For Online Publication

Frequent job changes can signal poor work attitude and reduce employability

Appendix

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4.3	Number of Employers .		•				•		•		•		•		•	•	•	•	•				•	•	•	•	•		•		•		29
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1 Laboratory Experiment

1.1 Additional Regression Analysis

1.1.1 Effort and Job Changes

We examined the relationship between voluntary work effort and the frequency of job changes using Ordinary Least Squares (OLS) regressions. Our analysis is based on the following linear regression model:

$$N_i = \alpha + \beta(e_i - 1) + \varepsilon_{im}.$$
 (1)

The dependent variable, N_i , is the number of employers a worker *i* had in the 16 periods before the turnover shock and e_i is the worker's effort level in periods 1 to 16. We use $(e_i - 1)$ in the regression model so that the constant, α , can be interpreted as the number of employers of a worker who provided the minimum effort of 1 before the shock.¹ We allow the error terms, ε_{im} , to be correlated within each labor market.

	o or manno or	or employe	
Condition	(1) History	(2) No History	(3) Pooled
Aren Effert David la 1.10	0.257***	0.240***	0.249***
Avg. Effort Periods 1-16	-0.357	-0.342	-0.342
	(0.036)	(0.043)	(0.042)
History			-0.276
			(0.405)
History \times Avg. Effort 1-16			-0.015
			(0.055)
Constant	5.051^{***}	5.327***	5.327***
	(0.295)	(0.286)	(0.281)
adj. R ²	0.337	0.243	0.303
Ν	170	160	330

 Table A.1: Regression analysis of number of employers

OLS regressions, standard errors in parentheses, adjusted for clustering at the session level using White sandwich estimators. Unit of observation: workers.

Dependent variable: number of different employers before the shock (periods 1 to 16).

Independent variables: Constant: average number of pre-shock employers for a worker in the No History condition (History condition for column 1) who provided minimum effort; "Effort Periods 1-16:" effort provided by the worker in periods 1 to 16 (subtracting 1 $(e_i - 1)$ to facilitate interpretation of the constant); "History:" dummy for History treatment condition; "History × Avg. Effort 1-16:" interaction between History dummy and pre-shock effort.

Column 1 in Table A.1 reports the regression results for the History treatment. The constant of about 5 indicates that a worker who provided the minimum effort before the shock had, on average, five different employers (out of a maximum of 7) during that time. Increasing first-period effort by one unit is associated with a reduction of the number of pre-shock employers by about 0.36 (p < 0.001, t-test). We observe a similar pattern in the No History condition, as shown in column 2. Providing minimum effort results in 5.3 pre-shock employers, and increasing effort by one unit reduces the number of pre-shock employers by about 0.34 (p < 0.001, t-test).

Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

¹Every participant had at least one employer before the shock. We obtain similar results if we use, instead, first-period effort as an explanatory variable or if we control for the number of periods unemployed before the shock.

In column 3, we pool the data from both treatments and additionally include a dummy for the History treatment as well as its interaction with the number of employers. This allows us to test whether the relationship between effort and number of pre-shock employers is stronger in the History condition. Yet, both the coefficient of the History dummy and the interaction term are insignificant (p = 0.501 and 0.787, t-tests), confirming that the relationship between effort provision and job history is similar in both conditions. Together, these findings support our prediction that workers who change jobs frequently are less reliable and cooperative.²

1.1.2 Job Changes and Post-Shock Profits

We find a significant negative relationship between number of pre-shock employers and postshock worker profits. Here, we perform the same regression analysis as we do for the number of private offers in the main article. We find that, globally, both number of pre-shock employers and number of pre-shock unemployment periods are negatively related to post-shock profits (columns 1 and 2). These relations are only significant in the History condition but not in the No History condition (columns 3 and 4). Column 5 indicates that, as the analysis of private offers in the main text suggests, the relationship is non-linear as there is a premium for having a single employer in the History condition.

	0	J 1	1		
Condition	(1) Pooled	(2) Pooled	(3) History	(4) No History	(5) Pooled
# Employers	-37.736^{***}		-38.746***	-16.961	-16.961
# Periods Unemployed	(7.595)	-17.397^{***} (3.493)	(9.555) -16.874*** (4.694)	(12.392) -8.885 (5.506)	(12.201) -8.885 (5.421)
History		(0.100)	(1.001)	(0.000)	(0.121) 78.774*
History \times # Employers					(44.874) -21.785
History \times $\#$ Periods Unempl.					(15.420) -7.989 (7.130)
Constant	421.370^{***} (17.232)	$\begin{array}{c} 430.282^{***} \\ (18.841) \end{array}$	502.183^{***} (26.024)	423.409^{***} (37.375)	423.409^{***} (36.798)
R-squared	0.081	0.109	0.241	0.045	0.155
Ν	330	330	170	160	330
Clusters	33	33	17	16	33

Table A.2: Regression analysis of post-shock profits

OLS regressions, standard errors in parentheses, adjusted for clustering at the labor market level, using White sandwich estimators. Unit of observation: worker.

Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

Dependent variable: average worker profit, periods 17-30.

Independent variables: Constant: the baseline is a worker in the (No) History condition who was continuously employed by the same firm for all 16 periods before the shock. "History:" dummy for History treatment condition; "# Employers:" number of additional pre-shock employers; "# Periods Unempl.:" number of pre-shock periods the worker was unemployed.

²Note that this relationship alone does not tell us the reasons behind job changes—that is, whether a worker left the employer for a better offer elsewhere or whether the current employer did not make another offer to the worker. Our data indicate that job changes tend to be driven by employers. Specifically, in 86% of the cases in which workers changed jobs, they did not receive a private offer from their old employer. On the other hand, 91% of private offers from a worker's previous employer are accepted.

1.2 Subject Instructions

We reproduce the complete original instructions for the History condition. The only difference between the History condition and the No History condition was that the section "History Table" was removed for the No History condition. The experiment was conducted in English. Instructions follow the wording in Brown, Falk, and Fehr (2004).³ Comprehension questions, exit questionnaire, and ztree files are available upon request from the authors.

 $^{^3 {\}rm Martin}$ Brown, Armin Falk, and Ernst Fehr. 2004. "Relational contracts and the nature of market interactions." *Econometrica* 72 (3): 747–780

Initial Instructions

Thank you for participating in today's experiment.

I will read through a script to explain to you the nature of today's experiment as well as how to navigate the computer interface with which you will be working. I will use this script to make sure that the information given in all sessions of this experiment is the same. Please follow the instructions carefully.

In addition to a 10 CHF payment that you receive for your participation, you will be paid an amount of money that you accumulate from the decision task that will be described to you in a moment. The exact amount you receive will be determined during the experiment and will depend on your decisions and the decisions of others. You will be paid privately, in cash, at the conclusion of the experiment.

All monetary amounts you will see in this experiment will be denominated in ECUs or Experimental Currency Units. We will convert ECUs into CHF at the rate of

1 ECU = 0.05 CHF.

If you have any questions during the experiment, please raise your hand and wait for an experimenter to come to you.

Please do not talk, exclaim, or try to communicate with other participants during the experiment.

Do not use the computer in a way not specified by these instructions or by the experimenters.

Participants intentionally violating the rules may be asked to leave the experiment with only their participation payment.

Basic Information

Number of Periods:

The experiment is divided into periods. In each period you have to make decisions, which you will enter in a computer. There are **30 periods** in total.

Buyers and Sellers:

In this room there are 34 participants. Participants will be split into two independent groups of 17 participants each. For the rest of the session, you will only interact with the other 16 participants in your own group. You will not interact with the other 17 participants in any way.

The 17 participants in your group have been randomly divided into 2 roles: buyers and sellers. These roles are fixed, that means each buyer will remain a buyer, and each seller will remain a seller for the entire experiment. Whether you are a buyer or a seller is displayed on the computer screen. Please raise your hand if you do not see where the screen tells you whether you are a buyer or a seller. **There are 7 buyers and 10 sellers**.

Identification Number:

All participants have received an **identification number (ID)**, which they will keep for the entire experiment. Your identification number is displayed on the computer screen.

An Overview of the Experiment Procedures

In each period of the experiment every buyer can trade a product with one seller. The seller earns a profit through the trade when he sells the product at a price that exceeds his production costs. The buyer earns a profit through the trade when the price he pays for the product is less than what it is worth to him. How high the production costs are for the traded product, and how much the product is worth to the buyer both depend on the quality of the product. We will describe below how the quality of a product is determined.

Each of the 30 periods is structured as follows:

1. Trading Phase

Each period commences with a **trading phase**, which lasts 2 minutes. During this phase buyers can submit trade offers that can be accepted by sellers.

When submitting an offer a buyer has to specify **three things**:

- Which **price** he offers to pay
- Which product **quality** he desires
- To which seller he wants to submit the offer.

Buyers can submit two types of offers: private offers and public offers.

- **Private offers** are submitted to one seller only and can only be accepted by that seller.
- **Public offers** are submitted to all sellers and can be accepted by any seller.

A buyer can submit as many offers as he likes in each period. Sellers can accept submitted offers at any point. **Each buyer and each seller can only enter one trade agreement in each period.** As there are 7 buyers and 10 sellers, in each period there will be some sellers who will not trade.

2. Quality Choice

Following the trading phase each seller who has entered a trade agreement then determines which quality of product he will supply to his buyer. **The seller is not obligated to supply the product quality desired by his buyer.** Once every seller has chosen which product quality to supply, the ECUs gained by each participant in that period have been determined. After this the next period begins.

The ECUs gained in all 30 periods are summed up at the end of the experiment, exchanged into CHF and paid together with the initial 10 CHF in cash.

The Experiment Procedures in Detail

There are 7 buyers and 10 sellers in the experiment. Your role is fixed throughout the experiment. During the experiment you will enter your decisions on a computer screen. In the following we describe in detail how you can make your decisions in each period.

The Trading Phase

Each period commences with a trading phase. During the trading phase each buyer can enter into a trading agreement with one seller. In order to do this each buyer can submit as many trade offers as he wishes.

Buyer's Screen

In each trading phase, buyers will see the following screen:

- Period	1 of 1								Re	maining Time [sec]: 101
Hi	istory T	able								
Buure	Public Offers	Dan mality	Dring	Your private offers	to College		Yourle	dentification Numbe	er -1	
Buyer	Price	Req. quality	Price	Req. quality	to Seller			Make your offe	rs here	
Public	Offers T	Table	Privat	e Offers T	Fable	Г 1 Г 6	If priva	Your price Your price Requested quality 3 8 8	C public C private	ОК Г 5 Г 10 Уонг гед диаШу
						Yo	ur Seller	Your pric	e	Your req. quality

In the top left corner of the screen is the current period of the experiment. In the top right corner of the screen is the time remaining in this trading phase, displayed in seconds. **The trading phase in each period lasts 2 minutes** (= 120 seconds). When this time is up the trading phase is over. Subsequently, no further offers can be submitted or accepted for the period.

Buyer's Screen: Making an Offer

Once the buyers see the above screen displayed the trading phase commences. Each buyer now has the opportunity to submit trade offers to the sellers. In order to do so they have to enter three things on the right hand side of the screen:

- 1. Offer Type
- 2. Price
- 3. Desired Quality

1. Offer Type

First the buyer has to specify whether he wants to submit a public or private offer:

- **Public trade offers** will be communicated to all participants in the market. All sellers see all public offers on their screens. A public offer can therefore be accepted by **any seller**. Each buyer will also see all public offers submitted by other buyers. To submit a public offer, a buyer clicks on the field "public" when making an offer, **and enters "0" in the field "to which Seller"**.
- **Private trade offers** are submitted to **one seller only.** Only this seller will be informed of this offer and only this seller can accept that trade offer. No other seller or buyer will be informed about that offer. To submit a private offer, a buyer clicks in the field "private" when making an offer and then specifies **to which seller** he wants to submit the offer in the field below. Each of the 10 sellers has an identification number (seller 1, seller 2, ..., seller 10). Each seller keeps his identification number for the entire course of the experiment. To submit an offer to a specific seller, the buyer enters the number of that seller (e.g. "5" for seller 5).

2. Price

Once the buyer has specified to whom he wants to submit an offer, he must determine **which price to offer.** He enters this in the field "your price". The price must be an integer and cannot be below 0 or above 100:

$0 \le \text{price offered} \le 100$

3. Desired Quality

Finally, a buyer has to specify which product quality he desires. He enters this in the field "desired quality". The **desired quality** must be an integer and cannot be lower than 1 or higher than 10.

$1 \leq desired \ quality \leq 10$

After a buyer has completely specified a trade offer, he must click on the "ok" button to submit it. As long as he has not clicked "ok", he can change the trade offer. After he has clicked "ok", the offer will be displayed to all sellers to whom the buyer has submitted the offer.

Buyer's Screen: Open Offers

On the left side of the buyer's screen are the "**public offers**". All public offers in the current trading phase are displayed here. Every buyer can see which buyer submitted the offer, which price he offered and which quality he desired. All buyers also have an identification number, which they keep for the whole course of the experiment.

In the middle of the buyer's screen, under "**your private offers**", each buyer will see all his private offers he has submitted in the current trading phase. He can see to which seller he submitted an offer, which price he offered and which quality he desired.

Each buyer can submit as many private and public offers as he wishes in each period. Each offer that he submits can be accepted at any time during the trading phase.

Each buyer can enter only one trade agreement in each period. Once one of his offers has been accepted he will be notified which seller accepted which of his offers. In the bottom right corner of the screen the identification number of the seller will be displayed as well as the buyer's offered price and desired quality. Because each buyer can enter only one trade agreement in each period, all his other offers will be automatically cancelled. Also, he will not be able to submit any further offers.

No seller can enter more than one trade agreement in each period. Buyers will be constantly informed which sellers have not yet accepted a trade offer. In the bottom right corner, they will see 10 fields. Once a seller has accepted an offer, an "x" will appear in the field next to his identification number. Buyers cannot submit private offers to a seller who has already entered a trade agreement.

Once all buyers have entered a trade agreement or after the 2 minutes are up, the trading phase is closed by the computer.

No buyer is obligated to submit trade offers, and no seller is obligated to accept a trade offer.

Seller's Screen

During the Trading Phase, sellers will see the following screen:



This screen is similar to the buyer's screen and contains information about the current period, remaining time for trading, and currently open public offers from all buyers. The screen also shows all private offers that are made to this particular seller. A seller cannot see private offers that are made to other sellers. Every offer that is shown on the screen contains the buyer's ID, the offered price, and the desired quality.

Each seller can accept at most one offer. To accept a private offer, the seller clicks the row of the offer he wants to accept and confirms by clicking the "**accept**" button under the list with the private offers. To accept a public offer, the seller clicks the row of the offer he wants to accept and confirms by clicking "**accept**" under the list with the public offers.

As long as the seller does not click "accept", he can change his decision by clicking on a different offer. As soon as the seller has pressed the "accept" button he will see which offer he has accepted in the bottom row of the screen.

Each seller can enter only one trade agreement in each period. Once a seller has accepted one offer he cannot accept any further offers.

Choice of Product Quality

Following the trading phase, all sellers who have entered a trade agreement then determine which product quality they will supply to their respective buyers. **The product quality that the buyer desired in his trade offer is not binding for his seller.** His seller can choose the exact quality the buyer desired, but he can also choose a higher or lower product quality.

Seller's Screen

The seller's screen looks like this:

You accepted the follow	ving offer
from Buyer	
Price	
Requested quality	
Determine the actual quality	
	ок

The seller enters the quality and clicks "ok". The product quality the seller chooses has to be an integer between 1 and 10.

$1 \leq \text{product quality} \leq 10$

Buyer's Screen

While the seller determines the actual product quality, we ask the buyer to specify which quality he expects the seller to supply on a separate screen. In addition we ask him to state how sure he is of this expectation.

How are the incomes calculated?

The incomes of all buyers are determined in the same way and the incomes of all sellers are also determined in the same way. Each buyer can therefore calculate the income of his seller and each seller can calculate the income of his buyer. Further, each buyer and seller is informed of the identification number of his trading partner in each period.

Please note that buyers and sellers can incur losses in each period. Any loss you incur has to be paid from your initial sum of money or from earnings in other periods.

Buyer Income:

If a buyer does not enter a trade agreement during a trading phase he gains an income of 0 ECUs for that period.

If one of a buyer's trade offers is accepted, his income depends on which price he offered and which product quality his seller supplied to him. His income will be determined as follows:

Buyer's Income =	= 10*Product	Quality – Price
------------------	--------------	-----------------

As can be seen from the above formula the buyer's income is higher, the higher the product quality actually supplied by his seller. At the same time his income is higher, the lower the price he paid for the product.

Seller Income:

If a seller has not entered a trade agreement during a trading phase he gains an income of 5 ECUs for that period.

If a seller has accepted a trade offer, his income will be equal to the price he receives minus the production costs he incurs for the product quality supplied. The income of the seller is determined as follows:

Seller's Income = Price – Production Costs

The production costs of a seller are higher, the higher the quality of the product he chooses. The production costs for each product quality are displayed in the table below:

Product Quality	1	2	3	4	5	6	7	8	9	10
Production Costs	0	1	2	4	6	8	10	12	15	18

As can be seen from the above information the seller's income is higher, the higher the price that he accepted. Further, his income is higher, the lower the product quality he supplies to the buyer.

Income Screen:

You will be informed of your income and the income of your respective buyer/seller on an "**income screen**". On this screen the following information will be displayed:

- Which buyer/seller you traded with
- Which price you offered/accepted
- The desired quality by the buyer
- The product quality supplied by the seller
- The income of the buyer and the seller in this period

After the income screen has been displayed, the respective period is concluded, and the trading phase of the following period begins. Once you have finished studying the income screen please click on the "next" button.

History Table

Period	Seller 1	Seller 2	Seller 3	Seller 4	Seller 5	Seller 6	Seller 7	Seller 8	Seller 9	Seller 10
1	2	-	1	4	-	5	7	3	-	6
2	3	7	-	-	2	5	6	-	1	4
3	-	7	-	6	2	-	1	3	4	5

At any time during the experiment, you will be able to see a history table. This table lists the trade partners for every trade that has occurred in the past. You can see the first few rows of a buyer's table above. Each row of this table corresponds to a period of the experiment. The number of the period can be seen in the leftmost column. Each column of the table represents a seller. The IDs of the sellers are shown in the top row. The cells of table for a particular seller show the buyer with whom that particular seller traded in the respective period. For example, in the sample table, seller 5 traded with buyer 2 in period 3. Remember that there are more sellers than buyers, so that in each period, some sellers will not trade. In the history table, this is indicated by a dash ("--").

The seller's history table looks identical, but the columns here represent the buyers.

Trade Restriction

At a randomly determined period, which will be between period 10 and period 20, a "**trade restriction**" will come into action. This restriction prevents any buyer from making private offers to the seller with whom he traded in the period before the restriction came into action. Likewise, any seller will be prevented from accepting public offers from the buyer with whom he traded in the previous period. For example, if buyer X traded with seller Y in period 14, and the trade restriction starts in period 15, then buyer X and seller Y will not be able to trade any longer after this period. The following rules apply:

- The period when the trade restriction comes into action is **not known in advance**
- The trade restriction applies only to the buyer/seller with whom you traded in the **period immediately before** the trade restriction came into action; all other buyers/sellers will still be available
- Once the trade restriction comes into effect, you will not be able to trade with this buyer/seller for **all remaining periods** of the experiment
- A buyer cannot select his "restricted" seller for a private offer
- A seller cannot see or accept any public offers from his "restricted" buyer

The experiment will not commence until all participants are completely

familiar with all procedures. In order to make sure that this is the case we ask you to answer a couple of questions that will be displayed on the computer screen. Following these questions we will begin the experiment, which will last for 30 periods.

Do you have any questions?

2 Field Experiment

2.1 Descriptive Statistics

	Mean	Sd	Mean Sd
Wage (in CHF)	72183.64	8321.105	Industry: hospital 0.031 0.173
Industry: cars	0.026	0.160	Industry: transport 0.007 0.084
Industry: bank	0.019	0.137	Industry: fiduciary 0.096 0.295
Industry: chemical	0.023	0.149	Industry: other 0.017 0.128
Industry: service and admin	0.235	0.424	Legal: public/NGO 0.088 0.284
Industry: trade	0.115	0.320	Legal: LLC 0.877 0.328
Industry: tourism	0.007	0.084	Legal: other 0.035 0.183
Industry: construction/housing	0.086	0.280	Employment agency 0.162 0.369
Industry: logistics	0.031	0.173	Part-time job 0.246 0.431
Industry: communication	0.036	0.186	Avg. ln(driving distance) 9.584 1.299
Industry: machines/electro/metal	0.151	0.358	Male HR person 0.321 0.467
Industry: food industry	0.014	0.119	Male applicant 0.487 0.500
Industry: legal	0.036	0.186	Applicants per vacancy 9.725 5.017
Industry: public administration	0.031	0.173	Local unemployment rate 2.786 0393
Industry: insurance	0.012	0.109	April 0.129 0.335
Industry: travel agency	0.005	0.069	May 0.673 0.470
Industry: health service	0.023	0.149	June 0.199 0.399

 Table A.3: Descriptive statistics

2.2 Additional Regression Analysis

Dependent variable			Callba	ick = 1		
	(1)	(2)	(3)	(4)	(5)	(6)
Four Employer	-0.033**	-0.032*	-0.033*	-0.034**	-0.033*	-0.055***
	(0.014)	(0.017)	(0.017)	(0.017)	(0.017)	(0.019)
Four Emp. \times wave 2012		-0.003	-0.003	-0.003	-0.003	0.007
		(0.028)	(0.029)	(0.029)	(0.029)	(0.029)
Wave 2012		0.068^{**}	0.063^{**}	0.020	0.041	0.048
		(0.032)	(0.032)	(0.035)	(0.035)	(0.035)
Industry experience						0.106^{***}
						(0.037)
Constant	0.292^{***}	0.264^{***}	0.772^{***}	0.789^{***}	0.618^{***}	0.605^{**}
	(0.016)	(0.020)	(0.180)	(0.176)	(0.239)	(0.238)
Additional controls?						
Month				Yes	Yes	Yes
Gender/gend. match			Yes		Yes	Yes
Firm/job character.			Yes		Yes	Yes
Driving distance			Yes	Yes	Yes	Yes
Labor market				Yes	Yes	Yes
Observations	1680	1680	1680	1680	1680	1680
F	5.881	3.829	7.060	5.286	7.349	6.228
$\mathrm{Prob}{>}F$	0.016	0.010	0.000	0.000	0.000	0.000

 Table A.5: Regression analysis: alternative callback definition

OLS regressions, cluster-robust standard errors at the job ad level.

Dependent variable: Dummy indicating a callback (including requests for additional documents). Independent variables: "Four Employers:" dummy for Four Employers resume; "Wave 2012:" dummy for the first wave of the study (in 2012); "Industry experience:" dummy whether the applicant had previous work experience in the corresponding industry; "Month:" dummies for month when the application was submitted; "Gender/gender match:" dummies for the gender of the applicant and recruiting manager, and the corresponding interaction term between the two; "Firm/job character-istics:" dummies for above median wage job, legal form, employment agency, part-time jobs, and industry fixed effects; "Driving distance:" log of the distance between home and work address (in meters and assuming traveling by car using Google Maps); "Labor market:" monthly local unemployment rate and the number of applicants per open position (statistics from State Secretariat for Economic Affairs (SECO)).

Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

Dependent variable		Callbao	ck = 1	
	(1)	(2)	(3)	(4)
Four Employer	-0.069***	-0.091***	-0.059***	-0.059***
	(0.010)	(0.016)	(0.019)	(0.019)
Applicants per vacancy	-0.007	-0.002	-0.002	0.001
	(0.016)	(0.013)	(0.015)	(0.016)
Unemployment rate	0.030^{***}	0.021	0.030^{**}	0.029^{*}
	(0.010)	(0.012)	(0.015)	(0.015)
High wage	0.034^{**}	0.034^{**}	0.047^{*}	0.050^{*}
	(0.015)	(0.015)	(0.028)	(0.028)
Four Emp. \times app. per vacancy	0.010			
	(0.015)			
Four Emp. \times unemployment rate		0.018		
		(0.012)		
Four Emp. \times high wage			-0.027	-0.028
			(0.028)	(0.028)
Constant	0.256	0.266	0.250	0.295
	(0.160)	(0.159)	(0.205)	(0.216)
Additional controls?				
Wave	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes
Gender/gend. match	Yes	Yes	Yes	Yes
Industry experience	Yes	Yes	Yes	Yes
Firm/job character.	Yes	Yes	Yes	Yes
Driving distance	Yes	Yes	Yes	Yes
Observations	1680	1680	1680	1634
F	900.566	949.344	4.730	4.671
$\mathrm{Prob}{>}F$	0.000	0.000	0.000	0.000

Table A.6: Treatment heterogeneity: Labor market tightness and wages

OLS regressions, cluster-robust standard errors at the canton×month×wave level in columns 1 and 2 (at the job ad level in columns 3 and 4). The regression in column 4 contains only vacancies for which the estimated wage is based on at least 50 observations.

Dependent variable: Dummy indicating a callback.

Independent variables: "Four Employers:" dummy for Four Employers resume; "Unemployment rate:" monthly local unemployment rate; "Applicants per vacancy:" the number of applicants per open position; Both labor market variables are normalized to a mean of zero and standard deviation of one (source: statistics from State Secretariat for Economic Affairs (SECO)); "High wage:" dummy for job ads with above median expected wages (source: jobs.ch); "Wave:" dummy for the first wave of the study (in 2012); "Industry experience:" dummy whether the applicant had previous work experience in the corresponding industry; "Month:" dummies for month when the application was submitted; "Gender/gender match:" dummies for the gender of the applicant and recruiting manager, and the corresponding interaction term between the two; "Firm/job characteristics:" dummies for legal form, employment agency, part-time jobs, and industry fixed effects; "Driving distance:" log of the distance between home and work address (in meters and assuming traveling by car using Google Maps).

Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

Dependent variable	${ m Callback}=1$				
	(1)	(2)	(3)	(4)	(5)
Four Employer	-0.070***	-0.073***	-0.076***	-0.070***	-0.074***
	(0.017)	(0.016)	(0.015)	(0.017)	(0.015)
Industry: service and admin	-0.135	-0.142	-0.138	-0.141	-0.138
	(0.110)	(0.106)	(0.106)	(0.106)	(0.108)
Industry: trade	-0.053	-0.054	-0.052	-0.053	-0.052
	(0.104)	(0.107)	(0.104)	(0.104)	(0.104)
Industry: construction/housing	-0.111	-0.112	-0.133	-0.111	-0.110
	(0.103)	(0.103)	(0.104)	(0.103)	(0.103)
Industry: machine/electro/metal	-0.044	-0.044	-0.044	-0.036	-0.044
	(0.099)	(0.099)	(0.099)	(0.103)	(0.099)
Industry: fiduciary	-0.050	-0.051	-0.049	-0.050	-0.057
	(0.105)	(0.105)	(0.105)	(0.105)	(0.106)
Four Emp. \times service	-0.012				
	(0.037)				
Four Emp. \times trade		0.001			
		(0.040)			
Four Emp. \times construction			0.047		
			(0.047)		
Four Emp. \times electro				-0.017	
				(0.038)	
Four Emp. \times fiduciary					0.015
					(0.056)
Constant	0.257	0.258	0.260	0.257	0.259
	(0.205)	(0.205)	(0.205)	(0.205)	(0.205)
Additional controls?					
Wave	Yes	Yes	Yes	Yes	Yes
Month	Yes	Yes	Yes	Yes	Yes
Gender/gend. match	Yes	Yes	Yes	Yes	Yes
Industry experience	Yes	Yes	Yes	Yes	Yes
Firm/job character.	Yes	Yes	Yes	Yes	Yes
Driving distance	Yes	Yes	Yes	Yes	Yes
Labor market	Yes	Yes	Yes	Yes	Yes
Observations	1680	1680	1680	1680	1680
F	4.724	4.721	4.774	4.736	4.743
$\operatorname{Prob} > F$	0.000	0.000	0.000	0.000	0.000

 Table A.7: Treatment heterogeneity: Industries

OLS regressions, cluster-robust standard errors at the job ad level.

Dependent variable: Dummy indicating a callback.

Independent variables: "Four Employers:" dummy for Four Employers resume; "Industry: service admin, trade, etc." dummies for the largest industries in the sample (at least 50 job ads); "Wave:" dummy for the first wave of the study (in 2012); "Month:" dummies for month when the application was submitted; "Gender/gender match:" dummies for the gender of the recruiting manager, and the corresponding interaction term between the two; "Industry experience:" dummy whether the applicant had previous work experience in the corresponding industry; 'Firm/job characteristics:" dummies for job ads with above median expected wages (source: jobs.ch), legal form, employment agency, part-time jobs, and industry fixed effects; "Driving distance:" log of the distance between home and work address (in meters and assuming traveling by car using Google Maps); "Labor market:" monthly local unemployment rate and the number of applicants per open position (statistics from State Secretariat for Economic Affairs (SECO)).

Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

Dependent variable	Callback = 1		
	(1)	(2)	(3)
Four Employer	-0.085***	-0.070***	-0.083***
	(0.022)	(0.018)	(0.018)
Industry experience	0.061^{**}	0.062^{**}	0.048
	(0.030)	(0.030)	(0.038)
Male applicant	-0.091***	-0.079***	-0.079***
••	(0.028)	(0.022)	(0.022)
Male HR person	0.013	0.018	0.013
•	(0.024)	(0.030)	(0.024)
Four Emp. \times male applicant	0.024	()	,
	(0.028)		
Four Emp. \times male HR person		-0.009	
1 1 1		(0.029)	
Four Emp. \times industry exp.		()	0.024
I I I I I I I I I I I I I I I I I I I			(0.034)
Constant	0.283	0.275	0.282
	(0.206)	(0.206)	(0.206)
	()	()	· · /
Additional controls?			
Wave	Yes	Yes	Yes
Month	Yes	Yes	Yes
Firm/job character.	Yes	Yes	Yes
Driving distance	Yes	Yes	Yes
Observations	1680	1680	1680
F	4.735	4.738	4.739
$\operatorname{Prob} > F$	0.000	0.000	0.000

 Table A.8: Heterogeneity: Individual characteristics

OLS regressions, cluster-robust standard errors at the job ad level in columns 1 to 3 (at the canton \times month \times wave level in columns 4 and 5).

Dependent variable: Dummy indicating a callback.

Independent variables: "Four Employers:" dummy for Four Employers resume; "Male applicant:" dummy for male applicants; "Male HR person:" dummy for male HR recruiter; "Industry experience:" dummy whether the applicant had previous work experience in the corresponding industry; "Wave 2012:" dummy for the first wave of the study (in 2012); "Month:" dummies for month when the application was submitted; "Firm/job characteristics:" dummies for job ads with above median expected wages (source: jobs.ch), industry, legal form, employment agency, and part-time jobs; "Driving distance:" log of the distance between home and work address (in meters and assuming traveling by car using Google Maps); "Labor market:" monthly local unemployment rate and the number of applicants per open position (statistics from State Secretariat for Economic Affairs (SECO)). Significance levels: * p<0.1, ** p<0.05, *** p<0.01.

Dependent variable	${ m Callback}=1$					
	(1)	(2)	(3)	(4)	(5)	(6)
Four Employer	-0.072***	-0.110***	-0.069***	-0.073***	-0.068***	-0.074***
Legal: LLC	-0.046	-0.068	-0.046	-0.046	-0.046	-0.046
Legal: public/NGO	(0.072) -0.009 (0.088)	(0.078) -0.014 (0.084)	(0.072) -0.014 (0.084)	(0.072) -0.014 (0.084)	(0.072) -0.011 (0.084)	(0.072) -0.014 (0.084)
Employment agency	0.122**	(0.034) 0.122^{**} (0.050)	(0.034) 0.131^{**} (0.056)	0.122^{**}	0.123**	(0.034) 0.121^{**} (0.050)
Part-time job	(0.030) -0.037 (0.024)	(0.030) -0.037 (0.024)	(0.030) -0.037 (0.024)	-0.036 (0.031)	(0.030) -0.037 (0.024)	(0.030) -0.037 (0.024)
Long distance	. ,	. ,	. ,	. ,	0.013 (0.033)	. ,
Other canton					(0.000)	0.004
Four Emp. \times public/NGO	-0.009					(0.047)
Four Emp. \times LLC	(0.00-)	0.043 (0.044)				
Four Emp. \times employment agency		(01011)	-0.020			
Four Emp. \times part-time			(0.040)	-0.001		
Four Emp. \times long distance				(0.032)	-0.010	
Four Emp. \times other canton					(0.028)	0.005
Constant	0.258 (0.205)	0.277 (0.207)	0.257 (0.205)	$0.258 \\ (0.205)$	0.183 (0.131)	(0.028) 0.263 (0.209)
Additional controls?						
Wave	Yes	Yes	Yes	Yes	Yes	Yes
Gender/gend. match	Yes	Yes	Yes	Yes	Yes	Yes
Firm character.	Yes	Yes	Yes	Yes	Yes	Yes
Industry experience	Yes	Yes	Yes	Yes	Yes	Yes
Driving distance	Yes	Yes	Yes	Yes	No	Yes
Labor market	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1680	1680	1680	1680	1680	1680
F	4.719	4.738	4.725	4.719	4.789	4.591
$\operatorname{Prob} > F$	0.000	0.000	0.000	0.000	0.000	0.000

Table A.9: Heterogeneity: Firm and job characteristics

OLS regressions, cluster-robust standard errors at the job ad level.

Dependent variable: Dummy indicating a callback.

Independent variables: "Four Employers:" dummy for Four Employers resume; "Legal: LLC:" dummy for limited liability companies; "Legal: public/NGO:" dummy for public sector firms or NGOs; "Employment agency:" dummy for employment agencies; "Part-time job:" dummy for part-time jobs; "Long distance:" dummy for vacancy with above median driving distance from applicant's home (source: Google Maps); "Other canton:" dummy variable for vacancies in other canton than the candidates home address; "Wave 2012:" dummy for the first wave of the study (in 2012); "Month:" dummies for month when the application was submitted; "Gender/gender match:" dummies for the gender of the recruiting manager, and the corresponding interaction term between the two; "Industry experience:" dummy whether the applicant had previous work experience in the corresponding industry; 'Firm/job characteristics:" dummy for job ads with above median expected wage (source: jobs.ch); "Driving distance:" log of the distance between home and work address (in meters and assuming traveling by car using Google Maps); "Labor market:" monthly local unemployment rate and the number of applicants per open position (statistics from State Secretariat for Economic Affairs (SECO)).

Significance levels: * p < 0.1, ** p < 0.05, *** p < 0.01.

3 Survey Experiment

3.1 Questionnaire

We provide an English translation of the original German version of the questionnaire. The original version is available from the authors upon request.



1. Characteristics of the candidates

Please evaluate the following characteristics of the candidates on a scale from 1 (does not apply at all) to 7 (fully applies):





2. General questions

12.	How likely would it be for you to invite the respective candidate to a job interview, on a scale from 1 (very unlikely) to 7 (very likely)?	A B Very likely 7 6 5 4 3 2 1 Very unlikely	
13.	Which aspects of the resumes did you notice in particular?		
14.	Are you actively involved in the evaluation of job candidates in your everyday activities?	□ Yes	□ No
15.	How many resumes do you evaluate in a typical month?		per month
16.	How many years of experience do you have in HR?		years
17.	Please indicate your gender	□ female	□ male
18.	Please indicate your age	 □ < 25 □ 25-35 □ 36-45 	□ 46-55 □ > 55

Thank you very much for your participation!

Variable	Mean	Median
Firm size (employees)	24'892	1'300
Staff at booth	3.5	3
# resumes/month	54.5	30
Years HR experience	6.7	5
% female	59	
Age (10-year bracket)		25 - 35
Sample size	83	

Industry # Plant Engineering/-Construction 14Electrical Ind./Electronics 12IT / Telecom 10 12Consulting Mechanical Engineering 8 Chemical Ind./Pharma 5Medical Technology 3 3 Financial Services/Banking 2**Optomechanics** 2 Consumer Goods Other 1283 Total

Table A.10:	Descriptive	statistics of	of the	participants.
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3.3 Treatment Differences by Questionnaire Item

In the article, we show treatment differences in ratings by applicant characteristics category (experience/skill versus work attitude). Table A.12 presents the disaggregated differences across the 10 individual questionnaire items.

Table A.12: Difference in ratings of the 10 different characteristics (One Employer rating minus Four
Employers rating), mean and p-value of paired t-test. N = 83.

Characteristic	Mean Diff.	p-value (corr.)
perseverant	1.24	< 0.001***
reliable	0.77	$< 0.001^{***}$
teamwork	0.40	$< 0.001^{***}$
honest	0.27	0.199
skilled	0.19	0.229
willing to adapt	0.34	0.299
goal-oriented	-0.17	0.989
self-directed	-0.07	1.000
multi-talented	-0.05	1.000
experienced	-0.05	1.000

* p<0.10, ** p<0.05, *** p<0.01, Holm-Bonferroni correction.

3.4 Difference in Treatment Effect with HR experience

In the article, we present an analysis that controls for level effects in HR experience. A possible additional question is whether the treatment effect itself varies with the recruiters' experience.

Figure A.1 shows the treatment difference separately for those respondents who have more than 5 years of experience in HR (the median in our sample), and less experienced recruiters. The treatment effect does not seem to differ substantially: both more and less experienced recruiters have a significantly higher propensity to invite the fictitious candidate with one previous employer than the one with four previous employers. Similarly, both groups of recruiters rate the One Employer profile higher on work attitude.



Figure A.1: Treatment Difference for Highly and Less Highly Experienced Recruiters

4 Panel Data

We use these data for the analysis in Seciton 4 and also to provide context for our Four Employers and One Employer treatments in the field experiment. We briefly describe both of the primary datasets.

4.1 Swiss Household Panel

4.1.1 Description

The SHP is a longitudinal study that follows *households* in Switzerland on an annual basis over time since 1999. Its design was informed by similar studies in Germany (GSOEP) and the UK (BHPS).⁴ The annual surveys cover questions on living conditions, life events, attitudes, perceptions, and lifestyles. It consists of three probabilistic, stratified samples of Swiss households; 5,074 households were added in 1999 (SHP_I), 2,538 households in 2004 (SHP_II), and 3,989 households in 2013 (SHP_III).

4.1.2 Variables

"Cumulative number of job changes" is constructed from the variable "Number of Employer Changes" (p\$w21) from the annual survey.⁵

To split the sample into private and public sector, we use the variable "Current Occupation: private or public sector" (p\$\$w32) from the annual survey. We add up the years they work in each sector and classify persons into the sector in which they worked the longest. Similarly, we count the number of years a respondent has indicated that the current occupation is "clerical work" using the variable "ISCO classification of current main occupation (one-digit)" (is1maj\$\$). We classify somebody as having a clerical occupation if, in the majority of years, she worked in ISCO Major Group 4: Clerical support workers.

Employment status at the time of the survey is taken from the annual survey, variable "Employment Status" (wstat\$\$). We code employment as 1 if the person is "actively employed" and 0 if reported as unemployed.⁶ Income is constructed from the variable "Annual income from employment, net" (i\$\$empyn). Finally, yearly cohorts are constructed using the variable Year of Birth (birthy) from the biography file.

4.2 NLSY97

The National Longitudinal Survey of Youth 1997 (NLSY97) is a nationally representative *individual* cohort study with a sample of 9,000 Americans who were between the ages of 12 and 16 at the onset of the survey study; the latest wave was conducted between 2013 and 2014 and included more than 7,000 participants.⁷

⁴Data and documentation is publicly available on the SHP homepage, https://forscenter.ch/projects/ swiss-household-panel/.

⁵\$\$ is the placeholder for the survey year. We do not observe job changes before 1999, however, at that point our target cohort was about 13 years of age.

⁶This eliminates certain categories, such as "inapplicable" missing values, out of labor force.

⁷The dataset is publicly available at https://www.nlsinfo.org/content/cohorts/NLSY97.

Outcome measures. For the relationship between frequency of job changes and measures of work attitude, we use the total number of jobs held since the age of 20 ("Jobs"). For the relationship between number of previous jobs and current employment status, we use an indicator variable for being unemployed in October 2013, the last month for which data on all participants in the 2013 wave are available ("Unempl"). As an additional outcome, we examine earnings from wages and salaries in 2012 ("Wages").

Work attitude and other personality measures. We examine those variables we believe to be related to work attitude, and for which enough observations were available in the data set. We constructed the variables "Break Rules" and "Work Hard" based on two sets of four questions each.⁸ We also analyzed the variables "Drink at Work" (= 1 if a participant reported to have ever drunk alcohol at work) and Ever Arrested (= 1 if a participant reported to have ever been arrested by the police) as potential individual measures related to work attitude.⁹ The 2007 wave additionally elicited the Big Five personality traits using the Ten Item Personality Inventory (TIPI). The corresponding variables are "Extraverted," "Agreeable," "Conscientious," "Emotionally Stable," and "Open to Experience."

Covariates. We include the following basic demographic and geographical variables: age ("Age", in years in 2013), gender ("Gender"), dummies for ethnicity ("Ethn"), region dummies ("Region", i.e., Northeast, North, South, West), and a dummy for urban versus rural area ("Urban"). As measures of educational attainment we include dummies for highest academic degree achieved ("HDeg") and the (standardized) grade point average before leaving secondary school ("GPA").¹⁰ We also include the total number of weeks a participant was employed since the age of 20 ("Empl"), as well as whether the participant entered the labor market before or after the onset of the economic downturn in the third quarter of 2000 ("JobBeforeJuly00"). Finally, we control for the month of the most recent interview ("IntMonth", dummies) because cumulative variables, such as the number of previous jobs, may be systematically higher for those who were interviewed at a later date.

4.3 Number of Employers

We first look at number of employers over the career of panel participants. Figure A.2 shows the distribution of the cumulative number of employers for the NLSY97 participants at the age of 26/27.¹¹ Figure A.3 shows that this distribution is relatively stable across different subgroups

⁸For Break Rules, we computed the average responses to the following questions: "I do not intend to follow every little rule that others make up;" "When I was in school, I used to break rules quite regularly;" "I support long-established rules and traditions;" "Even if I knew how to get around the rules without breaking them, I would not do it" (coding inverted for questions 3 and 4). For Work Hard, we took the average responses to the following questions: "I do not work as hard as the majority of people around me;" "I do what is required, but rarely anything more;" "I have high standards and work toward them;" "I make every effort to do more than what is expected of me" (coding inverted for questions 1 and 2). All responses use a 7-point Likert scale from "Disagree strongly" (= 1) to "Agree strongly" (= 7).

⁹Drink at Work featured in different waves for different participants. Here, we pool these waves and code everybody who answered positively at least once as 1, the others as 0.

¹⁰An alternative measure of academic skill is the Armed Services Vocational Aptitude Battery, a set of quantitative and verbal reasoning tests administered during the 1999 wave; all results are robust to using this measure instead of GPA.

¹¹More precisely, the number of distinct employers the participants had from the beginning of their career to the first calendar week of the year they turn 27. For the number of employers, we aggregate the number of

of participants.



Figure A.2: Number of Employers of NLSY97 Participants

Since the SHP is a household panel, it does not track individual participants continuously. Therefore, we rarely observe complete work biographies. In order to compare the work histories across the two panel datasets, we turn to the distribution of the probability of a job change in a given year, shown in Figure A.4.¹² The general shape of the graph looks similar in both datasets: the prevalence of job changes is highest in the early 20s and peters out as participants reach their 30s. However, the frequency of yearly job changes appears higher in the US data than in Switzerland, particularly in the late teens and early 20s.

Looking more closely at the Swiss data, we decompose Figure A.4 further into subgroups. Figure A.5 suggests that the fraction of persons switching jobs in any given year peaks in the early 20s at about 0.35. University graduates seem to switch jobs more often after finishing education than apprentices after finishing vocational training (the type of education our fictitious candidates in the field experiment have). This is consistent with the observation that, in the US dataset, persons with a higher highschool GPA have worked for more distinct employers by the age of 27 than those with lower GPA (Figure A.4d). Moreover, persons in a clerical occupation or in the public sector seem to switch jobs slightly less often than others.

Distribution of the number of distinct employers over the career of NLSY97 participants up to the first calendar week of the year in which the participant turns 27.

unique employer IDs in the weekly array of employment status (EMP_STATUS_).

¹²In the SHP dataset, this is directly available in the variable "Change of job or employer: Last 12 months" (P\$\$W18); for the NLSY97 dataset, we constructed the variable from the variable "# EMPLOYEE-TYPE JOBS R HAS HELD YEAR" (CV_TTL_JOB_YR_ET), where we assume that a job change has happened in the last year if that variable has a value of greater than 1.



Figure A.3: Number of Employers of NLSY97 Participants, across Different Sociodemographic Groups



Figure A.4: Fraction of Participants who Change their Employer

Fraction of Participants who change their employer in a given year, by age.



Figure A.5: Fraction of Participants who Change their Employer, SHP



Figure A.7: Current labor earnings and number of previous jobs

OLS regressions of the number of previous job changes (Jobs) on labor earnings with the same covariates as in Figure ??. Each dot represents a separate regression for each of the subgroups. "Before" and "After" refer to participants who entered the labor market either before or after the third quarter of 2000 (start of the early 2000s downturn). The numbers at the bottom indicate the size of the respective subsample. The stars next to the dots indicate significance. Significance levels: *** p < 0.01.