

Gender Discrimination in the Hiring for Skilled Professionals in Two Male-Dominated Occupational Fields – A Factorial Survey Experiment with Real-World Vacancies and Recruiters in Four European Countries

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Online-Appendix

Table A.1 Valid responses (recruiters) across countries and occupational fields

	All	Bulgaria	Greece	Norway	Switzerland
Mechanics	333	92	82	54	105
Finance	322	73	77	79	93
Health	652	188	72	228	164
Catering	269	67	76	49	86
IT	344	92	64	56	132
Total	1920	512	371	457	580

Source: Negotiate Employer Survey (NEGOTIATE 2020)

Table A.2 Gender discrimination, by country, with control for vignette dimensions, vignette-job match and opportunity structures – Mechanics and IT Professionals

	Bulgaria		Greece		Norway		Switzerland	
	Mechanics	IT	Mechanics	IT	Mechanics	IT	Mechanics	IT
<i>Job candidate characteristics</i>								
Female	-0.364*** (0.061)	-0.019 (0.030)	-0.124* (0.059)	0.040 (0.036)	0.102* (0.050)	0.035 (0.038)	0.034 (0.032)	0.006 (0.032)
<i>Recruiter characteristics</i>								
Recruiter sex: Male	-0.187+ (0.112)	0.162 (0.134)	0.041 (0.133)	-0.100 (0.169)	-0.063 (0.151)	0.265+ (0.140)	0.040 (0.100)	0.065 (0.086)
Unemployment resentment: No (ref.)								
It depends	-0.054 (0.108)	0.005 (0.166)	0.126 (0.145)	0.180 (0.143)	0.186 (0.136)	0.135 (0.172)	-0.249* (0.109)	-0.237* (0.095)
Yes	0.328+ (0.176)	-0.066 (0.167)	-0.037 (0.200)	0.417* (0.193)	-0.670*** (0.142)	0.641** (0.209)	-0.310* (0.153)	-0.147 (0.128)
Team fit important	0.019 (0.064)	0.114 (0.089)	0.025 (0.078)	0.004 (0.062)	0.237** (0.082)	-0.076 (0.111)	0.154** (0.047)	0.026 (0.047)
<i>Job characteristics</i>								
Job experience required: Many years (ref.)								
Some experience	-0.202+ (0.122)	0.233+ (0.132)	0.256 (0.168)	0.241* (0.122)	0.023 (0.136)	-0.011 (0.202)	0.260+ (0.149)	0.233* (0.091)
Not necessary	0.162 (0.207)	0.264 (0.201)	0.203 (0.320)	-0.102 (0.246)	0.269 (0.284)	0.116 (0.343)	0.330+ (0.185)	0.348+ (0.192)
Importance to fill vacancy	0.109 (0.085)	0.116 (0.117)	-0.148 (0.122)	-0.341*** (0.098)	0.144 (0.088)	0.317 (0.203)	-0.092 (0.080)	-0.110 (0.072)
Wage quartile: 1st	-0.010 (0.131)	-0.295+ (0.161)	-0.107 (0.298)	-0.295 (0.222)	0.225 (0.190)	0.452+ (0.235)	-0.078 (0.138)	-0.090 (0.127)
2nd (ref.)								
3rd	0.292* (0.136)	-0.133 (0.178)	-0.144 (0.185)	-0.272 (0.186)	-0.237 (0.179)	-0.489+ (0.260)	-0.129 (0.132)	-0.345*** (0.097)
4th	0.092 (0.121)	-0.096 (0.174)	-0.396* (0.171)	-0.551** (0.190)	-0.542** (0.170)	-0.079 (0.298)	-0.151 (0.143)	-0.308** (0.119)
Job status: Employed (ref.)								

Executive	-0.166 (0.214)	-0.180 (0.193)	-0.015 (0.226)	-0.262 (0.249)	0.187 (0.192)	0.319 (0.408)	0.295 ⁺ (0.154)	-0.062 (0.093)
Trainee	-0.150 (0.106)	0.013 (0.155)	-0.105 (0.159)	-0.067 (0.142)	-0.028 (0.216)	-0.275 (0.259)	0.008 (0.120)	-0.063 (0.228)
Part-time position	0.071 (0.375)	-0.553 ⁺ (0.293)	0.053 (0.279)	0.172 (0.305)	0.399 (0.271)	0.000 (.)	0.152 (0.160)	0.048 (0.138)
<i>Company characteristics</i>								
Firm size: Up to 20 (ref.)								
n.a.	0.000 (.)	0.000 (.)	0.000 (.)	-0.313 (0.248)	0.000 (.)	0.972* (0.430)	0.000 (.)	0.000 (.)
Up to 100	-0.201 (0.132)	-0.063 (0.201)	0.413** (0.145)	-0.154 (0.203)	-0.362 (0.251)	0.040 (0.325)	-0.124 (0.194)	-0.346* (0.156)
Up to 250	-0.441*** (0.123)	-0.005 (0.176)	0.193 (0.159)	0.204 (0.153)	-0.094 (0.149)	-0.101 (0.316)	0.054 (0.180)	-0.095 (0.122)
More than 250	-0.104 (0.116)	-0.019 (0.161)	-0.560 (0.391)	-0.219 (0.210)	-0.302* (0.154)	-0.106 (0.232)	-0.015 (0.171)	-0.094 (0.141)
Company is non-profit oriented	-0.028 (0.222)	-0.484* (0.237)	0.000 (.)	0.573** (0.216)	0.049 (0.312)	-0.028 (0.205)	0.000 (.)	0.026 (0.153)
Economic performance: Stable (ref.)								
Improved	-0.016 (0.101)	-0.080 (0.130)	0.186 (0.138)	0.186 (0.115)	-0.005 (0.132)	0.318 (0.244)	0.050 (0.115)	-0.048 (0.078)
Worsened	-0.282 (0.213)	0.460 (0.378)	0.124 (0.165)	0.456* (0.212)	-0.124 (0.196)	-0.310 (0.487)	0.034 (0.109)	0.063 (0.141)
N (observations)	850	860	646	514	470	480	910	1109

Source: Negotiate Employer Survey (NEGOTIATE 2020). Multilevel linear regression models, dependent variable: likelihood of hiring (1-11, logged). Controlling for all other candidate characteristics from Table 1. ⁺ $p < 0.1$, $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.3 Interaction terms between vignette gender and opportunity structures (separate estimations for each interaction)

	Bulgaria		Greece		Norway		Switzerland	
	Mechanics	IT	Mechanics	IT	Mechanics	IT	Mechanics	IT
<i>Gender*Necessity of Job Experience</i>								
Female	-0.421** (0.145)	-0.043 (0.046)	-0.174** (0.065)	-0.043 (0.046)	0.031 (0.043)	-0.032 (0.056)	0.011 (0.036)	-0.034 (0.032)
Experience required: Many years (ref.)								
Some experience	-0.101 (0.127)	0.156 (0.108)	0.147 (0.131)	0.156 (0.108)	0.131 (0.122)	0.079 (0.162)	0.067 (0.088)	0.347*** (0.075)
Not necessary	0.553* (0.277)	0.707*** (0.173)	0.833** (0.254)	0.707*** (0.173)	1.166*** (0.292)	0.279 (0.315)	0.472* (0.204)	0.663*** (0.113)
Female*Some experience	0.007 (0.158)	-0.000 (0.056)	0.033 (0.086)	-0.000 (0.056)	-0.009 (0.059)	0.026 (0.064)	-0.048 (0.045)	-0.020 (0.041)
Female*Not necessary	-0.160 (0.291)	-0.089 (0.078)	-0.330* (0.141)	-0.089 (0.078)	-0.008 (0.064)	0.072 (0.079)	0.009 (0.069)	0.005 (0.098)
<i>Gender*Wage</i>								
Female	-0.599*** (0.116)	-0.138* (0.060)	-0.323*** (0.098)	-0.138* (0.060)	-0.002 (0.046)	-0.088+ (0.047)	-0.001 (0.036)	0.022 (0.033)
Wage quartile: 1st	-0.279 (0.177)	-0.286* (0.135)	-0.090 (0.248)	-0.286* (0.135)	0.134 (0.299)	0.290 (0.272)	-0.030 (0.134)	0.059 (0.134)
2nd (ref.)								
3rd	0.044 (0.153)	-0.324+ (0.178)	-0.273 (0.194)	-0.324+ (0.178)	-0.317 (0.195)	-0.122 (0.240)	-0.075 (0.123)	-0.262* (0.111)
4th	-0.257+ (0.153)	-0.480*** (0.139)	-0.506** (0.192)	-0.480*** (0.139)	-0.441* (0.212)	-0.067 (0.227)	-0.074 (0.131)	-0.232* (0.110)
Female*1st	0.251 (0.168)	0.030 (0.077)	0.142 (0.118)	0.030 (0.077)	0.125 (0.103)	0.109+ (0.066)	-0.018 (0.058)	-0.074 (0.060)
Female*3rd	0.155 (0.149)	0.115 (0.072)	0.150 (0.137)	0.115 (0.072)	0.047 (0.065)	0.122 (0.082)	-0.022 (0.056)	-0.077 (0.053)
Female*4th	0.363* (0.155)	0.177* (0.079)	0.319* (0.134)	0.177* (0.079)	0.023 (0.088)	0.083 (0.061)	-0.054 (0.059)	-0.131** (0.047)
<i>Gender*Job status</i>								

Female	-0.423*** (0.068)	-0.071** (0.026)	-0.164** (0.054)	-0.071** (0.026)	0.029 (0.034)	-0.015 (0.029)	-0.021 (0.019)	-0.047* (0.023)
Job status: Employed (ref.)								
Trainee	0.002 (0.119)	-0.256* (0.129)	-0.077 (0.135)	-0.256* (0.129)	0.359 (0.299)	-0.388+ (0.204)	-0.116 (0.215)	-0.309** (0.118)
Executive	-0.098 (0.175)	-0.259 (0.193)	-0.167 (0.215)	-0.259 (0.193)	-0.124 (0.208)	0.090 (0.333)	-0.049 (0.180)	-0.180* (0.075)
Female*Trainee	-0.018 (0.123)	0.097 (0.099)	-0.036 (0.089)	0.097 (0.099)	-0.084 (0.080)	0.018 (0.042)	-0.239 (0.355)	0.001 (0.083)
Female*Executive	-0.091 (0.319)	0.069 (0.090)	0.043 (0.227)	0.069 (0.090)	0.044 (0.079)	0.061 (0.082)	0.172+ (0.101)	0.001 (0.045)
<i>Gender*Part time</i>								
Female	-0.431*** (0.057)	-0.049+ (0.025)	-0.185*** (0.053)	-0.049+ (0.025)	0.049 (0.032)	0.002 (0.024)	-0.021 (0.022)	-0.055** (0.021)
Part time	-0.248** (0.077)	0.143 (0.289)	-0.060 (0.218)	0.143 (0.289)	1.266*** (0.199)		0.604*** (0.060)	0.146 (0.113)
Female*Part time	-0.025 (0.312)	-0.097 (0.204)	0.070 (0.094)	-0.097 (0.204)	-0.004 (0.078)		-0.132*** (0.034)	0.097 (0.062)
<i>Gender*Economic Performance</i>								
Female	-0.388*** (0.066)	-0.067 (0.042)	-0.353*** (0.092)	-0.067 (0.042)	0.104+ (0.054)	-0.040 (0.057)	-0.034 (0.046)	-0.056+ (0.032)
Economic Performance: Improved	0.068 (0.133)	-0.067 (0.111)	0.031 (0.168)	-0.067 (0.111)	0.191 (0.206)	-0.087 (0.238)	0.138 (0.118)	-0.053 (0.096)
Stable (ref.)								
Worsened	-0.037 (0.251)	0.597 (0.416)	-0.078 (0.177)	0.597 (0.416)	-0.207 (0.245)	-0.409* (0.203)	0.012 (0.101)	-0.075 (0.100)
Non-profit	0.056 (0.105)	-0.028 (0.107)		-0.028 (0.107)	-0.163 (0.180)	-0.324 (0.243)		-0.010 (0.216)
Female*Improved	-0.107 (0.135)	0.066 (0.051)	0.242* (0.121)	0.066 (0.051)	-0.038 (0.069)	0.038 (0.069)	0.013 (0.060)	0.002 (0.044)
Female*Worsened	-0.230 (0.263)	-0.315** (0.106)	0.300* (0.117)	-0.315** (0.106)	-0.147 (0.095)	-0.079 (0.063)	0.020 (0.054)	0.047 (0.060)
Female*Non-profit	0.123+ (0.067)	0.028 (0.045)		0.028 (0.045)	-0.193** (0.071)	0.032 (0.072)		0.122 (0.082)

Legend: Source: Negotiate Employer Survey (NEGOTIATE 2020). Multilevel linear regression models, dependent variable: likelihood of hiring (1-11, logged). Controlling for candidate characteristics. Separate model for each interaction term, these models serve as the basis for Figures 2-6. ⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.4 Correlation matrix of vignette characteristics

	Gender	Unemployment	Sequence	National Variable
<i>Sampled vignettes</i>				
Vignette gender (dichotomous)	x			
Unemployment duration and timing (no, 10 months, 20 months)	0.061 (n.s.)	x		
Sequence (9 states)	0.105 (n.s.)	0.078 (n.s.)	x	
National variable (dichotomous)	0.025	0.040 (n.s.)	0.000 (n.s.)	x
n = 194 vignettes				
<i>All valid vignette-recruiter observations</i>				
Vignette gender	x			
Unemployment duration and timing	0.077 (***)	x		
Sequence	0.115 (***)	0.169 (***)	x	
National variable	0.058 (***)	0.234 (***)	0.149 (***)	x
n = 20,793 vignette-recruiter observations				

Legend: Source: Negotiate Employer Survey (NEGOTIATE 2020). Sample: all valid observations across four countries and five occupations. Correlations coefficients: Chi-Squared (gender / national variable), Cramer's V (all other). Please note that testing for significance is not applicable for Cramer's V, the respective tests presented are derived from Chi-Squared testing (provided in brackets). These tests are, however, sensitive to case numbers and number of cells. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table A.5 D-efficiencies for combinations of model specifications and fractions of the full factorial

Number of vignettes	90	100	162	180
<i>Model Specification</i>				
Main Effects	99.2	99.3	99.8	99.9
Main Effects + Interaction (2 x 2)	99.0	99.2	99.7	99.9
Main Effects + Interaction (2 x 7)	98.0	98.7	99.4	99.4
Main Effects + Interaction (2 x 9)	98.2	98.6	99.5	99.5
Main Effects + Interaction (7 x 9)	92.9	93.9	97.9	98.8
Main Effects + All Two-Way Interactions	n.a.	76.9	94.6	95.2


D-efficiencies for different samples of vignettes (sample size in columns) randomly drawn from full vignette universe ($n = 252$). Calculations by project members (Sacchi, 2019, unpublished, can be obtained from the authors upon request). n.a.: This model implies 94 parameters and is hence not identified for a solution with 90 vignettes.

Table A.6 Test for difference between coefficients


	BG	GR	NO	CH
<i>Testing for within-country differences</i>				
IT vs. Mechanics	39.94***	1.57	0.21	0.01
<i>Testing for between-country differences</i>				
Mechanics:				
BG	x			
GR	13.88***	x		
NO	36.46***	5.53*	x	
CH	51.80***	5.96*	0.16	x
IT Professionals:				
BG	x			
GR	0.30	x		
NO	0.61	1.49	x	
CH	0.00	0.36	0.76	x

Source: Negotiate Employer Survey (NEGOTIATE 2020). Own calculations. Chi-square based test for difference in coefficients (across OLS models) using the `suest` command in Stata.

Fig. A.1 Vignette display (example for Switzerland)



Universität
Basel



Personalien
Geschlecht
Staatsangehörigkeit

Bewerbung B
Frau
Schweiz

Berufserfahrung

Zeitraum	Stellung
12-2015 (Arbeitslos)	Arbeitslos
12-2014 (2. Stelle)	2. Stelle: Detailhandelsangestellte
12-2013 (1. Stelle)	1. Stelle: Detailhandelsangestellte
12-2012	1. Stelle: Detailhandelsangestellte
12-2011	1. Stelle: Detailhandelsangestellte
09-2011	1. Stelle: Detailhandelsangestellte

Ausbildung

09-2011	Berufslehre Detailhandelsangestellte EFZ
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Bitte beachten Sie bei der Bewertung der Lebensläufe unbedingt folgende Punkte:

- Die Dauer der Erwerbs- und Nicht-Erwerbsphasen lässt sich an der Höhe der farbigen Elemente ablesen.
- Wenn die gezeigten Lebensläufe über bestimmte Stellenanforderungen nichts aussagen, nehmen Sie an, dass diese erfüllt sind. Sie werden später noch Gelegenheit erhalten, zusätzliche Stellenanforderungen anzugeben.

Wie sind die Chancen einer Person mit dem obenstehenden Lebenslauf, für die ausgeschriebene Stelle berücksichtigt zu werden?

praktisch Null ausgezeichnet

0 1 2 3 4 5 6 7 8 9 10

○ — ○ — ○ — ○ — ○ — ○ — ○ — ○ — ○ — ○

Zurück Weiter

Source: Negotiate Employer Survey (NEGOTIATE 2020)