OCCUPATIONAL STEREOTYPES AND GENDER-SPECIFIC JOB SATISFACTION

Simon Janssen, Uschi Backes-Gellner

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Simon Janssen[1]

Institute for Employment Research (IAB),

IZA, simon.janssen@iab.de

+49(911)1797049

and

Uschi Backes-Gellner

University of Zurich, backs-gellner@business.uzh.ch

+41(44)6344281

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Abstract

Using representative data containing information on job satisfaction and worker's gender-specific prejudices, we investigate the relationship between stereotyping and job satisfaction. We show that women in stereotypically male jobs are significantly less satisfied with their work climate and job contents than in stereotypically female jobs but more satisfied with their income in those same jobs. Our findings indicate that women trade-off their higher income satisfaction against the negative consequences of stereotyping. As long as we take into account that stereotypically male jobs are physically more demanding than stereotypically female jobs, men are generally more satisfied with stereotypically male jobs.

Introduction

Despite the great strides towards gender equality in many western countries over the past 50 years, gender segregation remains persistent, with women crowded into lower-paid jobs with worse career prospective (Kidd and Goninon, 2000; Johnson and Solon, 1986; Macpherson and Hirsch, 1995). In fact, two-thirds of either the female or male labor force would have to change their occupations to achieve gender-equality (Goldin, 1986). While earlier literature argues that individuals choose occupations consistent with their life-cycle labor force participation and family responsibilities (Mincer and Polachek, 1974; Edwards and Field-Hendrey, 2002) or link gender segregation to theories of employer discrimination (Becker, 1971), a more recent theory by Akerlof and Kranton (2000) links occupational segregation to gender-specific job stereotypes.

Akerlof and Kranton (2000) incorporate the sociological concept of identity into an economic framework. They propose a utility function in which identity is associated with different social categories and the ways in which people in these categories are expected to behave. The theory states that individuals in occupations associated with the opposite sex have ambiguous feelings about their work because they violate their own identity or that of their coworkers and thus suffer a utility loss. Therefore, gender segregation may persist in the labor market because many people refuse to choose a job that is stereotypically associated with the opposite sex. Because stereotypes and utility are difficult to measure, prior studies do not shows whether occupational stereotypes do indeed affect the utility and preferences of individuals.

Therefore, this paper relies on a very special data set that allows constructing an indicator for occupational stereotypes. We use the German "BiBB/IAB Strukturerhebung" that contains data on 30,000 individuals and is representative for the German workforce. Besides job satisfaction measures, the data contains detailed information on each individual's job tasks and a variable that indicates whether the individual considers her or his job to be more appropriate for females or males. We use this information to create a conditional index indicating whether society on average associates each observed individual's job with female or male stereotypes. To our knowledge the BiBB/IAB survey is the only data set containing this kind of information. We use this indicator to estimate the relationship

between occupational gender-stereotypes and self-reported job satisfaction (as a measure for the individuals' job utility[1]).

The evidence shows that all generations in our sample have relatively strong prejudices about gender-specific stereotypes in the labor market, and we find a strong relationship between occupational gender-stereotypes and job satisfaction. Considering every aspect of a job, women are not more or less satisfied in stereotypically male jobs than in stereotypically female jobs. However, women in stereotypically male jobs are less satisfied with their work climate and their contents of tasks, but they are more satisfied with their income. Thus our results suggest that women in stereotypically male jobs trade-off negative effects of gender-stereotyping against a higher income. In contrast, men report higher values for their satisfaction with work climate, contents of tasks, and income in stereotypically male jobs (as long as we control for the presence of unpleasant working conditions by using indicator variables for job characteristics such as heavy lifting, shift work, etc.).

Moreover, we present evidence that women of all educational groups tend to work in jobs associated with strong female stereotypes. The picture is more diverse for men: while low educated men are more likely to work in jobs associated with strong male stereotypes, highly educated men work in jobs related to weaker male stereotypes. However, even the jobs of highly educated men are on average considered to be manlier than women's jobs.

We argue that our results are in line with the concept of identity-utility such as theorized by Akerlof and Kranton (2000) and suggest that incorporating identity costs in individual's job choice decisions is a reasonable approach to explain the persistence of gender segregation in the labor market.

Our results may have consequences for policy makers who wish to reduce gender-specific differences in the labor market. In particular, if stereotypes affect the job choice of individuals, labor market policies such as female quotas, antidiscrimination laws, or company policies that aim only at facilitating the combination of work and family life may have little effect on reducing occupational segregation and the resultant gender wage gap.

The remainder of the paper is structured as follows. Section 2 presents a brief literature review. Section 3 presents the data set and the construction of our index for occupational stereotypes in detail, and section 4 describes the estimation methods. Section 5 presents the results, and section 6 concludes.

Theoretical background

Akerlof and Kranton (2000) provide a theory that incorporates the sociological concept of identity into an economic framework and argue that identity losses cause individual utility costs. They state that individuals are assigned to different social categories and these social categories are associated with different attributes and prescribed behaviors. If individuals violate these behaviors they suffer identity losses in form of utility costs. In contrast, if they behave in line with the prescriptions of their social category they may gain utility. One such category is gender. As every culture is prone to categorize their members by gender, all societies have strong prescriptions about gender-specific behavior ranging from the persons' dress to the way of communication (Reskin and Bielby, 2005)[2].

Thus according to Akerlof and Kranton (2000) individuals also deviate from their socially expected behavior whenever working in jobs associated with the opposite sex. Some jobs demand, for example, aggressiveness or competitiveness and, therefore, put in doubt the stereotypical female identity. In contrast, men might worry about their male identity if their jobs demand them to be highly sensitive or emotional.

Deviating from ones social category does not only influence ones own sense of self but also the identity of people around. A woman in a man's job affects also the identity of her male coworkers. She could, for example, make her male colleagues feel less like men. Therefore, the model predicts that women suffer utility costs if working in stereotypically male jobs, and vice versa. In the following we test this hypothesis by using a unique data set that allows us to construct a very precise measure for the femaleness or the maleness of any given occupation.

Data

This section provides the details of the data and the measurement of our index for occupational stereotypes. We use the 1991/92 wave of the Qualification and Career Survey, carried out by the German Federal Institute for Vocational Training ("Bundesinstitut für Berufsbildung") and the Research Institute of the Federal Employment Service (Institut für Arbeitsmarkt- und Berufsforschung). To our knowledge, this wave of the Qualification and Career Survey is the only data set containing a variable that allows the construction of a variable for occupational gender

stereotypes. The survey is a representative one-percent-sample of the German workforce, containing roughly 30,000 observations and a wide range of individual and workplace-related variables.

We restrict our sample to West German residents, for whom there were no missing values in our main variables of interest. This restriction leaves us with 11,660 observations for men and 7,336 observations for women. We choose this restriction because the fall of the Berlin wall in 1989 and the reunification of Germany in 1991 had per se negative influences on job satisfaction in East Germany, given the tremendous uncertainty of East German workers about their ability to compete in the job market. As Frijters et al. (2004) show, job satisfaction in East Germany was exceptionally low in the years around 1991. The East German industrial sector in particular was badly affected by an economic downturn, with many people in the industry losing their jobs after reunification. As industrial jobs are linked to stereotypically male jobs, the consequences of the reunification might bias our estimates. Subsection 3.1 presents our dependent variables on job satisfaction, subsection 3.2 explains in detail how we construct or measure for gender-specific stereotypes, and section 3.3 describes the control variables.

I.1   *Dependent variables*

Our dependent variables measure different dimensions of job satisfaction on a four-point scale ranging from being very unsatisfied to being very satisfied. We argue that such a job satisfaction measure is a valid indicator of an individual's job utility, covering all kinds of factors that are connected to that individual's job. The first variable measures general job satisfaction; the second, measures satisfaction with work climate; the third, satisfaction with the contents of tasks; and the fourth, satisfaction with income. The exact questions are as follows[3]:

- How satisfied are you with your occupational activity, considering every aspect of it?
- How satisfied are you with your occupational activity, considering the work climate?
- How satisfied are you with your occupational activity, considering the form and content of your tasks?
- How satisfied are you with your income?

Tables 1 and 2 present descriptive statistics for all satisfaction measures.

—Table 1 about here—

—Table 2 about here—

All measures show a reasonably typical picture for these kinds of satisfaction measures (see e.g., Blanchflower and Oswald, 2004). Most individuals report being either 'very satisfied' or 'satisfied'. However, a tendency exists for individuals to report lower satisfaction values for their income than for other dimensions of job satisfaction. Only 12 percent of the women and 13 percent of the men are very satisfied with their income. In contrast, 38 percent of the women and 33 percent of the men are very satisfied with their work climate. Women report the highest satisfaction category slightly more often than men. Only for income satisfaction do women report lower values.

I.2 *Explanatory variable: occupational stereotypes*

In general, creating a valid measure for occupational stereotypes is fairly difficult. In particular, for large and representative data sets, information for creating such a measure is usually not available. Some psychological studies simply use the percentage of females within a certain occupation. However, such an approach may be misleading, as perceived stereotypes may not follow these patterns.

Therefore, we propose calculating a conditional reference measure for occupational gender stereotypes. If we assume that occupational stereotypes p_i^* are a function of an individual's job content T_i and some unobserved influences ϵ_i, we are able to describe occupational stereotypes in the following form:

$$p_i^* = T_i \lambda + \epsilon_i \tag{1}$$

where T_i is a row vector containing detailed indicators for an individual's job content, and λ is a column vector of coefficients describing the influence of each job content on occupational stereotypes. Our data source allows us to measure T_i by using detailed information on the tasks individuals perform. Specifically, participants were asked to mark on a list what kinds of tasks they have to perform in their jobs. We report the descriptive statistics on the task measures separately for women and men in the appendix in Table A.3.

Occupational stereotypes p_i^* are social attitudes that are not observable. However, our data set contains a particular variable allowing us to estimate p_i^* under certain assumptions. In particular, we rely on information from a survey question asking individuals whether they think that only a man, only a woman, or both a woman and a man are able to perform their jobs:

- Can a woman and a man perform your job equally if they have the same background?

The possible answers are "only by a woman," "better by a woman," "equally by a woman and a man," "better by a man" or "only by a man."

Table 3 presents descriptive statistics of this variable for women and men by different age categories.

—Table 3 about here—

On average a fairly low percentage of men say that their own job could not be performed by a man or would be performed better by a woman. However, about 4 percent of all females say that a man could not perform their jobs at all, and about 13 percent believe that a woman would better perform their job. About 40 percent of all men report that their jobs could not be performed by women or performed as well by women. Rows 2 to 4 show the distribution of the stereotype variable by different age categories. Older men and women over 50 years of age are somewhat more likely to state that the opposite sex could not perform their jobs or would perform their jobs worse. However, a fair amount of young women and men below 30 years of age consider their jobs as not appropriate for the opposite

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sex. Overall the results suggest that occupational stereotypes remained relatively stable over generations.

If p_i is a categorical variable with 4 categories ranging from 4 "only men can perform my job" to 1 "only women can perform my job", we can write down the following relationship:

$$p_i = \begin{cases} 1 \; if \; p_i^* < \alpha_1 \\ 2 \; if \; \alpha_1 \leq p_i^* < \alpha_2 \\ 3 \; if \; \alpha_2 \leq p_i^* < \alpha_3 \\ 4 \; if \; \alpha_3 \leq p_i^* \end{cases}$$

where α_1 to α_3 are thresholds to be estimated. If we further assume that ϵ_i is normally distributed with $\epsilon_i \sim N(0,1)$, we can estimate the latent propensity $\hat{p}_i^* = \hat{\lambda} T_i$ via an ordered probit model. Estimating $\hat{p}_i^*$ via an ordered probit model produces a cardinal measure and takes into account that differences between response categories of p_i may not be equidistant. Because $\hat{p}_i^*$ is a measure for average occupational stereotypes, the measure displays the majority's gender-specific association of a job and is a valid measure for occupational stereotypes in the German population.

Table A.4 in the appendix shows the results of the regression according to equation 1. Table A.4 shows that nearly all tasks enter highly significantly into the regression, indicating that the different tasks in a given occupation are a core determinant for occupational gender-stereotypes. Tasks such as dealing with machines, driving vehicles, or supervising show positive significant values, indicating that people on average view such tasks as stereotypically male. Tasks such as cleaning, care-giving, or teaching show negative significant coefficient values, showing that people on average view such tasks as stereotypically female.

I.3   *Control variables*

In addition to our variables of main interest, our data set contains a variety of individual and job characteristics allowing us to control for influences on job satisfaction, influences not directly related to occupational stereotypes. We observe an individual's age in years, and we create a categorical

variable for the worker's type of education. The first category of the education variable contains low-educated people such as those with no university or apprenticeship degree. Apprenticeship training in Germany combines on-the-job training and formal education. Around 60 percent of each cohort chooses apprenticeship training. In contrast, university graduates compose about 20 percent, a small percentage in comparison to other Western countries. The second category contains medium-educated people with an apprenticeship degree, and the third contains high-educated people with a university degree.

In addition, we observe weekly working hours and monthly income, which we observe in 16 categories. We assign midpoints to these income categories and treat the variable as continuous, as DiNardo and Pischke (1997) did when using this data. We are also able to observe certain job characteristics, not usually observable in most data sets. We know whether a worker carries or lifts heavy weights, works in wet and cold or smoky and dusty/dirty/noisy surroundings, and whether she or he works in unhealthy physical positions or works night shifts. These control variables are likely to strongly correlate with a person's job satisfaction, and our results bear out this assumption. Descriptive statistics on all the variables appear in the appendix.

Estimation strategy

This section presents our estimation strategy. A number of studies such as Clark and Oswald (1996), consider job satisfaction as a type of sub-utility function u representing utility from working in an overall utility function $v = v(u, \mu)$, where μ is utility from other areas of life. The utility from working is usually considered to be of the form:

$$u_i = u_i(w, h, i, j) \tag{2}$$

where w is income, h is hours of work, and i and j are sets of individual and job-specific characteristics. We extend this utility function by a parameter p^*, which represents the occupational specific stereotypes of an individual's job:

$$u_i = u_i(w, h, i, j, p^*) \tag{3}$$

Therefore, equation 2 gives us a natural starting point to write down the following regression equation:

$$JS_i^* = \beta_0 + \beta_1 p_i^* + \beta_2 w_i + \beta_3 h_i + X'\gamma + \epsilon_i \tag{4}$$

JS_i^* is a latent variable that describes the job satisfaction of individual i. w_i refers to an individual's monthly income, and h_i represents the weekly working hours. X_i contains a broad set of control variables for personal and job characteristics. Our coefficient of main interest is β_1, which measures the effect of being in a stereotypically male or female job. We estimate equation (4) separately for males and females. A positive value of β_1 indicates that both females and males report higher satisfaction values for stereotypically male jobs. A negative value of β_1 indicates that both females and males report lower satisfaction values for stereotypically male jobs. To estimate β_1 we replace p_i^* by $\hat{p}_i^*$, and estimate equation (4) with an ordered probit model.

Results

The first three rows of table 4 provide descriptive statistics for our index of occupational stereotypes $\hat{p}_i^*$. Smaller values of $\hat{p}_i^*$ represent more stereotypically female jobs. Larger values of $\hat{p}_i^*$ represent more stereotypically male jobs. In comparison to the median index value of -0.176 (first row of table 4), the mean index value for women of -0.489 (second row) suggests that woman work in jobs associated with comparably strong female stereotypes. The third row of table 4 shows a mean index value of 0.212 indicating that the average man works in a job associated with comparably strong male stereotypes.

—Table 4 about here—

Rows 4 to 9 present mean values of $\hat{p}_i^*$ for different education and age categories. The table shows relatively modest differences of $\hat{p}_i^*$ between low, medium, and highly educated women. Although differences between educational levels are significant (at least on the 10 percent level), women of all

educational levels work in jobs associated to relatively strong female stereotypes. Educational differences are stronger for men. In comparison to low educated men who work in jobs related to strong male stereotypes, highly educated men rather work in jobs related to medium stereotypes. However, jobs of highly educated men are still manlier than jobs of highly educated women.

The bottom of the table shows that younger women work in jobs that are more feminine than jobs of older women. The picture is more diverse for men: young men below 30 years of age, and older men above 50 years of age work more often in stereotypically male jobs than men between 30 and 50 years of age. Age differences for men are larger than for women.

Table 5 provides the estimates of equation (4) – the simple ordered probit regression of the relation between stereotypes and job satisfaction for women and men. The dependent variables are our four satisfaction measures: overall job satisfaction, satisfaction with work climate, satisfaction with the contents of tasks, and satisfaction with income. The table presents the estimates for women, with additional controls typically included in studies on job satisfaction. Before we discuss the effect of occupational stereotypes, we comment on the control variables that yield results in line with previous literature. Income has a positive significant effect on overall job satisfaction, satisfaction with the contents of tasks, and income satisfaction. This result is in line with the literature on job satisfaction (Clark and Oswald, 1996; Clark, 1997; Frijters et al., 2004). In contrast, the satisfaction with work climate decreases for women with a higher income. As more competitive environments are likely to yield higher income, this result is in line with recent findings that women face disadvantages under strong competition (Gneezy et al., 2003). Job satisfaction decreases with age at a decreasing rate. The coefficients on age and age-squared show the typical U-shaped pattern found in the former literature. However, the coefficients are not significant at the 10 percent level. Weekly working hours show the typical negative effect on job satisfaction. In contrast to some previous findings, individuals with higher education report higher job satisfaction values. Nevertheless, other studies such as Blanchflower and Oswald (2004) find the same positive significant effect for education.

—Table 5 about here—

The effect of main interest is the indicator for occupational stereotypes. The sign of $\hat{p}_i^*$ is negative for overall satisfaction, satisfaction with work climate and satisfaction with contents of tasks. For satisfaction with income the effect is positive, even if we control for monthly income. While for overall satisfaction the effect is not significant at the 10 percent level, we find well-defined effects with small standard errors for the other satisfaction categories.

Our index does not provide a natural way of interpreting the effect in terms of marginal effects. However, to compare the results across different specification, we consider the following example with two potential jobs: Assume the first potential job is an extremely stereotypically female job with the following tasks: preparing food, serving and accommodating, cleaning, disposing of garbage, buying and selling, writing, teaching, and care-taking. According to our index, such a stereotypically female job has a value of $\hat{p}_i^*$=-2.71. The second potential job is an extremely stereotypically male job with the following tasks: repairing, driving, and working on buildings. Such a stereotypically male job has an index value of about $\hat{p}_i^*$=1.44.

According to our regression model, a woman who performs such a stereotypically female job is very satisfied with her overall job content with a probability of 38 percent (all other variables constant at the mean). In contrast, a woman who works in our exemplary male job is very satisfied with her overall job content with a probability of 34 percent. Although the stereotype difference between the two exemplary jobs is relatively extreme, the difference of being very satisfied with the overall job content only amounts to 4 percent.

The results are different for the satisfaction with work climate, contents of tasks, and income. In comparison to the stereotypically female job, women are 10 percent less likely to be very satisfied with their work climate, 16 percent less likely to be very satisfied with their contents of tasks, but 12 percent more likely to very satisfied with their income in the stereotypically male job.

Stereotypically male jobs may be physically more demanding than stereotypically female jobs. If challenging physical working conditions (e.g., heavy lifting) have strong effects on job satisfaction, the negative effect of performing a stereotypically male job might arise only because women find such challenging physical working conditions unpleasant. Fortunately, we have detailed information on

challenging physical working conditions and can directly control for those influences. Table 6 presents the results for the coefficients and shows that there are no major differences with respect to sign and significance level.

To compare the results of table 6 with those of table 5, we re-consider our exemplary jobs. Women are almost equally likely to be very satisfied with their overall job content for both, the stereotypically male and the stereotypically female job. In comparison to the stereotypically male job, women are on average 8 percent less likely to be very satisfied with their work climate, 11 percent less likely to be very satisfied with their contents of tasks, but about 12 more likely to be very satisfied with their income if working in the stereotypically male job. Because the results remain quite stable when we include controls for unpleasant work characteristics, we conclude that those characteristics are not driving our results substantially.

—Table 6 about here—

Table 7 presents the first ordered probit results for men. As we did with women, we look first at the control variables, finding three main differences between the results for men and women. First, age enters the regression as highly significant for satisfaction with work climate, the contents of tasks, and income satisfaction. Second, income shows a positive effect on all satisfaction measures, including work climate. This result is in line with former evidence showing that men suffer less from competition, which is more likely to occur in well-paid positions. Third, the weekly working hours show no effect or a positive significant effect on satisfaction with the contents of tasks. Such a result is in line with former evidence from Bender et al. (2005) and Asadullah and Fernández (2006) who show that work time flexibility is valued higher by women than men.

The effect of the main variable of interest $\hat{p}_i^*$ shows a more heterogeneous picture than in the case of women. We find a negative significant effect on overall satisfaction and contents of tasks but no statistically significant effect for satisfaction with work climate. However, in line with the women's results, the effect is positive and significant for income satisfaction.

—Table 7 about here—

To compare the results for men with the results for women, we reconsider the exemplary jobs of the previous subsection. In comparison to our exemplary female job, men are on average 7 percent less likely to be very satisfied with their overall job content, and 4 percent less likely to be very satisfied with their contents of tasks in the stereotypically male job. However, men are about 4 percent more likely to be very satisfied with their work climate and income in a stereotypically male job.

Table 8 adds further controls for physically unpleasant working conditions for men. In contrast to the women's results, those for men change substantially when we include the variables for physically challenging working conditions. All coefficients turn positive and highly significant. Reconsidering our exemplary jobs shows substantial changes in the results. Now men in stereotypically male jobs are on average about 6 percent more likely to be very satisfied with their overall job content, 12 percent more likely to be very satisfied with their work climate, 6 percent more likely to be very satisfied with their contents of tasks, and 8 percent more likely to be very satisfied with their income.

Thus, in contrast to the estimation results for women the results for men are strongly driven by unpleasant working conditions, and when we control for such conditions, men report higher satisfaction values in stereotypically male jobs than in stereotypically female jobs.

—Table 8 about here—

Discussion and conclusion

This paper empirically analyzes the relationship between occupational gender-stereotypes and job satisfaction based on Akerlof and Kranton's (2000) social identity theory. Based on their theory hypothesized that females working in male occupations (or males working in female occupations) suffer a utility loss because working it the opposite sex's occupation violates their own identity or that of their coworkers. The main contribution of our paper is that we introduce a new way to construct an

indicator for occupational gender-stereotypes and that we provide empirical evidence for a strong relation between occupational stereotypes and job satisfaction. We create a novel indicator that allows us to measure the perceived gender-specific job stereotypes in a given society and show that these societal gender-stereotypes affect the subjective job satisfaction for individual women and men in different ways.

Although, the results show no significant difference in women's "overall satisfaction" for women working in stereotypically male jobs versus women working in stereotypically female jobs, there are strong effects if we separate different dimensions of satisfaction. Women working in male jobs are significantly less satisfied with their work climate and with their task contents, but they are significantly more satisfied with their income than women working in female jobs. Thus the results indicate that women in stereotypically male jobs trade-off the negative consequences of gender-specific stereotypes against a higher income. In contrast, men are more satisfied overall, and with their work climate, their contents of tasks, and their income in stereotypically male jobs as long as we control for the higher physical demand in male jobs.

We are aware that selection of individuals into stereotypically male and female jobs is based on factors that are not observable to the researcher. Consequently, we cannot interpret our results as a causal effect of gender-specific stereotyping on job satisfaction outcomes. Our results only present correlations indicating that women and men report different gender-specific satisfaction patterns if they already work in either stereotypically female or male jobs. Unfortunately, we cannot rely on a panel data source to apply fixed effect estimation techniques, such as, for example, Ferrer-i-Carbonell and Frijters (2004) do, to control for time invariant unobserved heterogeneity. We are not aware of any panel data source containing the information needed to carry out this investigation. Moreover, a panel data source would only allow us to control for unobserved heterogeneity that is time constant. Another remedy would be to find an instrumental variable as an exogenous influence that shifts the job choice of workers but does not affect the satisfaction of workers at the same time. Finding such an instrument is particularly difficult in our situation and for all studies that undertake similar investigations. Even if we would be able to find some source of variation that manipulates the job choice of individuals and is exogenous to (most) of their unobserved characteristics, it is not very

likely that such a source of variation is also uncorrelated to the individuals job satisfaction. The reason is that every randomization of the individuals' job choices forces the individual in a job that might not be in accordance with the individual's preferences.

Another possibility would be to find an exogenous variation in the gender-specific stereotypes of a job. The problem with such an approach is that social norms and gender- specific stereotypes do not tend to change in short time periods or because of certain policy interventions. Stereotypes are rather handed down from one generation to the next and stay persistent for decades.

However, it is plausible to assume that individuals selecting themselves into jobs that are related to stereotypes of the opposite gender are on average better in coping with the negative consequences of gender-stereotyping than those individuals who decide not to work in a job that is associated with stereotypes of the opposite gender. In other words, women (men) who suffer very big costs by violating their social identity would rather chose jobs that are in accordance with their identity. Thus it is plausible to assume that our results represent a lower bound of the relationship between job satisfaction and gender-specific stereotypes because we are more likely to underestimate than overestimate the effect.

As our results suggest that factors such as prejudice and gender-specific stereotypes affect the utility outcomes of women and men, we argue that social influences other than observable job characteristics are very likely to affect an individual's choice of a job. Therefore, our results may help to understand why gender segregation is so persistent in many western countries despite substantial progress in gender equality laws. As conventional policies are not very likely to change social norms and identities, our results might help to understand why policies such as female quotas or regulations against discriminatory wages might not be as effective as expected.

Endnotes

(1)   By using self-reported job satisfaction as a measure for the individuals' utility arising from work we follow studies such as Clark and Oswald (1996) and Clark (1997).

(2)   Sociologists such as Shinar (1975) show that occupations with high levels of competence, rationality, and assertion are viewed as masculine, whereas those with high levels of dependency, passivity, nurturance, and interpersonal warmth are perceived as feminine. White et al. (1998) find similar results for college graduates and Garrett et al. (1977) for children. O'Bryant and Corder-Bolz (1978) investigate the effect of television on children's stereotyping of women's work roles and show that young children learn stereotyping from television. In addition, McCauley and Thangavelu (1991) – using the US census – detect strong occupational stereotypes. White and White (2006) show that occupational stereotyping persists even though the gender distribution within occupations has changed.

(3)   Some economists worry about the reliability of these kinds of satisfaction measures. Nevertheless, psychologists use these measures widely. Therefore, as Clark and Oswald (1996) argue, we should interpret this use as validating the seriousness of these kinds of investigations. Moreover, these and similar kinds of research are finding increasing acceptance, even within economics (Frey and Stutzer, 2002).

(4)   We are not the first in considering the theory of Akerlof and Kranton (2000) to explain the results of an investigation on job satisfaction. Former studies such as Both and van Ours (2008) who investigate the relation between part-time work and gender-specific satisfaction and Lalive and Stutzer (2010) investigating the relationship between voter approval rates and gender-specific well-being consider the work of Akerlof and Kranton (2000) to explain their results. However, these former studies did not investigate the direct relation between gender-specific stereotypes and job satisfaction.

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Tables

Table 1: Job satisfaction: Women

Satisfaction dimension	Overall	Work climate	Tasks	Income
Very unsatisfied	1.42	1.96	1.57	4.66
Unsatisfied	6.9	8	8.7	23.69
Satisfied	59.39	51.38	57.84	59.28
Very satisfied	32.29	38.66	31.9	12.36

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
Columns contain percentages for women on 4-point Lickert scales.

Table 2: Job satisfaction: Men

Satisfaction dimension	Overall	Work climate	Tasks	Income
Very unsatisfied	0.93	1.8	0.81	2.41
Unsatisfied	5.45	8.87	6.99	18.83
Satisfied	63.35	56.08	61.8	65.59
Very satisfied	30.27	33.25	30.4	13.17

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
Columns contain percentages for men on 4-point Lickert scales.

Table 3: Occupational sex stereotypes.

Gender:	Average		$Age \leq 30$		$30 < Age \leq 50$		$50 < Age$	
	male	female	male	female	male	female	male	female
only by woman	0.03	3.65	0.04	3.53	0.05	2.93	0.00	5.60
better by woman	0.18	13.31	0.23	11.72	0.08	12.62	0.33	17.35
by man and woman equally	60.28	82.73	58.57	84.39	64.24	84.15	53.84	76.77
better by man	23.61	0.26	26.67	0.32	21.53	0.22	25.14	0.27
only by man	15.89	0.05	14.49	0.05	14.10	0.08	20.69	0.00

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
Columns contain percentages for men and women.

Table 4: Estimated latent propensity: $\hat{p}_i^*$

	Median	Mean	Min	Max
All	-0.176	-0.059	-2.714	3.534
Women	-0.452	-0.489	-2.714	2.048
Men	0.171	0.212	-2.459	3.534
	Women		Men	
Education:				
Low education	-0.459		0.327	
Medium education	-0.501**		0.289**	
High education	-0.500*		-0.202***	
Age categories:				
Age <=30	-0.520		0.318	
30<Age<=50	-0.478***		0.159***	
50<Age	-0.469***		0.228***	

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92. Stars denote significance level in comparison to first categories. * Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level.

Table 5: Job satisfaction and occupational stereotypes: women I

Dependent variables:	Overall	Work climate	Tasks	Income
Index: Stereotypes $\hat{p}_i^*$	-0.017	-0.063**	-0.100***	0.133***
	(0.028)	(0.027)	(0.029)	(0.027)
Medium education[a]	0.256***	0.148***	0.326***	0.055*
	(0.032)	(0.033)	(0.033)	(0.031)
High education[a]	0.291***	0.117**	0.451***	-0.007
	(0.051)	(0.045)	(0.049)	(0.045)
Age in years	-1.077	-0.635	0.347	-0.347
	(0.858)	(0.835)	(0.845)	(0.848)
Age squared	1.457	0.405	-0.164	1.046
	(1.042)	(1.007)	(1.027)	(1.028)
Monthly income/100	0.013***	-0.003*	0.012***	0.024***
	(0.002)	(0.001)	(0.002)	(0.001)
Weekly working hours	-0.008***	-0.004**	-0.001	-0.017***
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	7336	7336	7336	7336

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
* Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level. The dependent variables are 4-point Lickert scales on 4 job satisfaction dimensions. Bootstrapped standard errors with 1000 repetitions. Standard errors under coefficients.
[a] Reference category is low education.

Table 6: Job satisfaction and occupational stereotypes: women II

Dependent variables:	Overall	Work climate	Tasks	Income
Index: Stereotypes P	0.001	-0.054**	-0.073***	0.130***
	(0.056)	(0.028)	(0.028)	(0.027)
Medium education[a]	0.215***	0.144***	0.289***	0.028
	(0.033)	(0.031)	(0.032)	(0.032)
High education[a]	0.268***	0.098***	0.430***	-0.023
	(0.049)	(0.046)	(0.046)	(0.047)
Age in years	-0.875	-0.478	0.511	-0.173
	(0.885)	(0.846)	(0.834)	(0.824)
Age squared	1.175	0.175	-0.392	0.817
	(1.067)	(1.028)	(1.014)	(0.996)
Monthly income/100	0.012***	-0.004***	0.011**	0.023***
	(0.002)	(0.001)	(0.001)	(0.001)
Weekly working hours	-0.006***	-0.002	-0.001	-0.015***
	(0.002)	(0.002)	(0.002)	(0.002)
Heavy weight	-0.097**	-0.090**	0.002	-0.234***
	(0.044)	(0.045)	(0.046)	(0.046)
Working condt.[b]	-0.257***	-0.186***	-0.269***	-0.130***
	(0.037)	(0.035)	(0.034)	(0.034)
Night-/shiftwork	-0.159***	-0.165***	-0.136***	-0.081**
	(0.038)	(0.037)	(0.037)	(0.037)
Observations	7336	7336	7336	7336

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
* Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level. The dependent variables are 4-point Lickert scales on 4 job satisfaction dimensions. Bootstrapped standard errors with 1000 repetitions. Standard errors under coefficients.
[a] Reference category is low education.
[b] Working conditions is dummy for working under smoky, dusty, noisy or cold conditions.

Table 7: Job satisfaction and occupational stereotypes: men I

Dependent variables:	Overall	Work climate	Tasks	Income
Index: Stereotypes *P*	-0.052***	0.019	-0.029*	0.067***
	(0.018)	(0.017)	(0.018)	(0.018)
Medium education[a]	0.249***	0.081***	0.346***	0.054*
	(0.031)	(0.029)	(0.040)	(0.032)
High education[a]	0.277***	0.050	0.346***	-0.042
	(0.044)	(0.041)	(0.040)	(0.044)
Age in years	-1.088	-3.272***	-1.476**	2.436***
	(0.772)	(0.714)	(0.735)	(0.734)
Age squared	1.244	3.530***	1.818**	3.241***
	(0.900)	(0.832)	(0.852)	(0.856)
Monthly income/100	0.013***	0.002*	0.015***	0.025***
	(0.001)	(0.001)	(0.001)	(0.001)
Weekly working hours	0.001	-0.000	0.006***	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	11660	11660	11660	11660

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
* Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level. The dependent variables are 4-point Lickert scales on 4 job satisfaction dimensions. Bootstrapped standard errors with 1000 repetitions. Standard errors under coefficients.
[a] Reference category is low education.

Table 8: Job satisfaction and occupational stereotypes: men II

Dependent variables:	Overall	Work climate	Tasks	Income
Index: Stereotypes P	0.041**	0.081***	0.047**	0.125***
	(0.020)	(0.020)	(0.020)	(0.021)
Medium education[a]	0.228***	0.061**	0.270***	0.044
	(0.030)	(0.030)	(0.032)	(0.031)
High education[a]	0.210***	-0.004	0.281***	-0.076*
	(0.043)	(0.042)	(0.044)	(0.041)
Age in years	-0.790	-2.993***	-1.147	-2.384***
	(0.784)	(0.723)	(0.885)	(0.721)
Age squared	0.893	3.193***	1.417	3.179***
	(0.918)	(0.841)	(0.885)	(0.842)
Monthly income/100	0.011***	0.000	0.013***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Weekly working hours	0.002	0.001	0.008***	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Heavy weight	-0.079***	-0.029	-0.078***	-0.148***
	(0.027)	(0.025)	(0.027)	(0.026)
Working condt.[b]	-0.212***	-0.149***	-0.143***	-0.075***
	(0.027)	(0.026)	(0.028)	(0.027)
Night-/shiftwork	-0.129***	-0.149***	-0.192***	-0.006
	(0.026)	(0.025)	(0.026)	(0.026)
Observations	11660	11660	11660	11660

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
* Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level. The dependent variables are 4-point Lickert scales on 4 job satisfaction dimensions. Bootstrapped standard errors with 1000 repetitions. Standard errors under coefficients.
[a] Reference category is low education.
[b] Working conditions is dummy for working under smoky, dusty, noisy or cold conditions.

Table A1: Descriptive statistics: Women

Variable:	Obs.	Mean	Std. Dev.
Job satisfaction:			
Overall	7336	3.226	0.631
Work climate	7336	3.267	0.688
Tasks	7336	3.201	0.655
Income	7336	2.793	0.710
Education:			
Medium education	7336	0.565	0.496
High education	7336	0.154	0.361
Personal and job characteristics:			
Age in years	7336	38.867	11.523
Monthly income (DM)	7336	2412.786	1180.936
Working hours	7336	32.467	10.030
Heavy weight	7336	0.120	0.325
Smoke, dust, noise and cold	7336	0.219	0.413
Night-/shiftwork	7336	0.169	0.375

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.

Table A2: Descriptive statistics: Men

Variable:	Obs.	Mean	Std. Dev.
Job satisfaction:			
Overall	11660	3.223	0.585
Work climate	11660	3.208	0.671
Tasks	11660	3.218	0.599
Income	11660	2.895	0.637
Education:			
Medium education	11660	0.672	0.469
High education	11660	0.169	0.375
Personal and job characteristics:			
Age in years	11660	40.95	11.445
Monthly income (DM)	11660	3840.39	1310.516
Working hours	11660	41.13	6.899
Heavy weight	11660	0.341	0.474
Smoke, dust, noise and cold	11660	0.504	0.500
Night-/shiftwork	11660	0.249	0.433

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.

Table A.3: Tasks

	Female tasks		Male tasks	
	Mean	Std. Dev.	Mean	Std. Dev.
Equip machines	0.038	0.190	0.191	0.393
Control machines	0.107	0.309	0.254	0.435
Maintain machines	0.013	0.114	0.204	0.403
Driving vehicles	0.028	0.164	0.207	0.405
Restaurate	0.007	0.081	0.077	0.266
Breed, plant	0.013	0.112	0.019	0.137
Gaining commodities	0.002	0.040	0.012	0.110
Prepare food etc.	0.063	0.243	0.081	0.273
Work on buildings	0.009	0.093	0.120	0.325
Serve, accommodate	0.068	0.252	0.013	0.112
Cleaning	0.142	0.350	0.021	0.145
Abolish litter	0.104	0.305	0.068	0.253
Load, pack	0.094	0.292	0.096	0.294
Sort, archive	0.208	0.406	0.096	0.294
Analyze, research	0.088	0.283	0.156	0.363
Construct paint	0.047	0.211	0.100	0.300
Buy, sell, advertise	0.281	0.450	0.159	0.366
Writing	0.442	0.497	0.292	0.455
Calculate bookkeeping	0.185	0.388	0.174	0.379
EDV tasks	0.218	0.413	0.180	0.384
Guard	0.016	0.125	0.058	0.234
Work with laws	0.087	0.282	0.139	0.346
Teaching	0.158	0.365	0.148	0.355
Care-giving	0.138	0.345	0.021	0.144
Publish	0.052	0.222	0.061	0.239
Supervise personnel	0.098	0.298	0.183	0.386
Coordinate	0.198	0.399	0.287	0.453

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
Share of females and males who indicated performing the respective tasks.

Table A.4: Estimates for stereotypes index

Dependent variable: Occupational sex stereotypes

Male tasks		Female tasks	
Equip machines	0.134*** (0.030)	Serve, accommodate	-0.990*** (0.044)
Control machines	0.340*** (0.026)	Breed, plant	-0.128** (0.062)
Maintain machines	0.524*** (0.028)	Cleaning	-0.293*** (0.050)
Driving vehicles	0.437*** (0.024)	Sort, archive	-0.171*** (0.026)
Restaurate	0.502*** (0.040)	Analyze, research	-0.030 (0.024)
Gaining commodities	0.871*** (0.109)	Construct, paint	-0.115*** (0.030)
Prepare food	0.067* (0.036)	Buy, sell, advertise	-0.369*** (0.022)
Work on buildings	0.478*** (0.033)	Writing	-0.316*** (0.020)
Abolish litter	0.047* (0.039)	EDV tasks	-0.220*** (0.021)
Load, pack	0.218*** (0.033)	Work with laws	-0.007 (0.023)
Calculate, bookkeeping	0.093*** (0.022)	Teaching	-0.179*** (0.024)
Guard	0.390*** (0.045)	Care-giving	-0.707*** (0.035)
Publish	0.002 (0.016)	Coordinate	-0.014 (0.021)
Supervise personnel	0.124*** (0.024)	Publish	-0.001 (0.033)

Source: All data are drawn from the BIBB/IAB Strukturerhebung 1991/92.
* Denotes significant at 10 percent level. ** Denotes significant at 5 percent level. *** Denotes significant at 1 percent level. The dependent variables are 5-point Lickert scales of occ. sex stereotypes. The highest value denotes a stereotype male the lowest a stereotype female job. Regression includes all observations with no missing values on tasks. Robust standard errors are used. Standard errors under coefficients.