

Appendix for Online Publication: Matching, Management and Employment Outcomes: A Field Experiment with Firm Internships

A.1 Appendix: The experiment

Recruitment of young professionals

We advertized using a combination of social media, college campus visits and postings on city ‘job boards’, using a headline message designed to attract aspiring managers and entrepreneurs: *“Do you want to be your own boss? See how successful firms work! Gain business and management skills first hand!”*. Respondents were then able to apply either by submitting a paper application form or through an online portal (hosted by the University of Oxford’s Centre for the Study of African Economies). Participants received a small stipend, equal to about the 25th percentile of wages of those in employment at baseline, and the 10th percentile of control group wages at follow-up. This was intended to cover their travel and subsistence costs while participating in the program, such that financial constraints would not be a factor in take-up decisions. The stipend was paid for by the program, not by firms, and conditional on a minimum number of days of attendance at the firm. We did not advertize the amount of the stipend.

Randomization and induction sessions

At each session, participants would begin by completing a face-to-face questionnaire with trained enumerators. After all participants had been interviewed, we stratified them in a way that we had pre-defined based on the information submitted at the time of application: in groups based on gender and whether they had a college degree, and within each group in order of age. We then formed matched pairs of the ordered participants, and — by having participants randomly draw numbered balls from a bag — we then assigned one of each pair to treatment. Control participants were thanked for their time and invited to leave; treated participants were then provided a summary explanation of what the management placement would involve. At the end of the session, treated respondents (whom we refer to as ‘interns’) filled in information that we used for the process of matching them to firms.

Overview of data collection

We collected baseline surveys with all young professionals just before randomisation. We followed up with an in-person survey six and twelve months after they completed their placement (and at equivalent moments for the control group, who were paired to treated individuals for the purpose of randomization). We also conducted monthly phone surveys for a year to learn about job search

and employment trajectories. We surveyed firms when they declared availability for the program, and again shortly after the program had ended (and we paired control units, here for the sole purpose of balancing the time of the survey). Finally, we conducted an exit survey with treated individuals and collected administrative data on program completion.

Benchmarking of young professionals

Our sample is 75% male, which partly reflects the fact that one of our sources of applicants are job boards which are mostly frequented by young men. Three out of four were born outside of Addis Ababa, and only a third live with their parents at the time of the induction session; this likely reflects both the high mobility of high-skilled workers and recent graduates in particular, and the fast rate of urbanisation that Ethiopia has been experiencing.¹

How do our participants compare to residents of Addis Ababa or Ethiopians more broadly? Within the eligible age group, 26% of all Addis Ababa residents have the level of higher education that we required to participate in the program, according to data from the 2013 National Labour Force Survey (nationally, it is 20%). Individuals with university degrees are overrepresented amongst our participants: they constitute 75% of our experimental sample, whereas they represent only one third of Addis Ababa residents in the relevant age group. However, within each education category, participants are fairly representative of the overall labor force in Addis Ababa and also nationwide. In Appendix Table A.3 we compare the distribution of wages earned by the control group to the wages by education in the NLFS, and find that they are very similar.

Benchmarking of host firms

We can benchmark the host firms with the 2015 Large and Medium Manufacturing Industry Survey, where the median firm had 60 workers ($Q_1 = 28$, $Q_3 = 180$); hence our sample firm size distribution is close to the firm size distribution in the economy. Firms were free to choose the number of interns they wished to host, up to a maximum of five imposed for operational reasons. The median and modal firm hosted two interns. We can directly compare management practices in Ethiopian firms to the firms surveyed by Bloom et al. (2012), since our questionnaire embeds the question that these authors use to measure management in their survey. Bloom et al. (2012) surveyed firms in one highly industrialized country (Germany), as well as India and several Eastern European and Central Asian transition countries that share with Ethiopia a history of central planning or socialist rule and thus are arguably the best comparison. We show the cross-country distribution of management practices in Appendix Figure A.3. We find that management practices in Ethiopian firms are among the lowest within the group of comparison countries. At the median, Ethiopia has the second-lowest management practices, between Kazakhstan and Uzbekistan. The median Ethiopian firm is more than a standard deviation below the median German firm. This mirrors the pattern reported in Bloom et al. (2014)

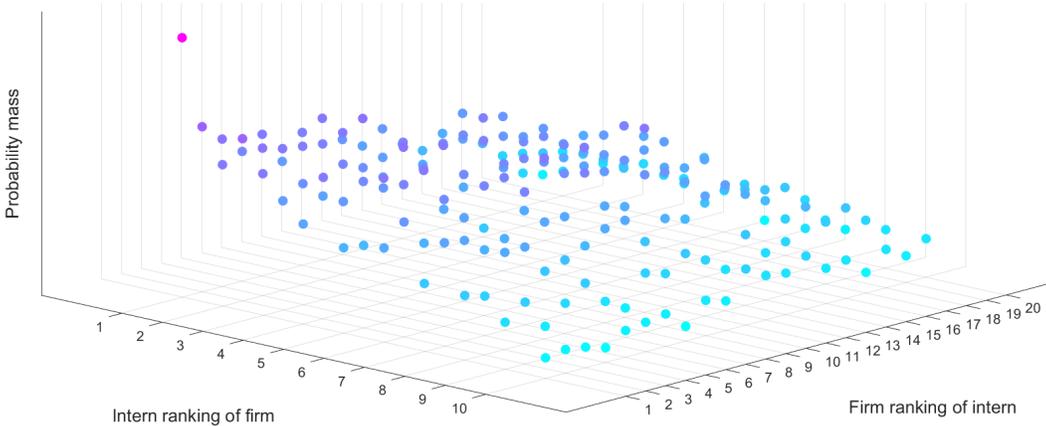
¹ Related to the rapid urbanisation, structural change, and rate of development in Ethiopia, very few have parents who went to university. In fact, one third of fathers had no schooling at all, and another third had only up to primary school. A similar proportion (30%) of fathers owned a business, which includes farms. Mothers have even less schooling.

who, with a different survey methodology, find that average management scores in Ethiopia are the second-lowest among the 33 countries surveyed.

Implementation of the matching algorithm

We implemented the matching with a Gale and Shapley (1962) Deferred Acceptance (DA) algorithm. In the language of mechanism design, the firms ‘propose’ in our algorithm. That is, the algorithm starts by letting each firm pick their most preferred and not-yet-matched intern, in a random order. This creates a provisional allocation m' . Then the algorithm cycles through profitable pairwise deviations from m' , matches where both a firm and an intern would be better off matched to each other, than in their provisional match. These deviations are found by firms in turn making offers to an intern with whom they were not yet provisionally matched. If both firm and intern are better off from such an alternative match, then both sides release their current provisional matches. The algorithm stops once there is no further profitable deviation, and hence all matches in the final allocation m are stable. We implement the same algorithm separately for each batch. Figure A.1 shows the joint distribution of rankings; it shows a positive correlation.

Figure A.1: Firms’ rankings of interns and interns’ rankings of firms



Note: This scatterplot shows the joint distribution of interns’ ranking of firms and firms’ ranking of interns (where, in each case, a ranking of 1 indicates the highest preference).

Debriefing survey

Once the placement was terminated, we conducted a short debriefing survey with the young professionals who were placed as interns in firms, as well as with the host firms. Both sources paint a very similar picture of the placement experience. In general, it seems that the program largely worked as intended: the median time spent in close collaboration with management was 60%, and only 12% of interns are reported to have spent no time at all with management. Not all of this time was spent working the tasks of managers. While experiences are heterogeneous, we can get some idea by looking at averages across interns. On average 40% of interns’ time in the firm was spent on various planning and supervision tasks typically associated with management. The most common tasks were dealing

with accounts, supervising workers, or managing inventories. Only rarely did firms assign interns to deal with suppliers or finance. Interns spent the rest of their time idle (around 20%), performing tasks similar to those of production workers (around 25%), or dealing with customers (around 10%).

Follow-up surveys

We followed up with in-person surveys, six months, 12 months, 48 months and 72 months after they completed their placement (and at equivalent moments for the control group, who were paired to treated individuals for the purpose of randomization). The 48-month survey was interrupted by COVID; we completed approximately half of this follow-up wave before the pandemic struck, and then used phone surveys with a shortened questionnaire to complete the wave. We also conducted monthly phone surveys for the first year after completing the placement, to learn about job search and employment trajectories. At the conclusion of the 12-month survey, we provided a formal certificate to those who had completed an internship; this is illustrated in Appendix Figure A.2. (Note that the date format is in the Ethiopian format: the dates indicated here refer to mid-2016 in the Gregorian calendar.)

Figure A.2: Participation certificate: End of 12-month survey



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EDRI
Ethiopian Development
Research Institute (EDRI)

Participation Certificate

To Whom It May Concern:

This is to certify that

Participated in a management experience programme facilitated by the Ethiopian Development Research Institute (EDRI). _____ completed a four-week long placement with a firm working as an intern from

29-02-2008 to 24-03-2008

on the Ethiopian Calendar.

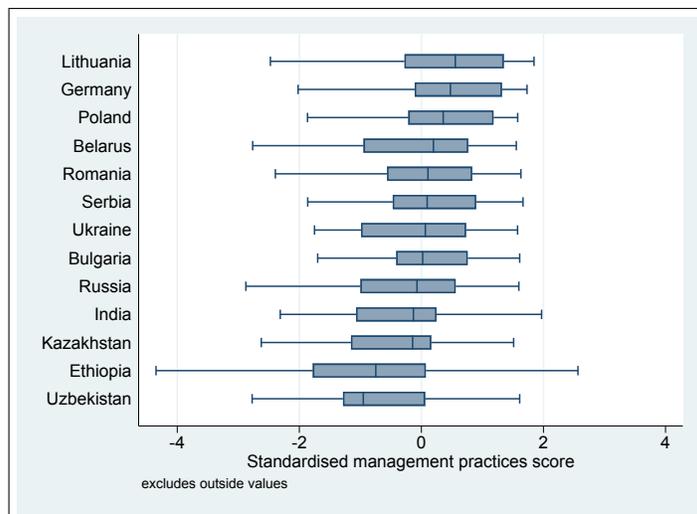
The programme gives young graduates an opportunity to gain practical management skills.

Signature: _____

Ethiopian Development Research Institute (EDRI)

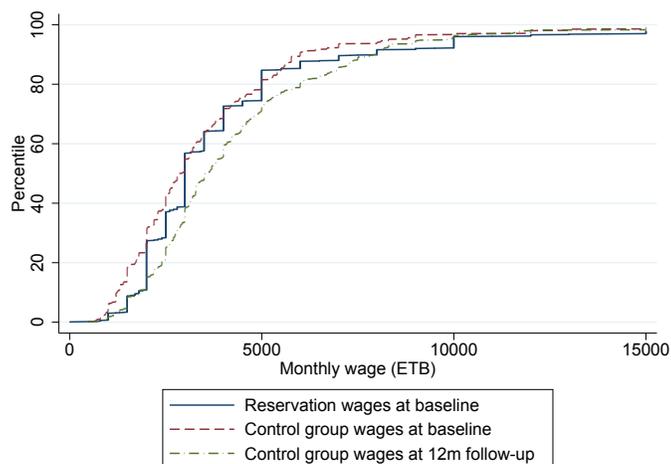
A.2 Appendix: Additional tables and figures

Figure A.3: Benchmarking Ethiopian management practices across countries



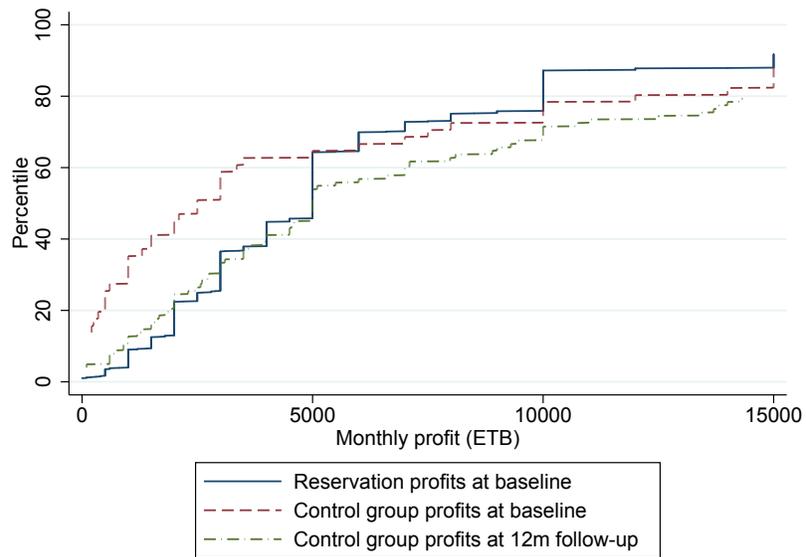
Note: This graph compares the distribution of the management practices score we obtain in our firms survey in Ethiopia with the management scores in the 12 other countries surveyed by Bloom et al. (2012). We obtained this data from the EBRD companion web site to the paper.

Figure A.4: Wages: Actual and reservation



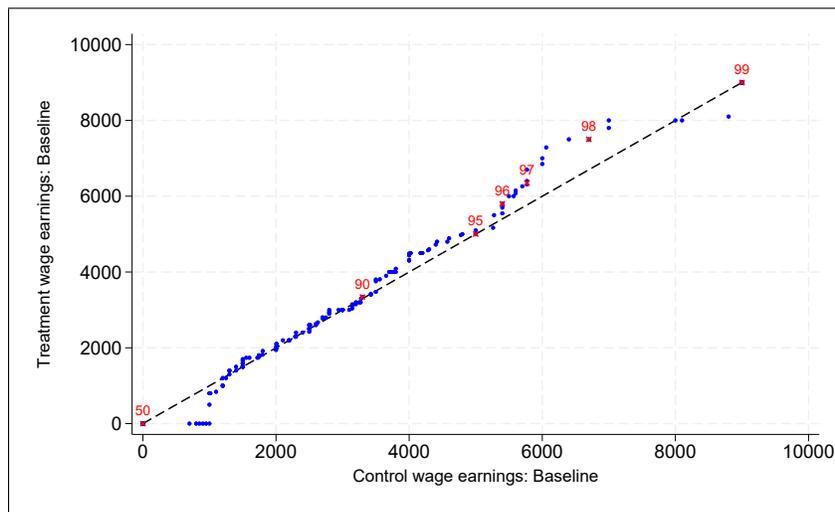
Note: This graph compares the distribution of wages earned by the control group at baseline and at the 12-month follow-up survey to the distribution of reservation wages measured at baseline. For each distribution of earned wages, the sample is restricted to individuals with a wage job. Note that the graph is plotted on the same scale as Figure A.5.

Figure A.5: Profits: Actual and reservation



Note: This graph compares the distribution of profits earned by entrepreneurs in the control group at baseline and at the 12-month follow-up survey to the distribution of reservation profits measured at baseline. For each distribution of earned profits, the sample is restricted to individuals who run a business. Note that the distribution has been calculated for the whole sample, but is graphed only for part of the distribution for ease of comparison with Figure A.4.

Figure A.6: Quantile-Quantile plot of wage earnings at baseline



Note: This graph shows a quantile-quantile plot of wage earnings at baseline. It labels points at the 50th, 90th, 95th, 96th, 97th, 98th and 99th quantiles. (Data is winsorised at the 99th percentile on a wave-by-wave basis; respondents without a wage job are coded as having zero wage income.)

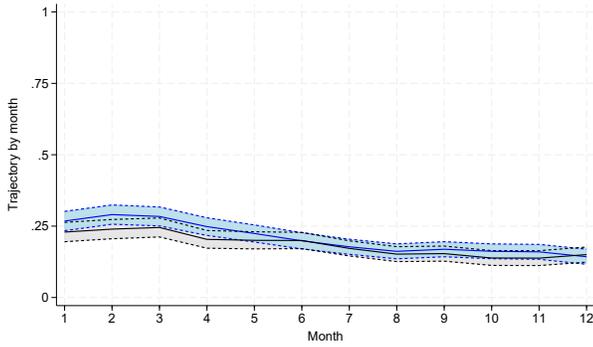
Figure A.7: Interns: Constructed CV

Intern CV

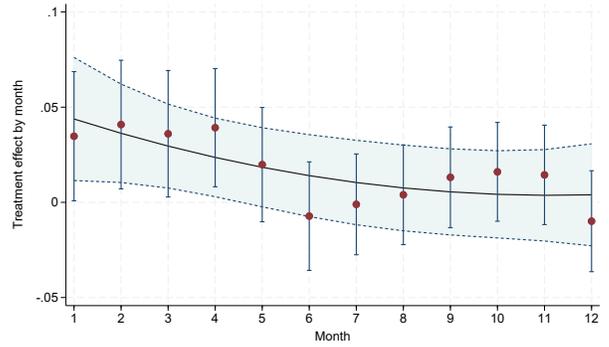
1. Intern Id			
2. Age in full years <input type="text"/>	3. Gender 01=Male 02=Female <input type="text"/>	4. School attended 01=Public 02=Private (including NGO and missionary schools) <input type="text"/>	
5. Completed level of education 06 = High school (old curriculum) 07 = High school first cycle (new curriculum) 08 = Preparatory school 09 = 10 +1 Vocational (old) 10 = 10 +2 Vocational (old) 11 = 10 +3 Vocational (old) 12 = Vocational school level1 13 = Vocational school level 2 14 = Vocational school level 3 15 = Vocational school level 4 16 = Vocational school level		17 = Diploma (non-vocational) 18 = BED (teachers) 19 = Teachers certificate 20 = BA (BSc) degree 21 = MA/MSc 22 = PhD <input type="text"/>	6. The higher education course was... 01=Regular 02=Extension 03=Distance 04=Summer <input type="text"/>
7. Name of the University or College attended			
8. Field of study		University 01= Engineering & Technology 02= Business and Economics 03= Natural and Computational Sciences 04= Social Sciences & Humanities 05= Medicine and Health Sciences 06= Agriculture and Life Sciences TVET 07=Automotive Technology 08= Electrical & Electronics Technology <input type="text"/>	09= Construction Technology 10= Information Technology 11= Surveying Technology 12= Manufacturing Technology 13= Architectural Design Technology 14= Wood Science Technology 15= Textile or Garment Engineering 16= Accounting and Business All institutions 17= Other
9. Years of work experience <input type="text"/>	10. Industry of experience 01 = Transportation 02 = Finance 03 = Manufacturing 04 = Hospitality 05 =Tour and travel 06 =Trading (wholesale and retail) 07 = Health		8 = Profession services (accounting, architecture or law) 09 = Education 10 = Mining/ Quarrying 11 = Construction 12 = Others <input type="text"/>

Note: This figure shows the standardized CV template that we asked our participants who had been randomized into the internship to fill out. We showed photocopies of these documents to the hiring manager at the firm, who would then rank the CVs of candidates within their batch.

Figure A.8: Belief in being wage-employed in 12 months



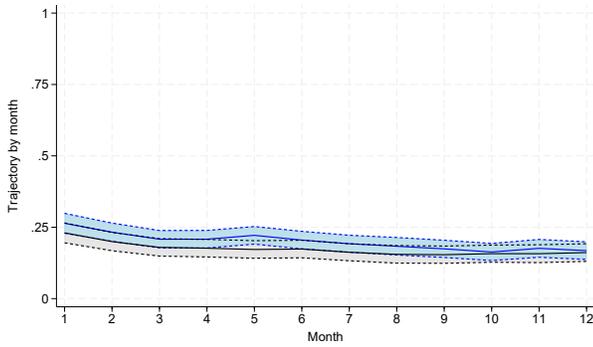
(a) Trajectories by month



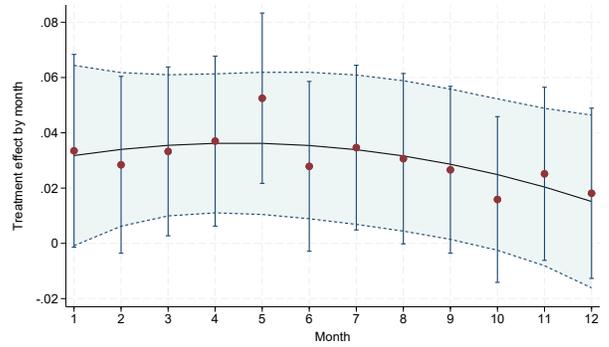
(b) Treatment effects by month

Note: Outcome is responding likely / very likely to “12 months from now, you will have a wage job.” Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Figure A.9: Belief in being self-employed in 12 months



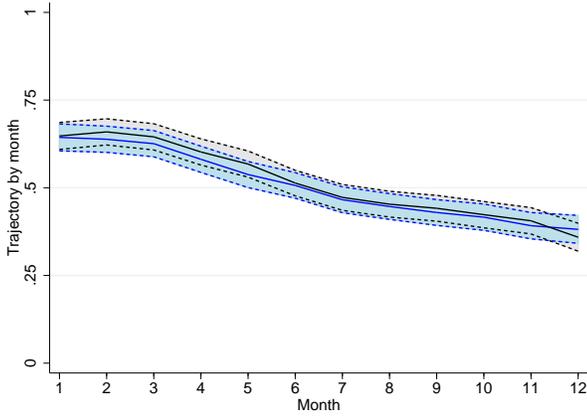
(a) Trajectories by month



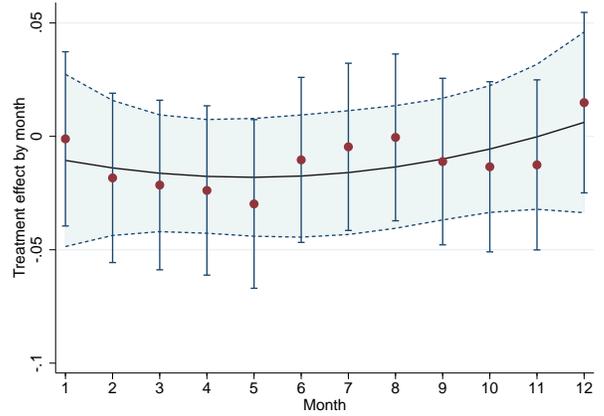
(b) Treatment effects by month

Note: Outcome is responding likely / very likely to “12 months from now, you will be self-employed.” Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Figure A.10: Searching for a wage job at monthly intervals



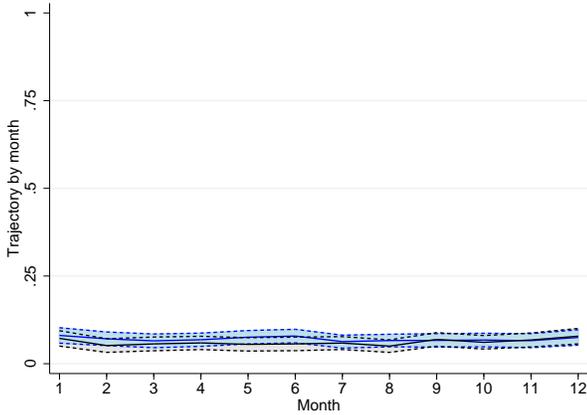
(a) Trajectories by month



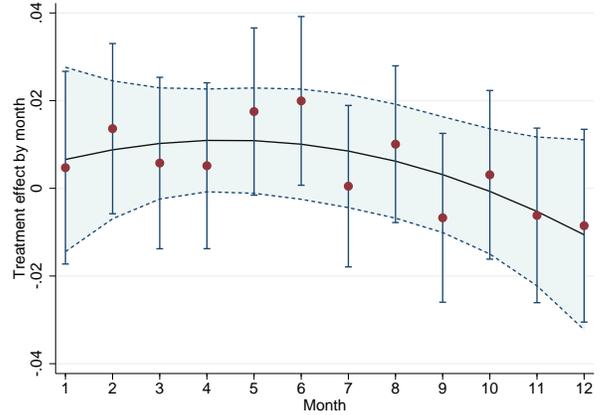
(b) Treatment effects by month

Note: Outcome is search for a wage job. Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Figure A.11: Planning to set up own business at monthly intervals



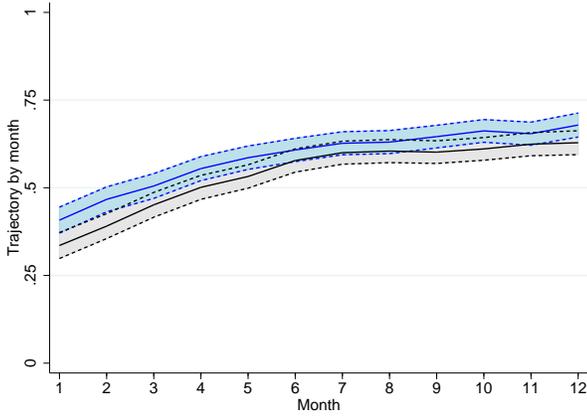
(a) Trajectories by month



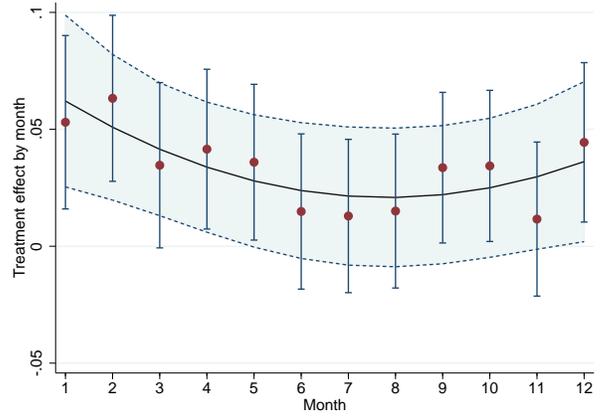
(b) Treatment effects by month

Note: Outcome is planning to set up a business. Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Figure A.12: Wage employment at monthly intervals



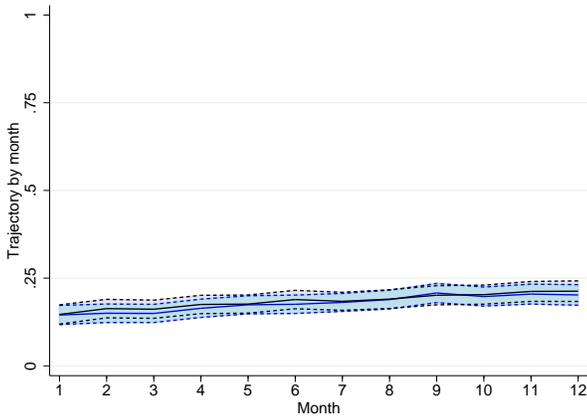
(a) Trajectories by month



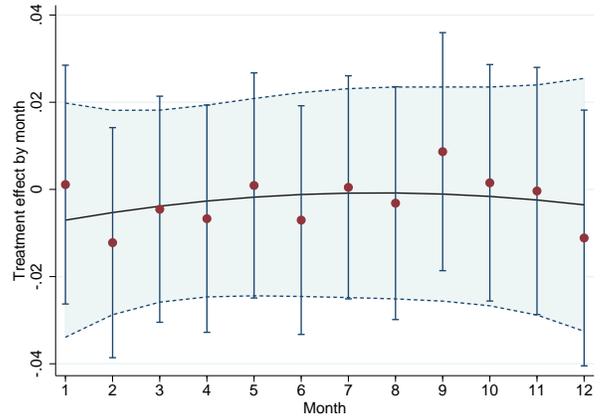
(b) Treatment effects by month

Note: Outcome is wage employment. Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Figure A.13: Self-employment at monthly intervals



(a) Trajectories by month



(b) Treatment effects by month

Note: Outcome is self-employment. Trajectories are month-by-month sample mean plots for treatment (blue) and control (grey). Treatment effects are estimates of β_m of the regression $y_{ipmc} = \sum_m \beta_m \cdot T_{im} + \delta_p + \eta_m + \omega_c + \epsilon_{ipmc}$ for survey month m and calendar month c . We also estimate the trajectory of treatment effects imposing a quadratic trend. Shaded areas and whiskers denote 95% confidence intervals, with standard errors clustered at the individual level.

Table A.1: Balance of randomisation for the interns sample

	N	Mean	Treatment balance (p)
Dummy: is self-employed	1636	0.07	0.313
Hours worked (last weekday) in self-employment	1637	0.43	0.151
Profit for the last month (ETB)	1623	515.32	0.337
Dummy: is wage-employed	1637	0.25	0.495
Dummy: has a permanent wage job	1637	0.19	0.415
Dummy: has a managerial wage job	1637	0.04	0.572
Hours worked (last weekday) in wage employment	1637	1.69	0.398
Wage earnings for the last month (ETB)	1630	864.70	0.995
Dummy: has a good idea	1637	0.94	0.131
Dummy: has necessary technical skills	1637	0.82	0.350
Dummy: Could accurately estimate costs	1637	0.70	0.398
Dummy: Could accurately estimate demand	1637	0.79	0.948
Dummy: Could sell to a new customer	1637	0.82	0.641
Dummy: Could identify good employees	1637	0.84	0.357
Dummy: Could inspire/encourage/motivate employees	1637	0.92	0.852
Dummy: Could find suppliers to offer a good price	1637	0.67	0.512
Dummy: Has seed money to start	1637	0.17	0.716
Dummy: Could persuade a bank to lend to finance a business	1637	0.36	0.497
Dummy: Could persuade friend/family to lend to finance a business	1637	0.56	0.123
Dummy: Has necessary business networks	1637	0.45	0.563
Dummy: Too complicated to handle business tasks	1637	0.35	0.377
Dummy: Business success is mostly determined by luck, not skill	1637	0.11	0.267
Overall score for management practices	120	0.09	0.917
Score for marketing practices	120	0.00	0.696
Score for costing/record-keeping practices	120	0.15	0.727
Score for costing/record-keeping practices	120	0.06	0.781
Dummy: respondent has plans to start a business	1637	0.28	0.710
Dummy: respondent has plans to expand a business	1637	0.03	0.023
Score for preparatory steps taken	1636	0.07	0.861
Minimum monthly profit to open a business (ETB)	1542	6233.01	0.818
Dummy: Any search for a wage job in the past four weeks	1636	0.80	0.790
Dummy: Search for manual work	1624	0.12	0.754
Dummy: Search for clerical/administrative work	1623	0.19	0.380
Dummy: Search for professional work	1624	0.77	0.607
Dummy: Search for management work	1623	0.28	0.549
Minimum monthly wage to accept a job (ETB)	1598	3796.34	0.455
Total years of contacts' experience	1637	4.38	0.422
Number of contacts listed (up to 5)	1637	0.54	0.951
Number of senior contacts	1637	0.24	0.813
Number of mid-level contacts	1637	0.10	0.825

Note: This table reports means for baseline characteristics of individuals; *p*-values test randomisation balance, using pairwise dummies.

Table A.2: Balance of randomisation for the firms sample

	N	Mean	Treatment balance (p)
Dummy: firm did any advertisting for new hires	698	0.70	0.692
Dummy: advertised for hires on job boards	698	0.36	0.643
Dummy: advertised for hires in newspapers	698	0.39	0.489
Dummy: advertised for hires outside premises	698	0.32	0.274
Dummy: advertised for hires online	698	0.14	0.488
Dummy: advertised for hires by agency/broker	697	0.14	0.413
Dummy: advertised for hires on campuses	698	0.07	0.375
Dummy: advertised for hires at job fairs	696	0.04	0.031
Total hires (last two months)	673	12.97	0.544
Professional hires (last two months)	696	3.21	0.279
Client services hires (last two months)	687	1.64	0.706
Production worker hires (last two months)	679	5.80	0.095
Support services hires (last two months)	695	2.32	0.089
Total separations (last 12 months)	692	12.85	0.835
Professional separations (last 12 months)	694	3.24	0.158
Client services separations (last 12 months)	693	1.78	0.209
Production worker separations (last 12 months)	693	5.42	0.132
Support services separations (last 12 months)	692	2.39	0.141
Overall management practices z-score	713	-0.00	0.053
Operations practices z-score	700	0.00	0.164
Monitoring practices z-score	700	-0.00	0.002
How many production performance indicators?	700	-0.00	0.006
How frequently PPI collected?	700	0.00	0.010
How frequently PPI shown to managers?	699	-0.00	0.009
How frequently PPI shown to workers?	700	0.00	0.015
Where are PPI displayed?	700	0.00	0.001
How often are PPI displayed?	698	0.00	0.001
Are PPI compared?	700	0.00	0.517
Target practices z-score	700	0.00	0.305
Incentive practices z-score	713	0.00	0.302
Rewarding target achievements	693	-0.00	0.866
Promoting employees	696	-0.00	0.625
Moving employees	701	-0.00	0.177
Record-keeping practices z-score	700	-0.00	0.803
Firm issues invoices	697	-0.00	0.346
Firm pays on invoices	699	-0.00	0.441
Firm takes minutes of meetings	700	0.00	0.606
Firm archives minutes of meetings	700	-0.00	0.486
Managers produce written reports	699	-0.00	0.223
Marketing practices z-score	700	-0.00	0.232
Has firm done advertising?	700	0.00	0.300
Does firm offer warranties?	700	-0.00	0.459

Note: This table reports means for baseline characteristics of firms; p -values test randomisation balance.

Table A.3: Benchmarking wages with the National Labour Force Survey

	Control Group		NLFS 2013			
	Non-Degree	Degree	Non-Degree		Degree	
			Addis Ababa	National	Addis Ababa	National
Wages p(25)	1,427	2,500	1,540	1,540	2,406	2,380
Wages p(50)	2,100	3,514	2,240	2,098	3,500	3,220 S
Wages p(75)	3,294	5,300	3,500	3,055	4,900	4,578

Note: NLFS indicates data from the 2013 National Labour Force Survey from the Ethiopian Central Statistical Agency. All values deflated to 2017 prices using the Ethiopian CPI.

Table A.4: Take-up and completion rates

Group	Headcount	% of treated
Applications	6,424	
Experimental sample	1,651	
thereof: control	822	
thereof: treated	829	100 %
Assigned to firm	788	95 %
Completed at least 1 day	588	71 %
Completed at least 10 days	553	67 %
Completed full placement	487	59 %

Note: This table summarizes take-up of the treatment, based on our administrative program data.

Table A.5: Comparison of main results with elicited expectations

Outcome	C	T	Students <i>n</i> = 28	Academics <i>n</i> = 14	HR experts <i>n</i> = 5
Self-employment rate at six-month follow-up	10%	12%	19%	16%	19%
Self-employment rate at 12-month follow-up	13%	15%	24%	17%	29%
Wage employment rate at six-month follow-up	59%	62%	65%	62%	48%
Wage employment rate at six-month follow-up	69%	73%	74%	73%	53%

Note: In this table we report the expert predictions of treatment effects described in the main text. We showed experts the first two columns of the table, and asked for a prediction about the third column labelled "T". Each subsequent column reports the mean prediction of each expert group.

Table A.6: Treatment effects on formal work and firm size

Outcome:	(1) Firm size: 0-20 employees	(2) Firm size: 20-60 employees	(3) Firm size: 60-230 employees	(4) Firm size: 230-1000 employees	(5) Firm size: 1000 + employees
Dummy: Treated	0.01 (0.01) [0.21] {1.00}	0.00 (0.01) [0.79] {1.00}	0.02 (0.01) [0.11] {1.00}	0.00 (0.01) [0.86] {1.00}	0.01 (0.01) [0.33] {1.00}
Control mean (follow-up)	0.08	0.08	0.09	0.11	0.10
Control mean (baseline)	0.04	0.04	0.04	0.04	0.03
Observations	3,121	3,121	3,121	3,121	3,121

Note: In this table we report the *intent-to-treat* estimates of the placement on the probability of employment in firms of different sizes (pooled at the six-month and 12-month follow-up waves). These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.7: Treatment effects on finding work through referrals

Outcome:	(1) Potential referrers	(2) Any potential referrer	(3) Hired after social referral	(4) Social contact gave a job
Dummy: Treated	0.00 (0.00) [0.83] {1.00}	0.00 (0.00) [0.41] {1.00}	0.00 (0.00) [0.86] {1.00}	-0.01 (0.01) [0.50] {1.00}
Control mean (follow-up)	0.00	0.00	0.02	0.05
Control mean (baseline)	0.02	0.01	0.02	0.01
Observations	3,300	3,300	3,300	3,300

Note: In this table we report the *intent-to-treat* estimates of the placement on several measures of referrals: (1) self-reported number of potential referrers, (2) a dummy for whether the respondent reports any potential referrer, (3) a dummy for whether the respondent was hired after a social referral and (4) a dummy for whether the respondent received a job from a social contact. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.8: Effects of treatment on steps to start a business

Outcome:	(1) Start Business	(2) Expand Business	(3) Steps Taken	(4) Business knowledge	(5) Reservation profit
Dummy: Treated	0.01 (0.01) [0.41] {0.95}	0.00 (0.01) [0.98] {1.00}	0.04 (0.03) [0.16] {0.95}	0.00 (0.02) [0.88] {1.00}	462.38 (356.04) [0.19] {0.95}
Control mean (follow-up)	0.16	0.03	-0.03	0.00	6893.21
Control mean (baseline)	0.27	0.02	0.07	.	7289.78
Observations	3,121	3,121	3,119	1,396	3,038

Note: In this table we report the *intent-to-treat* estimates of the placement on several measures of steps taken to start a business: (1) a dummy for whether the respondent started any business, (2) a dummy for whether the respondent expanded a business, (3) a count of reported steps taken to start a business, (4) a measure of knowledge about the business environment (relevant for starting a business) and (5) self-reported reservation profit. These outcomes are pooled from the six-month and 12-month follow-up waves, except for outcome (4), taken only at the six-month follow-up. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.9: Effects of treatment on job search

Outcome:	(1) Search any steps	(2) Search for manual	(3) Search for clerical	(4) Search for prof.	(5) Search for manag.	(6) Reservation Wage
Dummy: Treated	-0.04 (0.02) [0.03]** {0.16}	0.00 (0.01) [0.90] {1.00}	-0.01 (0.01) [0.44] {0.79}	-0.04 (0.02) [0.04]** {0.16}	-0.01 (0.01) [0.59] {0.90}	157.51 (151.88) [0.30] {0.67}
Control mean (follow-up)	0.62	0.02	0.08	0.61	0.16	5907.64
Control mean (baseline)	0.80	0.12	0.19	0.76	0.29	3936.71
Observations	3,111	3,096	3,096	3,096	3,094	3,071

Note: In this table we report the *intent-to-treat* estimates of the placement on several measures of job search; these are pooled across the six-month and 12-month follow-up waves. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.10: Effects of treatment on job search - By wave

Dependent Variable:	(1) Search any steps	(2) Search for manual	(3) Search for clerical	(4) Search for prof.	(5) Search for manag.	(6) Reservation Wage
Treatment \times Survey wave=1	-0.02 (0.02) [0.49] {1.00}	-0.00 (0.01) [0.82] {1.00}	-0.02 (0.02) [0.34] {1.00}	-0.00 (0.02) [0.88] {1.00}	-0.02 (0.02) [0.38] {1.00}	211.92 (131.66) [0.11] {0.37}
Treatment \times Survey wave=2	-0.07 (0.02) [0.01]*** {0.03}**	0.00 (0.01) [0.84] {1.00}	0.00 (0.01) [0.89] {1.00}	-0.08 (0.02) [0.00]*** {0.02}**	-0.00 (0.02) [0.96] {1.00}	229.81 (135.26) [0.09]* {0.37}
Control mean: baseline	0.80	0.12	0.19	0.76	0.29	3709.44
Control mean: 6 months	0.62	0.04	0.14	0.59	0.19	5282.51
Control mean: 12 months	0.63	0.00	0.02	0.62	0.13	6003.53
Equality test	0.14	0.79	0.44	0.05	0.58	0.92
Observations	3,107	3,069	3,067	3,069	3,065	2,996

Note: In this table we report the *intent-to-treat* estimates of the internship on search for wage employment. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a *p*-value in brackets, and a *q*-value in curly braces. We correct standard errors for arbitrary autocorrelation at the level of the individual. *q*-values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.11: Effects of treatment on business networks

Outcome:	(1) Network Experience	(2) Number Contacts	(3) Senior Contacts	(4) Mid-level Contacts
Dummy: Treated	0.55 (0.29) [0.06]* {0.30}	0.02 (0.03) [0.52] {0.30}	0.03 (0.02) [0.15] {0.30}	-0.01 (0.01) [0.17] {0.30}
Control mean (follow-up)	4.06	0.50	0.20	0.07
Control mean (baseline)	4.66	0.54	0.24	0.10
Observations	3,121	3,121	3,121	3,121

Note: In this table we report the *intent-to-treat* estimates of the placement on several measures of the respondents' business networks. These outcomes are pooled from the six-month and 12-month follow-up waves, except for outcome (4), taken only at the six-month follow-up. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a *p*-value in brackets, and a *q*-value in curly braces. Standard errors allow for clustering at the level of the individual. *q*-values are obtained using the sharpened procedure of (Benjamini et al., 2006).

Table A.12: Wording of questions on confidence in management skills

“How much do you agree with the following statements?”
(Strongly disagree – disagree – neutral – agree – strongly agree)

Number	Area	Statement
(1)	Idea	I have a good idea to run a business.
(2)	Skills	I have the technical skills required to run a business successfully.
(3)	Cost	I could accurately estimate the costs of a new business venture.
(4)	Demand	I could accurately estimate the customer demand for a new product or service.
(5)	Client	I would be able to sell a product or service to a customer whom I am meeting for the first time.
(6)	Find	I would be able to identify good employees for a business.
(7)	Inspire	I would be able to inspire, encourage, and motivate employees.
(8)	Supply	I would be able to find suppliers who can sell me raw materials at the best price.
(9)	Seed	I have seed money to start if I want to.
(10)	Bank	I would be able to persuade a bank to lend me money to finance a business venture.
(11)	Friend	I would be able to persuade a friend or family member to lend me money to finance a business venture.
(12)	Network	I have the necessary business networks to run a business successfully.
(13)	Tricky	It is too complicated to handle all the tasks involved in running a business.
(14)	Luck	Success in running a business is mostly determined by luck, rather than by the skill of the entrepreneur.

Note: This table provides the wording for the questions on self-confidence in management skills (with outcomes discussed on the following page, in Appendix Table A.13).

Table A.13: Effect of treatment on confidence in management skills

Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Idea	Skills	Cost	Demand	Client	Find	Inspire
Dummy: Treated	0.02 (0.01)	0.01 (0.01)	0.04 (0.02)	0.02 (0.02)	0.03 (0.02)	0.00 (0.01)	-0.00 (0.01)
	[0.04]** {0.17}	[0.62] {0.77}	[0.01]** {0.16}	[0.15] {0.28}	[0.05]* {0.18}	[0.93] {0.87}	[0.92] {0.87}
Control mean (follow-up)	0.94	0.85	0.72	0.77	0.81	0.88	0.94
Control mean (baseline)	0.95	0.81	0.71	0.79	0.83	0.85	0.92
Observations	3,121	3,121	3,121	3,121	3,121	3,121	3,121
Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Supply	Seed	Bank	Friend	Netw.	Tricky	Luck
Dummy: Treated	0.01 (0.02)	0.00 (0.01)	0.03 (0.02)	0.02 (0.02)	0.03 (0.02)	0.00 (0.02)	-0.02 (0.01)
	[0.58] {0.77}	[0.93] {0.87}	[0.10]* {0.21}	[0.39] {0.51}	[0.09]* {0.21}	[0.89] {0.87}	[0.02]** {0.16}
Control mean (follow-up)	0.62	0.14	0.33	0.60	0.47	0.25	0.06
Control mean (baseline)	0.68	0.18	0.36	0.54	0.46	0.34	0.12
Observations	3,121	3,121	3,121	3,121	3,121	3,121	3,119

Note: In this table we report the *intent-to-treat* estimates of the internship on management practices in self-employment. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.14: Effects on managerial confidence and management practices

Outcome:	(1)		(2)		(3)		(4)		(5)		(6)	
	Sum	Confidence	Index	Confidence	Overall	Marketing	Recording	Management	Recording	Management	Recording	Financial
Dummy: Treated	0.23 (0.07)		0.04 (0.01)		0.08 (0.05)	0.07 (0.06)	0.11 (0.09)		0.07 (0.06)	0.11 (0.09)		0.05 (0.06)
	[0.00]***		[0.00]***		[0.09]*	[0.22]	[0.19]		[0.42]	[0.42]		[0.47]
	{0.00}***		{0.00}***		{0.42}	{0.42}	{0.42}		{0.42}	{0.42}		{0.42}
Control mean (follow-up)	9.78		0.02		-0.02	0.00	-0.05		0.00	-0.05		-0.01
Control mean (baseline)	9.61		-0.04		0.07	0.02	0.17		0.02	0.17		0.02
Observations	3,121		3,121		396	396	396		396	396		396

Note: In this table we report the *intent-to-treat* estimates of the placement on confidence in managerial skills and on management practices in self-employment. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006), for each pre-specified outcome family. Note that the family for outcomes in columns (1) and (2) includes the outcomes reported in Appendix Table A.13. We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.15: Effect of treatment management practices for incumbents and entrants

Subsample	Incumbents				Entrants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcome:	Overall Practices	Marketing Practices	Recording Practices	Financial Practices	Overall Practices	Marketing Practices	Recording Practices	Financial Practices
Dummy: Treated	0.16 (0.09)	0.14 (0.11)	0.14 (0.17)	0.22 (0.13)	0.01 (0.06)	0.02 (0.08)	0.04 (0.11)	-0.09 (0.08)
	[0.09]*	[0.20]	[0.40]	[0.10]	[0.86]	[0.77]	[0.70]	[0.26]
	{0.26}	{0.26}	{0.26}	{0.26}	{1.00}	{1.00}	{1.00}	{1.00}
Control mean (follow-up)	-0.02	0.00	-0.05	-0.01	-0.02	0.00	-0.05	-0.01
Control mean (baseline)	0.07	0.02	0.17	0.02	0.07	0.02	0.17	0.02
Observations	115	115	115	115	269	269	269	269

Note: In this table we report the *intent-to-treat* estimates of the internship on management practices in self-employment, disaggregated between incumbents and entrants. These are obtained by least-squares estimation of equation 1. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.16: Effect of treatment on host firms' recruitment advertising

Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Advertised	Advertised	Advertised	Advertised	Advertised	Advertised	Advertised
	on boards	on boards	in papers	by posting	online	by agency	on campus
Dummy: Treated	-0.01 (0.04) [0.89] {1.00}	0.01 (0.03) [0.78] {1.00}	-0.02 (0.03) [0.52] {1.00}	0.02 (0.03) [0.51] {1.00}	0.04 (0.02) [0.07]* {0.94}	0.02 (0.02) [0.31] {1.00}	0.00 (0.01) [0.90] {1.00}
Control mean (follow-up)	0.50	0.28	0.29	0.17	0.08	0.07	0.01
Control mean (baseline)	0.73	0.36	0.40	0.35	0.13	0.17	0.07
Observations	648	648	648	648	648	648	648

Note: In this table we report the *intent-to-treat* estimates of the internship on firm outcomes. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the individual. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.17: Effect of treatment on host firms' labor flows

Outcome:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Hires	Hires	Hires	Hires	Hires	Separat.	Separat.	Separat.	Separat.	Separat.
	(total)	(prof.)	(client)	(prod.)	(support)	(total)	(prof.)	(client)	(prod.)	(support)
Dummy: Treated	0.44 (0.70) [0.53] {0.65}	0.17 (0.24) [0.46] {0.65}	-0.03 (0.15) [0.83] {0.99}	0.16 (0.52) [0.76] {0.99}	0.34 (0.18) [0.07]* {0.14}	2.96 (1.05) [0.00]*** {0.05}**	0.36 (0.37) [0.33] {0.65}	0.20 (0.27) [0.47] {0.65}	1.72 (0.65) [0.01]*** {0.05}**	0.59 (0.27) [0.03]** {0.08}*
Control mean (follow-up)	5.15	1.54	0.66	2.10	0.81	9.78	3.11	1.63	3.21	1.80
Control mean (baseline)	12.94	3.65	1.85	4.89	2.70	13.58	3.85	2.15	4.74	2.80
Observations	633	640	638	635	640	631	636	632	632	633

Note: In this table we report the *intent-to-treat* estimates of the internship on firm outcomes. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the firm's gathered field. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.18: Effect of treatment on host firms' management practices

Outcome:	(1) Management (total)	(2) Management (operations)	(3) Management (monitoring)	(4) Management (target)	(5) Management (incentives)	(6) Management (records)	(7) Management (marketing)
Dummy: Treated	0.05 (0.10) [0.63] {1.00}	0.06 (0.08) [0.44] {1.00}	0.06 (0.08) [0.45] {1.00}	0.03 (0.08) [0.72] {1.00}	-0.02 (0.15) [0.88] {1.00}	0.02 (0.07) [0.76] {1.00}	0.08 (0.08) [0.30] {1.00}
Control mean (follow-up)	-0.08	-0.18	-0.13	0.02	0.09	0.07	0.04
Control mean (baseline)	-0.02	0.00	-0.10	0.00	0.06	0.04	0.06
Observations	654	651	650	647	653	651	651

Note: In this table we report the *intent-to-treat* estimates of the internship on firm outcomes. Below each coefficient, we report a standard error in parenthesis, a p -value in brackets, and a q -value in curly braces. Standard errors allow for clustering at the level of the firm's gathered field. q -values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using * for 10%, ** for 5% and *** for 1%.

Table A.19: Counter-factual mechanisms: Main long run results

	(1) Permanent work	(2) Any wage work	(3) Managerial work	(4) Wage work hours	(5) Wage income	(6) Self-employed	(7) Self-employment hours	(8) Profit income
<i>Actual mechanism: Firm-proposing DA</i>	0.61*** (0.02)	0.73*** (0.02)	0.10*** (0.01)	5.49*** (0.14)	8485.36*** (391.05)	0.28*** (0.02)	1.72*** (0.13)	5914.26*** (754.02)
<i>Difference to alternative: Individual-proposing DA</i>	0.00 (0.01)	0.00 (0.01)	-0.00 (0.00)	0.04 (0.06)	-42.27 (178.10)	0.00 (0.01)	-0.02 (0.05)	-584.29 (402.82)
<i>Difference to alternative: Firm-proposing RSD</i>	-0.01 (0.02)	-0.00 (0.02)	-0.00 (0.01)	0.00 (0.16)	192.66 (637.57)	-0.01 (0.02)	-0.02 (0.13)	1840.92* (1104.75)
<i>Difference to alternative: Individual-proposing RSD</i>	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.03 (0.11)	-10.86 (304.98)	0.00 (0.01)	-0.03 (0.09)	-266.16 (497.74)
<i>Difference to alternative: Random matching</i>	-0.02 (0.02)	-0.01 (0.02)	-0.00 (0.01)	-0.13 (0.16)	57.30 (507.47)	-0.00 (0.02)	0.05 (0.13)	2007.04* (1150.23)
Observations	635	635	635	635	633	635	635	631
p -value (mechanisms equivalent)	0.81	0.31	0.42	0.20	0.98	0.68	0.60	0.48

Note: This table shows the estimated Average Structural Functions for baseline outcomes. To do this, we implement equation 8 by running a series of regressions of outcomes Y_i on a dummy, using appropriate weights; in doing so, we include demeaned batch dummies.

A.3 Appendix: Attrition

Table A.20: Attrition count by follow-up wave

	6-month	12-month	48-month	72-month
Interviewed	1,574	1,553	1,443	1,361
Attrited	76	97	207	289
Total	1,650	1,650	1,650	1,650
Attrition rate (%)	4.6	5.9	12.5	17.5

Note: This table describes the count and rate attrition for each of the four follow-up waves.

Table A.21: Attrition count by follow-up wave

	(1) Dummy: Attrited
Treatment \times 6-month	-0.01 (0.01)
Treatment \times 12-month	-0.03** (0.01)
Treatment \times 48-month	-0.01 (0.02)
Treatment \times 72-month	0.02 (0.02)
Observations	6600

Note: In this table we report the *intent-to-treat* estimates of the internship on attrition. These are obtained by least-squares estimation of equation 1 (interacting treatment with dummies for follow-up wave). Below each coefficient, we report a standard error in parentheses.

Table A.22: Attrition count by follow-up wave

Outcome:	(1) Attrition: 6-month	(2) Attrition: 12-month	(3) Attrition: 48-month	(4) Attrition: 72-month
Age at baseline	-0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)
Dummy: Male at baseline	-0.00 (0.11)	-0.06 (0.14)	-0.13 (0.16)	-0.05 (0.18)
Dummy: Wage employed at baseline	-0.03 (0.05)	-0.04 (0.06)	-0.09 (0.09)	0.05 (0.10)
Dummy: Formal wage employment at baseline	0.05 (0.05)	0.05 (0.06)	0.01 (0.09)	-0.08 (0.11)
Dummy: Searched for a wage job at baseline	-0.01 (0.06)	-0.05 (0.08)	-0.15 (0.11)	-0.10 (0.13)
Dummy: Searched for a professional job at baseline	-0.00 (0.05)	0.06 (0.07)	0.12 (0.11)	0.11 (0.13)
Dummy: Self-employed at baseline	0.00 (0.05)	0.02 (0.06)	0.02 (0.08)	0.05 (0.09)
Dummy: Had plans at baseline to start a business	0.00 (0.03)	0.03 (0.03)	0.01 (0.05)	-0.01 (0.06)
Dummy: Had plans at baseline to expand a business	-0.01 (0.07)	0.02 (0.06)	-0.15 (0.13)	0.06 (0.13)
Number of contacts listed at baseline (up to 5)	-0.02 (0.02)	-0.01 (0.02)	-0.02 (0.03)	-0.02 (0.04)
Total years of contacts' experience at baseline	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Observations	1622	1622	1622	1622

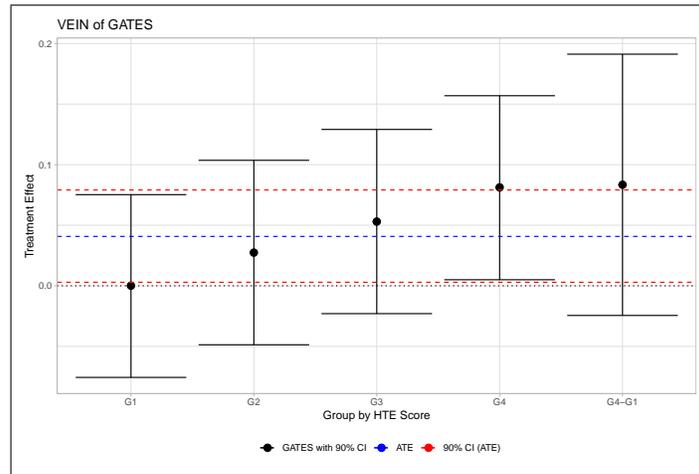
Note: In this table we report descriptive Linear Probability Model estimates for attrition in each wave, regressing on a set of key baseline correlates. We cluster by randomisation pair and absorb pairwise dummies.

A.4 Appendix: Machine learning on heterogeneity

To characterise heterogeneity in the short-run impacts on permanent employment, we run the generic machine learning method of Chernozhukov et al. (2025). The outcome of interest is a dummy for whether individual i has permanent employment at the first and second follow-up waves.² We first partial the value of the dummy at baseline, as well as pairwise dummies. We then implement the method of Chernozhukov et al. (2025), allowing for Elastic Net and Random Forest algorithms. (For BLP, GATES and CLAN, the algorithm selects Random Forest as the preferred learner.) We include as covariates a large number of baseline variables; these include measures of demographics, education/skills and cognitive/psychometric scores.

We estimate using four GATES (using the standard cutoffs of 25%, 50% and 75%). Figure A.14 reports the estimated treatment effect by each of these groups. Point estimates indicate substantial heterogeneity. For those in the least-affected group, we estimate zero treatment effect; this rises to a treatment effect of about 8.1 percentage points for those in the most-affected group. For this most-affected group, the treatment effect is significant at the 95% level ($p=0.039$). We note that the omnibus test of $\gamma_4 = \gamma_1$ does not reject – though the p -value approaches marginal significance ($p=0.135$).

Figure A.14: **Generic Machine Learning: VEIN estimates of GATES**



In Table A.23, we report CLAN estimates for each of the four groups; specifically, we show those covariates for which there is a significant difference between the value in the most affected and least affected group (that is, cases where we reject $H_0: \delta_4 = \delta_1$). Broadly, two patterns emerge. First, those most affected score more highly on several key proxies of cognitive and psychological ability: they are more likely to hold a university degree, have higher assessment scores in mathematics, higher digit recall, higher self-confidence and higher locus of control. Second, despite these high-ability markers, the most affected individuals are more likely to come from disadvantaged backgrounds: their parents are substantially less

² Formally, we run the analysis by collapsing those two waves, taking the average for each individual of those dummies.

educated, and they have lower assessment scores in English. This suggests that treatment is particularly effective for high-potential individuals who may face traditional barriers to labour market entry.

Table A.23: Classification Analysis: Characteristics of Most and Least Impacted Groups

Variable Description	δ_1	δ_2	δ_3	δ_4	$\delta_4 - \delta_1$	p-value
Demographics						
Male	0.66	0.74	0.80	0.86	0.21	5.43×10^{-7}
Father: Primary education or higher	0.58	0.52	0.46	0.36	-0.22	6.01×10^{-6}
Father: Secondary education or higher	0.45	0.38	0.33	0.26	-0.18	1.07×10^{-4}
Father: University degree	0.13	0.11	0.09	0.07	-0.07	2.20×10^{-2}
Mother: Primary education or higher	0.43	0.42	0.37	0.30	-0.13	9.35×10^{-3}
Mother: Secondary education or higher	0.28	0.27	0.23	0.19	-0.09	4.66×10^{-2}
Currently Wage Employed	0.29	0.27	0.25	0.19	-0.09	3.08×10^{-2}
Education & Skills						
Holds University Degree	0.63	0.76	0.83	0.90	0.27	1.74×10^{-11}
Field: Engineering	0.19	0.28	0.34	0.43	0.23	1.59×10^{-7}
Field: Agriculture / Life Sciences	0.01	0.03	0.05	0.10	0.09	9.72×10^{-5}
Field: Med. / Health Sci.	0.08	0.05	0.03	0.01	-0.07	2.05×10^{-4}
Field: Social Sciences / Humanities	0.13	0.14	0.12	0.07	-0.06	3.77×10^{-2}
Assessment score: Mathematics	2.19	2.45	2.55	2.71	0.52	2.41×10^{-3}
Assessment score: English	3.08	3.04	2.90	2.69	-0.40	1.00×10^{-2}
Cognitive & Psychometric						
Digits Recalled (Memory)	5.94	6.17	6.23	6.30	0.40	5.31×10^{-3}
Self-Confidence Score	-0.33	-0.02	0.10	0.25	0.58	1.20×10^{-9}
Locus of Control Score	-0.26	-0.06	0.06	0.27	0.52	3.74×10^{-7}

Note: δ_1 and δ_4 represent average characteristics of the least and most impacted quartiles. p-values test for equality between the extreme quartiles ($H_0: \delta_4 = \delta_1$).

A.5 Appendix: Classification model

Model specification

We begin by specifying the following flexible utility function for intern i 's preferences towards being hosted by firm f :

$$\begin{aligned}
 u_{if}(\mathbf{x}_{if}; \phi_{g_i}) &= \phi_{g_i} \cdot \mathbf{x}_{if} + \eta_{if}; \\
 \eta_{if} &\sim \text{Gumbel}(0,1); \\
 g_i &\sim \text{Multinomial Logit}(\alpha_g \cdot \mathbf{x}_{if}).
 \end{aligned}
 \tag{A.1}$$

As in the main text, the vector \mathbf{x}_{if} includes observable covariates describing intern i and each firm $f \in \{1, \dots, F\}$; these include, in particular, firm characteristics provided to interns before the ranking

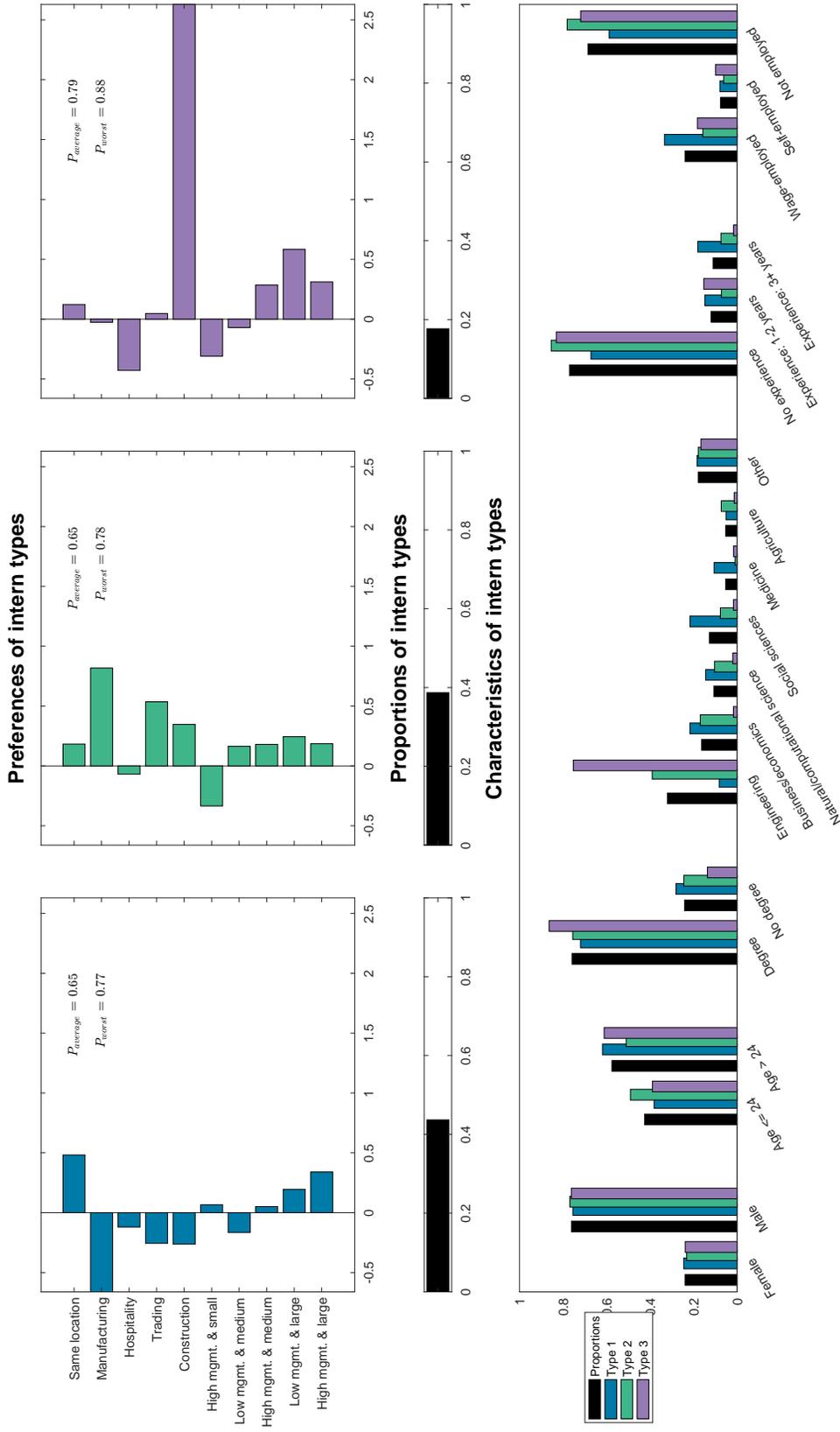
exercises and the intern characteristics listed on the anonymised and standardised CVs showed to firms, as well as any interactions between these characteristics. In practice, when x_{if} enters intern i 's utility function, we restrict x_{if} to characteristics of firms that interns used for their rankings (these characteristics are illustrated in the results on the following pages). We allow just one interaction variable: namely, a dummy for whether the intern and firm are in the same general part of Addis; we allow this to matter for interns' rankings of firms. Note that, under this structure, the preference parameter ϕ_i is a random coefficient, indexed by a finite support of types $g_i \in \{1, \dots, G\}$, where intern i 's membership of a given type g is allowed to correlate with intern characteristics x_{if} through a Multinomial Logit smoother. Where x_{if} enters the Multinomial Logit, we restrict to elements of x_{if} that vary at the individual level and that explain variation in individual preferences; these, too, are illustrated on the following pages. In the main text – for notational clarity – we defined x_{if} over the full set $f \in \{1, \dots, F\}$ for notational simplicity. Because interns only ranked firms in their batch, we restrict x_{if} to those firms. In short, we have a Plackett-Luce rank-ordered logit model (Luce, 1959; Plackett, 1975) nested in a discrete finite mixture model.³ We estimate this model using a Hamiltonian Markov Chain (followed by a Maximum Likelihood estimation as post-processing). Symmetrically, we then estimate the same model structure for firms' preferences over interns.

Model estimates

We report model estimates graphically, in Figure A.15 (for interns) and Figure A.16 (for firms). In each figure, we show three panels. In the top panel, we show the estimated preferences for each type. In the bottom panel, we show the characteristics of the types. In the middle panel, we show proportions of firm types. The preference parameters graphed in the top panel in each figure are scaled so that the error term in the Plackett-Luce model has a standard deviation of 1 (that is, we normalise by $\pi / \sqrt{6}$). Consider first the preferences of interns over firms, in Figure A.15. Based on the Bayesian Information Criterion, we choose three types. The model assigns nearly half of interns (about 44%) to Type 1. This group values firms that are geographically proximate, relatively large, and outside the manufacturing sector. Their observable characteristics indicate a higher likelihood of prior wage employment and a background in the social sciences. Type 2, comprising about 38% of interns, instead displays strong preferences for manufacturing and trading firms; members of this type tend to be younger and have weaker prior employment histories. The smallest group, Type 3 (about 16%), places substantial weight on construction firms and is disproportionately composed of engineering students. In Figure A.16, we show the equivalent estimates for firm preferences over interns. Using the BIC, we use four types. Type 1, the largest group at about 38%, displays almost no systematic structure in its ranking of interns; its choices are close to random once observable characteristics are accounted for. These firms tend to be smaller and score low on the management-quality index. Type 2 (about 25%) shows clear preferences for business-major interns and is disproportionately composed of large firms with high management scores. Type 3 (about 23%) favours both engineering and business interns and is concentrated in construction and manufacturing—sectors that draw more heavily on technical skill. Finally, Type 4 (about 14%) mirrors Type 2 in preferring business students, but represents another segment of large, high-management firms.

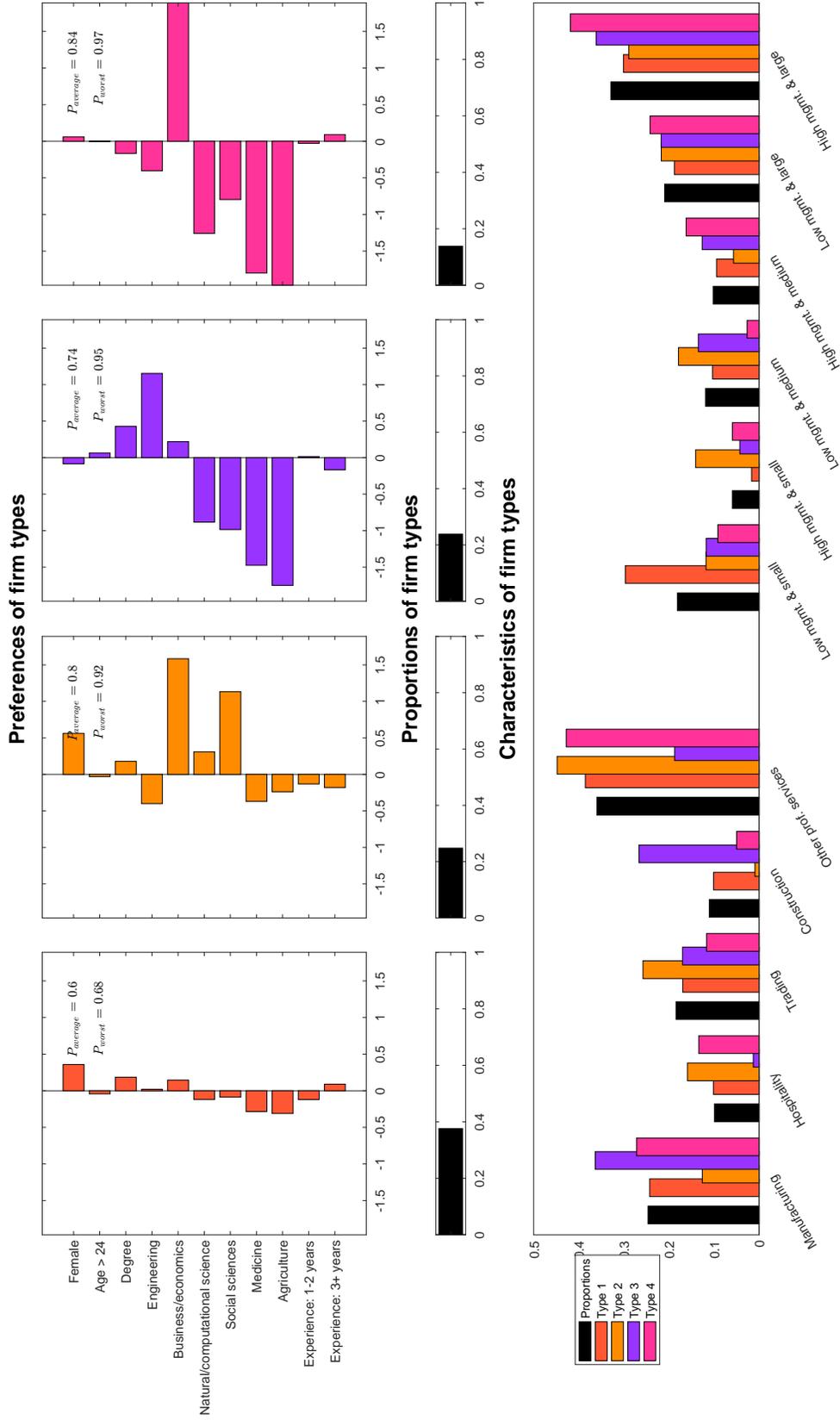
³ For a recent economic applications of the Plackett-Luce model for modelling preferences, Banerjee and Chiplunkar (2024).

Figure A.15: Classification estimates: Young professionals' preferences over firms



Note: This figure shows graphically the estimates from the classification model described on the previous pages. In the top panel, we show estimated preferences for each type; in the bottom panel, we show the characteristics of the types. The middle panel shows proportions of firm types. The preference parameters graphed in the top panel in each figure are scaled so that the error term in the Plackett-Luce model has a standard deviation of 1.

Figure A.16: Classification estimates: Firms' preferences over young professionals

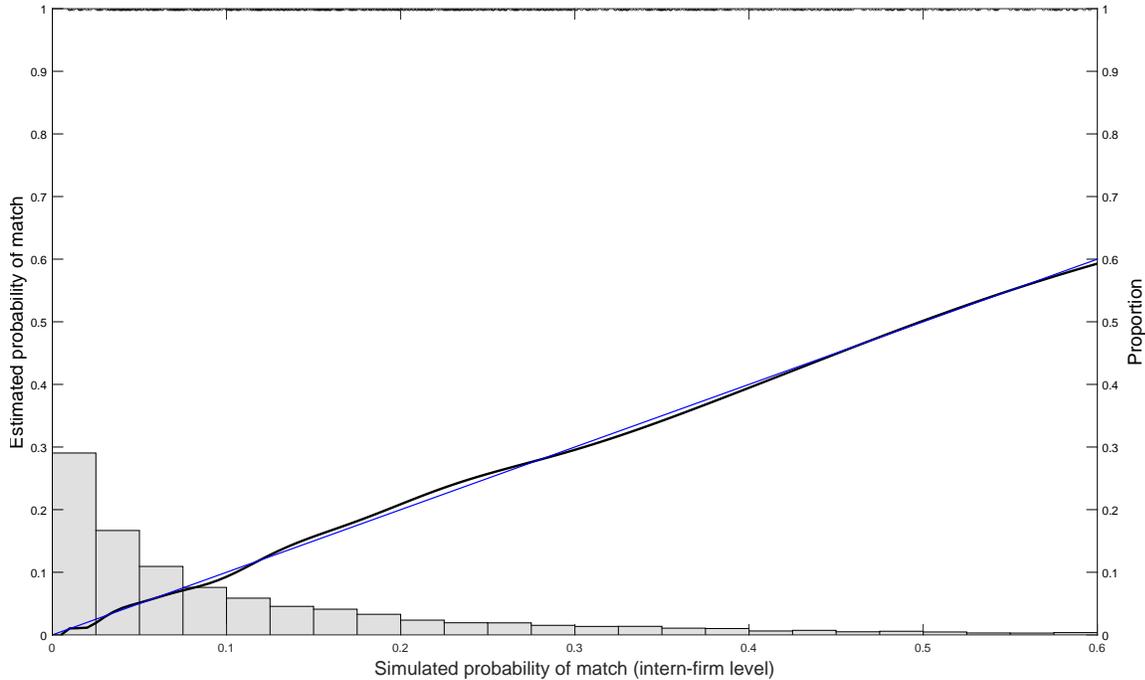


Note: This figure shows graphically the estimates from the classification model described on the previous pages. In the top panel, we show estimated preferences for each type; in the bottom panel, we show the characteristics of the types. The middle panel shows proportions of firm types. The preference parameters graphed in the top panel in each figure are scaled so that the error term in the Plackett-Luce model has a standard deviation of 1.

A.6 Appendix: Propensity score specification checks

First, at the $i-f$ dyad level, we run a kernel regression of the dummy m_{if} on the propensity score p_{if} . Specifically, we do this using a kernel regression, with a log transformation of the simulated probability of match; we use a bandwidth of 0.2 in that log space (that is, we estimate $m_{if} = k[\ln(p_{if})]$ and then graph against p_{if}). We show, in Appendix Figure A.17, that the relationship indeed follows the 45-degree line very closely.

Figure A.17: Specification check: Comparing propensity scores with actual match rates



Second, in Table A.24, we test for baseline balance in Average Structural Functions. Specifically, for intern i matched with firm f in batch b , we regress $y_{ifb} = \beta \cdot X_f + \mu_b + \varepsilon_{ifb}$, weighting by $1/p_{if}$ where p_{if} is the propensity score for the match. For firm management quality, X_f is a dummy for whether f had a MOPS management score at or above the median at baseline. For firm size, X_f is a dummy for whether the number of employees in firm f was at or above the median at baseline. For external management, X_f is a dummy for whether firm f was externally managed at baseline.

Table A.24: Baseline Balance: Average Structural Functions

PANEL A: BASELINE COMPARISON: HOST FIRM MANAGEMENT QUALITY								
Outcome:	(1) Permanent work	(2) Any wage work	(3) Managerial work	(4) Wage work hours	(5) Wage income	(6) Self-emp. hours	(7) Self-emp. hours	(8) Profit income
Dummy: high management score (above median)	0.03 (0.03)	0.03 (0.05)	-0.00 (0.01)	0.18 (0.34)	11.28 (162.64)	0.04 (0.03)	0.05 (0.22)	87.62 (147.04)
Observations	774	774	774	774	769	774	774	765
PANEL B: BASELINE COMPARISON: HOST FIRM SIZE								
Outcome:	(1) Permanent work	(2) Any wage work	(3) Managerial work	(4) Wage work hours	(5) Wage income	(6) Self-emp. hours	(7) Self-emp. hours	(8) Profit income
Dummy: large firm (above median)	0.02 (0.03)	0.04 (0.04)	0.01 (0.02)	0.11 (0.27)	202.05 (178.83)	-0.03 (0.03)	-0.09 (0.16)	-205.54 (207.87)
Observations	774	774	774	774	769	774	774	765
PANEL C: BASELINE COMPARISON: HOST FIRM EXTERNAL MANAGEMENT								
Outcome:	(1) Permanent work	(2) Any wage work	(3) Managerial work	(4) Wage work hours	(5) Wage income	(6) Self-emp. hours	(7) Self-emp. hours	(8) Profit income
Dummy: firm has non-family manager	0.02 (0.05)	0.03 (0.05)	0.00 (0.01)	0.12 (0.40)	-228.44 (258.75)	-0.04 (0.03)	-0.12 (0.21)	48.76 (150.89)
Observations	774	774	774	774	769	774	774	765

Note: This table tests for baseline balance in Average Structural Functions. Specifically, for intern i matched with firm f in batch b , we regress $y_{ifb} = \beta \cdot X_f + \mu_b + \varepsilon_{ifb}$, weighting by $1/p_{if}$ where p_{if} is the propensity score for the match. For firm management quality, X_f is a dummy for whether f had a MOPS management score at or above the median at baseline. For firm size, X_f is a dummy for whether the number of employees in firm f was at or above the median at baseline. For external management, X_f is a dummy for whether firm f was externally managed at baseline.