Why is Unemployment Duration a Sorting Criterion in Hiring?

Eva Van Belle[1] and Stijn Baert[2]

Abstract

Recent evidence from large-scale field experiments has shown that employers use job candidates' unemployment duration as a sorting criterion. In the present study we investigate the mechanisms underlying this pattern. To this end, we conduct a lab experiment in which participants make hiring decisions concerning fictitious job candidates with diverging unemployment durations. In addition, these participants rate the job candidates on statements central to four theoretical channels often related to the negative signal of unemployment: general signalling theory, (perceived) skill loss, queuing theory and rational herding. We use this information to estimate a multiple mediation model, where the effect of unemployment duration on hiring decisions is mediated by the four theories. The lower hiring chances of the long-term unemployed turns out to be dominantly driven by the perception of unemployment as (i) signalling lower motivation and (ii) resulting from being weighed and found wanting by other employers.

Keywords: unemployment scarring; signalling theory; queuing theory; rational herding.

JEL-codes: J64, J24, J23, C91.

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1. Introduction

The negative duration dependence of unemployment, i.e. the observation that an individual's probability to exit unemployment decreases with the duration of her/his unemployment spell, is a hot topic both in sociology of labour and in labour economics (Shimer, 2008; Cockx & Picchio, 2013). Recently, results from large-scale field experiments conducted in Sweden and the United States have shown that at least part of this duration dependence is explained by employers' eager to hire long-term unemployed (Kroft, Lange & Notowidigdo, 2013; Eriksson & Rooth, 2014). Fictitious job applicants with a longer unemployment duration received significantly fewer job interview invitations than identical applicants a shorter unemployment duration.

However, while convincing in terms of their clean measurement of the effect of a long unemployment duration on one's cv in terms of hiring chances, these field experiments do not allow to disentangle the reasons for this pattern. They show whether or not an employer invites a candidate for a job interview, but no insight is given in the thought process or reasoning behind this decision. Apparently, long-term unemployment is seen as a negative signal by employers but it remains unclear what exactly is signalled by longer unemployment durations. Investigating this is the logical next step to take in this literature. Also from a policy perspective, investigating why exactly unemployment duration is a sorting criterion in hiring is relevant. If the unemployed (and the people who guide them) know the (mis)perceptions about them standing in the way their employment opportunities, they may attempt compensate this by underlining relevant personal characteristics and attainments in their cv.

In this study, we explore the empirical importance of four theoretical mechanisms in explaining employers' eager to hire long-term unemployed. To this end, we bring the field setting of Kroft, Lange & Notowidigdo (2013) and Eriksson & Rooth (2014) to the lab. More concretely, we propose a state-of-the-art vignette experiment in which participants trained in recruitment and selection of personnel make fictitious hiring decisions with respect to job candidates with diverging unemployment durations. In addition, the participants are surveyed on their perception of these candidates concerning characteristics based on which

they are rejected by employers according to the four theories. This allows us to measure the empirical power of these theories by estimating a multiple mediation model.

The remainder of this paper is structured as follows. Section 2 gives a brief overview of four leading theoretical explanations for the negative signal of unemployment, found in the multidisciplinary literature on this topic in the social and behavioural sciences. Section 3 describes the experiment we conducted. The experimental data is then analysed to test the empirical value of the theories. Section 5 concludes with some take-away messages for policy and acknowledges some research limitations.

2. Theoretical Mechanisms

Theories explaining the phenomenon of negative duration dependence in unemployment are abundant in both the fields of sociology and economy. In the present study, we focus on four widely cited theories focussing on employers' perceptions and preferences underlying the scar of unemployment: general signalling theory, (perceived) skill loss, queuing theory and rational herding.[3]

Signalling theory is the collection of theories arguing that when people are confronted with limited information, they use this available information as a signal for other, unobserved factors (Vishwanath, 1989; Lockwood, 1991; Blanchard & Diamond, 1994; Moscarino, 1997; Kroft, Lange & Notowidigdo, 2013; Eriksson & Rooth, 2014). According to this theory, long-term unemployment might signal unobserved productivity determinants. In particular, it has been argued that long unemployment spell may signal (i) lower intellectual capabilities, (ii) lower social capabilities and (iii) lower motivation. This second channel is thereby closely related to Arrow's (1973) model of statistical discrimination.

The skill loss theory was first described by Acemoglu (1995), who claimed that it is costly for the unemployed to maintain their skill level during the stretch of unemployment.

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[3] As a consequence, in line with the aim of our research, we neglect theoretical explanations that are situated exclusively at the employee and institutional side, which are kept constant in the experiment presented below.

Moreover, potential future employers cannot detect whether or not a job applicant has done so. As shown by Acemogly (1995), these two observations may result in an inefficient equilibrium in which employers discriminate against the long-term unemployed (and the unemployed do not invest to maintain their skill level).

Queuing theory (Thurow, 1975; Di Stasio, 2014) suggests that employers rank all job candidates by their (perceived) trainability, with the person they believe will be easiest to train holding the first position in the queue and the person they perceive as the least trainable the last. Subsequently, employers decide on a cut-off and only the individuals above the cut-off are invited for a job interview. Since employers again do not possess full information, they have to use the limited information available to assess a job applicant's trainability. If employers believe unemployment has a negative effect on trainability, this will mean that people with a longer unemployment spell will end up lower in the labour queue and as a consequence have a lower chance of getting invited for a job interview.

A final theory stipulates that potential employers follow the behaviour of other employers when making the decision to invite someone for a job interview. This is termed rational herding (Oberholzer-Gee, 2008). One such factor from which employers might infer the screening behaviour of their colleagues is job candidates' unemployment duration. If this unemployment duration is relatively long, recruiters might conclude that other employers have found the candidate's productivity to be low. A long unemployment duration might thus, also following this theory, lead to the conclusion that it is unprofitable to hire the candidate.

The last three theories are in fact a broad sense application of the signalling theory. Indeed, apart from the direct signals of unemployment mentioned, the unemployment spell might signal (a) skill loss, (b) lower trainability and (c) rejections by other employers.

To make sure we were not omitting important potential channels, we conducted interviews with five recruitment professionals.[4] Over the course of the interviews, we asked these recruiters if they would hire a person with a long unemployment duration and if not, which reasons they voiced for this decision. In addition, we confronted them with the theoretical channels we selected for the present research. More concretely, we asked them

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[4] A report of these interviews is available on request.

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whether one of these channels had ever driven their hiring decisions in practice. Spontaneously, all the recruitment professionals linked long-term unemployment to a signal of fewer hard or soft skills and/or a lower motivation. The fact that the workplace goes through quick changes over the course of an unemployment spell was also frequently cited. Moreover, the interviews indicated that all of the theoretical channels listed above are seen as relevant explanations by the recruitment professionals and are thereby, at least in their opinion, not taken out of thin air.

We are not aware of previous studies comparing the empirical power of these theories in explaining the lower hiring chances of long-term unemployed.

3. Experiment

In order to not only measure whether or not unemployment duration affects hiring decisions but also gain an insight in the thought process leading to this pattern, we conducted a vignette study. Vignette studies are based on the factorial survey method (Rossi & Nock, 1982; see also Auspurg & Hinz, 2015; Di Stasio, 2014) and commonly used to study human judgements (Jasso, 2006; Di Stasio, 2014). They combine the best attributes of an experiment and a survey (Auspurg & Hinz, 2015).

3.1. Experimental Set-up

We asked a sample of last-year students in a recruitment oriented master to evaluate a set of five fictitious job applicants. Each job applicant varied on five factors. These vignette factors are presented in Table 1. We chose to include five vignette factors. This is the lower bound of the number of vignette factors commonly advised (Sauer, Auspurg, Hinz & Liebig, 2011). The choice was made to limit respondent's fatigue and ensure consistent estimates given the large number of judgements we asked them to make. The particular vignette factors used were chosen on the basis of a literature review and tested over the course of the interviews we conducted with recruitment professionals. We ran a pilot study to assess

whether our vignettes were perceived as plausible and no important information was omitted.

<div align="center">< Table 1 about here ></div>

More concretely, as can be seen from Table 1, the fictitious candidates within our experiment could differ in gender, highest degree obtained, work experience and whether or not they mentioned social activities on their résumé. However, the vignette factor of interest for our study was the number of months a candidate reported to have been unemployed prior to the job application. In line with Kroft, Lange & Notowidigdo (2013), this variable could take on any number from one to 36 months. We opted for this flexible approach to not predispose any judgement on the pattern of the effect of unemployment duration on hiring chances.

Fully crossing all the vignette levels resulted in a vignette universe of 576 vignettes. To minimise correlations between the vignette factors, a D-efficient design was used. We selected 60 sets of 5 vignettes and achieved a D-efficiency of 99.82. Correlations among the vignette factors are shown in Table A1 (in Appendix A).

3.2. Data Collection

We recruited 95 participants from three recruitment-oriented master programs[5] at Ghent University, in Flanders, the northern Dutch-speaking region of Belgium, in October and November 2016.

These participants first received a booklet containing experimental instructions. At the beginning of this booklet, testers were introduced to their role as employer at a company selling building materials. This company was in search of a new counter assistant. The testers were informed that this counter assistant should be (i) customer-oriented, (ii) service-minded and (iii) commercially oriented. In addition, the assistant was expected to be efficient and reliable in managing administrative tasks. Subsequently, they received information on the qualifications of five fictitious candidates for the positions. This information was a table with the candidates' level with respect to the five vignette factors.

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[5] These programs are industrial psychology, business economics and commercial sciences.

The respondents were asked to indicate their intentions to hire the candidate by scoring the statements "The probability that I will invite this candidate for a job interview is high" and "The probability that I will hire this candidate for the position is high" on a 7-point Likert scale. To test for the different theoretical channels potentially explaining the negative, the respondents were additionally probed to rate 8 statements, linked to the four theoretical channels stipulated in section 2, on a 7-point Likert scale. These theories and their accompanying statements are specified in Table 2.

< Table 2 about here >

Finally, the respondents were asked to provide some personal information, including their gender, nationality, their field of study and some indicators of their socio-economic status. Table 3 reports the distribution of respondents divided by unemployment duration of the candidates, showing that our randomisation was successful.

< Table 3 about here >

4. Results

4.1. Mediator Scales

We include four mediators in the mediation model presented below, linked to the four theoretical channels described in Section 2 and the statements presented to the participants to our experiment as described in Section 3.2. The first mediator is what we call the *signalling scale* and groups the first three statements from Table 2 (Cronbach's alpha: α = .71). The second mediator is what we call the *skill loss scale* and is made up of the scores of the 4th, 5th and 6th statement from Table 2 (α = .72). Since the 4th statement is expressed in a positive way and the 5th and the 6th statement in a negative way, we first inversed the scores of the 4th statement before grouping these three statements. We opted to inverse the 4th statement, rather than the 5th and 6th statements, as 'skill loss' is more easily interpreted to be negative. The third mediator, the *trainability scale*, is made up of the

scoring of the 7th statement. The fourth and final mediator, the *rational herding scale*, is determined by the score of the 8th statement.

4.2. Mediation Analysis

We estimate a multiple mediation model (Barron & Kenny, 1986; see also Hayes, 2009) to analyse the direct effect of unemployment duration on hiring chances, as well as the indirect effect of this unemployment duration on hiring chances, passing through the four mediators. A simplified version of the estimated model is represented in Figure 1.

< Figure 1 about here >

In a first step we estimate the total effect of unemployment duration on hiring chances[6] to ascertain that we find a similar effect in our lab-experiment as what has been found by large-scale field experiments (Oberholzer-Gee, 2008; Kroft, Lange & Notowidigdo, 2013; Eriksson & Rooth, 2014). Subsequently, we explore the mediation effect. This effect can be interpreted as the product of the effect of unemployment duration on the mediator scales and the effect of the mediator scales on the hiring chances ($a_i * b_i$, with *i* ranging from 1 to 4). Therefore, we start by exploring both of these effects separately. Finally, we estimate a complete multiple mediation regression model, which enables us to quantify the direct (*c'*) and indirect effects of unemployment duration on hiring chances.

4.2.1. Unemployment Duration and Hiring Chances

To investigate the total effect of unemployment duration on hiring chances, we divide the pool of potential job candidates by unemployment duration and look at the average scores of these job candidates on the interview scale and hiring scale. A t-test is used to determine whether the differences in means are significantly different from zero. The same exercise is repeated for three different cut-off points in the distribution of unemployment durations. More concretely, we compare candidates with an unemployment duration of three months or less to candidates with an unemployment duration of more than three months and repeat this for 12 months and 24 months as cut-off points.

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[6] $c' + a_i * b_i$ in Figure 1.

It is important to account for the nested structure of data collected through a factorial survey, with multiple vignettes judged by the same respondent (Jasso, 2006). To allow for the dependence of the error term within respondents, all estimated t-values are clustered at the respondent level. The mean ratings on the interview and hiring scales and the t-tests for the differences in means are reported in Table 4.

< Table 4 about here >

As depicted in Table 4, respondents were always significantly more likely to invite candidates belonging to the subsample with a lower unemployment duration, regardless at which point in the unemployment spell the cut-off is placed. A similar result is found for the probability with which a candidate is hired for the position. Again, candidates with a shorter unemployment duration have a significantly higher probability of being hired than candidates with a shorter unemployment duration.

Remember that all other factors on which candidates could differ were randomly assigned and as a consequence orthogonal to one another. Therefore, the pool of candidates with a longer unemployment duration are on average equal to the group of candidates with a shorter unemployment duration on all other vignette factors and thus, only differ by unemployment duration. This shows that, in line with Kroft, Lange & Notowidigdo (2013) and Eriksson & Rooth (2014, a long unemployment spell is clearly seen as a negative signal by respondents.

4.2.2. Exploration of the Mediation Effect

To get an idea of the effect of the unemployment duration on the different mediator scales, we examine the candidates' scores for the eight different statements by their unemployment duration. In addition to the aggregated score at the mediation scale level, we present the scores on the individual statements. The results of this exercise are reported in Table 5.

< Table 5 about here >

As Table 5 shows, unemployment duration has a significant effect on all 4 mediators. Candidates with a higher unemployment duration score significantly lower on the "positive" mediators (signalling and queuing), while they score significantly higher on the "negative"

mediators (skill loss and rational herding). When we look at the individual statements, it is apparent that the means differ significantly for all statements apart from the signalling statements measuring the extent to which a long unemployment duration is viewed as a signal of lower intellectual or social capabilities. This suggests that the significant difference in the signalling scale is mainly driven by a different perception of the candidate's motivation.

As a last step prior to exploring our full multiple mediation model, in which we investigate independent mediation effects, we look at the right part of Figure 1, more specifically at the effect of the mediators on both the likelihood to be invited for an interview and the likelihood to be hired for the position. In order to analyse this relationship, we estimate correlations between the scores on the different statements, either separate or aggregated at the level of the four mediators, and the likelihood of both outcomes to occur. A correlation matrix can be found in appendix Table A2. It suffices to report that all correlations are significantly different from zero and have the expected sign. So, the a positive evaluation with respect to the mediation scales yields higher hiring chances.

4.2.3. Multiple Mediation Regression Model

Finally, we estimate a full multiple mediation model where all of the mediators enter at the same time. The estimated model consist of the following system of equations:

$$M_n = \alpha_{M_n} + \beta_{M_n} * X_C + \gamma_{M_n} * X_S + \boldsymbol{\delta}_{M_n} * \boldsymbol{UD} + \varepsilon_{M_n}; \tag{1}$$

$$Y = \alpha_Y + \beta_Y * X_C + \gamma_Y * X_S + \delta_Y * \boldsymbol{UD} + \boldsymbol{\theta} * \boldsymbol{M_n} + \varepsilon_Y; \tag{2}$$

where X_C is the vector of vignette factors, X_S is the vector of respondent characteristics, UD is the candidate's unemployment duration and M_n is the vector of mediators. Equation (1) is replicated for each of the four mediators. δ_Y is the direct effect of the unemployment duration on hiring chances, while $\boldsymbol{\delta}_{M_n} * \theta_n$ is the indirect effect of unemployment duration on hiring chances through each mediator.

The results of our mediation analysis are depicted in Figure 1 and Figure A1, with the likelihood of being invited for an interview and the likelihood of being hired for the position as the respective outcomes. The corresponding full estimation results are reported in Table 6 and Table A3.

A visual representation of the mediation model with interview scale as the outcome variable is shown in Figure 1. The total effect of unemployment duration on the interview scale (c = - 0.046; p = 0.000) is in line with what is found in section 4.2.1.This total effect can be decomposed in a direct effect and four indirect effects (one for each mediator). The direct effect, indicating whether unemployment duration is associated with the probability of getting invited for an interview after controlling for the four theoretical channels as potential mediators, is substantial (c' = - 0.016; p = 0.000).

< Table 6 about here >

Next, we explore which scales in particular mediate the indirect effect. On the one hand, the unemployment duration is significantly associated with all four mediator scales. The sign of the effects is in line with what we found previously and as expected. On the other hand, two of the mediator scales, the signalling scale ($b_1 = 0.797; p = 0.000$) and the rational herding scale ($b_4 = -0.099; p = 0.043$), appear to significantly influence hiring chances, measured by interview probability. Multiplying the first set of coefficients with the second set yields the mediation outcomes. As expected, we find two significant mediation effects. Firstly, the effect of unemployment duration on the interview outcome is highly significantly mediated by the signalling scale ($a_1 * b_1 = -0.020; p = 0.000$). In addition, we find a weakly significant mediation via rational herding ($a_4 * b_4 = -0.008; p = 0.054$).

These mediation effects show that approximately half of the total effect of unemployment duration on the probability of being invited for an interview is mediated by the signalling effect, while the rational herding theory accounts only for a small fraction of the total effect.

In line with the previous subsections, we estimate a similar model with the probability of being hired for the position as the outcome variable. The results of this model are reported in Figure A1 and Table A3. The total, direct and indirect effects of unemployment duration on hiring chances are similar to what is found before. We can conclude that the lion's share of the total effect (c = - 0.044; p = 0.000) of unemployment duration on hiring chances is explained by a direct effect (c' = - 0.017; p = 0.001) and an indirect effect through signalling ($a_1 * b_1 = -0.017; p = 0.000$). What remains can be attributed to the indirect effect through rational herding ($a_4 * b_4 = -0.009; p = 0.016$). No evidence is found for an independent effect of the other mediators.

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< Table 7 about here >

Finally, we re-estimate these two models including eight mediators, one for each individual statement. Results of these estimations are given in Table A4 and Table A4. These results indicate that the significant indirect signalling effect is mainly explained by a long unemployment duration being viewed as a negative signal of motivation and intellectual capacities. No evidence is found for this long unemployment duration to be a signal of lower social capacities. Moreover, the results in Tables A4 and A5 suggest that there is some evidence of an indirect effect through the 'not up to date with technologies' channel but this small effect is largely offset by the insignificant effects of the other two skill loss statements.

5. Conclusion

Some recent field experiments have shown that a long unemployment duration is perceived as a negative signal by potential future employers, causing a vicious circle, where spells of unemployment lower hiring chances which in turn increases unemployment spells. In order to structurally tackle this inefficient labour market equilibrium, it is important to unravel what lies underneath this negative signal sent by a long unemployment duration. In this study we empirically tested four of the most cited theoretical explanations for this signal by conducting a vignette experiment. The results of this experiment show that the most important theory explaining the negative effect of a long unemployment duration on hiring chances is the signalling theory. After controlling for this channel, little or no evidence is found in support of any of the other three theoretical channels. In other words, employers believe that unemployment duration correlates with fixed (unobservable) employee's characteristics rather than the unemployment duration causing skills to deteriorate and lowering employee's productivity.

Our findings suggest that a lack of information is the main cause of this negative signal and that the long-term unemployed could benefit from including relevant details on their motivation and skills countering the negative influence of the long unemployment duration

on their job applications. From a policy point of view, this finding strengthens the argument raised by Kroft, Lange & Notowidigdo (2013) that the optimal design of unemployment insurance should take into account asymmetric information and social learning, factors omitted up to present (Baily, 1978; Gruber; 1997; Chetty, 2008).

Our empirical research is limited by its laboratory setting. However, the wide-spread use of vignette studies in the social sciences is related to the fact that self-report measures of perceptions have been shown to correlate highly with actual behaviour and that changes in intentions clearly result in actual behavioural changes. Moreover, a vignette experiment addresses some limitations of other experimental approaches, which have been criticised for making too much abstraction of real life situations, thereby raising questions about the external validity or generalisability of their findings. Given our research question, a vignette experiment allows us to combine both the realistic setting exemplified by the scenario and the survey aspect, necessary to get an insight in the underlying thought-process (Baert, 2015; see also Baert, De Pauw & Deschacht, 2016; Colquitt, 2008; De Dreu, Ever, Beersma, Kluwer & Nauta, 2001; Mook, 1983; Shadish, Cook & Campbell, 2002; Van Hoye & Lievens, 2003; Webb & Sheeran, 2006).

While we are currently collecting data from real recruiters, the results reported here are obtained by engaging students as experimental employers. However, Hosoda, Stone-Romero & Coats (2003) and Falk, Meier & Zehnder (2013) show that, in general and in particular with respect to screening job candidates, students' ratings are practically identical to those of professional recruiters. Moreover, student participants are less likely to respond in a socially desirable manner (probably because they are less worried about the reputation of the profession of recruiter). Finally, we selected students in their last year of a recruitment-oriented master program. As a result, these students are very likely to become future employers (Baert, 2015).

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Appendix A: Additional Figures and Tables

< Figure A1 about here >

< Table A1 about here >

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Figure 1.

Mediation Model with Interview as Outcome
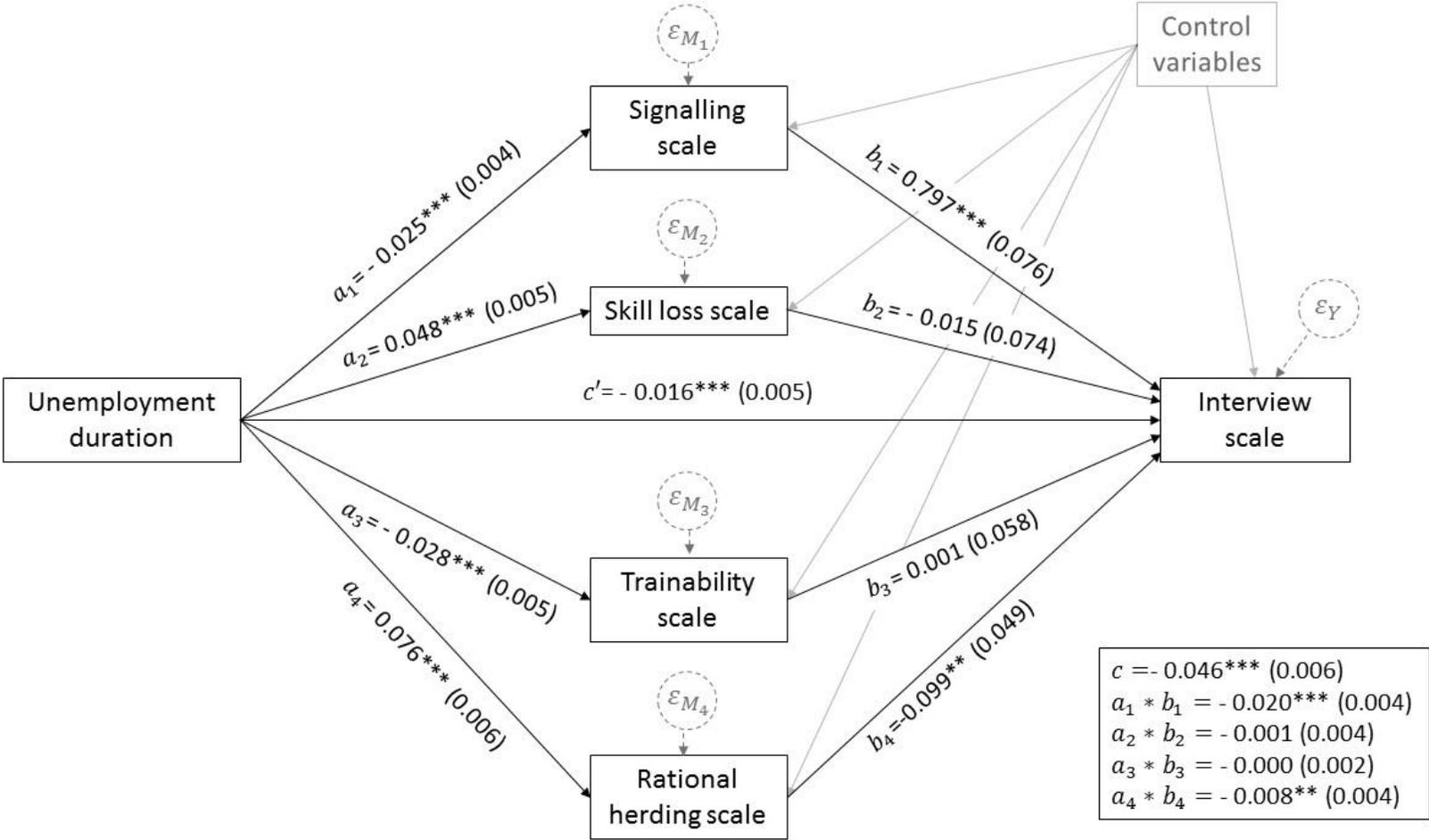
Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section 4.2. Standard errors are corrected for clustering of the observations at the subject level. The confidence intervals for the mediation outcomes are based on 10000 bootstrap samples. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Mediation Model with Hiring as Outcome
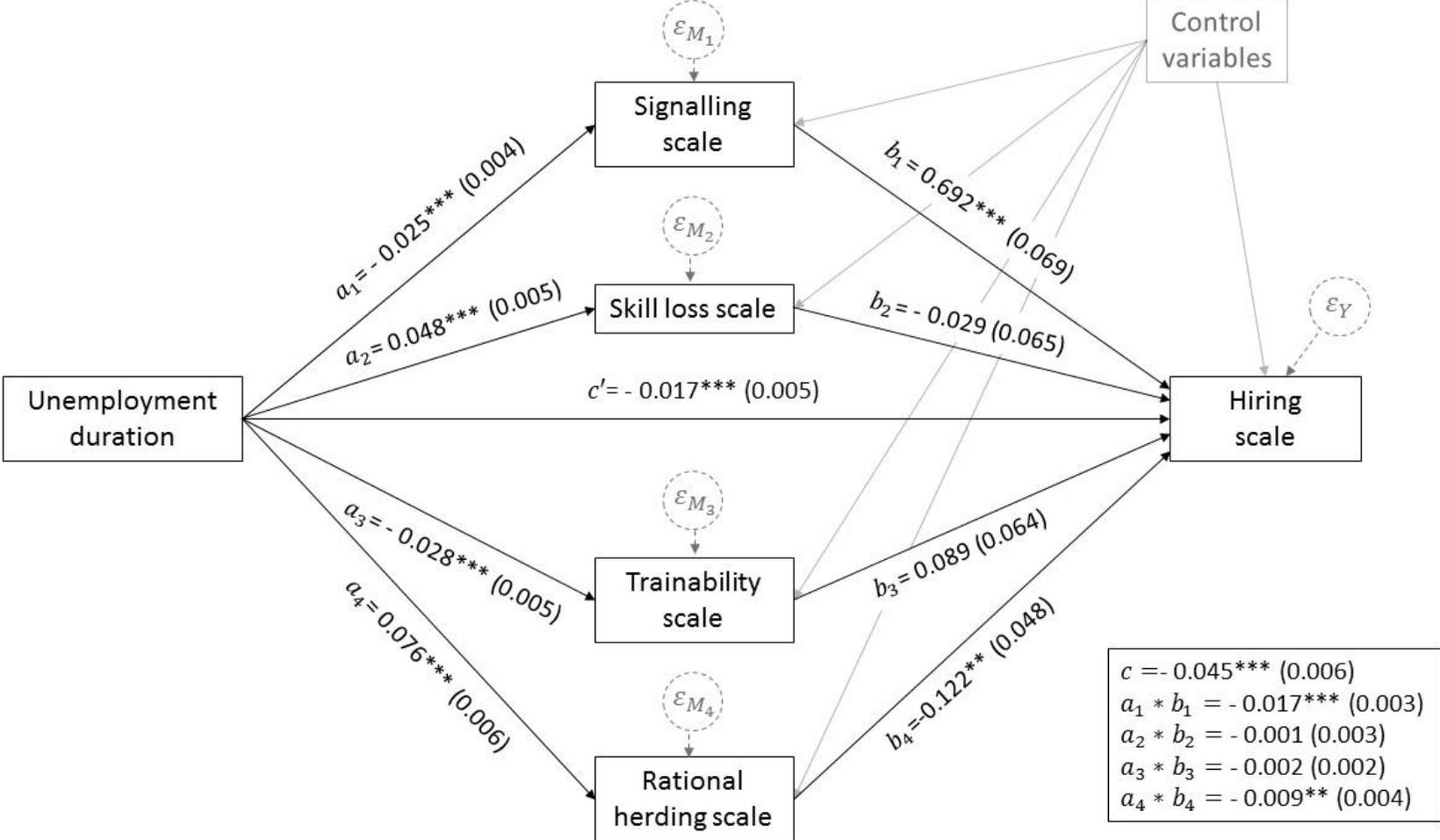
Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section 4.2. Standard errors are corrected for clustering of the observations at the subject level. The confidence intervals for the mediation outcomes are based on 10000 bootstrap samples. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Table 1.

Vignette factors and levels

Vignette factors	Vignette levels	
Gender	Male	Female
Highest obtained degree	Secondary education	Bachelor degree
Previous work experience	2 years	5 years
Mentioned social activities	None	Volunteering
Number of months in unemployment	[1;36]	

Note. The factorial product of the vignette levels (2x2x2x2x36) resulted in 576 possible combinations. Sets of 5 vignettes were drawn from this vignette universe using a D-efficient design (D-efficiency: 99.82) and were distributed at random to the participants. This guaranteed that the vignette factors were nearly orthogonal as shown in Table A1.

Table 2.

Theoretical channels and accompanying statements

Theoretical channel	Statement
Signalling theory	I think this person will be sufficiently motivated to perform properly in this job.
	I think this person possesses sufficient intellectual abilities to perform properly in this job.
	I think this person possesses sufficient social abilities to perform properly in this job.
Skill loss	I think this person is sufficiently aware of the evolutions in the field to perform properly in this job.
	I think this person has lately known a deterioration in his general skills.
	I think this person has lately known a deterioration in his social skills.
Queuing theory	I think this person will be easy to train.
Rational herding	I think this person has often been rejected by other employers.

Table 3.

Summary Statistics: Participant Characteristics by Unemployment Duration of the Fictitious Candidate

	A. THRESHOLD OF CANDIDATE'S UD: 3 MONTHS			B. THRESHOLD OF CANDIDATE'S UD: 12 MONTHS			C. THRESHOLD OF CANDIDATE'S UD: 24 MONTHS		
	Mean		Difference: (A.2) – (A.1)	Mean		Difference: (B.2) – (B.1)	Mean		Difference: (C.2) – (C.1)
	UD ≤ 3 months	UD > 3 months		UD ≤ 12 months	UD > 12 months		UD ≤ 24 months	UD > 24 months	
	N = 43	N = 437		N = 164	N = 316		N = 321	N = 159	
	(A.1)	(A.2)	(A.3)	(B.1)	(B.2)	(B.3)	(C.1)	(C.2)	(C.3)
Female gender	0.690	0.684	-0.007 [0.09]	0.679	0.687	0.008 [0.19]	0.700	0.652	-0.048 [1.08]
Age	22.279	21.995	-0.284 [1.12]	22.244	21.905	-0.339* [1.70]	22.168	21.723	-0.445* [1.79]
Foreign nationality	0.047	0.007	-0.040 [1.03]	0.018	0.006	-0.012 [1.01]	0.016	0.000	-0.016 [1.00]
Highest diploma mother									
Secondary education or lower	0.349	0.366	0.017 [0.23]	0.378	0.358	-0.020 [0.48]	0.380	0.333	-0.047 [0.98]
Tertiary education: outside university	0.395	0.407	0.012 [0.16]	0.402	0.408	0.006 [0.13]	0.405	0.409	0.004 [0.08]
Tertiary education: university	0.233	0.217	-0.151 [0.22]	0.207	0.225	0.174 [0.46]	0.202	0.252	0.049 [1.23]
Highest diploma father									
Secondary education or lower	0.233	0.309	0.076 [1.16]	0.244	0.332	0.088** [2.45]	0.293	0.321	0.023 [0.65]
Tertiary education: outside university	0.419	0.371	-0.048 [0.65]	0.421	0.351	-0.069 [1.57]	0.380	0.365	-0.015 [0.32]
Tertiary education: university	0.349	0.320	-0.029 [0.38]	0.335	0.316	-0.019 [0.45]	0.327	0.314	-0.013 [0.28]
Field of study									
Business economics	0.163	0.293	0.130** [2.05]	0.250	0.297	0.047 [1.34]	0.268	0.308	0.040 [0.98]
Commercial sciences	0.628	0.556	-0.072 [0.96]	0.543	0.572	0.030 [0.67]	0.570	0.547	-0.023 [0.48]
Other	0.209	0.151	-0.058 [1.02]	0.207	0.130	-0.078* [1.81]	0.162	0.145	-0.017 [0.48]

Note. UD stands for unemployment duration. T-tests are performed to test whether the differences presented are significantly different from 0. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level. t-statistics are between brackets.

Table 4.

The Effect of Unemployment Duration on the Probability of Getting Invited for an Interview and on the Probability of Getting Hired for the Position

	A. THRESHOLD OF CANDIDATE'S UD: 3 MONTHS			B. THRESHOLD OF CANDIDATE'S UD: 12 MONTHS			C. THRESHOLD OF CANDIDATE'S UD: 24 MONTHS		
	Mean		Difference: (A.2) – (A.1)	Mean		Difference: (B.2) – (B.1)	Mean		Difference: (C.2) – (C.1)
	UD ≤ 3 months	UD > 3 months		UD ≤ 12 months	UD > 12 months		UD ≤ 24 months	UD > 24 months	
	N = 43	N = 437		N = 164	N = 316		N = 321	N = 159	
	(A.1)	(A.2)	(A.3)	(B.1)	(B.2)	(B.3)	(C.1)	(C.2)	(C.3)
Interview Scale	5.489	4.606	-0.883*** [4.45]	5.256	4.387	-0.869*** [6.77]	4.882	4.285	-0.597*** [4.29]
Hiring Scale	4.884	4.034	-0.849*** [4.07]	4.671	3.819	-0.852*** [6.80]	4.368	3.589	-0.779*** [5.78]

Note. UD stands for unemployment duration. T-tests are performed to test whether the differences presented are significantly different from 0. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level. t-statistics are between brackets.

Table 5.

The Effect of Unemployment Duration on the Score of the Eight Statements

	A. THRESHOLD OF CANDIDATE'S UD: 3 MONTHS			B. THRESHOLD OF CANDIDATE'S UD: 12 MONTHS			C. THRESHOLD OF CANDIDATE'S UD: 24 MONTHS		
	Mean		Difference: (A.2) – (A.1)	Mean		Difference: (B.2) – (B.1)	Mean		Difference: (C.2) – (C.1)
	UD ≤ 3 months	UD > 3 months		UD ≤ 12 months	UD > 12 months		UD ≤ 24 months	UD > 24 months	
	N = 43	N = 437		N = 164	N = 316		N = 321	N = 159	
	(A.1)	(A.2)	(A.3)	(B.1)	(B.2)	(B.3)	(C.1)	(C.2)	(C.3)
Signalling scale	5.031	4.563	-0.468*** [3.09]	4.909	4.447	-0.461*** [5.01]	4.712	4.388	-0.325*** [3.38]
Signalling: motivation	5.349	4.426	-0.923*** [6.10]	5.073	4.215	-0.858*** [7.05]	4.704	4.113	-0.591*** [4.19]
Signalling: intellectual capacities	4.860	4.638	-0.222 [1.09]	4.787	4.592	-0.195 [1.65]	4.723	4.528	-0.194 [1.55]
Signalling: social capacities	4.884	4.625	-0.259 [1.18]	4.866	4.535	-0.331*** [2.73]	4.710	4.522	-0.188[1.55]
Skill loss scale	2.767	4.044	1.276*** [8.42]	3.282	4.263	0.980*** [8.89]	3.710	4.369	0.659*** [5.74]
Skill loss: not up to date with technologies	3.349	4.341	0.992*** [4.25]	3.756	4.509	0.753*** [5.50]	4.050	4.660	0.611*** [4.06]
Skill loss: general skill loss	2.558	4.211	1.653*** [7.92]	3.172	4.522	1.350*** [9.25]	3.744	4.704	0.961*** [7.04]
Skill loss: social skill loss	2.395	3.577	1.181*** [6.09]	2.921	3.756	0.836*** [5.98]	3.336	3.742	0.406*** [2.84]
Trainability scale	4.952	4.391	-0.561*** [3.00]	4.742	4.285	-0.458*** [3.99]	4.594	4.132	-0.462*** [3.73]
Rational herding scale	2.833	4.552	1.718*** [7.11]	3.463	4.886	1.423*** [11.03]	4.024	5.157	1.134*** [8.26]

Note. UD stands for unemployment duration. T-tests are performed to test whether the differences presented are significantly different from 0. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level. t-statistics are between brackets.

Table 6.

Multivariate Analysis: Mediation Analysis with Interview Scale as Outcome

Explanatory variables	Outcome variables				
	Signalling scale	Skill loss scale	Trainability scale	Rational herding scale	Interview Scale
A. CANDIDATE CHARACTERISTICS					
Female gender	-0.037 (0.082)	0.174* (0.093)	-0.057 (0.102)	-0.014 (0.106)	0.039 (0.091)
Bachelor	0.722*** (0.085)	-0.323*** (0.093)	0.926*** (0.108)	-0.567*** (0.111)	0.119 (0.090)
5 years of experience	0.187** (0.078)	-0.132* (0.078)	0.014 (0.090)	-0.063 (0.102)	0.228*** (0.080)
Unemployment duration	-0.025*** (0.004)	0.048*** (0.005)	-0.028*** (0.005)	0.076*** (0.006)	-0.015*** (0.005)
Volunteering	0.764*** (0.081)	-0.572*** (0.096)	0.282*** (0.085)	-0.306*** (0.100)	-0.098 (0.093)
B. SUBJECT CHARACTERISTICS					
Female gender	0.077 (0.141)	-0.076 (0.147)	-0.131 (0.133)	0.324** (0.158)	0.006 (0.121)
Age	-0.041** (0.020)	0.015 (0.029)	-0.009 (0.030)	0.034 (0.029)	-0.036* (0.020)
Highest diploma mother					
Secondary education or below	0.077 (0.209)	0.100 (0.250)	0.076 (0.231)	0.280 (0.231)	0.457*** (0.170)
Tertiary education: outside university	-0.086 (0.169)	0.111 (0.186)	0.017 (0.199)	0.044 (0.177)	0.419*** (0.142)
Tertiary education: university (ref.)					
Highest diploma father					
Secondary education or below	-0.049 (0.186)	-0.067 (0.208)	0.048 (0.206)	-0.037 (0.208)	0.137 (0.158)
Tertiary education: outside university	0.166 (0.157)	-0.022 (0.176)	-0.009 (0.158)	0.194 (0.175)	0.208 (0.134)
Tertiary education: university (ref.)					
Field of study					
Commercial sciences	0.116 (0.148)	-0.189 (0.166)	0.482*** (0.158)	-0.295 (0.196)	-0.044 (0.141)
Other	0.161 (0.190)	-0.347* (0.194)	0.510*** (0.196)	0.027 (0.196)	0.212 (0.143)
Business economics (ref.)					
C. MEDIATOR SCALES					
Signalling scale					0.797*** (0.076)
Skill loss scale					-0.015 (0.074)
Trainability scale					0.001 (0.058)
Rational herding scale					-0.099** (0.049)
Observations	475				

Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section X.X. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Table A1.

Correlations Between Vignette Factors

	1	2	3	4	5
1 gender	1.000				
2 highest obtained degree	-0.058	1.000			
3 previous work experience	0.046	0.029	1.000		
4 mentioned social activities	-0.012	0.038	0.041	1.000	
5 number of months in unemployment	0.021	0.037	-0.017	0.010	1.000

Note. Cramer's V is reported, as all values are categorical.

Table A2.

Bivariate Analysis: Correlation Matrix between Mediator Scales and Hiring Scales

	Interview scale	Hiring scale
Signalling scale	0.709***	0.717***
Signalling: motivation	0.624***	0.624***
Signalling: intellectual capacities	0.579***	0.575***
Signalling: social capacities	0.492***	0.513***
Skill loss scale	-0.526***	-0.567***
Skill loss: not up to date with technology	-0.487***	-0.543***
Skill loss: general skills	-0.416***	-0.448***
Skill loss: social skills	-0.374***	-0.389***
Trainability scale	0.515***	0.566***
Rational herding scale	-0.420***	-0.481***

Note. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Table A3.

Multivariate Analysis: Mediation Analysis with Hiring Scale as Outcome

Explanatory variables	Outcome variables				
	Signalling scale	Skill loss scale	Trainability scale	Rational herding scale	Hiring Scale
A. CANDIDATE CHARACTERISTICS					
Female gender	-0.037 (0.082)	0.174* (0.093)	-0.057 (0.102)	-0.014 (0.106)	-0.012 (0.078)
Bachelor	0.722*** (0.085)	-0.323*** (0.093)	0.926*** (0.108)	-0.567*** (0.111)	0.034 (0.089)
5 years of experience	0.187** (0.078)	-0.132* (0.078)	0.014 (0.090)	-0.063 (0.102)	0.166** (0.071)
Unemployment duration	-0.025*** (0.004)	0.048*** (0.005)	-0.028*** (0.005)	0.076*** (0.006)	-0.017*** (0.005)
Volunteering	0.764*** (0.081)	-0.572*** (0.096)	0.282*** (0.085)	-0.306*** (0.100)	-0.087 (0.076)
B. SUBJECT CHARACTERISTICS					
Female gender	0.077 (0.141)	-0.076 (0.147)	-0.131 (0.133)	0.324** (0.158)	0.033 (0.125)
Age	-0.041** (0.020)	0.015 (0.029)	-0.009 (0.030)	0.034 (0.029)	-0.020 (0.018)
Highest diploma mother					
Secondary education or below	0.077 (0.209)	0.100 (0.250)	0.076 (0.231)	0.280 (0.231)	0.167 (0.156)
Tertiary education: outside university	-0.086 (0.169)	0.111 (0.186)	0.017 (0.199)	0.044 (0.177)	0.212 (0.146)
Tertiary education: university (ref.)					
Highest diploma father					
Secondary education or below	-0.049 (0.186)	-0.067 (0.208)	0.048 (0.206)	-0.037 (0.208)	0.041 (0.132)
Tertiary education: outside university	0.166 (0.157)	-0.022 (0.176)	-0.009 (0.158)	0.194 (0.175)	0.059 (0.132)
Tertiary education: university (ref.)					
Field of study					
Commercial sciences	0.116 (0.148)	-0.189 (0.166)	0.482*** (0.158)	-0.295 (0.196)	0.012 (0.125)
Other	0.161 (0.190)	-0.347* (0.194)	0.510*** (0.196)	0.027 (0.196)	0.069 (0.175)
Business economics (ref.)					
C. MEDIATOR SCALES					
Signalling scale					0.692*** (0.069)
Skill loss scale					-0.029 (0.065)
Trainability scale					0.089 (0.064)
Rational herding scale					-0.122*** (0.048)
Observations			475		

Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section X.X. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Table A4.

Multivariate Analysis: Mediation Analysis with Interview Scale as Outcome and 8 Statements as Mediators

Explanatory variables	Signalling: motivation	Signalling: intellectual capacities	Signalling: social capacities	Skill loss: not up to date with technologies	Skill loss: general skills	Skill loss: social skills	Trainability scale	Rational herding scale	Interview scale
A. CANDIDATE CHARACTERISTICS									
Female gender	-0.065 (0.113)	-0.066 (0.086)	0.020 (0.111)	0.265*** (0.100)	0.161 (0.115)	0.097 (0.138)	-0.057 (0.102)	-0.014 (0.106)	0.078 (0.086)
Bachelor	0.273** (0.113)	1.496*** (0.104)	0.398*** (0.099)	-0.680*** (0.114)	-0.134 (0.123)	-0.157 (0.116)	0.926*** (0.108)	-0.567*** (0.111)	-0.008 (0.100)
5 years of experience	0.182* (0.109)	0.278*** (0.085)	0.101 (0.092)	-0.247** (0.100)	-0.078 (0.102)	-0.070 (0.099)	0.014 (0.090)	-0.063 (0.102)	0.188** (0.080)
Unemployment duration	-0.045*** (0.006)	-0.014*** (0.004)	-0.017*** (0.005)	0.040*** (0.007)	0.065*** (0.007)	0.039*** (0.005)	-0.028*** (0.005)	0.076*** (0.006)	-0.013** (0.005)
Volunteering	0.618*** (0.108)	0.142* (0.078)	1.531*** (0.116)	-0.056 (0.104)	-0.315 *** (0.109)	-1.345*** (0.144)	0.282*** (0.085)	-0.306*** (0.100)	0.184** (0.092)
B. SUBJECT CHARACTERISTICS									
Female gender	0.021 (0.202)	0.043 (0.167)	0.168 (0.141)	0.032 (0.146)	-0.097 (0.198)	-0.163 (0.211)	-0.131 (0.133)	0.324** (0.158)	0.037 (0.117)
Age	-0.095*** (0.027)	-0.004 (0.024)	-0.023 (0.024)	-0.006 (0.034)	0.042 (0.036)	0.010 (0.037)	-0.009 (0.030)	0.034 (0.029)	-0.038* (0.018)
Highest diploma mother									
Secondary education or below	0.116 (0.274)	0.036 (0.219)	0.080 (0.218)	0.214 (0.265)	-0.107 (0.299)	0.195 (0.302)	0.076 (0.231)	0.280 (0.231)	0.468*** (0.165)
Tertiary education: outside university	-0.066 (0.198)	-0.066 (0.213)	-0.043 (0.183)	0.052 (0.217)	0.054 (0.240)	0.229 (0.231)	0.017 (0.199)	0.044 (0.177)	0.419*** (0.142)
Tertiary education: university (ref.)									
Highest diploma father									
Secondary education or below	-0.030 (0.251)	0.041 (0.205)	-0.159 (0.196)	-0.149 (0.210)	0.075 (0.261)	-0.128 (0.259)	0.048 (0.206)	-0.037 (0.208)	0.086 (0.161)
Tertiary education: outside university	0.242 (0.200)	0.173 (0.186)	0.082 (0.160)	0.211 (0.177)	-0.072 (0.236)	-0.204 (0.232)	-0.009 (0.158)	0.194 (0.175)	0.206 (0.132)
Tertiary education: university (ref.)									
Field of study									
Commercial sciences	0.125 (0.193)	0.184 (0.179)	0.037 (0.153)	-0.615*** (0.178)	0.033 (0.225)	0.017 (0.232)	0.482*** (0.206)	-0.295 (0.196)	-0.113 (0.132)
Other	0.020 (0.263)	0.304 (0.216)	0.159 (0.183)	-0.650*** (0.227)	-0.260 (0.279)	-0.131 (0.269)	0.510*** (0.196)	0.027 (0.196)	0.162 (0.140)
Business economics (ref.)									
C. MEDIATOR SCALES									
Signalling: motivation									0.354*** (0.053)
Signalling: intellectual capacities									0.361*** (0.055)
Signalling: social capacities									0.058 (0.055)
Skill loss: not up to date with technologies									-0.109** (0.054)
Skill loss: general skills									0.008 (0.048)
Skill loss: social skills									0.016 (0.045)
Trainability scale									-0.014 (0.055)
Rational herding scale									-0.088* (0.046)
Observations				475					

Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section 4.2. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.

Table A5.

Multivariate Analysis: Mediation Analysis with Hiring Scale as Outcome and 8 Statements as Mediators

Explanatory variables	Outcome variables								
	Signalling: motivation	Signalling: intellectual capacities	Signalling: social capacities	Skill loss: not up to date with technologies	Skill loss: general skills	Skill loss: social skills	Trainability scale	Rational herding scale	Hiring scale
A. CANDIDATE CHARACTERISTICS									
Female gender	-0.065 (0.113)	-0.066 (0.086)	0.020 (0.111)	0.265*** (0.100)	0.161 (0.115)	0.097 (0.138)	-0.057 (0.102)	-0.014 (0.106)	0.028 (0.072)
Bachelor	0.273** (0.113)	1.496*** (0.104)	0.398*** (0.099)	-0.680*** (0.114)	-0.134 (0.123)	-0.157 (0.116)	0.926*** (0.108)	-0.567*** (0.111)	-0.087 (0.091)
5 years of experience	0.182* (0.109)	0.278*** (0.085)	0.101 (0.092)	-0.247** (0.100)	-0.078 (0.102)	-0.070 (0.099)	0.014 (0.090)	-0.063 (0.102)	0.126* (0.071)
Unemployment duration	-0.045*** (0.006)	-0.014 *** (0.004)	-0.017*** (0.005)	0.040*** (0.007)	0.065*** (0.007)	0.039*** (0.005)	-0.028*** (0.005)	0.076*** (0.006)	-0.016*** (0.005)
Volunteering	0.618*** (0.108)	0.142* (0.078)	1.531*** (0.116)	-0.056 (0.104)	-0.315 *** (0.109)	-1.345*** (0.144)	0.282*** (0.085)	-0.306*** (0.100)	0.142* (0.087)
B. SUBJECT CHARACTERISTICS									
Female gender	0.021 (0.202)	0.043 (0.167)	0.168 (0.141)	0.032 (0.146)	-0.097 (0.198)	-0.163 (0.211)	-0.131 (0.133)	0.324** (0.158)	0.061 (0.124)
Age	-0.095*** (0.027)	-0.004 (0.024)	-0.023 (0.024)	-0.006 (0.034)	0.042 (0.036)	0.010 (0.037)	-0.009 (0.030)	0.034 (0.029)	-0.020 (0.019)
Highest diploma mother									
Secondary education or below	0.116 (0.274)	0.036 (0.219)	0.080 (0.218)	0.214 (0.265)	-0.107 (0.299)	0.195 (0.302)	0.076 (0.231)	0.280 (0.231)	0.190 (0.153)
Tertiary education: outside university	-0.066 (0.198)	-0.066 (0.213)	-0.043 (0.183)	0.052 (0.217)	0.054 (0.240)	0.229 (0.231)	0.017 (0.199)	0.044 (0.177)	0.208 (0.143)
Tertiary education: university (ref.)									
Highest diploma father									
Secondary education or below	-0.030 (0.251)	0.041 (0.205)	-0.159 (0.196)	-0.149 (0.210)	0.075 (0.261)	-0.128 (0.259)	0.048 (0.206)	-0.037 (0.208)	-0.006 (0.137)
Tertiary education: outside university	0.242 (0.200)	0.173 (0.186)	0.082 (0.160)	0.211 (0.177)	-0.072 (0.236)	-0.204 (0.232)	-0.009 (0.158)	0.194 (0.175)	0.078 (0.130)
Tertiary education: university (ref.)									
Field of study									
Commercial sciences	0.125 (0.193)	0.184 (0.179)	0.037 (0.153)	-0.615*** (0.178)	0.033 (0.225)	0.017 (0.232)	0.482*** (0.206)	-0.295 (0.196)	-0.076 (0.118)
Other	0.020 (0.263)	0.304 (0.216)	0.159 (0.183)	-0.650*** (0.227)	-0.260 (0.279)	-0.131 (0.269)	0.510*** (0.196)	0.027 (0.196)	0.002 (0.178)
Business economics (ref.)									
C. MEDIATOR SCALES									
Signalling: motivation									0.288*** (0.053)
Signalling: intellectual capacities									0.297*** (0.047)
Signalling: social capacities									0.085 (0.054)
Skill loss: not up to date with technologies									-0.156*** (0.061)
Skill loss: general skills									0.028 (0.043)
Skill loss: social skills									0.021 (0.038)
Trainability scale									0.066 (0.060)
Rational herding scale									-0.118*** (0.044)
Observations				475					

Note. The presented statistics are coefficient estimates and standard errors between parentheses for the mediation model outlined in Section 4.2. Standard errors are corrected for clustering of the observations at the subject level. *** (**) ((*)) indicates significance at the 1% (5%) ((10%)) significance level.