1 shows one specification with no control variables and one including regional labor market controls and year fixed effects. We perform the estimations separately by gender and present the results for adolescent males in panel A and those for adolescent females in panel B of Table 1.

Table 1: Gender norms and applications to gender-atypical, gender-typical, and gender-mixed occupations

Panel A: Adolescent Males

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(1)	(2)	(3)	(4)	(5)	(6)
Strength of traditional gender norms	-0.095*** (0.014)	-0.037** (0.017)	0.225*** (0.032)	0.159*** (0.038)	-0.130*** (0.031)	-0.122*** (0.037)
Labor market controls and year fixed effects	No	Yes	No	Yes	No	Yes
R-squared	0.002	0.007	0.002	0.007	0.001	0.004
Number of observations	21597	21597	21597	21597	21597	21597

Panel B: Adolescent Females

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(7)	(8)	(9)	(10)	(11)	(12)
Strength of traditional gender norms	0.019 (0.017)	0.012 (0.019)	-0.246*** (0.034)	-0.156*** (0.039)	0.227*** (0.034)	0.143*** (0.040)
Labor market controls and year fixed effects	No	Yes	No	Yes	No	Yes
R-squared	0.000	0.001	0.003	0.012	0.002	0.011
Number of observations	18266	18266	18266	18266	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km and the occupational tightness of each occupational field within 25 km.

Panel A of Table 1 shows that adolescent males in regions with stronger traditional gender norms are less likely to apply for gender-atypical (i.e., typically female) occupations and are more likely to apply for gender-typical (i.e., typically male) occupations. The coefficient on traditional gender norms is negative for gender-atypical occupations (columns 1 and 2) and positive for gender-typical occupations (columns 3 and 4). Although, when compared to the specifications with no control variables, this coefficient decreases in magnitude in the specifications with regional labor market controls and year fixed effects (column 1 compared to column 2 and column 3 compared to column 4), it remains statistically significant in all specifications. According to the specifications with controls, a ten percentage-point increase in traditional gender norms (i.e., the voter disapproval rate) is related to a 0.37 percentage-point lower probability of applying to gender-atypical occupations and a 1.59 percentage-point higher probability of applying to gender-typical ones. Given that only roughly 5 percent of men in our sample choose a gender-atypical occupation and 51 percent choose a gender-typical occupation, this finding is economically meaningful.

This economic significance becomes even more obvious when considering the municipalities of Geneva and St. Gallen as an example. If St. Gallen (a municipality with a slightly above average strength of traditional gender norms) had gender norms identical to those in Geneva (a municipality with weak traditional gender norms), the probability of adolescent males from St. Gallen choosing a gender-atypical occupation would increase by 11.6%.²⁰ Given the strong robustness of the relationships we find to a variety of alternative specifications and control variables (see section on robustness checks), this economic significance holds despite the rather low R^2 we obtain in our OLS regressions.²¹

Finally, the negative and significant coefficients in columns 5 and 6 indicate that adolescent males in regions with stronger traditional gender norms are less likely to apply not

only for gender-atypical occupations but also for gender-mixed occupations. Taken together, the results for adolescent males are in line with our theoretically derived hypothesis.

Panel B of Table 1 presents the estimates for adolescent females. Unlike adolescent males, adolescent females in regions with stronger traditional gender norms are neither less likely nor more likely to apply for gender-atypical occupations and are less likely to apply for gender-typical ones. The coefficient on traditional gender norms is positive but insignificant for gender-atypical occupations in both the specification with no control variables (column 7) and the one with regional labor market controls and year fixed effects (column 8).²² For gender-typical occupations, although smaller in magnitude in the specification with controls (column 10), this coefficient is negative and significant in both specifications. Moreover, the positive and significant coefficients in columns 11 and 12 indicate that adolescent females in regions with stronger traditional gender norms are more likely to apply for gender-mixed occupations. In sum, the results for adolescent females are not in line with our theoretically derived hypothesis.

Together, these two findings suggest that adolescent males align their occupational choices more strongly with regional gender norms than adolescent females (Table A4 in the Appendix, which shows significant interaction effects of traditional norms with gender, supports this conclusion). The numerous programs, campaigns, and educational measures aimed at raising adolescent females' interest in STEM occupations on one hand and the predominant absence of similar gender-atypical measures for adolescent males on the other might explain this finding.²³

In addition, two further explanations might add to explaining our findings.²⁴ First, girls may be more permeable to a feminist discourse, even though this discourse addresses the whole population. Second, one could suspect that differences in the characteristics of typically male and typically female occupations might partly explain our results. Specifically, typically male

occupations could be more desirable not only in terms of wages (see subsection *The Role of Wage Discrimination in Occupational Choice*) but also in terms of prestige and working conditions. However, survey evidence and descriptive statistics from Switzerland suggest that this explanation is unlikely to hold in the context of VET in Switzerland. Regarding prestige, Abrassart and Wolter (2020) show that typically male VET occupations are not generally ranked higher than typically female VET occupations.²⁵ Regarding differences in working conditions, data from the Swiss Federal Statistical Office based on the Swiss Health Survey suggest that men are not in jobs with better (or worse) working conditions than women (SFSO, 2019).²⁶ Therefore, compared to prestige or working conditions, differences in programs and campaigns targeted at girls (but not at boys) and girls potentially being more permeable to a feminist discourse are more likely to explain our finding that adolescent males align their occupational choices more strongly with regional gender norms than adolescent females. Yet, despite this potential explanation for the non-existent relationship between regional gender norms and females' applications for gender-atypical occupations, the finding that adolescent females in more traditional regions are less likely to apply for gender-typical occupations remains puzzling. A closer look reveals that these adolescent females instead apply for gender-mixed occupations.

We offer a possible explanation for this finding. The most common gender-mixed occupations are “commercial employee” and “retail employee,” two occupations that include a broad spectrum of formal specialization tracks (e.g., the occupation “retail employee” has 30 different specialization tracks) that none of the other occupations offer. Within these two occupations, typically female specialization tracks (e.g., “retail employee perfumery”) and typically male specialization tracks (e.g., “retail employee electronics”) exist. These occupations are thus unique as they offer in some specializations typically female and in other specializations typically male attributes. However, as the SESAM data does not include any

information on these specializations, we are unable to include them in our analysis. Thus potential gender norms effects within these occupations (e.g., if adolescent females in regions with stronger traditional norms are more likely to choose female specialization tracks within these two occupations) will not show up in our results and are likely to explain our (at first glance) somewhat counter-intuitive finding that adolescent females in more traditional regions are more likely to apply for gender-mixed occupations. However, as these specializations do not affect gender-atypical occupations, our results on gender-atypical occupations still provide reliable evidence of adolescent females aligning their occupational choices less with gender norms than adolescent males.

Robustness Checks

To check the robustness of our findings, we estimate five alternative specifications of our model as defined in Section 4. First, we test for an alternative, economic explanation of the occupational choice patterns we find. We therefore investigate whether adolescents—when choosing their occupation—anticipate potential wage discrimination in gender-atypical occupations and therefore shy away from them. Second, we assess whether gender discriminatory rejections of gender-atypical applications by firms might potentially bias subsequent applications by adolescents. Third, to account for potential misspecification of our dependent variables, we use an alternative operationalization of gender typicality. Fourth, we check whether regional differences in the size of the three categories of occupational gender typicality drive our findings. Fifth, to test for potential changes in gender norms over time, we use alternative measures for gender norms from more recent constitutional referenda.²⁷

The Role of Wage Discrimination in Occupational Choice

Social gender norms may lead to discriminatory behavior (e.g., Janssen et al., 2016), which in turn would potentially influence the gender typicality of occupational choices. One type of

discriminatory behavior is wage discrimination (e.g., Bryson et al., 2021; Hurst et al., 2021; Jarrell & Stanley, 2004), which might influence our results if, for example, adolescent females are discouraged from entering certain occupations with pronounced gender pay gaps. If adolescents are already aware of (a) the average wages they will receive in an occupation and (b) potential gender differences in these wages (i.e., their gender-dependent expected earnings after having completed an apprenticeship program), they might adjust their occupational choice to minimize wage discrimination. Put differently, adolescent females would apply primarily for occupations in which the expected wage differential between men and women is smaller, and adolescent males would do the opposite. If so, our main findings would stem from differences in gender-related wage discrimination originating in gender norms rather than from gender norms per se.

Therefore, we repeat our analysis and include a measure of the gender wage differential in the occupations for which an adolescent applies. This measure indicates whether the gender wage differential is more favorable for the adolescent's gender in the occupations for which that adolescent applies. In constructing this measure, we account for the characteristics of the local labor market surrounding the adolescent's municipality of residence. Specifically, the measure compares the gender wage differential in the occupations the adolescent applies for to the gender wage differential in the occupations for which open apprenticeship positions are available within the local labor market. We calculate this measure as follows:

$$(4) \quad RelWageDiff_{i[gjt]} = \frac{\frac{\sum_{o=1}^{140} \min(N_{io}^{appl}, 1) \frac{w_o^g}{w_o^{-g}}}{\sum_{o=1}^{140} \min(N_{io}^{appl}, 1)}} - 1$$

$$\frac{\sum_{o=1}^{140} \min(N_{jot}^{open}, 1) \frac{w_o^g}{w_o^{-g}}}{\sum_{o=1}^{140} \min(N_{jot}^{open}, 1)}$$

where $RelWageDiff_{i[gjt]}$ is the relative wage differential to consider for adolescent i who has gender g , lives in municipality j , and looks for an apprenticeship position in school year t . The

index o determines the occupation of an open apprenticeship position. N_{io}^{appl} denotes the number of applications of adolescent i for occupation o , and N_{jot}^{open} denotes the number of open apprenticeship positions in occupation o available within 25 km of municipality j in year t . From the SESAM data (2005 through 2015), we retrieve W_o^g , which indicates the average full-time equivalent monthly wage of workers in occupation o with the same gender g as adolescent i , and W_o^{-g} , the average full-time equivalent monthly wage of workers in occupation o with a different gender $-g$ than adolescent i . We calculate the full-time equivalent monthly wage by adjusting it for a worker's employment level. $RelWageDiff_{i[gjt]} > 0$ if the gender wage differential in the occupations for which an adolescent i applies is more favorable for adolescent i 's own gender g . $RelWageDiff_{i[gjt]} < 0$ if the gender wage differential is more favorable for the other gender $-g$. Because $\min(N_{jot}^{open}, 1) = 1$ if $N_{jot}^{open} \geq 1$ and $\min(N_{io}^{appl}, 1) = 1$ if $N_{io}^{appl} \geq 1$, $RelWageDiff_{i[gjt]}$ is an unweighted measure, which considers each occupation only once to avoid biases resulting from the structure of the local labor market.²⁸

For example, consider a female adolescent in a local labor market with four open apprenticeship positions: one as an electrician, one as a medical practice assistant, and two as a mechanic. Effectively, she has three occupations to choose from. The average monthly wage of female electricians ($W_{electrician}^g$) is CHF 5,656 and that of male electricians ($W_{electrician}^{-g}$) CHF 6,106. Moreover, $W_{medical\ practice\ assistant}^g =$ CHF 5,691, $W_{medical\ practice\ assistant}^{-g} =$ CHF 4,279, $W_{mechanic}^g =$ CHF 4,931, and $W_{mechanic}^{-g} =$ CHF 6,683. If the adolescent applies only for the apprenticeship as a medical practice assistant, $RelWageDiff_{i[gjt]} = 0.33$ (and thus $RelWageDiff_{i[gjt]} > 0$), because—relative to the average wage differential in her local labor market—she is applying for an occupation with a wage differential favorable to her own gender. If she applies for both positions as a mechanic, $RelWageDiff_{i[gjt]} = -0.26$.

Taken together, the described measure is an indicator for the wage differential in the occupations for which an adolescent applies relative to the wage differential in the occupations for which the adolescent could apply (i.e., the occupations available within the adolescent's local labor market). When we include this measure in our regression, the effect of expected wage discrimination on occupational choice is separated from the effect of gender norms. Doing so allows us to assess whether our main findings stem from differences in gender-related wage discrimination originating in gender norms or from gender norms per se.

Table 2 shows that our main results remain robust to including our measure for the gender wage differential. Although in some of the regressions the coefficients on traditional gender norms decrease in magnitude, they remain statistically significant. For example, adolescent males living in regions with more traditional gender norms still have a higher probability of choosing gender-typical occupations (coefficient in column 4 decreases by 0.054 compared to column 3 but remains statistically highly significant). Therefore, wage discrimination does not explain the relationship between gender norms and the gender typicality of occupational choices.

Table 2: Robustness check including wage differential measure

Panel A: Adolescent Males

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(1)	(2)	(3)	(4)	(5)	(6)
Strength of traditional gender norms	-0.037** (0.017)	-0.036** (0.017)	0.159*** (0.038)	0.105*** (0.032)	-0.122*** (0.037)	-0.069** (0.032)
Labor market controls and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Wage differential		0.013 (0.019)		-1.393*** (0.058)		1.380*** (0.075)
R-squared	0.007	0.007	0.007	0.258	0.004	0.254
Number of observations	21597	21597	21597	21597	21597	21597

Panel B: Adolescent Females

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(7)	(8)	(9)	(10)	(11)	(12)
Strength of traditional gender norms	0.012 (0.019)	0.017 (0.018)	-0.156*** (0.039)	-0.144*** (0.038)	0.143*** (0.040)	0.127*** (0.038)
Labor market controls and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Wage differential		0.201*** (0.008)		0.476*** (0.019)		-0.677*** (0.018)
R-squared	0.001	0.034	0.012	0.058	0.011	0.104
Number of observations	18266	18266	18266	18266	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015. Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km and the occupational tightness of each occupational field within 25 km.

In addition, Table 2 provides interesting insights on how wage discrimination relates to the gender typicality of adolescents' occupational choices. For adolescent males, a look at the coefficients on the measure of the relative wage differential reveals that a gender wage differential more favorable to men in the occupations they apply for—in comparison to the occupations available in the local labor market—negatively relates to the probability of their choosing a typically male occupation and positively relates to the probability of their choosing a gender-mixed occupation. For adolescent females, the coefficients on the gender wage differential point in the opposite direction. These findings are not surprising, because the difference between men's and women's wages is higher in gender-mixed occupations than in typically male occupations (see descriptive statistics in Tables A2 and A3 in the Appendix).

Therefore, men who base their occupational choice on expected earnings are more likely to apply for gender-mixed occupations than for typically male occupations because—compared to women—they can potentially achieve higher earnings in these occupations. Likewise, adolescent females are less likely to apply for gender-mixed occupations because—compared to men—they will potentially achieve lower earnings in these occupations. However, these additional insights on wage discrimination are independent of the relationship between gender norms and the gender typicality of occupational choices.

Unbiased First Applications vs. Potentially Biased Follow-Up Applications Due to Discriminatory Rejections

Another type of gender discriminatory behavior potentially induced by gender norms is training firm rejections of gender-atypical applications. Training firms in regions with stronger traditional gender norms could be more likely to reject gender-atypical applications, and therefore adolescents might adjust their application strategy in response to the rejection of a first application. While we are not able to observe whether an application has been rejected, we can indirectly test this explanation by including only the first application to ever go through

our database for each adolescent. Compared to later applications, the occupational choice of this first application remains undistorted by any potential rejections. Thus, if gender discriminatory rejections played a role, the results from first applications could differ from the results of all applications that we described in the main analysis.

However, Table 3 shows that our results remain very robust when we include only first applications. In regions with more traditional gender norms, adolescent males are more likely to choose a gender-typical occupation in their first application and less likely to choose a gender-mixed or a gender-atypical occupation. In contrast, adolescent females in these regions are more likely to choose a gender-mixed occupation and less likely to choose a gender-typical occupation. As the pattern of these results is thus similar to that of our main results, gender discriminatory rejections by training firms do not appear to explain the relationship between gender norms and occupational choice.

Alternative Operationalization of Gender Typicality

To further check the robustness of our results, we replace our outcome variable by using a continuous dependent variable for gender typicality instead of dummy variables for high or low gender typicality. The alternative operationalization of gender typicality as a continuous variable does not suffer from the potential drawback of somewhat arbitrary cut-off points (see section 4).

The continuous gender typicality variable measures the average percentage of same-gender employees in the occupation(s) for which an adolescent applies and varies between 0 and 1. Table 4 shows the results of our using the continuous measure. These results are consistent with our main results. While an increase in traditional gender norms is related to a significant increase in the gender typicality of occupations for adolescent males (columns 1 and 2), it is related to a significant decrease in the gender typicality of occupations for adolescent females (columns 3 and 4).

While our results do not depend on how we operationalize gender typicality, we decided to use gender typicality categories rather than the continuous measure in our main analyses for two reasons. First, it allows us to analyze how social norms affect occupational choices at the ends of the gender-typicality distribution. Second, using gender typicality-categories instead of a continuous measure corresponds to the standard procedure both in research (i.e., in the economic and sociological literature on the gender typicality of occupations; Hultin, 2003; Joy, 2006; Leuze & Strauß, 2016) and practice (e.g., the definition of gender-typical occupations by Germany's anti-discrimination agency). Therefore, we increase the comparability of our study to the previous literature by using gender-typicality categories as well.

Table 3: Robustness check including only the first application of each individual

Panel A: Adolescent Males

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(1)	(2)	(3)	(4)	(5)	(6)
Strength of traditional gender norms	-0.113*** (0.014)	-0.061*** (0.017)	0.209*** (0.032)	0.136*** (0.038)	-0.130*** (0.031)	-0.122*** (0.037)
Labor market controls and year fixed effects	No	Yes	No	Yes	No	Yes
R-squared	0.003	0.007	0.002	0.008	0.001	0.004
Number of observations	21597	21597	21597	21597	21597	21597

Panel B: Adolescent Females

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(7)	(8)	(9)	(10)	(11)	(12)
Strength of traditional gender norms	0.025 (0.018)	0.014 (0.020)	-0.238*** (0.034)	-0.155*** (0.039)	0.227*** (0.034)	0.143*** (0.040)
Labor market controls and year fixed effects	No	Yes	No	Yes	No	Yes
R-squared	0.000	0.001	0.003	0.011	0.002	0.011
Number of observations	18266	18266	18266	18266	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25km and the occupational tightness of each occupational field within 25km.

Table 4: Robustness check with continuous measure of gender typicality

Dependent Variable:	<i>Adolescent Males</i>		<i>Adolescent Females</i>	
gender typicality	(1)	(2)	(3)	(4)
Strength of traditional gender norms	0.128*** (0.017)	0.087*** (0.020)	-0.081*** (0.015)	-0.053*** (0.017)
Labor market controls and year fixed effects	No	Yes	No	Yes
R-squared	0.003	0.007	0.002	0.007
Number of observations	21597	21597	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km and the occupational tightness of each occupational field within 25 km.

Variation in the size of occupations' gender-typicality categories

Given the variation in the number of occupations and job ads across the three typicality categories (typically female, typically male, and gender-mixed occupations; see section 4), we perform a robustness check to ensure that this variation does not explain our findings on gender norms. In this robustness check, we include additional control variables for the size of each category in the local labor market of an adolescent's municipality. More specifically, we include the percentage of job ads for typically female apprenticeship positions and the percentage of job ads for typically male apprenticeship positions.

Table 5 contains the estimation results of the robustness check and shows that our results remain robust to including the size of the three categories. Thus, even though the typicality categories vary in size and across municipalities' local labor markets, this variation does not drive our findings on the relationship between gender norms and adolescents' occupational choices.

Alternative Measures for Gender Norms

To evaluate the sensitivity of our main analysis to alternative and more recent measures for gender norms, we also repeat our analysis with the three later referenda (2000, 2013, and 2020) described in Section 3. The regression results for all three alternative measures in Table 6 confirm our main results. Regardless of which year or constitutional referendum we choose, adolescent males living in regions with stronger traditional gender norms are consistently and significantly more likely to apply for gender-typical occupations (panel A, columns 4-6) and less likely to apply for gender-atypical (panel A, columns 1-3) or gender-mixed occupations (panel A, columns 7-9). Likewise, consistent with our main results, adolescent females living in regions with stronger traditional gender norms are neither less likely nor more likely to apply for gender-atypical occupations (panel B, columns 10-12), less likely to apply for gender-

typical occupations (panel B, columns 13-15), and more likely to apply for gender-mixed occupations (panel B, columns 16-18).

Our main results are thus robust to more recent measures for gender norms. Given the smaller sizes of the coefficients in our main specification with the 1981 voting outcome, this finding is in line with the expectation that using this earlier voting outcome produces lower-bound estimates. Moreover, the strong robustness of our results to measures for gender norms that stretch over 40 years emphasizes the importance of prevailing gender norms for adolescents' occupational choices.

Table 5: Robustness check accounting for size of gender typicality categories

Panel A: Adolescent Males						
Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(1)	(2)	(3)	(4)	(5)	(6)
Strength of traditional gender norms	-0.037** (0.017)	-0.034** (0.017)	0.159*** (0.038)	0.153*** (0.038)	-0.122*** (0.037)	-0.119*** (0.038)
Labor market controls and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Typically male category size		-0.052 (0.079)		0.327 (0.207)		-0.274 (0.205)
Typically female category size		0.088 (0.090)		-0.082 (0.181)		-0.006 (0.180)
R-squared	0.007	0.007	0.007	0.007	0.004	0.004
Number of observations	21597	21597	21597	21597	21597	21597

Panel B: Adolescent Females						
Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(7)	(8)	(9)	(10)	(11)	(12)
Strength of traditional gender norms	0.012 (0.019)	0.001 (0.019)	-0.156*** (0.039)	-0.164*** (0.040)	0.143*** (0.040)	0.163*** (0.041)
Labor market controls and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Typically male category size		0.145*** (0.054)		0.254** (0.107)		-0.399*** (0.106)
Typically female category size		-0.079 (0.091)		0.153 (0.166)		-0.075 (0.169)
R-squared	0.001	0.001	0.012	0.012	0.011	0.011
Number of observations	18266	18266	18266	18266	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015. Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km, and the occupational tightness of each occupational field within 25 km.

Table 6: Robustness check with alternative measures of gender norms

<i>Panel A: Adolescent Males</i>									
Dependent Variable:	gender-atypical occupations			gender-typical occupations			gender-mixed occupations		
	2000 (1)	2013 (2)	2020 (3)	2000 (4)	2013 (5)	2020 (6)	2000 (7)	2013 (8)	2020 (9)
Strength of traditional gender norms	-0.149*** (0.031)	-0.079*** (0.017)	-0.079*** (0.016)	0.283*** (0.061)	0.197*** (0.036)	0.199*** (0.035)	-0.134** (0.061)	-0.117*** (0.036)	-0.120*** (0.034)
Labor market controls and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.008	0.008	0.008	0.007	0.007	0.008	0.004	0.004	0.004
Number of observations	21597	21597	21597	21597	21597	21597	21597	21597	21597

<i>Panel B: Adolescent Females</i>									
Dependent Variable:	gender-atypical occupations			gender-typical occupations			gender-mixed occupations		
	2000 (10)	2013 (11)	2020 (12)	2000 (13)	2013 (14)	2020 (15)	2000 (16)	2013 (17)	2020 (18)
Strength of traditional gender norms	0.010 (0.031)	0.011 (0.018)	0.017 (0.018)	-0.327*** (0.065)	-0.208*** (0.038)	-0.195*** (0.036)	0.317*** (0.065)	0.196*** (0.038)	0.178*** (0.036)
Labor market controls and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.001	0.001	0.001	0.012	0.012	0.012	0.011	0.012	0.011
Number of observations	18266	18266	18266	18266	18266	18266	18266	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km and the occupational tightness of each occupational field within 25 km.

Individual costs of social norms

While our main analysis shows that gender norms relate to the gender-typical occupational choices of adolescent males as theoretically expected, in an additional analysis we take a closer look at the costs that adolescent males and females are willing to bear to avoid the disutility resulting from not conforming to social norms. As discussed in section 2, violations of social norms are expected to lead to an identity loss and thus a loss in utility (Akerlof & Kranton, 2000). While measuring or quantifying identity and utility losses is difficult, we use the detailed regional information on individuals and firms in our data to explore an important cost component of an individual's apprenticeship decision: the commuting distance the individual is willing to bear to avoid this utility loss. We use commuting distance as a proxy for individual costs in the context of occupational choice, because the proximity from home to prospective work is one of the most important decision criteria adolescents use when choosing an apprenticeship position (Ebner et al., 2006; Neuenschwander et al., 2007; Oswald & Backes-Gellner, 2014).²⁹ Moreover, people in general dislike applying for distant jobs or to distant educational institutions (e.g., Dee, 2004; Le Barbanchon et al., 2021; Marinescu & Rathelot, 2018; Pocock et al., 2012). We argue that, in the context of occupational choice, the disutility of not conforming to gender norms may be reduced in two ways, both of which involve bearing higher commuting costs.

First, the disutility resulting from not conforming to gender norms may be reduced by bearing higher commuting costs (i.e., applying farther away from home) to increase the chances of obtaining an apprenticeship position in a gender-typical occupation and thus increase the chances of confirming one's gender identity. In other words, adolescents may need to trade off the costs of identity loss with commuting costs, paying for a greater probability of receiving an apprenticeship position in a gender-typical occupation with a longer expected commuting distance.

Whether adolescents are likely to be willing to do so depends on the strength of traditional gender norms in a region. The more traditional the gender norms in a region, the stronger the expectations for women (men) to work in occupations typically associated with women (men) and the higher the likely identity loss when an individual violates these norms (Akerlof & Kranton, 2000). Thus we expect that the more traditional the gender norms of a region, the greater the distance adolescents living in that region will be willing to commute to find an apprenticeship position in a gender-typical occupation.

Second, when adolescents prefer gender-atypical occupations, the disutility from not conforming to gender norms may be reduced by bearing higher commuting costs (i.e., applying farther away from home) to avoid dissonance with local social norms. The experimental literature on social norms finds that self-image concerns related to deviating from social norms are stronger when the individual knows the group members personally (Zafar, 2011). Thus, if adolescents work in a gender-atypical occupation in the immediate home region, where everyone knows them and can observe daily that they are deviating from the local gender norms (e.g., a male working as a dental hygienist at the local dentist's office), those adolescents might experience stronger discomfort than if they were working in a location where hardly anyone knows them. Therefore, to reduce negative consequences, gender norm-deviating adolescents might choose an apprenticeship position farther away from home.

Whether adolescents are likely to be willing to do so depends on the degree of traditional gender norms in a region. The more traditional the gender norms in a region, the stronger the negative consequences are likely to be when an individual violates them (Akerlof & Kranton, 2000) and the more willing that individual is likely to be to find a job opening farther from home. Thus we expect that the more traditional the gender norms of a region, the greater the distance adolescents living in this region will be willing to commute to find an apprenticeship position in a gender-atypical occupation.

To test whether adolescents who prefer (a) gender-typical occupations or (b) gender-atypical occupations are willing to commute a greater distance in regions with stronger traditional gender norms, we specify the following regression equation:

$$(5) \quad Distance_{i[jt]} = \beta_0 + \beta_1 GenderNorms_j + \beta_2 Atypical_i + \beta_3 Typical_i + \\ \beta_4 (GenderNorms_j * Atypical_i) + \beta_5 (GenderNorms_j * Typical_i) + \beta_6 X_{ijt} + \\ \beta_7 t + \nu_i$$

where $Distance_i$ is the average commuting distance in km from the adolescent's residence to the training location of the apprenticeship position(s) an adolescent i applies for. $Atypical_i$ denotes applications to gender-atypical occupations and takes the value 1 if the average percentage of same-gender employees in the apprenticeship occupation(s) an adolescent applies for is below 30% and 0 otherwise. $Typical_i$ denotes applications to gender-typical occupations and takes the value 1 if the average percentage of same-gender employees in the occupation(s) an adolescent applies for is above 70% and 0 otherwise. The coefficients of interest are β_4 and β_5 , which capture the interaction effects between traditional gender norms and applications to gender-atypical or gender-typical occupations, respectively.

Results for Adolescent Males

Panel A of Table 7 presents the results for adolescent males. In line with our theoretical expectation, it shows that the more traditional the gender norms of a region are, the greater is the distance that adolescent males living in this region are willing to commute to find an apprenticeship position in a gender-atypical occupation. The coefficients on the interaction of social norms with applications mainly to gender-atypical occupations are positive and significant. However, adolescent males in regions with stronger traditional gender norms are not willing to commute longer distances to find an apprenticeship position in a gender-typical occupation. The coefficients on the interaction of social norms with applications mainly to

gender-typical occupations are insignificant (column 1), respectively slightly significantly negative (column 2).

These findings for adolescent males imply that deviations from gender norms are particularly costly when adolescent males choose gender-atypical occupations: They are willing to commute a longer distance, possibly to avoid dissonance with local gender norms. A simple back-of-the-envelope calculation demonstrates that the costs of this longer commuting distance—measured against wages—are economically relevant. The interaction effect of 24.6 km corresponds to an average commuting time of 24.4 minutes one way, so 48.4 minutes per day.³⁰ With an average monthly wage of 920 CHF³¹ and approx. 29 weekly working hours, the 48.4 minutes longer commute in regions with stronger traditional gender norms corresponds to opportunity costs of 11.1% of an average monthly wage. In comparison, adolescent males in more traditional regions are not willing to trade off a greater commuting distance with a greater chance of receiving an apprenticeship position in a gender-typical occupation.

Results for Adolescent Females

Panel B of Table 7 presents the estimates for adolescent females. The more traditional the gender norms of a region, the greater the distance adolescent females living in this region are willing to commute to find an apprenticeship position in a gender-typical occupation. The coefficients on the interaction of gender norms with applications mainly to gender-typical occupations are positive and significant. However, unlike adolescent males, adolescent females in regions with stronger traditional gender norms are not willing to commute longer to find an apprenticeship position in a gender-atypical occupation. The coefficients on the interaction of social norms with applications to gender-atypical occupations are insignificant.

In comparison to the results for adolescent males, these results indicate that adolescent females are not willing to accept higher commuting costs for avoiding dissonance with gender

norms. Thus adolescent females who choose a gender-atypical occupation do not apply farther away from home. However, while our main analysis shows that adolescent females on average do not align their occupational choices with regional gender norms, those girls who still prefer gender-typical occupations are willing to “pay a higher price” (i.e., accept a longer commute) the stronger the traditional gender norms in their region.

Again, a simple calculation demonstrates that the costs of this longer commuting distance—measured against wages—are economically relevant. The interaction effect of 13.1 km corresponds to a commuting time of 26.1 minutes per day and opportunity costs of 6.0% of an average monthly wage.

Table 7: Interactions of gender norms with gender typicality on average travel distance

Panel A: Adolescent Males

Dependent Variable:	average travel distance	
	(1)	(2)
Strength of traditional gender norms	24.177*** (2.162)	20.780*** (2.501)
Applications to atypical occupations (<i>Atypical</i>)	-5.787 (3.668)	-7.104* (3.673)
Applications to typical occupations (<i>Typical</i>)	2.129* (1.292)	3.152** (1.290)
Strength of traditional gender norms * Atypical	21.577** (9.578)	24.577** (9.591)
Strength of traditional gender norms * Typical	-2.513 (3.034)	-4.522 (3.021)
Labor market controls and year fixed effects	No	Yes
R-squared	0.016	0.035
Number of observations	21597	21597

Panel B: Adolescent Females

Dependent Variable:	average travel distance	
	(3)	(4)
Strength of traditional gender norms	26.123*** (2.466)	14.933*** (3.319)
Applications to atypical occupations (<i>Atypical</i>)	0.187 (2.899)	2.949 (2.877)
Applications to typical occupations (<i>Typical</i>)	-4.986*** (1.458)	-4.599*** (1.444)
Strength of traditional gender norms * Atypical	1.793 (6.662)	-3.926 (6.601)
Strength of traditional gender norms * Typical	13.299*** (3.478)	13.129*** (3.443)
Labor market controls and year fixed effects	No	Yes
R-squared	0.023	0.058
Number of observations	18266	18266

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km, and the occupational tightness of each occupational field within 25 km.

In sum, this additional analysis underscores that deviating from social norms relates to a loss in utility, which we measure by using the extent of individual (commuting) costs that adolescents are willing to bear to avoid such a loss. However, once again we find gender differences. While adolescent females in regions with stronger traditional gender norms are willing to commute a longer distance for gender-typical occupations, adolescent males in those regions are willing to commute a longer distance for gender-atypical occupations, possibly to escape dissonance with local gender norms.³²

6. Conclusion

To analyze the relationship between social gender norms and the gender typicality of adolescents' occupational choices, we combine information on regional voting results from constitutional referenda on gender equality with job application data from the largest Swiss job board for apprenticeship positions. We find that in regions with stronger traditional gender norms, adolescent males are more likely to apply for typically male occupations (e.g., electrician or mechanical engineer) and less likely to apply for typically female occupations (e.g., healthcare or childcare worker). For adolescent females, however, this relationship does not hold. Our findings remain robust when we account for (a) the regional labor market situation of individuals (e.g., the regional availability of the respective occupations), (b) possible discrimination in certain occupations, or (c) alternative measures for social norms.

Our findings suggest that adolescent males align their occupational choices more strongly with regional gender norms than adolescent females. While in light of Akerlof and Kranton's (2000) identity economics theory this finding may first appear surprising, it is in line with other studies finding that, on average, men nowadays adhere to gender norms more strongly than women (e.g., Barth et al., 2015; Gianettoni et al., 2015; OECD, 2021; Osikominu et al., 2019). For occupational choices, our finding may be attributable to the success of longstanding

educational measures aimed at raising (a) girls' interest in STEM occupations and (b) awareness of gender stereotyping (e.g., Quaiser-Pohl, 2012). For boys, similar measures have largely been missing (e.g., Forsman & Barth, 2017).

Our study contributes to prior literature on gender-typical occupational choices in four ways. First, as the market for apprenticeship positions in Switzerland works similarly to the regular labor market, we study real-life occupational choices that the application data reveal. These occupational choices are unconfounded by firms' hiring decisions and go beyond survey-based measures of occupational aspirations. Second, we provide representative results for the entire market for apprenticeship positions because Yousty.ch covers 90% of all online job advertisements for apprenticeship positions and 70% of all students enter an apprenticeship program in Switzerland. Therefore, these results are likely representative not only for Switzerland but also for other countries with dual VET systems such as Austria, Denmark, Germany, and an increasing number of countries that are currently introducing apprenticeships. Third, we study the overall role of gender norms in a region, thus going beyond studying explanatory factors in individual pathways through which social norms may be transmitted (e.g., family factors; for an overview see Bisin & Verdier, 2011). Fourth, the detailed process-generated job application data allow us to estimate the relationship between social norms and occupational choices under consideration of local labor market characteristics, thus enabling us to rule out mere labor market-based explanations for the relationship between social norms and occupational choices.

Our results underscore the importance of policies that take social gender norms into account in the context of targeting labor market outcomes. Furthermore, while past policies and interventions regarding the gender typicality of occupational choices have almost exclusively focused on girls, our results indicate that such interventions also need to target boys' occupational choices (e.g., encouraging boys to consider occupations in high-growth

sectors such as health and education). Incentivizing boys to break with traditional gender norms can be as crucial, or even more so, for labor market advancement toward gender equality as incentivizing girls.

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Appendix

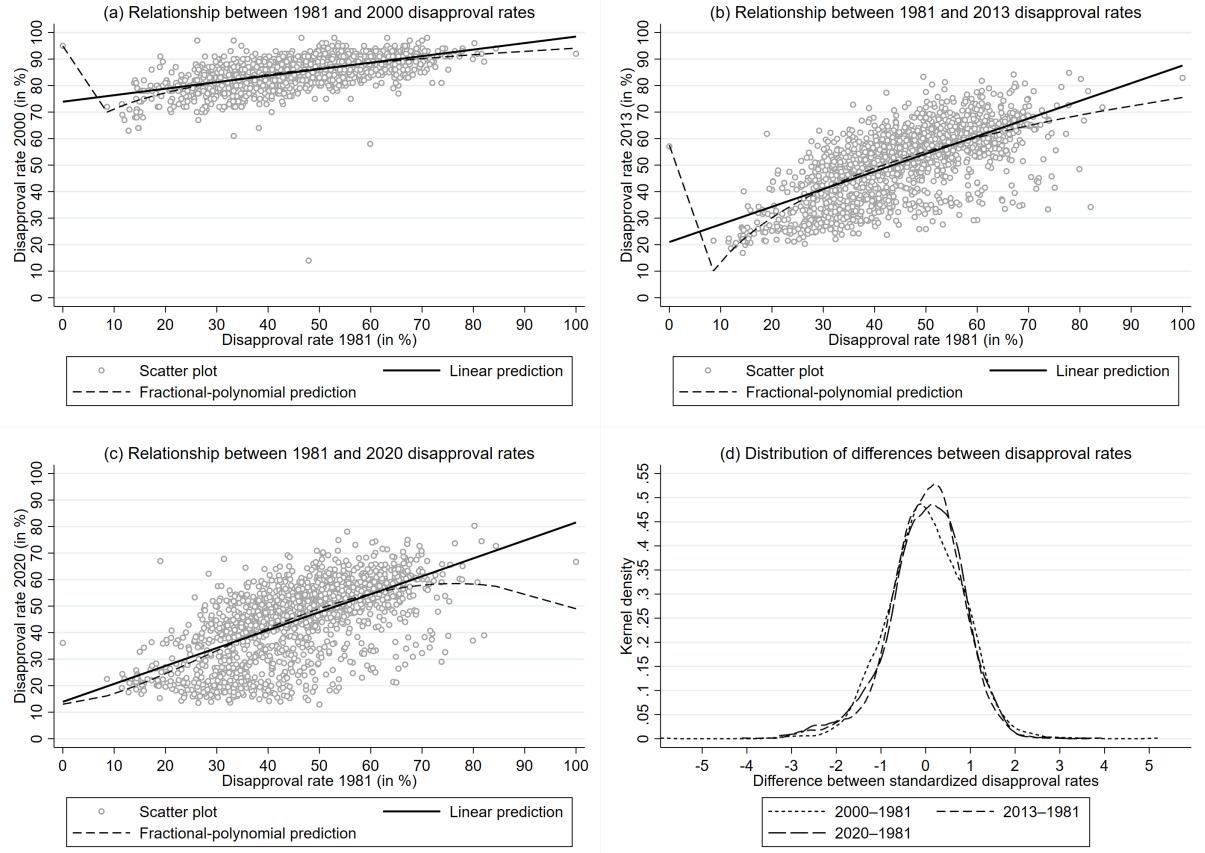


Figure A1. Relationship between 1981 disapproval rate and disapproval rates from later constitutional referenda

Source: Authors' illustration with voting data from the Swiss Federal Statistical Office

Note: For better illustration, one outlier observation of the demeaned difference between the 2000 and 1981 disapproval rates is outside the x-axis scale of Fig. A1d.

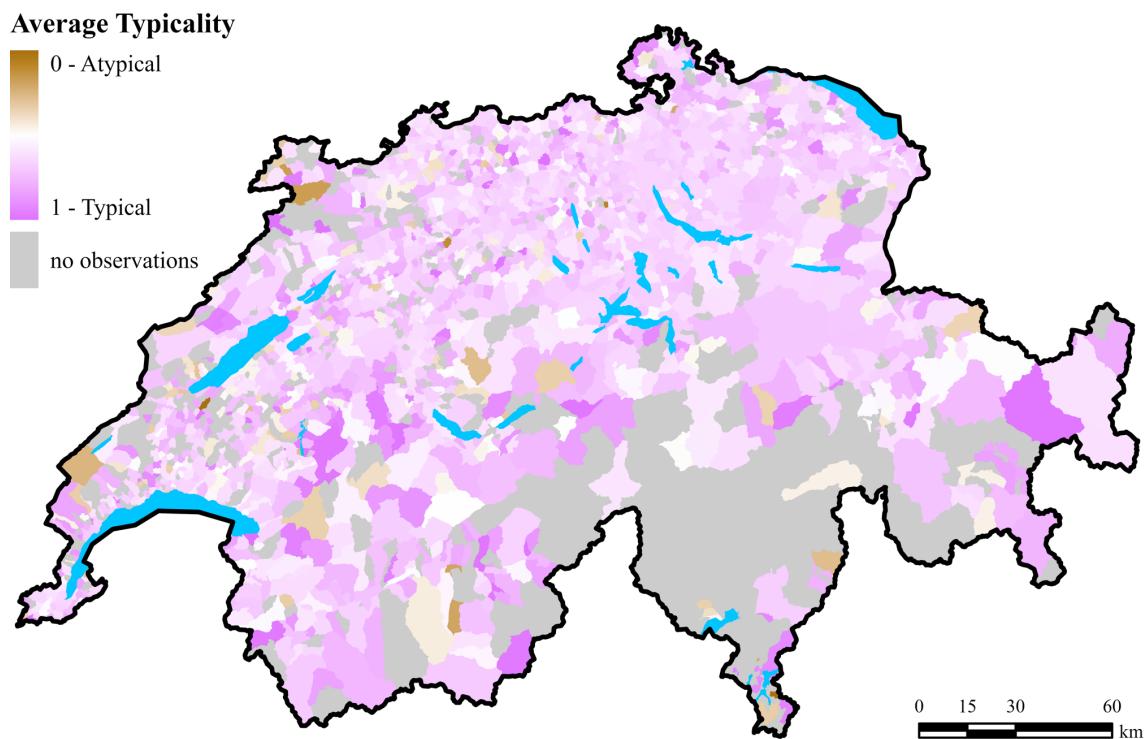


Figure A2. Regional variation in gender typicality of occupational choices across municipalities.

Source: Authors' illustration based on apprenticeship application data from Yousty.ch and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: The figure shows the average gender typicality of occupational choices in each municipality, measured as the percentage of same-gender employees (as reported in the SESAM data) in the occupations for which adolescents applied. The figure shows municipalities with no observations (in grey) for two reasons: (1) they are situated predominantly in mountain regions with very sparsely inhabited municipalities or (2) they are situated in the Italian-speaking part of Switzerland.³³

Table A1: Descriptive statistics

variable	total		adolescent males		adolescent females	
	mean	SD	mean	SD	mean	SD
Age	15.92	1.202	15.89	1.195	15.94	1.208
Number of applications	5.05	7.725	5.06	7.741	5.04	7.706
Gender-typical occupational choice	0.47	0.499	0.51	0.500	0.43	0.496
Gender-atypical occupational choice	0.06	0.235	0.05	0.222	0.07	0.249
Gender-mixed occupational choice	0.47	0.499	0.44	0.496	0.50	0.500
N	39,863		21,597		18,266	

Source: Author's calculations based on apprenticeship application data from Yousty.ch and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Table A2: Gender wage gap by gender typicality in occupations

Occupations:	typically female mean	typically male mean	gender-mixed mean
Wage difference in CHF	2007	1091	1423

Notes: Gender wage gap (average male wage – average female wage) based on the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Table A3: Relative wage differential measure by gender and gender typicality in occupations for which an individual applied

Occupations:	overall mean	typically female mean	typically male mean	gender-mixed mean
men	-.036	-.028	-.125	.066
women	-.060	-.004	.094	-.129

Source: Author's calculations based on apprenticeship application data from Yousty.ch and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: Relative wage differential measure as described in section "Robustness Checks".

Table A4: Interaction of gender with gender norms on gender typicality of applications

Dependent Variable:	gender-atypical occupations		gender-typical occupations		gender-mixed occupations	
	(1)	(2)	(3)	(4)	(5)	(6)
Strength of traditional gender norms	0.019 (0.017)	0.028 (0.018)	-0.246*** (0.034)	-0.205*** (0.037)	0.227*** (0.034)	0.177*** (0.038)
Gender (male=1)	0.032*** (0.009)	0.031*** (0.011)	-0.116*** (0.020)	-0.118*** (0.022)	0.084*** (0.020)	0.087*** (0.022)
Gender*strength of trad. gender norms	-0.114*** (0.022)	-0.090*** (0.024)	0.472*** (0.046)	0.443*** (0.050)	-0.357*** (0.046)	-0.353*** (0.051)
Labor market controls and year fixed effects	No	Yes	No	Yes	No	Yes
R-squared	0.002	0.003	0.008	0.011	0.005	0.009
Number of observations	39,863	39,863	39,863	39,863	39,863	39,863

Source: Author's calculations based on apprenticeship application data from Yousty.ch, voting data from the Swiss Federal Statistical Office, and the Social Protection and Labor Market Survey (SESAM), 2005-2015.

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. Robust standard errors are reported in parentheses. Labor market controls include the number of apprenticeship positions within 25 km, the number of same-gender applications within 25 km, the gender tightness within 25 km and the occupational tightness of each occupational field within 25 km.

¹ The one-third of adolescents who do not participate in the VET system goes to an academic baccalaureate school or does not continue with any post-compulsory education. The percentage of adolescents who participate in academic education (the baccalaureate quota) differs across the large language regions of Switzerland. The quota is higher in the French-speaking part, where in 2016, 44% of adolescents went to a baccalaureate school (SFSO, 2018). In comparison, in the German-speaking part VET is more widespread, with only 23% of adolescents going to a baccalaureate school in 2016 (SFSO, 2018). To ensure that regional variation in this quota does not bias our results, we ran two robustness checks (results available upon request). First, we included the county-level baccalaureate quota in our regressions. Second, we ran our analyses only for the German-speaking part of Switzerland. In both analyses, our results remain robust.

² Completing a three- or four-year VET program leads to a recognized upper-secondary certificate. VET graduates then have the option of pursuing tertiary-level education (e.g., at a university of applied sciences). The Swiss State Secretariat for Education, Research, and Innovation provides an overview graph of all possible educational pathways in Switzerland (SERI, 2019). Because these options are identical for all VET graduates independent of the occupation they chose, these options are very unlikely to influence our results.

³ Occupational aspirations (as used in Kuhn & Wolter, 2019) are not directly linked to behavior (e.g., actual apprenticeship applications, actually chosen apprenticeship programs or training firms) and are measured through self-reported survey questions. In contrast, occupational choices (as we use them in our study) constitute actual decisions that require actions of adolescents and are measured through these actions (e.g., adolescents writing and submitting concrete job applications). Previous research has shown that the two concepts lead to significantly different results for adolescents. For example, Jaik and Wolter (2019) find that “[...] the majority of students revise their initial intentions [...].” (p. 320). Thus studying occupational aspirations targets a different phenomenon than studying occupational choices in the context of apprenticeship applications.

⁴ STEM stands for Science, Technology, Engineering, and Mathematics.

⁵ Akerlof and Kranton (2000) use the word “prescriptions” instead of social norms, because some economists have ascribed a different meaning to the word “norm” (i.e., individuals behave according to a norm to avoid punishment). However, recently the use of the term “social norms” in the economic literature has been increasing (e.g., Bertrand et al. 2021; Pearse & Connell 2016; Rodríguez-Planas & Nollenberger 2018).

⁶ The premium plan offers the following additional features: Appearance in top search results, inclusion of videos and pictures into the job ads, applicant management via Yousty.ch, creating a firm profile on Yousty.ch, and getting live application statistics. To ensure that differences between basic-plan and premium-plan firms do not bias our results, we ran a robustness check that accounts for whether the firms to which an adolescent applies use a basic or a premium plan. Our results remain robust (available upon request).

⁷ For the other 30% of job advertisements, Yousty.ch redirects the adolescent to an external application page hosted by the training firm, which also requires more or less standardized application information.

⁸ Unfortunately, our data do not contain personal factors such as prior experience or GPA. However, adolescents who apply for apprenticeship positions do not substantially differ in prior experience. Almost all adolescents typically start VET after compulsory schooling (9th grade), so basically none of them have any prior experience when starting VET. Furthermore, due to a lack of standardized tests in Switzerland, GPA scores are hard to compare and, consequently, of minor importance in the application process.

Therefore, factors other than GPA are more important in the Swiss apprenticeship system (e.g., the match of occupational requirements with an adolescent’s interests or personality characteristics; Hoeschler & Backes-Gellner, 2018; Mueller & Wolter, 2014).

⁹ Since VET is part of the Swiss education system and most adolescents start VET after nine years of compulsory schooling, they only apply during one school year (in 9th grade) and acquire an apprenticeship position that starts immediately after finishing 9th grade. Therefore, reapplications in the following school years are rare for adolescents who did apply in the first place.

¹⁰ The voting data come from the Swiss Federal Statistical Office. See

<https://www.bfs.admin.ch/bfs/de/home/statistiken/kataloge-datenbanken/tabellen.assetdetail.169083.html>

¹¹ Switzerland comprises about 2,200 municipalities (SFSO, 2021).

¹² Switzerland has a multi-party system with 11 political parties represented in parliament and the four largest of these parties are represented in the federal government. This political system makes it unlikely that constitutional referenda are purely driven by bipolar party politics.

¹³ The deviation of the fractional polynomial predictions from the linear predictions at the outer edges of the 1981 disapproval rate distribution (0–20% and 80–100% ranges) are driven by one outlier with a 0% disapproval rate in 1981 and a second outlier with a 100% disapproval rate in 1981.

¹⁴ The job application data contain 228 apprenticeship occupations, each of which can be uniquely assigned to one of 140 SBN2000 codes. Therefore, a given SBN2000 can contain more than one apprenticeship occupation.

¹⁵ 54% of the occupations that appear in our Yousty.ch dataset are typically male, 14% typically female and 32% gender-mixed. However, even though there is a larger number of typically male occupations than typically female occupations, the typically male occupations are on average much smaller (i.e., less apprenticeship positions are available in these occupations) than typically female occupations. In a municipality's local labor market (i.e., within a 25-km radius around a municipality), on average, 37% of job ads are typically male ($SD=8\%$, $Min=0\%$, $Max=100\%$), 19% of job ads are typically female ($SD=5\%$, $Min=0\%$, $Max=75\%$), and 44% of job ads are gender-mixed ($SD=7\%$, $Min=0\%$, $Max=100\%$). A robustness check in Section 5 shows that the variation in category size does not drive our findings.

¹⁶ See

https://www.antidiskriminierungsstelle.de/SharedDocs/Glossar_Entgeltgleichheit/DE/13_Frauenberufe.html

¹⁷ We calculate the commuting distance with the HERE application programming interface.

¹⁸ Around 90 percent of Swiss employees commute less than 25 km to work (Pfister et al. 2021; SFSO, 2007).

¹⁹ In Switzerland, a school year starts in August and ends in July of the following calendar year.

²⁰ The predicted probability of adolescent males from St. Gallen (48.4% disapproval rate in the 1981 vote) choosing a gender-atypical occupation is 6.55%. Replacing the gender norms value of St. Gallen with that of Geneva (14.8% disapproval rate) leads to a predicted probability of 7.31%.

²¹ The low R^2 signals that other factor such as individual characteristics, which are unobservable in our datasets, might play a further important role in occupational choice and thus explain a larger part of the variation in the dependent variable than gender norms. However, the potential contribution of such unobserved factors does not affect the economic significance of our findings.

²² According to the descriptive statistics in the Appendix (Table A1), adolescents apply less frequently to gender-atypical than to gender-mixed or gender-typical occupations. However, the percentage of adolescents applying mainly to gender-atypical occupations does not differ between females and males. Consequently, the male sample underlying the statistically significant results for gender-atypical occupational choice of adolescent males (Panel A in Table 1) has a statistical power similar to that of the female sample. Therefore, the corresponding results for adolescent females are not insignificant due to a lack of statistical power.

²³ In Switzerland, such large-scale programs and campaigns are typically run at the federal level, that is, they are typically identical across regions. The responsible institutions for running these programs could be the federal government, industry organizations, professional associations, or unions. An example of such a nationwide program is the “Daughter’s Day”, which was launched in 2001 and gave girls from 4th to 9th grade the opportunity to accompany their fathers (or another relative or friend) to work. The aim of the program was for girls to learn about gender-atypical occupations and break with gender stereotypes (Federal Office for Gender Equality, 2017). Another example is the “IT-dreamjobs” campaign, which was supported by the professional association “ICT-Berufsbildung Schweiz”. The campaign started in 2013 and specifically targeted young women (The Federal Assembly, 2022).

²⁴ We thank the anonymous reviewers for pointing out these further explanations.

²⁵ The authors asked 6,262 adult Swiss residents to rank 20 different occupations according to their prestige. These occupations included 10 academic and 10 VET occupations, which vary in their educational requirements, their skill content, and (without this being addressed explicitly) their gender typicality. According to this ranking, typically male VET occupations are not generally ranked higher than typically female VET occupations.

²⁶ For example, men on one hand are more likely to be exposed to physical risks at the workplace than women and are also more prone to work accidents. On the other, women tend to have lower physical risks and fewer work accidents, but at the same time they also have less autonomy (SFSO, 2019). Thus, changing from a female to a male workplace is not an obvious gain.

²⁷ Our results are also robust to using standard errors clustered at the municipality level (result available upon request), suggesting that structural differences across regions (e.g., differences in occupational structure) do not affect our results on the relationship between gender norms and occupational choice.

²⁸ We assume that the gender wage differential exerts an effect, if any, on the occupation an adolescent chooses, irrespective of the number of open apprenticeship positions in that occupation. We include the number of open apprenticeship positions and other variables describing the structure of the local labor market separately in our analyses (see section 4).

²⁹ About 95% of Swiss adolescents still live with their parents while completing their apprenticeship (Knittel et al., 2018). Thus, if they apply farther away from home, they need to commute for a longer time and distance, because moving is not an option.

³⁰ We calculate commuting time with the HERE application programming interface.

³¹ We calculate the average monthly wage of a Swiss apprentice using the wage recommendations of the professional associations.

³² We thank an anonymous reviewer for suggesting to incorporate pay into our cost analyses. We therefore ran a robustness check in which we account for the difference between the average wage of the occupations adolescents apply for and the average wage of the occupations that are available in their local labor market. As this measure can be interpreted as a proxy for an adolescents' willingness to pay for an apprenticeship position with a certain gender (a)typicality, this robustness check allows us to rule out pay considerations as a potential explanation for the results we find on commuting distance. We find that our results remain robust (available upon request).

³³ The Yousty.ch data has very few observations from the Italian-speaking part of Switzerland, because Yousty.ch has only a German and a French version of its job board but not an Italian one. Our results remain robust when we exclude all observations from the Italian-speaking municipalities from our analyses (available upon request).