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SEARCHING WITH FRIENDS *

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Abstract

Do policy interventions disrupt social networks? We study how a job-search assistance intervention in Addis Ababa, Ethiopia, affects the job-search partners of programme participants. We find that the partners of treated participants reduce their job search efforts compared to the partners of untreated jobseekers. This is not because they receive more information about vacancies from their treated friends. On the contrary, we document *less* information sharing between job-search partners. We present suggestive evidence that this may be because cooperation in job search becomes harder when one jobseeker has access to more resources than the other.

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1 Introduction

The exchange of information in social networks shapes the labour market (Calvo-Armengol and Jackson, 2004), influences the take-up of social programmes (Bertrand et al., 2004, Banerjee et al., 2013, Cai et al., 2015), and fosters the adoption of innovations (Conley and Udry, 2010, Beaman et al., 2015). Understanding how information sharing is sustained and how it responds to external interventions is thus critical to be able to design successful social policies.

In this paper, we study the effects of a labour market intervention on the sharing of information between programme participants and their job-search partners. The intervention – a transport subsidy offered to young jobseekers in Addis Ababa, Ethiopia – has positive direct impacts on job search intensity and labour market outcomes (Abebe et al., 2016). Standard models would predict that as treated individuals learn about new vacancies, they will share this information with their job-search partners, enabling the latter to secure better employment outcomes and to reduce their search effort. However, the intervention also creates inequality in the resources that jobseekers can use to look for employment. Inequality can undermine cooperation among job-search partners and weaken information-sharing networks (Fehr and Gächter, 2000, Fischbacher et al., 2001, Nishi et al., 2015). If people's search efforts complement each other, the original job-search partners of programme participants will search less and experience worse employment outcomes as a result of the intervention.

To study these two contrasting hypotheses, we collect a unique dataset that tracks the close social ties of a random sample of "seed" individuals in the treatment and control groups of the original study. Before the start of the intervention, we ask the "seeds" to name the people with whom they often exchange information about jobs. We then track and survey a random sample of these "job-search partners". Our objective is to compare the behaviour and outcomes of the partners of treated seeds to that of the partners of untreated seeds. The literature on the indirect effects of social programmes has often focused on geographical neighbours (Topa, 2001, Conley and Topa, 2007, Topa et al., 2009, Schmutte, 2015). In contrast, we place no geographic restriction on the location of job-search partners. This is

key to understand urban networks fully, as social interaction in cities is often possible across large geographical distances.

Our results show that the labour market intervention weakens the social networks of at least some job-search partners of programme participants. Five months after the start of treatment, over the full sample, we find no significant differences in information sharing or in other forms of support such as sharing transport expenses or travelling together to search for employment. This result is not consistent with a story where treated individuals share the additional information that they acquire as a result of the intervention. Further, when we look at those job-search partners who were actively searching for work at the time of our baseline (and hence were more likely to request or share information with the seeds in the following months), we find clear evidence of a deterioration of the information sharing network. We document a significant, 32 percent, decrease in the probability of sharing information about vacancies and a significant, 49 percent, decrease in the likelihood of sharing transport expenses.

The search behaviour of the job-search partners of treated individuals is also affected. In particular, we find that the job-search partners of treated individuals are significantly less likely to search for work compared to the partners of untreated recipients. Overall job search goes down by 20 percent, and job search strategies that require transport to the city centre are chosen less frequently (between 30 and 40 percent). This suggests a strong complementarity between the search efforts of the individuals in a job-search network.

Finally, we investigate impacts on employment. As job-search-active partners receive less information from social networks and reduce their own search effort, we would expect a deterioration of their labour market outcomes. In support of this, we are able to document a ten percentage point, yet statistically insignificant, decrease in the probability of employment for this group.

Why does information sharing decrease? Our main hypothesis is that inequality between job-search partners makes it harder to sustain cooperation. Consistent with this, we find that the negative effects are stronger for pairs of friends who have similar levels of education and

expenditure. We can also rule out a number of alternative hypotheses. First, we show that the effects of social interaction are not a mechanical result of treated individuals spending more time working or commuting to work. Second, we show that treated individuals do not establish new links to higher-value job search partners, so there is no "rewiring" of network ties. Third, the results are not driven by temporary or permanent migration within or outside of the city. Finally, we can rule out that the subsidy discouraged the job-search partners of treated individuals, or changed their beliefs about how the local labour market functions.

We make three key contributions. First, we show that policy interventions can disrupt social networks. There is very little work studying how social networks are influenced by external interventions. An exception is Comola and Prina (2017), who investigate the effect of a savings intervention on financial networks. To the best of our knowledge, the finding that people stop sharing information with their social ties after treatment is novel in the literature. A related literature looks at the effects of interventions on non-participants through channels other than social networks. Examples include psychological well-being (Haushofer et al., 2015) and social preferences (Cecchi et al., 2016). We further advance this literature by showing that the negative effects on social networks are stronger when the ties have similar expenditure levels at baseline. This highlights that the inequality generated by targeted interventions is a possible mechanism leading to the deterioration of social capital.

Second, we highlight the collaborative nature of job search among unemployed job seekers. The young people in our urban context regularly share information and transport expenses with their friends when looking for work. Further, the evidence we present is consistent with a strong form of complementarity in job search-effort. A large literature looks at the role of referrals in labour markets (Bentolila et al., 2010, Topa, 2011, Burks et al., 2015, Beaman and Magruder, 2012).[1] These studies often focus on networks connecting the employed to the unemployed (Granovetter, 1973, Ioannides and Datcher Loury, 2004, Cingano and Rosolia, 2012). On the other hand, peer networks among the unemployed are relatively understudied in the labour market: we study a setting where young people share information

[1] A related literature focuses on the benefits of hiring through social networks for employers (Dustmann et al., 2016).

about vacancies, rather than passing along referrals or job offers.[2]

Third, we show the importance of tracking geographically dispersed networks in urban areas and the limits of relying on neighbours or family members alone. Abebe et al. (2016) study the indirect effects of the intervention on a sample of control individuals residing close to programme participants. Despite their geographical proximity, these individuals often have only weak social ties to treated jobseekers. Abebe et al. (2016) do not find evidence of spillover effects on this sample. Similarly, it is common in the literature to proxy social networks with family ties (e.g. Kramarz and Skans, 2014, Cruz et al., 2017). We find that very few of the job-search partners in our sample are related. These results highlight that tracking close social connections across space is necessary to develop a comprehensive view of the economic role of urban networks.

2 Job search networks in Addis Ababa

In this Section, we present some key stylised facts about social networks in Addis Ababa. We use three main sources of data: (i) the 2013 Labour Force Survey of the Central Statistical Agency of Ethiopia, (ii) the endline survey of Abebe et al. (2016), and (iii) the network survey which we ran for this study and which is described in more detail below.

Fact 1. *Social networks are a widespread and effective method of job search.*

Data from the Labour Force Survey shows that 24.5 percent of jobseekers rely on social networks as their main method of job search. This makes social networks the second most popular method of job search, after visiting the job vacancy boards, which is chosen by 25.4 percent of jobseekers. Further, the information acquired from social networks often leads to employment. 48 percent of the employed individuals in the sample of Abebe et al. (2016) have heard about their current job through family, friends or acquaintances, while only 33 percent of individuals have found out about their current job by visiting the job boards.

[2] Kuzubas and Szabo (2014) build a theoretical model comparing strong 'inner' networks (of family and friends) to a weaker 'outer' network of general information that is available to the jobseeker (proxied as individuals speaking the same language in Indonesia). Their model predicts that job seekers are more likely to rely on their 'inner' network of close ties to find a job rather than using information freely available.

Referrals are also widespread. In our network baseline survey, of all the individuals working in the last seven days, 48 percent received the job or an interview for the job through a direct referral from a social contact. Similarly, 70 percent of individuals usually ask relatives, friends or acquaintances for help getting a job, and in half of these cases, this involved a direct referral to a job in the past.

Fact 2. *The use of social networks for job search is common across all demographic groups.*

Women, migrants and individuals without tertiary education are more likely to rely on social networks (see Table D6 in the appendix). This is in line with the wider literature on social networks and job search, which emphasises the role of networks for migrants (Munshi, 2003) and individuals with lower levels of education (Wahba and Zenou, 2005). While women generally tend to be underserved by employment networks (Beaman et al. (2018) and overview in Ioannides and Datcher Loury (2004)), Seabright (2012) suggests that women are more likely to have a few strong ties rather than multiple weak ties. In Addis Ababa, men, non-migrants and educated individuals also make a substantial use of social networks in job search. Overall, our descriptive regression suggests that 95 percent of the working-age population in the city has a predicted probability of using social networks for job search above 10 percent.

Fact 3. *Most of the social networks support comes from close friends.*

In our baseline sample, the person informing the respondent about their current job is a close friend in 67 percent of the cases and a family member in 17 percent of the cases. On average, respondents interact with this person 3 days a week. These patterns stand in stark contrast to the strength of weak ties hypothesis (Granovetter, 1973). Gee et al. (2017) study a samples drawn from 55 countries, mostly from the developed world, and find that a single strong tie is more valuable even though most jobs are received through weak ties. Our findings show an even more prominent role role for strong ties.

Fact 4. *Social network support is reciprocal and is often exchanged among unemployed people.*

The exchange of information about jobs and vacancies is often reciprocal. In our network baseline survey, 80 percent of the close ties both give and receive information about jobs to and from their seeds. Further, reciprocal support is not limited to information sharing. For example, 50 percent of job search partners in our baseline sample travel together to the city centre with the seed to look for information about employment. Jobseekers often take turns to pay the transportation costs of these trips and further support each other in a number of ways.

A large share of job-search support is exchanged among individuals who are unemployed. The median unemployed jobseeker in Abebe et al. (2016) regularly shares information with four other people, two of whom are also currently unemployed. In our baseline sample, the average job search partner has 2.5 job contacts, of which fewer than one is employed. Again, this is contrast with standard accounts of labour market networks where most information transmission occurs from the employed to the unemployed (Calvo-Armengol and Jackson, 2004, Cingano and Rosolia, 2012).

Fact 5. *Job-search parters often live in different neighbourhoods.*

The left panel of Figure 1 displays the place of residence in Addis Ababa of the individuals in Abebe et al. (2016) whom we have sampled for this paper. The right panel shows the place of residence of their job-search partners. The original study participants were sampled from randomly selected geographical clusters outside of the centre of the city. Their job-search partners, on the other hand, are distributed all over the city.[3]

[Figure 1 about here.]

Figure 2 displays the distribution of the distance between the place of residence of the original study participants and that of their job-search partners. The modal distance is approximately 2 km, with a mean of 3.75 km and a median of 1.6 km. This means that more than 50% of pairs live more than 25 minutes of walking distance apart, calculated "as the crow flies". Actual walking times are likely to be higher.

[3] In total, less than 5% of the social contacts live within a 2 km radius of the city centre.

[Figure 2 about here.]

3 Experiment, data and empirical strategy

3.1 The transport subsidy

The transport subsidy consists of a monetary transfer that is available for collection in a central location in the city, three times a week. The transfer is thus conditional on reaching the centre of town, where jobseekers can visit the job vacancy boards and where many firms are located. This intervention is designed to help young jobseekers pay for the transport costs required for effective job-search and thus overcome the spatial frictions that emerge in large, congested cities (Abebe et al., 2016). The amount disbursed is calibrated to cover the cost of a return journey from the participant's place of residence to the intervention centre. Figure 3 shows the amount and duration of the subsidy.[4] The amount available on a given visit varies by participant, ranging from 15 Ethiopian Birr (0.74 USD)[5] to 30 Ethiopian Birr (1.48 USD) with a median of 20 ETB (0.98 USD). The duration of the subsidy is randomised across participants and ranges between 13 and 21 weeks. The intervention started in late September 2014. By February 2015 the latest batch of participants had stopped receiving the subsidy.

[Figure 3 about here.]

3.2 The network survey

This paper is based on a survey of the job-search partners of the original programme participants. We proceed in three steps. First, we randomly select 165 individuals from the treatment and control group of the original study. We call these individuals the "seeds". Second, we ask each seed the following, open-ended question: "With whom in Addis Ababa

[4] Here we report data computed over the subset of original programme recipients that are sampled for this study.

[5] Dollar amounts calculated with the average exchange rate during the intervention period from September 2014 to February 2015.

do you regularly share information about job opportunities?"[6] We further ask a number of questions about the interaction between seeds and job-search partners and collect the partners' contact details. This gives us a sample of about 1000 job-search partners. Third, we randomly select 596 job-search partners for interview. These 596 individuals constitute the main sample of this study. We conduct a baseline interview, before the start of the transport intervention, and an endline interview six months after the original interview. We collect data on socioeconomic characteristics, labour market experience and job search decisions, measures of preferences and aspirations, as well as time use and expenditure data.

[Figure 4 about here.]

3.3 Balance and attrition

We test for balance with respect to (i) the characteristics of the seeds, (ii) the characteristics of the job-search partners, and (iii) the nature of the interaction between seeds and their partners.

Baseline differences in the characteristics of the treatment and control seeds are reported in appendix Table B1. Overall balance is good, as we cannot reject the test of joint orthogonality of all covariates ($p = 0.91$). The only significant difference at five percent level is the higher share of females in the treatment group. At a ten percent significance level, we have a lower proportion of individuals with work experience, of casual workers, and of individuals who recently searched at the job boards in the treatment group, as well as some small differences in the share of minority ethnicities.

Appendix Table B2 shows baseline balance in the characteristics of the job-search partners. Again, we cannot reject the test of joint orthogonality of all covariates ($p = 0.19$). The only variables significantly different at a five percent or stronger level are whether the individual was born outside of Addis Ababa and had permanent work in the past seven days. We control for all unbalanced (at a ten percent or stronger level) baseline characteristics of the

[6] "Regularly" is defined as exchanging information at least once per month. We do not limit the number of job-search partners that can be reported.

job-search partners in our analysis.

Lastly, we look at balance in the nature of the interaction between seeds and their partners. Table 1 shows that all variables are all balanced at the ten percent level, indicating that the experimental randomisation was also successful for interactions in the job-search pairs. The test of joint orthogonality cannot be rejected (at $p = 0.21$).

[Table 1 about here.]

We have low levels of attrition. 540 job search partners (91 percent) from our baseline sample of 596 are surveyed at endline. Attrition is very similar for the job search partners of treated seeds (90.5 percent resurveyed) and untreated seeds (91 percent resurveyed). Appendix Table C4 shows that attrited individuals are more likely to be female and to have worked in an office in the week before the baseline interview, while appendix Table C5 shows that these effects do not differ by treatment status of the seed, hence do not compromise the integrity of the experiment. Figure 4 gives an overview of our study sample. Interestingly, about half of the individuals would satisfy the eligibility criteria of the original study (age 18-29, at least high school education, no permanent employment). The other individuals tend to be older, more educated, and better positioned in the labour market.

3.4 Empirical strategy

We estimate the effects of the intervention on job-search partners using the following ANCOVA estimator:

$$y_{i,t=1} = \beta_0 + \beta_1 y_{i,t=0} + \beta_2 Treat_{i,t=1} + \beta_3 X_{i,t=0} + \varepsilon_{i,t}, \tag{1}$$

where

$$Treat_{i,t=1} = \begin{cases} 1 & \text{if the job-search partner's seed received transport subsidy;} \\ 0 & \text{if the job-search partner's seed did not receive transport subsidy.} \end{cases}$$

y_{it} is the outcome of interest of job-search partner i at time t ($t = 0$ refers to the pre-intervention period, and $t = 1$ to the post-intervention period), and $X_{i,t=0}$ is a vector of pre-treatment baseline controls. Including the vector of pre-treatment baseline covariates is useful to control for minor baseline imbalances and to increase the precision of our estimator. We cluster the standard errors of all regressions at the level of the seed, the original unit of randomisation.

We estimate heterogeneous impacts of the intervention on job-search partners with the following equation:

$$y_{i,t=1} = \beta_0 + \beta_1 \bar{y}_{i,t=0} + \beta_2 Treat_{i,t=1} + \beta_3 Het_{i,t=0} + \beta_4 Het_{i,t=0} \cdot Treat_{i,t=1} + \beta_5 X_{i,t=0} + \varepsilon_{i,t}, \quad (2)$$

where $Het_{i,t=0}$ is the baseline heterogeneity dimension of interest and β_4 is the treatment difference between individuals fulfilling the heterogeneity criterion and those who do not.

Our key dimension of heterogeneity is whether the job-search partner of the seed was an active jobseeker at baseline or not. We assume that impacts might be stronger for pairs of job-search partners in which both individuals are actively searching for a job, compared to pairs where only the seed individual is an active jobseeker.

4 Potential channels of impact

Abebe et al. (2016) show that the individuals who receive the transport intervention increase their search effort and, as a result, have more information about job opportunities.[7] If the job-search network is not affected by the programme, treated individuals will share this additional information with their job-search partners, who will in turn experience better labour market outcomes and reduce search effort.

They key question that we need to address is whether the job-search network will be affected by the intervention. There are at least two reasons why this could be the case. First, *the original job-search partnerships may become untenable* once one of the partners is treated.

[7] In appendix A.1 we show that this is true also for the sample of seed individuals that we use for this study.

For example, the untreated partner may be unable to match the amount of information gathered by the treated individual, violating the norm of equal contributions that often sustains cooperative arrangements (Fischbacher et al., 2001, Caria and Fafchamps, 2017). As a result of this asymmetry, treated individuals may decide to terminate the relationships. Second, *new job-search partnerships may become available* for treated individuals. As a consequence of their stronger labour market position, programme participants may be able to re-wire their social connections towards individuals with stronger labour market attachment.

However, both of these factors may be moderated by social norms or reputation concerns (Bénabou and Tirole, 2006, Dellavigna et al., 2017, Chandrasekhar et al., 2018). For example, it may be hard for an individual to conceal his or her treatment status and to avoid the pressure to help others. Whether job search assistance disrupts job-search networks is thus ultimately an empirical question.

Finally, these considerations also point to one important dimensions of heterogeneity: whether the job-search partner is actively seeking employment at baseline. Partnerships with inactive individuals cannot be based on the sharing of information obtained through job search and must be maintained for different reasons. It is unclear whether the intervention will affect these partnerships. On the other hand, partnerships with active individuals are susceptible to the mechanisms described above. If the first mechanism is at play – inequality in job-search resources leads to the termination of existing relationships – the intervention will be most disruptive for job-search partnerships where individuals have similar endowments at baseline. If the second mechanism is at play – treated jobseekers re-wire their job-search networks towards stronger partners — we should observe treated individuals forming new partnerships.

5 Results

In this Section, we study the effects of the transport subsidy on the job-search partners of treated individuals. We report results on social interaction, job search and employment outcomes.

5.1 Social interaction between seeds and their job-search partners

We do not find evidence that the intervention increases social interaction between seeds and their job-search partners. We show this in Table 2, for different dimensions of social interaction. In particular, the fraction of partners that share transport expenses with their seed decreases by a marginally insignificant 7 percentage points (over a control mean of 24 percent). Further, the fraction of partners that share information with the seed decreases by an insignificant 4 percentage points (over a control mean of 46 percent).

[Table 2 about here.]

5.1.1 Active job-search partners

As outlined in the previous Section, we hypothesise that treatment effects are stronger for those job-search partners who are looking for work at baseline, and run heterogenous treatment effect regressions by whether job-search partners use the job vacancy boards at baseline.

We find that the subsidy substantially reduces social interaction between treated seeds and their active job-search partners. The results of our analysis, reported in Table 3 (column (1)), show that the interaction between treated seeds and active job-search partners decreases substantially in almost all dimensions: the job-search partners share fewer information with their seeds (-20 pp.), spend less time with their seeds (-15 pp.), travel to the centre less often (-19 pp.), and share travel expenses less often (-18 pp.). These effects are very large and statistically significant. Active job-search partners spend seven fewer hours per month with the seeds, when those seeds are treated. In our baseline sample, a one-kilometre increase in the geographical distance between the seed and the partner is associated with a reduction in the time they spend together of approximately one hour. The impact of the subsidy on time spent is thus comparable to doubling the baseline mean distance (3.75 km) between job-search partners.

We also find some suggestive evidence that the size of the overall job contact network decreases by 19 percent (over a baseline mean of 2.17 job contacts). These findings indicate a clear disruption of information sharing and other forms of social interaction between

seeds and their job-search partner. Further, the job-search partners do not fully offset this by establishing new connections.

[Table 3 about here.]

5.2 Job search

We find that the intervention reduces the job search intensity of the partners of treated seeds. We show this by investigating both job search in the last seven days and in the last 30 days in Table 4. Both recent overall job search and job search at the vacancy boards decrease by seven percentage points, respectively. These are declines of 21% and 41%, respectively, compared to the endline search levels of the control group. These are large effects, especially when contrasted with the direct effects of the intervention on programme participants.[8] Job search using social network decreases by 3 percentage points, however this effect is statistically insignificant. The negative coefficient, however, is consistent with the decrease in the overall size of the job-search network that we have documented in the previous Section.

[Table 4 about here.]

We observe a strong shift away from vacancy board job search in the past month that is even larger in economic and statistical significance than for the seven-day recall period. Besides, the search at work agencies and at central locations (such as central squares in the city) goes significantly down by approximately 2-4 percentage points. Search strategies that *do not* depend on commuting to the centre of Addis Ababa are not affected by the transport subsidy: neither job search in the social networks, nor at work sites (such as construction sites that can be found everywhere in the city, not just in the centre), or searching the internet for jobs decrease significantly.

[8] Abebe et al. (2016) report the direct effects on programme beneficiaries: overall job search increase by 12.5 percent (or five pp.) and job search at the job vacancy boards increases by nearly a third (or nine pp.).

5.2.1 Active job-search partners

Table 5 shows the impacts on the job-search partners' job search behaviour, split by whether the partner is actively looking for a job at baseline. The negative spillover results of the transport subsidy on the job search of social contacts of the subsidy recipients are almost entirely driven by active job-search partners. The coefficients on overall job search, board search, and social network job search are large and in the first two cases statistically significantly negative. For the one-month recall period, we similarly find a stronger decrease in job board and city centre search for the group of active job-search partners. The difference in the coefficient for search at work sites follows this pattern, but we fail to reject that it is equal to zero.

[Table 5 about here.]

At baseline, both the seed and the job-search partner mutually exchange information about jobs. Our negative findings on the partners' job search suggest a strong complementarity in job search behaviour. Once the partnership with the seed is broken, vacancy information from the seed stops coming in. As a consequence, own vacancy information obtained by the job-search partners become less useful, and own job search decreases.

5.3 Employment

We report the findings for the the job-search partners' employment status in Table 6. Abebe et al. (2016) document an insignificant, four percentage points increase in employment rates for programme beneficiaries and a larger, significant increase for a subgroup of jobseekers with poor employment prospects. During the study period, the seeds also experience an insignificant, 2.5 percentage point increase in employment. Consistently with this, we do not find evidence of significant impacts on employment outcomes for the job-search partners. This includes whether individuals are engaged in any work, and whether they have a permanent job or a formal job (Table 6).

[Table 6 about here.]

5.3.1 Active job-search partners

We once more split our results by whether the job-search partner is actively looking for a job at baseline. Now, Table 7 shows patterns in a similar direction as for social interactions and the partners' job search. We find economically meaningful, but statistically insignificant decreases in the treated partners' probability of having any work or permanent work in the last seven days, or any formal work over the whole treatment period (ten to eleven percentage points each). Thus, the significant decrease in job search of the treated partners directly leads to an overall lower likelihood of employment.

[Table 7 about here.]

5.4 The spatial dimensions of our findings

In the appendix Section A.2, we take a detailed look at the spatial dimension of the social network impact of the job search assistance. Broadly, we do not find much heterogeneity at the geographical level, but the negative impacts on job search and social interactions tend to be higher for job-search partners living closer to their seeds. In terms of distance to the city centre, the negative impacts on search and interactions tend to be larger for individuals living farther away from the city centre.

6 Mechanisms

Our results from the previous Section show that treated individuals do not share more information with their job-search partners. On the contrary, among active jobseekers, information-sharing decreases as a result of the intervention. In Section 4, we hypothesised that the transport subsidy would break job-search cooperation by creating inequality among job-search partners. Here we offer some evidence in support of this explanation of our findings. On the other hand, we are unable to find evidence consistent with the second hypothesis that we formulated in Section 4 – that treated jobseekers would re-wire their networks towards partners with a better position in the labour market. Further, we test and rule out four additional

alternative explanations for our findings.

6.1 Does the intervention break down job-search cooperation by generating inequality between partners?

We exploit data on the similarity of the individuals who are job-search partners to test the hypothesis that the intervention reduces cooperation by generating inequality. As described in Section 3.3, the job-search partners are not restricted to meet the eligibility criteria of the transport subsidy sample from which our seeds were randomly drawn.[9] This means that our sample includes job-search pairs where both individuals have similar economic status and demographics, and job-search pairs where the two individuals differ markedly along these dimensions. We expect the negative effects of the subsidy to be stronger for pairs that have similar characteristics at baseline, as these pairs are most likely to sustain job-search cooperation through a norm of equal contributions. This norm is harder to sustain once one of the partners obtains more resources for job search through the intervention.

We investigate this hypothesis with two sets of regressions. The first set defines similarity on the basis of economic variables as these are likely to be the most important determinants of individuals' ability to search. In particular, we calculate the absolute difference in baseline expenditure between seed and job search partner. We then split the sample into those above and below the median difference in expenditure. The second set defines similarly on the basis of the level of education and splits the sample whether the absolute difference in education levels at baseline is below or above median. We code educational levels coarsely, i.e. whether individuals have no, primary, secondary, or tertiary education, meaning that the maximum difference in education levels between job-search partner and seed is three.[10] For both sets of regressions, we focus on active job-search partners, as this is the group that drives the treatment effects.

We find preliminary evidence in support of this mechanism in our baseline data. Job-

[9] Namely: Between 18-29 years of age, at least a high school degree, not in permanent employment, living outside of the city centre of Addis Ababa.

[10] When looking at years of education instead, our main findings presented below hold as well.

search pairs with similar levels of expenditure are 10-15 percent more likely to have similar job-search intensity and 16 percent more likely to exchange job information, compared to job-search pairs with different levels of expenditure.

6.1.1 Baseline economic status

Table 9 shows our main results on social interaction for the sample of baseline jobseekers, split between those who are similar or dissimilar to their seeds in baseline expenditure. Baseline economic similarity can to some extent explain the decrease in interactions. More similar pairs travel to the city less frequently, share the expenses less often, exchange less money and spend less time together (on the intensive margin). However, the information flow decreases more strongly in dissimilar partner-seed pairings.

[Table 8 about here.]

In Table 9, we display the subsample results on job search activities for the sample of baseline jobseekers. Here, the results more strongly support our hypothesis of an asymmetry induced by the transport subsidy. For those partner-seed pairing that were more similar at baseline in economic status, the spillover effects of the intervention are much more negative, reducing job search and board search by almost two thirds and also decreasing the search within networks. The difference between the two effects is borderline statistically significant at 10%. A similar pattern can be seen for the one-month recall variables, with those jobseekers that were similar to their seeds at baseline responding more strongly negatively to their seeds' treatment. Given that job search pairs residing close to each other also tend to be more similar to each other in terms of baseline expenditure, these findings are consistent with the non-parametric findings from Section A.2.

[Table 9 about here.]

6.1.2 Baseline education

First, Table 10 shows that the exchange of job information and of money decreases more strongly for pairs with similar baseline levels of education, supporting our hypothesis that the transport subsidy generates an inequality that makes it harder to sustain cooperation. Second, Table D7 shows that the decrease in one-month job search is more pronounced for pairs with larger differences in baseline education, even though we cannot reject the equality of the coefficients.

[Table 10 about here.]

6.2 Do treated individuals make new connections to "higher-value" individuals?

Our second hypothesis is that the transport subsidy could enable treated seeds to rewire links to higher-value job-search partners. In doing so, they may reduce their interactions with their original network. To investigate this, we first refer to Abebe et al. (2016): the authors do not find any significant effects on the amount of total social network interactions of seeds (i.e. interactions going beyond the social ties covered in this paper). However, there is an insignificant decrease in the overall number of information sharing partners of treated individuals (which is consistent with our findings), and an insignificant increase in the number of employed information-sharing partners. In particular, appendix Figure A5 shows that all original participants (among whom we randomly sample our seeds) are less likely to have talked to friends not only during the intervention, but also in the months after. If we produce a similar impact trajectory for the seed individuals only, we also find a negative effect on talking to friends – albeit a much larger one of almost five percentage points, which almost reaches statistical significance in the small sample of 165 seeds. Importantly, this effect also remains negative after the end of the intervention.[11] Overall, we interpret this lack of significant changes in the seeds' social network structure as evidence that no major

[11] This is not an artificial small sample effect: the results are very similar when using the complete control group sample ($N \simeq 800$) instead of the 86 control group seeds.

re-wiring towards higher-value information-sharing partners is taking place.

[Figure 5 about here.]

6.3 Do treated individuals have less time to interact with their partners because of employment?

One potential alternative explanation is that the transport subsidy enables seeds to find employment and, as a result of this, the seeds have less time to interact with their job-search partners. We have two pieces of evidence that are inconsistent with this explanation. First, treated seeds are not significantly more likely to have work at endline. Second, we do not find significant or qualitative differences between the impacts on the partners of unemployed seeds and those on the partners of seeds who have been employed (either for a wage or in self-employment) after the baseline interview (appendix Tables D11 to D12).

6.4 Do treated individuals have less time to interact with their partners because of job search?

A second alternative explanation is that the transport subsidy increases the amount of time treated seeds spend searching for work (e.g. by travelling on the bus to the city centre) and this reduces the time available to interact with their job-search partners. We offer several pieces of evidence that do not support this explanation. First, the median *return* travel time from the seed's place of residence to the city centre is about one hour. While this is a significant amount of time, it clearly leaves ample time for other activities. Second, there are no interaction effects between the duration of the seed's travel to the city centre and the impacts of the interventions on the seeds' job-search partners. To show this, we split our sample based on the median baseline distance of the seed's residence to the city centre, which determines how much time an extra trip takes, and run separate regressions.The results are presented in appendix Tables D13 and D14. We find that the decrease in search is if anything more pronounced for job-search partners of seeds with a below median baseline distance to the

centre. The decrease in sharing of job information is similar in both samples, above and below the median baseline distance. Overall, this rules out that seeds simply spend more time on the bus and thus are too busy to talk to their friends.

6.5 Does relocation reduce interaction between seeds and job-search partners?

Are the effects we document driven by the relocation of treated seeds or their job-search partners? For example, job-search partners who find themselves cut off from the information networks could decide to move closer to the job-vacancy boards. Further, treated seeds may be more likely to find work away from their place of residence and more likely to move home as a result of this. Differential relocation patterns of these types may be responsible for a decrease in social interaction between seeds and their job-search partners. We investigate these alternative explanations starting with the relocation of job-search partners, both out of and within the capital. We present several pieces of evidence showing that relocation does not drive our results. We then look at the relocation of the seeds, showing similar evidence that this behaviour does not explain our findings.

First, the fact that more job search partners of untreated than of treated seeds move out of the capital is descriptive evidence against this alternative hypothesis: in the six months between the baseline and follow-up survey, 30 job search partners move out of Addis Ababa temporarily or permanently (20 partners of untreated seeds, ten partners of treated seeds). The most frequent reason cited is work migration (temporary or permanent, 57 percent), followed by pursuing additional education (20 percent), caring for family members (20 percent), and holiday (3 percent). Second, when we run our main regression (equation 1) controlling for whether a job search partner leaves the capital, we get virtually identical results.[12]

In terms of relocation within the city, we also find very little change: 35 job search partners relocate within Addis Ababa over the course of the intervention (20 partners of untreated

[12]Results left out due to similarity to main results, available from authors at request.

seeds, 15 of treated seeds). Of these 35 movers within the capital, the average distance to the city centre *after* moving is 6.8 km and hence very similar to the mean distance to the city centre that we find at baseline for the whole sample (7.0 km). The 35 partners move to a new location that is on average 2.7 km away from their prior residence (median: 1.9 km). Only one single individual moves from the suburbs to the city centre. These statistics indicate that the within-city relocation is uncommon and thus it is unlikely to be a major driver of our findings.[13]

Lastly, we also look at whether some of the seed individuals are induced by the subsidy to relocate within or out of Addis Ababa. Of the 165 seed individuals, two move out of Addis Ababa and 14 move within the capital at endline. Appendix Table D15 shows that there is no differential moving by treatment status.

Overall, the evidence suggests that our results are not driven by selective relocation of individuals either out of or within Addis Ababa.

6.6 Does the intervention discourage the job-search partners of treated seeds?

One final potential explanation is that the job-search partners of treated seeds become discouraged. For example, they may feel unable to compete with treated jobseekers. Again, our analysis does not support this alternative explanation. First, we have shown that job-search partners and seeds tend to live far away from each other. Hence it is not likely that they are competing for the same limited pool of jobs found in their local labour market. Second, by looking at the effects on the job-search partners' job market expectations and aspirations in Table D8, we can rule out that the intervention changes the job-search partners' expectations about how the labour market works – neither reservation or expected wages change significantly, nor does the amount of job offers expected in the near future. In addition to that, Table 11 displays the change in the job-search partners' beliefs, attitudes and life satisfaction. While there are no changes in overall happiness, we find that the intervention actually positively affects the two variables measuring the job-search partners' feeling of independence.

[13] More rigorously, if we control for whether a job search partner moves within Addis Ababa in our regressions, our results remain virtually the same (these results are available from the authors at request).

Taken together, this rules out direct discouragement effects through the subsidy. To the contrary, it seems that while the subsidy leads to a break in the job search collaboration and an erosion of social capital, as a consequence job-search partners develop a more independent attitude.

[Table 11 about here.]

7 Conclusion

We study the exchange of information about job opportunities in the social networks of young jobseekers in Addis Ababa, Ethiopia. We find that a job-search assistance intervention induces programme participants to interact less frequently with their job-search partners who are actively seeking employment at baseline. Programme participants and their active partners exchange less information about job vacancies and also interact less along many other dimensions. Further, the job-search partners of treated individuals reduce job-search effort, suggesting a strong complementarity of job-search effort among job-search partners. We hypothesise that the intervention disrupts job-search networks because it increases inequality within the pairs of jobseekers, making it harder to sustain cooperation in job search. Consistently with this, we find that the effects are stronger for pairs of friends with similar levels of baseline expenditure and education.

These findings generate a number of leads for future research. First, it would be important to assess whether people intrinsically value the kinds of social connections that we study in this paper. A long-standing tradition in the social sciences takes this view and laments the erosion of social interaction that is often associated with economic development (Polanyi, 1944, Putnam, 2000). An alternative view is that some social networks are purely instrumental: once the underlying market failures are addressed, these forms of interaction disappear with no loss of utility for the people involved. The welfare implications of our findings largely depend on this point.

Second, in this paper, we present suggestive evidence that the job-search partners of

treated individuals have smaller job-search networks as a result of the intervention. This raises a number of questions: will this effect persist? If so, why are individuals unable to establish new connections? In India, Banerjee et al. (2016) find that the introduction of microfinance weakens social networks, in particular, those networks used for financial transactions. Their evidence is consistent with a model where there are complementarities in participation in a large village network. However, different constraints are likely to operate in a context like ours where individuals maintain a small number of tight relationships. For example, finding a new job-search partner can be time-consuming, especially when people have left school.

A final point to explore is whether people are able to forecast network changes and whether they try to prevent these changes with side payments. For example, the recent literature has found evidence of a sophisticated ability to forecast future behaviour among professional traders (Alevy et al., 2007) and households (Sourdin, 2008). In the context of job-search networks, sophisticated people understand that they may lose a social contact if this person were to receive job-search assistance. To prevent this from happening, they could pay their job-search partner on condition that they would not join the programme. Sophistication and side payments of this kind would have important consequences for the ability of policymakers to treat selected individuals in the network.

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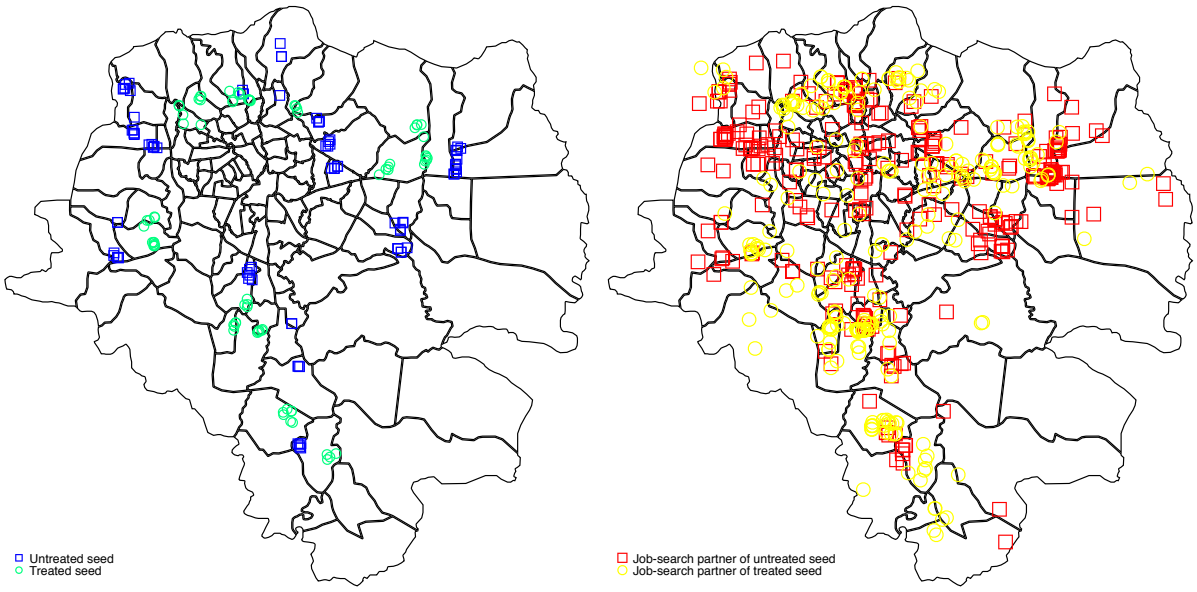
Figure 1: Distribution of treated and untreated seeds and job-search partners in Addis Ababa



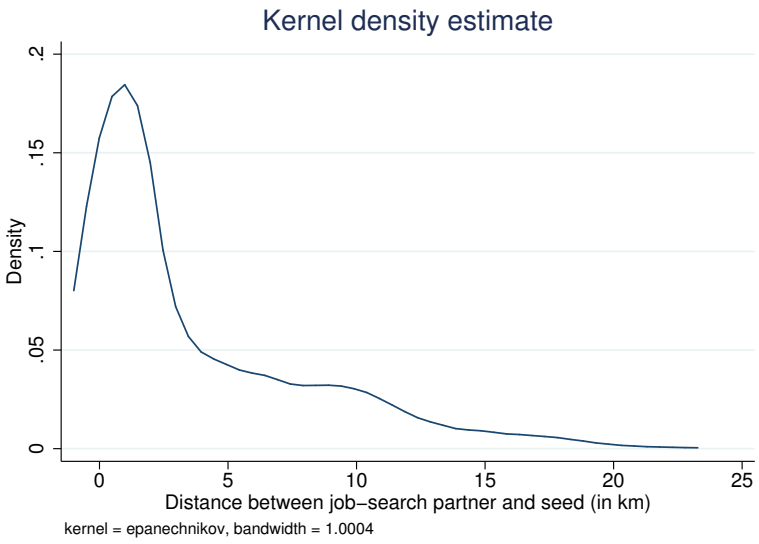
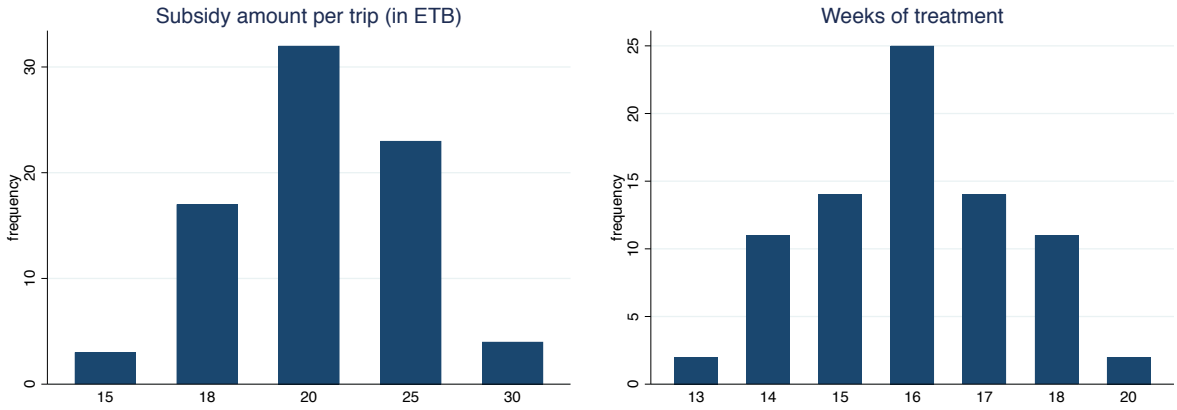


Figure 2: Kernel density estimate of the distance between job-search partners and seeds (in km), at baseline

Figure 3: Subsidy amount and duration for the seed individuals



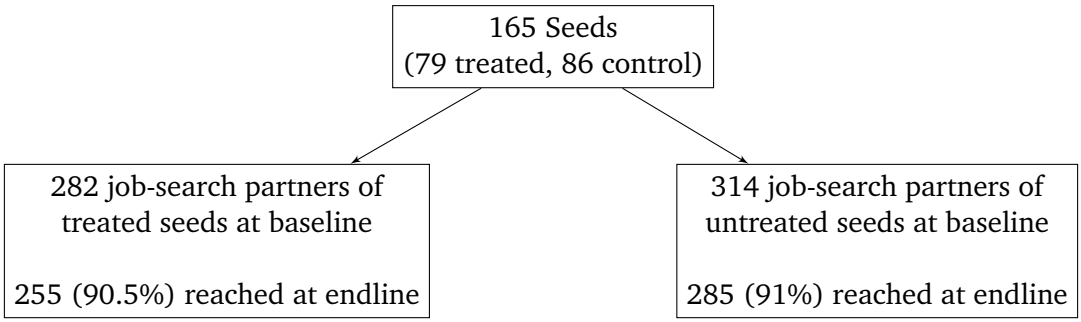
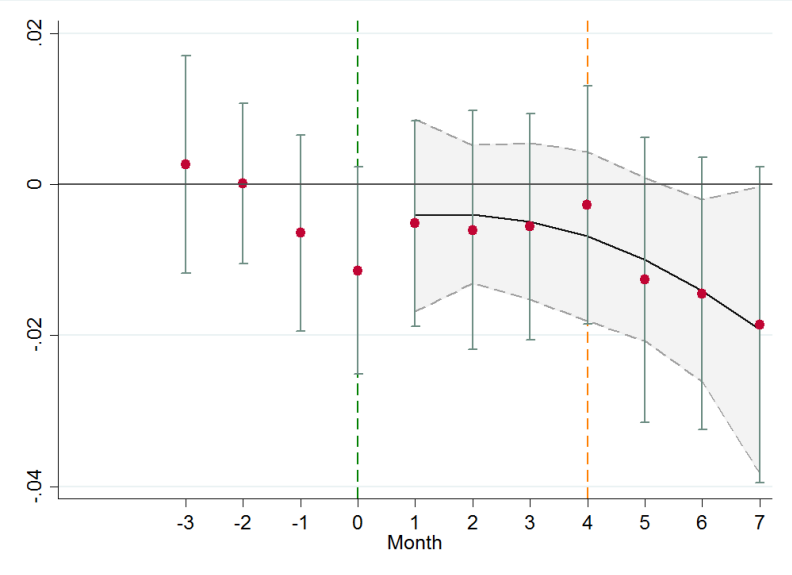


Figure 4: Sample overview

Figure 5: Impact trajectory of the transport treatment: impact on talking to friends



Notes: The green dotted line indicates the fortnight when the treatment begins. The orange dotted line indicates the week when the treatment ends. From Abebe et al. (2016).

Table 1: Interaction and distance between job-search partners and seeds, by seed treatment status, at baseline

	(1) Treatment difference	(2) (Standard error)	(3) Control mean	(4) (SD)	(5) Max pairwise difference	(6) Obs.
Spoken (30d)	1.01	(1.28)	11.99	(9.82)	0.10	589
Travel (30d)	-0.00	(0.05)	0.50	(0.50)	0.01	592
Info from seed (ever)	0.03	(0.05)	0.82	(0.39)	0.08	592
Info to seed (ever)	-0.02	(0.02)	0.97	(0.18)	0.12	591
Lent/borrowed (ever)	-0.04	(0.06)	0.50	(0.50)	0.08	592
Distance from seed to center	0.64	(0.46)	6.74	(3.33)	0.18	596
Distance between seed and partner	-0.30	(0.58)	3.87	(4.48)	0.07	594
Lives in center	-0.02	(0.02)	0.05	(0.23)	0.09	596
Same neighbourhood	0.01	(0.02)	0.04	(0.21)	0.02	596
Joint p-value	0.21					

Notes: OLS estimates of individual baseline differences by seed treatment status. The data are shown on individual job-search partner level. Outcome variables are listed on the left. Standard errors are in column 2 and clustered by seed. Stars on the standard errors reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. All monetary values are displayed in Ethiopian birr (ETB). Brackets refer to the recall period in the baseline questionnaire: d=days, m=months, y=years, ever=whole life as recall period. The distances are measured in kilometres. In column 5, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015). The last row shows joint significance of the coefficients in the corresponding column from SUR estimation.

Table 2: Impacts on social interaction

	(1) Treatment effect	(2) Mean of control search partners (SD)	(3) Max pairwise difference	(4) Obs.
Spent time with seed (30d)	0.02	0.72	0.06	490
	(0.05)	(0.45)		
	[0.67]			
Travel to Addis (30d)	-0.04	0.25	0.09	540
	(0.04)	(0.43)		
	[0.37]			
Shared travel expenses (30d)	-0.07	0.24	0.18	540
	(0.04)	(0.42)		
	[0.11]			
Shared information (6m)	-0.04	0.41	0.06	540
	(0.06)	(0.49)		
	[0.56]			
Lent/borrowed (ever)	0.04	0.25	0.05	540
	(0.04)	(0.44)		
	[0.37]			
Hours spent with seed (30d)	-0.83	14.37	0.02	490
	(2.30)	(21.35)		
	[0.72]			

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. In column 3, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015).

Table 3: Impacts on social interaction for active and inactive job-search partners

	(1) Treat. effect for Searchers at baseline	(2) Treat. effect for non-Searchers at baseline	(3) Treatment difference: (1)-(2)	(4) Searchers at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	-0.15	0.07	-0.23**	0.07	0.72	490
	(0.10)	(0.06)	(0.10)	(0.07)	(0.45)	
	[0.11]	[0.19]	[0.02]**	[0.32]		
Travel to Addis (30d)	-0.19**	0.01	-0.20**	0.17**	0.25	540
	(0.09)	(0.04)	(0.09)	(0.07)	(0.43)	
	[0.04]**	[0.76]	[0.02]**	[0.01]**		
Shared travel expenses (30d)	-0.18**	-0.03	-0.15*	0.13**	0.24	540
	(0.09)	(0.04)	(0.09)	(0.07)	(0.42)	
	[0.04]**	[0.47]	[0.09]*	[0.05]**		
Shared information (6m)	-0.20**	0.03	-0.23**	0.22**	0.41	540
	(0.10)	(0.07)	(0.11)	(0.08)	(0.49)	
	[0.05]**	[0.69]	[0.04]**	[0.01]**		
Lent/borrowed (ever)	-0.08	0.08*	-0.16*	0.11	0.25	540
	(0.09)	(0.04)	(0.09)	(0.07)	(0.44)	
	[0.35]	[0.07]*	[0.08]*	[0.10]		
Hours spent with seed (30d)	-6.81	1.17	-7.98	5.09	14.37	490
	(4.95)	(2.37)	(5.20)	(3.70)	(21.35)	
	[0.17]	[0.62]	[0.13]	[0.17]		
Job network	-0.42	0.16	-0.58*	0.68***	1.49	540
	(0.28)	(0.22)	(0.33)	(0.26)	(1.54)	
	[0.14]	[0.46]	[0.08]*	[0.01]***		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the job-search partner was an active job seeker at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 4: Impacts on job search

	(1) Treatment effect	(2) Mean of control search partners (SD)	(3) Max pairwise difference	(4) Obs.
Searched job (7d)	-0.07	0.34	0.15	540
	(0.04)	(0.48)		
	[0.11]			
Searched boards (7d)	-0.07**	0.17	0.18	540
	(0.03)	(0.38)		
	[0.03]**			
Searched in networks (7d)	-0.03	0.34	0.07	540
	(0.05)	(0.47)		
	[0.54]			
Searched boards (1m)	-0.17**	0.52	0.30	540
	(0.07)	(0.50)		
	[0.02]**			
Searched in network (1m)	-0.07*	0.72	0.19	540
	(0.04)	(0.45)		
	[0.10]*			
Searched at work sites (1m)	-0.01	0.15	0.02	540
	(0.03)	(0.36)		
	[0.80]			
Searched at agency (1m)	-0.03	0.10	0.11	540
	(0.02)	(0.30)		
	[0.20]			
Searched at central locations (1m)	-0.02**	0.02	0.15	540
	(0.01)	(0.14)		
	[0.04]**			
Searched internet (1m)	0.03	0.08	0.16	540
	(0.03)	(0.27)		
	[0.32]			

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. In column 3, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015).

Table 5: Impacts on job search for active and inactive job-search partners

	(1) Treat. effect for Searchers at baseline	(2) Treat. effect for non-Searchers at baseline	(3) Treatment difference: (1)-(2)	(4) Searchers at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.22**	-0.02	-0.19*	0.13	0.34	540
	(0.09)	(0.05)	(0.10)	(0.09)	(0.48)	
	[0.02]**	[0.62]	[0.06]*	[0.14]		
Searched boards (7d)	-0.18**	-0.04	-0.15*	0.15**	0.17	540
	(0.07)	(0.03)	(0.08)	(0.06)	(0.38)	
	[0.01]**	[0.27]	[0.06]*	[0.01]**		
Searched in networks (7d)	-0.11	-0.00	-0.11	0.05	0.34	540
	(0.09)	(0.05)	(0.10)	(0.08)	(0.47)	
	[0.20]	[0.99]	[0.23]	[0.51]		
Searched boards (1m)	-0.22**	-0.14*	-0.08	0.17**	0.52	540
	(0.09)	(0.08)	(0.10)	(0.08)	(0.50)	
	[0.02]**	[0.09]*	[0.39]	[0.02]**		
Searched in network (1m)	-0.04	-0.08	0.04	0.03	0.72	540
	(0.08)	(0.05)	(0.09)	(0.08)	(0.45)	
	[0.65]	[0.11]	[0.63]	[0.70]		
Searched at work sites (1m)	-0.07	0.02	-0.09	0.13**	0.15	540
	(0.08)	(0.03)	(0.08)	(0.06)	(0.36)	
	[0.38]	[0.50]	[0.28]	[0.02]**		
Searched at agency (1m)	-0.06	-0.01	-0.05	0.08*	0.10	540
	(0.06)	(0.02)	(0.07)	(0.05)	(0.30)	
	[0.32]	[0.58]	[0.46]	[0.08]*		
Searched at central locations (1m)	-0.06**	-0.01	-0.05*	0.04	0.02	540
	(0.03)	(0.01)	(0.03)	(0.03)	(0.14)	
	[0.04]**	[0.36]	[0.08]*	[0.11]		
Searched internet (1m)	0.06	0.03	0.02	0.13**	0.08	540
	(0.07)	(0.03)	(0.07)	(0.05)	(0.27)	
	[0.42]	[0.24]	[0.77]	[0.01]**		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the job-search partner was an active job seeker at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 6: Impacts on employment

	(1) Treatment effect	(2) Mean of control search partners (SD)	(3) Max pairwise difference	(4) Obs.
Worked (7d)	-0.01	0.70	0.02	540
	(0.04)	(0.46)		
	[0.79]			
Permanent work (7d)	-0.01	0.25	0.07	540
	(0.04)	(0.43)		
	[0.71]			
Written agreement	0.01	0.29	0.08	540
	(0.04)	(0.45)		
	[0.88]			

Notes: This table shows, for job-search partners, the effect of having a treated seed on employment outcomes. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. In column 3, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015).

Table 7: Impacts on employment for active and inactive job-search partners

	(1) Treat. effect for Searchers at baseline	(2) Treat. effect for non-Searchers at baseline	(3) Treatment difference: (1)-(2)	(4) Searchers at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Worked (7d)	-0.10	0.01	-0.11	0.04	0.70	540
	(0.10)	(0.05)	(0.11)	(0.07)	(0.46)	
	[0.31]	[0.78]	[0.31]	[0.54]		
Permanent work (7d)	-0.10	0.02	-0.11	0.11*	0.25	540
	(0.08)	(0.04)	(0.08)	(0.06)	(0.43)	
	[0.22]	[0.70]	[0.19]	[0.07]*		
Written agreement	-0.07	0.04	-0.10	0.12*	0.29	540
	(0.09)	(0.04)	(0.09)	(0.07)	(0.45)	
	[0.48]	[0.40]	[0.27]	[0.08]*		

Notes: This table shows, for job-search partners, the effect of having a treated seed on employment outcomes. We show effects by whether the job-search partner was an active job seeker at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 8: Impacts on social interaction for partners with similar expenditure levels as the seed and partners with different expenditure levels

	(1) Impact with similar expenses at baseline	(2) Impact with different expenses at baseline	(3) Difference in impact: (1)-(2)	(4) Similar expenses at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	-0.09	-0.18	0.09	0.06	0.79	115
	(0.12)	(0.14)	(0.17)	(0.10)	(0.41)	
	[0.46]	[0.20]	[0.59]	[0.54]		
Travel to Addis (30d)	-0.21*	-0.15	-0.06	0.12	0.37	123
	(0.12)	(0.12)	(0.16)	(0.11)	(0.49)	
	[0.09]*	[0.22]	[0.69]	[0.28]		
Shared travel expenses (30d)	-0.23*	-0.11	-0.12	0.14	0.34	123
	(0.11)	(0.11)	(0.14)	(0.10)	(0.48)	
	[0.05]*	[0.32]	[0.41]	[0.18]		
Shared information (6m)	-0.12	-0.25*	0.14	0.07	0.55	123
	(0.12)	(0.14)	(0.17)	(0.12)	(0.50)	
	[0.32]	[0.07]*	[0.41]	[0.56]		
Lent/borrowed (ever)	-0.20*	0.07	-0.27*	0.18*	0.34	123
	(0.11)	(0.12)	(0.16)	(0.10)	(0.48)	
	[0.08]*	[0.56]	[0.09]*	[0.08]*		
Hours spent with seed (30d)	-5.81	-1.47	-4.34	8.26	19.59	115
	(11.04)	(7.34)	(12.71)	(6.63)	(27.66)	
	[0.60]	[0.84]	[0.73]	[0.22]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the job-search partner and the seed have similar levels of baseline expenditure. We limit the sample to active job-search partners. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 9: Impacts on job search for partners with similar expenditure levels as the seed and partners with different expenditure levels

	(1) Impact with similar expenses at baseline	(2) Impact with different expenses at baseline	(3) Difference in impact: (1)-(2)	(4) Similar expenses at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.37***	-0.08	-0.28	0.14	0.49	123
	(0.11)	(0.13)	(0.17)	(0.12)	(0.50)	
	[0.00]***	[0.53]	[0.10]	[0.24]		
Searched boards (7d)	-0.28***	-0.05	-0.23	0.19**	0.34	123
	(0.10)	(0.10)	(0.14)	(0.09)	(0.48)	
	[0.01]***	[0.62]	[0.10]	[0.05]**		
Searched in networks (7d)	-0.19	-0.04	-0.14	0.13	0.45	123
	(0.13)	(0.12)	(0.17)	(0.11)	(0.50)	
	[0.14]	[0.72]	[0.42]	[0.25]		
Searched boards (1m)	-0.21*	-0.20	-0.01	0.08	0.72	123
	(0.12)	(0.14)	(0.18)	(0.11)	(0.45)	
	[0.08]*	[0.15]	[0.95]	[0.45]		
Searched in network (1m)	-0.20*	0.11	-0.31*	0.15	0.72	123
	(0.12)	(0.12)	(0.17)	(0.11)	(0.45)	
	[0.10]*	[0.36]	[0.08]*	[0.20]		
Searched at work sites (1m)	-0.06	-0.07	0.01	0.07	0.27	123
	(0.12)	(0.13)	(0.19)	(0.11)	(0.45)	
	[0.64]	[0.60]	[0.96]	[0.56]		
Searched at agency (1m)	-0.18**	0.06	-0.24**	0.12	0.15	123
	(0.08)	(0.09)	(0.12)	(0.08)	(0.36)	
	[0.02]**	[0.47]	[0.04]**	[0.12]		
Searched at central locations (1m)	-0.05	-0.07	0.02	-0.03	0.06	123
	(0.03)	(0.05)	(0.06)	(0.06)	(0.23)	
	[0.14]	[0.19]	[0.76]	[0.67]		
Searched internet (1m)	0.12	-0.06	0.18	0.00	0.15	123
	(0.11)	(0.08)	(0.14)	(0.07)	(0.36)	
	[0.28]	[0.48]	[0.19]	[0.96]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the job-search partner and the seed have similar levels of baseline expenditure. We limit the sample to active job-search partners. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 10: Impacts on social interaction for partners with similar education levels as the seed and partners with different education levels levels

	(1) Impact with similar educ. at baseline	(2) Impact with different educ. at baseline	(3) Difference in impact: (1)-(2)	(4) Similar educ. at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	-0.21	-0.11	-0.10	-0.05	0.79	115
	(0.14)	(0.12)	(0.18)	(0.11)	(0.41)	
	[0.14]	[0.34]	[0.59]	[0.65]		
Travel to Addis (30d)	-0.16	-0.23**	0.06	-0.04	0.37	123
	(0.14)	(0.11)	(0.18)	(0.14)	(0.49)	
	[0.26]	[0.05]**	[0.72]	[0.80]		
Shared travel expenses (30d)	-0.16	-0.21*	0.05	0.02	0.34	123
	(0.14)	(0.11)	(0.18)	(0.14)	(0.48)	
	[0.25]	[0.06]*	[0.80]	[0.91]		
Shared information (6m)	-0.27*	-0.15	-0.12	-0.06	0.55	123
	(0.14)	(0.12)	(0.18)	(0.14)	(0.50)	
	[0.06]*	[0.21]	[0.51]	[0.67]		
Lent/borrowed (ever)	-0.24**	0.05	-0.29*	0.06	0.34	123
	(0.10)	(0.12)	(0.16)	(0.11)	(0.48)	
	[0.02]**	[0.69]	[0.07]*	[0.60]		
Hours spent with seed (30d)	7.13	-13.48*	20.61	-16.89**	19.59	115
	(11.62)	(7.63)	(14.50)	(7.46)	(27.66)	
	[0.54]	[0.08]*	[0.16]	[0.03]**		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the job-search partner and the seed have similar levels of education at baseline. We limit the sample to active job-search partners. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table 11: Impact on beliefs and attitudes

	(1) Treatment effect	(2) Mean of control search partners (SD)	(3) Max pairwise difference	(4) Obs.
Alone in charge of own life's course	0.58***	3.08	0.47	485
	(0.13)	(1.44)		
	[0.00]***			
Life achievements are primarily luck	0.16	2.85	0.07	485
	(0.13)	(1.31)		
	[0.21]			
Doubts own abilities during difficulties	-0.17	2.72	0.17	485
	(0.12)	(1.20)		
	[0.18]			
Possibilities dependent on social circumstances	-0.08	3.51	0.14	485
	(0.08)	(0.99)		
	[0.29]			
Has little control over own life	-0.37***	2.83	0.39	485
	(0.13)	(1.16)		
	[0.01]***			
Life satisfaction (0-10)	0.28	4.78	0.13	537
	(0.23)	(1.96)		
	[0.22]			

Notes: This table shows, for job-search partners, the effect of having a treated seed on beliefs and attitudes outcomes. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. In column 3, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015).

Appendices

Contents

A Additional findings

A.1 The impact of the transport subsidy on the seed individuals

In the original study of the transport subsidy (Abebe et al., 2016), the authors find relatively strong and immediate short-run effects of the transport subsidy on job search, which is measured every fortnight: job search at the vacancy boards increases significantly during the first eight fortnights after treatment, by approximately nine percentage points (which corresponds to a 30% increase over the control group mean of 28%). Overall job search does not increase quite as much, but still goes up by five percentage points or 12.5% during the first four months after the onset of the intervention (both at 5% level). Beyond that, the authors find no short-run average treatment effects on employment probability, on hours worked, on monthly earnings, or on work satisfaction, all measured during a follow-up survey in August 2015. However, there is a 5.5 percentage point increase in formal work for the subsidy recipients (at a 1% level), and 3.4 percentage point increase in permanent work (at 10% level).[14] Further, the authors find significant impacts on employment among the workers with the worst employment prospects (following Abadie et al., 2017), with overall employment going up by about 25%.

The original treatment effect on job board search from Abebe et al. (2016) is displayed in appendix Figure A1. Since we sampled our 165 seeds randomly from the complete sample of transport subsidy recipients of the main study, we expect these impacts to equally hold true for them. We can test this explicitly, by running the same high-frequency regressions on the

[14] While the effect on formal work holds for both males and females if the results are split up by gender, the effects on permanent work are concentrated among women. Additionally, the authors find heterogenous impacts by educational level, with the effects on permanent work being driven by jobseekers with only high-school education.

sample of 165 seeds only.[15]

Figure A2 displays the results both for whether and for how many days per week a seed individual searched at the job boards. The coefficients in the left panel are very similar in size to the treatment effect of the subsidy on the whole sample. As expected, the confidence bounds for our impacts are much wider, given that our seed sample consists of 165 individuals, while the original paper looks at almost 2000 individuals. Overall, the similarities of the trajectories in Figures A1 and A2 is striking and leaves us confident that the transport subsidy had the same effect for our sample of 165 randomly selected seed individuals as for the overall intervention group.[16] We exploit this exogenous and short-run search shock in order to see how the social contacts react to a change in their close ties' job search behaviour.

A.2 Spatial dimension of results

This Section describes the spatial dimension of the indirect impact of the job search assistance. At baseline, 27 — or fewer than 5% — of the information sharing partners live in the city centre of Addis Ababa – 17 are friends of untreated seeds and ten are connected to treated seeds. Even though this number of central dwellers is small, it is possible that spillover effects look differently for individuals that already live close to the vacancy boards (as discussed in Section 2). First, when estimating the main specification 1 controlling for whether a job-search partner lives in the city centre, we get virtually identical results, which is not surprising, given that central residence is not imbalanced across treatment groups. Second, when simply excluding centrally living job-search partners, our results also remain

[15] We follow Abebe et al. (2016) by estimating the following model:

$$y_{itc} = \sum_{w=S_f}^{E_f} [\beta_w \cdot Treat_{ic} \cdot d_{wit}] + \alpha_t \cdot y_{itc,pre} + \delta \cdot x_{ic0} + \eta_t + \mu_{itc}, \tag{3}$$

where w indicates the number of fortnights since each treated individual began receiving her subsidy. d_{wit} is a dummy variable equal to 1 in period t if an individual started receiving the subsidy w periods ago. Individuals in the control group have all such dummy variables set to 0. Thus, β_w is our estimate of the impact of the subsidy, w fortnights after the intervention started. We then estimate the trajectory of treatment effects by pooling all post treatment ($w > 0$) observations and estimating quadratic trends of the treatment effects over time. More details on this can be found in Abebe et al. (2016).

[16] We get very similar results when using the complete control group sample ($N \simeq 800$) instead of the 86 control group seeds, which shows that this is not a small sample artefact.

almost entirely unchanged in terms of direction, size and significance levels.[17] In a third step, we estimate heterogenous treatment effects by whether a job-search partner lives in the centre at baseline. The results, presented in appendix tables D9-D10, show that the negative spillover effects for job search and communication are mostly driven by the majority of partners living outside the city centre, i.e. those partners who rely on shared trips to and information exchange from the centrally located vacancy boards.[18]

Figures A3 and A4 display non-parametric regressions of the previously discussed job search and partner-seed interaction outcomes on a) the distance between the partner's and seed's place of residence or b) the distance of the job-search partner's residence to the city centre.[19] Starting with appendix Figure A3, we can see that most of the negative impacts on recent (seven-day) job search are borne by those job-search partners living relatively close to their seeds (top three graphs). While there often seems to be a reversal of the effect taking place for distances above eight kilometres, it is important to keep in mind that the 75th percentile of distance is at 5.9 km, so the higher distances in the graphs are supported by only few observations. For the longer search horizons (behaviour in past month, bottom six graphs of appendix Figure A3), some negative effects are supported over the whole distribution (job board search), while others are also stronger for search pairs living closer to each other. In terms of partner-seed interactions (middle graphs 4-9), a similar reversal seems to be in place for the exchange of job information: while the overall effect is insignificantly negative, the negative effect becomes significant for closely living search pairs, but then becomes strongly positive (yet remaining insignificant) for pairs living more than ten kilometres apart. Again, this only applies to a small sample of only 10% of information sharers, but it is nonetheless interesting to see that the negative partner-seed communication and interaction effects of the job search assistance mostly affect pairs living close to each other, while there is weak

[17] Results for both previous steps are left out due to similarity to the main results, but are available from authors at request.

[18] The one exception is job search at agencies, which decreases much more strongly for centrally living job-search partners of treated seeds. However, this seems to be a mostly artificial effect of the small sample of only 23 central residents at endline.

[19] We run kernel-weighted (epanechnikov) local polynomial regressions of the variable on the y-axis on distance between partner and seed or distance between partner residence and city centre, by seed treatment status.

evidence of an opposite trend for pairs living very far apart.

Appendix Figure A4 displays similar non-parametric estimates, for the distance of the job-search partner's residence to the city centre. Here, the mean distance is 7.0 km (median: 7.1 km), so the distributions are shifted further to the middle of the x-axis compared to the previous set of graphs. While there is some evidence for the short-run effects (seven days) being driven by job-search partners living slightly closer to the centre, overall most of the effects seem to be supported over the whole distance distribution.

B Experimental integrity

Table B1: Balance of covariates for seeds, by seed treatment status, full sample at baseline

	(1) Treatment difference	(2) (Standard error)	(3) Control mean	(4) (SD)	(5) Max pairwise difference	(6) Obs.
Number of job contacts	-0.04	(0.36)	3.67	(2.41)	0.02	165
Age	-0.34	(0.47)	23.85	(3.18)	0.11	165
Female	0.15	(0.08)**	0.45	(0.50)	0.31	165
High school	-0.09	(0.07)	0.33	(0.47)	0.19	165
Preparatory school	-0.01	(0.03)	0.03	(0.18)	0.06	165
Vocational school	0.02	(0.08)	0.40	(0.49)	0.05	165
Diploma	-0.02	(0.04)	0.07	(0.26)	0.08	165
University	0.09	(0.06)	0.17	(0.38)	0.22	165
Business	-0.04	(0.09)	0.24	(0.43)	0.10	92
Vocational	-0.13	(0.10)	0.43	(0.50)	0.27	92
Humanities	-0.07	(0.06)	0.13	(0.34)	0.22	92
Worked (7 d)	-0.02	(0.08)	0.38	(0.49)	0.03	165
Return job	-0.02	(0.03)	0.05	(0.21)	0.11	165
Wage empl (6 m)	-0.04	(0.08)	0.51	(0.50)	0.09	165
Self empl (6 m)	-0.03	(0.05)	0.13	(0.34)	0.08	165
Ever worked for pay	-0.18	(0.08)**	0.67	(0.47)	0.37	165
Searched job (7 d)	-0.04	(0.08)	0.55	(0.50)	0.08	165
Searched job (6 m)	-0.05	(0.07)	0.77	(0.42)	0.11	165
Ever searched wage job	0.05	(0.07)	0.33	(0.47)	0.11	165
Plans to start business	-0.01	(0.02)	0.02	(0.15)	0.08	165
Potential job	0.00	(0.03)	0.03	(0.18)	0.02	165
Searched boards (7 d)	-0.12	(0.07)*	0.35	(0.48)	0.27	165
Ever searched boards	0.07	(0.07)	0.69	(0.47)	0.16	165
Lives with parents	0.05	(0.08)	0.51	(0.50)	0.09	165
Years since school	-0.34	(0.45)	3.64	(2.98)	0.12	165
Temporarily empl	0.04	(0.06)	0.20	(0.40)	0.10	165
Casual worker	-0.06	(0.03)*	0.07	(0.26)	0.28	165
Contract worker	0.03	(0.03)	0.03	(0.18)	0.13	165
Self-employed	-0.03	(0.04)	0.08	(0.28)	0.12	165
Amhara	-0.04	(0.08)	0.53	(0.50)	0.08	165
Oromo	0.07	(0.07)	0.21	(0.41)	0.16	165
Tigre	0.07	(0.04)*	0.02	(0.15)	0.29	165
Guraghe	-0.10	(0.05)*	0.17	(0.38)	0.29	165
Mixed	0.00	(0.02)	0.01	(0.11)	0.01	165
Other	0.00	(0.03)	0.05	(0.21)	0.02	165
Joint p-value	0.91					

Notes: OLS estimates of individual baseline differences by seed treatment status. The data are shown on individual seed level. Outcome variables are listed on the left. Standard errors are in column 2. Stars on the standard errors reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. All monetary values are displayed in Ethiopian birr (ETB). Brackets refer to the recall period in the baseline questionnaire: d=days, m=months, y=years, ever=whole life as recall period. The distances are measured in kilometres. Life satisfaction is measured with a picture of a ladder with steps from 0 (bottom) to 10 (top), representing lowest to highest life satisfaction. Respondents point to the step where they currently see themselves on the ladder. In column 5, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015). The last row shows joint significance of the coefficients in the corresponding column from SUR estimation.

Table B2: Balance of covariates for job-search partners, by seed treatment status, at baseline

	(1) Treatment difference	(2) (Standard error)	(3) Control mean	(4) (SD)	(5) Max pairwise difference	(6) Obs.
Age	-0.67	(0.72)	25.66	(6.71)	0.11	596
Female	0.06	(0.06)	0.36	(0.48)	0.13	596
Degree	0.05	(0.05)	0.16	(0.37)	0.14	596
Vocational Training	0.03	(0.05)	0.25	(0.43)	0.07	596
Post-Secondary Degree	-0.05	(0.05)	0.83	(0.37)	0.13	596
Born outside Addis	-0.16	(0.06)***	0.47	(0.50)	0.33	596
Amhara	-0.00	(0.05)	0.49	(0.50)	0.01	596
Oromo	0.06	(0.04)	0.19	(0.39)	0.15	596
Worked (7d)	-0.01	(0.05)	0.50	(0.50)	0.03	596
Permanent work (7d)	0.08	(0.03)**	0.12	(0.32)	0.21	596
Satisfied with work	-0.01	(0.03)	0.20	(0.40)	0.02	596
Written agreement	0.02	(0.04)	0.20	(0.40)	0.05	596
Applied to temporary jobs	-0.04	(0.04)	0.23	(0.42)	0.09	596
Applied to permanent jobs	0.02	(0.05)	0.25	(0.43)	0.04	596
Uses CV for applications	0.02	(0.05)	0.25	(0.43)	0.04	596
Uses certificates	0.03	(0.05)	0.27	(0.45)	0.07	596
Received job by interview	0.04	(0.04)	0.12	(0.32)	0.12	596
Office work (7d)	0.05	(0.04)	0.15	(0.36)	0.12	596
Offers expected (next 4m)	-0.18	(0.21)	1.75	(1.89)	0.10	520
Life satisfaction (0-10)	0.05	(0.20)	4.44	(1.85)	0.03	594
Expenditure (7d)	-1.81	(70.32)	512.51	(772.12)	0.00	596
Savings	-238.95	(1338.50)	5505.32	(17115.79)	0.02	542
Monthly earnings	-12.53	(512.49)	2320.52	(4908.84)	0.00	289
Reservation wage (in ETB)	-3.84	(263.42)	2266.70	(3011.99)	0.00	588
Aspired wage (in 5y, in ETB)	-4995.59	(6580.57)	13782.62	(114256.50)	0.06	575
Trip to center (7d)	0.06	(0.25)	2.33	(2.60)	0.02	566
Works away from home	0.03	(0.03)	0.83	(0.37)	0.08	596
In full-time education	0.01	(0.02)	0.06	(0.23)	0.04	596
In part-time education	0.04	(0.03)	0.13	(0.34)	0.11	596
In informal training	0.03	(0.03)	0.08	(0.27)	0.12	596
Searched job (7d)	-0.08	(0.05)	0.38	(0.49)	0.16	596
Searched job (6m)	-0.05	(0.05)	0.55	(0.50)	0.09	569
Ever searched wage job	-0.05	(0.04)	0.78	(0.42)	0.12	596
Searched boards (7d)	-0.03	(0.04)	0.24	(0.43)	0.06	596
Searched boards (1m)	0.09	(0.05)*	0.47	(0.50)	0.18	596
Searched in networks (7d)	-0.06	(0.05)	0.34	(0.47)	0.14	596
Married	0.01	(0.04)	0.19	(0.39)	0.03	596
Lives with parents	0.09	(0.06)	0.39	(0.49)	0.18	596
Years since school	-0.72	(0.72)	5.57	(5.89)	0.13	523
Joint p-value	0.19					

Notes: OLS estimates of individual baseline differences by seed treatment status. The data are shown on individual job-search partner level. Outcome variables are listed on the left. Standard errors are in column 2 and clustered by seed. Stars on the standard errors reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. All monetary values are displayed in Ethiopian birr (ETB). Brackets refer to the recall period in the baseline questionnaire: d=days, m=months, y=years, ever=whole life as recall period. The distances are measured in kilometres. Life satisfaction is measured with a picture of a ladder with steps from 0 (bottom) to 10 (top), representing lowest to highest life satisfaction. Respondents point to the step where they currently see themselves on the ladder. In column 5, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015). The last row shows joint significance of the coefficients in the corresponding column from SUR estimation.

Table B3: Balance of covariates for job-search partners, by seed treatment status and collapsed by seed, at baseline

	(1) Treatment difference	(2) (Standard error)	(3) Control mean	(4) (SD)	(5) Max pairwise difference	(6) Obs.
Age	-0.40	(0.93)	25.58	(7.59)	0.07	165
Female	0.08	(0.06)	0.37	(0.39)	0.21	165
Degree	0.13	(0.05)***	0.13	(0.27)	0.40	165
Vocational Training	0.00	(0.06)	0.30	(0.37)	0.00	165
Post-Secondary Degree	-0.12	(0.05)**	0.86	(0.27)	0.38	165
Born outside Addis	-0.09	(0.06)*	0.41	(0.40)	0.26	165
Amhara	0.03	(0.06)	0.52	(0.36)	0.09	165
Oromo	0.07	(0.04)	0.18	(0.26)	0.25	165
Worked (7d)	0.04	(0.05)	0.50	(0.35)	0.13	165
Permanent work (7d)	0.10	(0.04)**	0.11	(0.24)	0.38	165
Satisfied with work	-0.04	(0.04)	0.22	(0.27)	0.16	165
Written agreement	0.06	(0.05)	0.21	(0.30)	0.20	165
Applied to temporary jobs	-0.02	(0.05)	0.23	(0.32)	0.06	165
Applied to permanent jobs	0.07	(0.05)	0.24	(0.32)	0.20	165
Uses CV for applications	0.01	(0.05)	0.25	(0.34)	0.04	165
Uses certificates	0.05	(0.05)	0.29	(0.34)	0.15	165
Received job by interview	0.08	(0.04)**	0.11	(0.22)	0.31	165
Office work (7d)	0.11	(0.04)***	0.11	(0.20)	0.43	165
Offers expected (next 4m)	-0.46	(0.28)	2.06	(1.95)	0.26	162
Life satisfaction (0-10)	-0.09	(0.22)	4.52	(1.39)	0.06	165
Expenditure (7d)	78.91	(76.89)	453.45	(432.28)	0.16	165
Savings	595.54	(1138.48)	4770.97	(7469.80)	0.08	162
Monthly earnings	-90.69	(442.87)	2270.69	(3023.62)	0.04	131
Reservation wage (in ETB)	172.90	(312.05)	2092.31	(2420.15)	0.09	165
Aspired wage (in 5y, in ETB)	-3006.77	(5027.29)	11545.87	(43626.42)	0.09	162
Trip to center (7d)	0.14	(0.27)	2.34	(1.89)	0.08	163
Works away from home	0.02	(0.04)	0.83	(0.28)	0.07	165
In full-time education	0.00	(0.02)	0.05	(0.15)	0.03	165
In part-time education	0.05	(0.03)	0.11	(0.20)	0.21	165
In informal training	0.06	(0.03)*	0.08	(0.17)	0.27	165
Searched job (7d)	-0.07	(0.06)	0.40	(0.37)	0.20	165
Searched job (6m)	-0.03	(0.06)	0.55	(0.36)	0.09	163
Ever searched wage job	-0.03	(0.04)	0.77	(0.30)	0.12	165
Searched boards (7d)	-0.03	(0.05)	0.26	(0.31)	0.11	165
Searched boards (1m)	0.08	(0.05)	0.50	(0.36)	0.22	165
Searched in networks (7d)	-0.05	(0.06)	0.36	(0.37)	0.15	165
Married	0.03	(0.05)	0.17	(0.30)	0.11	165
Lives with parents	0.07	(0.06)	0.42	(0.40)	0.18	165
Years since school	-0.27	(0.64)	5.07	(4.57)	0.07	160
Joint p-value	0.66					

Notes: OLS estimates of individual baseline differences by seed treatment status. The data are shown on individual job-search partner level averages, collapsed by seed. Outcome variables are listed on the left. Standard errors are in column 2. Stars on the standard errors reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. All monetary values are displayed in Ethiopian birr (ETB). Brackets refer to the recall period in the baseline questionnaire: d=days, m=months, y=years, ever=whole life as recall period. The distances are measured in kilometres. Life satisfaction is measured with a picture of a ladder with steps from 0 (bottom) to 10 (top), representing lowest to highest life satisfaction. Respondents point to the step where they currently see themselves on the ladder. In column 5, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015). The last row shows joint significance of the coefficients in the corresponding column from SUR estimation.

C Attrition

Table C4: Job-search partner baseline predictors of attrition

	(1) Job-search partner attrited between baseline and endline	
Treated seed	-0.050	(0.299)
Age	-0.002	(0.023)
Female	1.189***	(0.310)
Vocational Training	0.166	(0.393)
Post-Secondary Degree	-0.082	(0.445)
Born outside Addis	0.079	(0.441)
Amhara	-0.661	(0.362)
Oromo	-0.497	(0.408)
Worked (7d)	-0.667	(0.562)
Permanent work (7d)	0.315	(0.547)
Satisfied with work	-0.075	(0.496)
Written agreement	0.068	(0.597)
Applied to temporary jobs	-0.443	(0.446)
Applied to permanent jobs	-0.343	(0.593)
Uses CV for applications	0.623	(0.712)
Uses certificates	0.139	(0.861)
Received job by interview	-1.117	(0.606)
Office work (7d)	0.899*	(0.449)
Expenditure (7d)	0.000	(0.000)
Works away from home	1.107	(0.717)
In full-time education	-0.221	(0.705)
In part-time education	0.603	(0.368)
In informal training	0.078	(0.470)
Searched job (7d)	-0.790	(0.977)
Ever searched wage job	-0.240	(0.543)
Searched boards (7d)	-0.089	(0.706)
Searched boards (1m)	-0.000	(0.512)
Searched in networks (7d)	1.057	(0.856)
Married	0.151	(0.462)
Lives with parents	-0.371	(0.485)
Constant	-3.135**	(1.149)
Number of observations	596	

Notes: Marginal effects from a logit regression of individual-level job-search partner attrition indicators on demographics. Standard errors are shown in parentheses and are clustered on seed level. Stars on the coefficient estimates reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table C5: Job-search partner baseline predictors of attrition, by seed treatment status

	(1) Job-search partner attrited between baseline and endline		(2) Difference by seed treatment status	
Treated seed	-1.565	(2.457)		
Treated seed=0 × Age	0.012	(0.035)		
Treated seed=1 × Age	-0.033	(0.049)	-0.045	(0.060)
Treated seed=0 × Female	0.852	(0.516)		
Treated seed=1 × Female	1.556**	(0.535)	0.704	(0.744)
Treated seed=0 × Vocational Training	0.070	(0.650)		
Treated seed=1 × Vocational Training	0.338	(0.552)	0.268	(0.853)
Treated seed=0 × Post-Secondary Degree	0.097	(0.669)		
Treated seed=1 × Post-Secondary Degree	-0.175	(0.743)	-0.271	(1.000)
Treated seed=0 × Born outside Addis	0.544	(0.600)		
Treated seed=1 × Born outside Addis	-0.193	(0.590)	-0.737	(0.841)
Treated seed=0 × Amhara	-1.498**	(0.552)		
Treated seed=1 × Amhara	0.318	(0.644)	1.816	(0.848)*
Treated seed=0 × Oromo	-1.464*	(0.713)		
Treated seed=1 × Oromo	0.449	(0.715)	1.912	(1.010)
Treated seed=0 × Worked (7d)	-2.050	(1.072)		
Treated seed=1 × Worked (7d)	0.645	(0.811)	2.695	(1.345)*
Treated seed=0 × Permanent work (7d)	-0.126	(1.449)		
Treated seed=1 × Permanent work (7d)	0.074	(0.967)	0.200	(1.742)
Treated seed=0 × Satisfied with work	0.370	(0.948)		
Treated seed=1 × Satisfied with work	-0.564	(0.773)	-0.934	(1.224)
Treated seed=0 × Written agreement	-0.542	(1.256)		
Treated seed=1 × Written agreement	-0.016	(1.042)	0.526	(1.632)
Treated seed=0 × Applied to temporary jobs	-0.125	(0.698)		
Treated seed=1 × Applied to temporary jobs	-1.471	(1.052)	-1.346	(1.262)
Treated seed=0 × Applied to permanent jobs	0.258	(1.116)		
Treated seed=1 × Applied to permanent jobs	-1.783	(1.200)	-2.041	(1.638)
Treated seed=0 × Uses CV for applications	2.177	(1.137)		
Treated seed=1 × Uses CV for applications	-0.324	(1.062)	-2.501	(1.555)
Treated seed=0 × Uses certificates	-0.695	(1.129)		
Treated seed=1 × Uses certificates	1.582	(1.598)	2.277	(1.956)
Treated seed=0 × Received job by interview	-1.488	(1.463)		
Treated seed=1 × Received job by interview	-0.657	(1.025)	0.832	(1.786)
Treated seed=0 × Office work (7d)	1.891*	(0.940)		
Treated seed=1 × Office work (7d)	0.586	(0.773)	-1.305	(1.217)
Treated seed=0 × Expenditure (7d)	0.000	(0.000)		
Treated seed=1 × Expenditure (7d)	-0.000	(0.001)	-0.001	(0.001)
Treated seed=0 × Works away from home	0.158	(1.001)		
Treated seed=1 × Works away from home	2.223	(1.217)	2.065	(1.576)
Treated seed=0 × In full-time education	0.267	(0.997)		
Treated seed=1 × In full-time education	-1.205	(1.259)	-1.472	(1.606)
Treated seed=0 × In part-time education	1.004	(0.668)		
Treated seed=1 × In part-time education	0.658	(0.665)	-0.346	(0.943)
Treated seed=0 × In informal training	0.543	(0.778)		
Treated seed=1 × In informal training	-0.323	(0.776)	-0.867	(1.099)
Treated seed=0 × Searched job (7d)	-0.798	(1.231)		
Treated seed=1 × Searched job (7d)	-10.947	(647.582)	-10.148	(647.583)
Treated seed=0 × Ever searched wage job	0.284	(0.656)		
Treated seed=1 × Ever searched wage job	-1.049	(0.819)	-1.333	(1.050)
Treated seed=0 × Searched boards (7d)	-1.013	(1.088)		
Treated seed=1 × Searched boards (7d)	0.013	(0.945)	1.027	(1.441)
Treated seed=0 × Searched boards (1m)	-0.364	(0.685)		
Treated seed=1 × Searched boards (1m)	0.531	(0.809)	0.895	(1.060)
Treated seed=0 × Searched in networks (7d)	0.453	(1.146)		
Treated seed=1 × Searched in networks (7d)	12.012	(647.582)	11.559	(647.583)
Treated seed=0 × Married	-0.056	(0.654)		
Treated seed=1 × Married	0.522	(0.657)	0.577	(0.927)
Treated seed=0 × Lives with parents	-0.453	(0.666)		
Treated seed=1 × Lives with parents	-0.435	(0.589)	0.018	(0.889)
Constant	-2.621	(1.628)		
Number of observations	596			

Notes: Marginal effects from a logit regression of individual-level job-search partner attrition indicators on demographics. Standard errors are shown in parentheses and are clustered on seed level. Stars on the coefficient estimates reflect unadjusted p-values. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

D Further tables and mechanism checks

Table D6: Demographic predictors of using social networks for job search, from Ethiopian Labour Force Survey 2013

	(1) Uses social networks for job search
Age	-0.00155
	(0.00128)
Female	-0.0710**
	(0.0232)
Migrant	0.0652**
	(0.0243)
High school	-0.0333
	(0.0274)
Above high school	-0.155***
	(0.0408)
Constant	0.297***
	(0.0261)
N	1423

Notes: OLS estimate of a binary variable indicating whether an individual uses social networks to find work on a range of demographic characteristics. Standard errors are in parentheses. Ethiopian Labour Force Survey (2013) data for adults (17-64 years of age) from Addis Ababa. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D7: Impacts on job search for partners with similar education levels as the seed and partners with different education levels

	(1) Impact with similar educ. at baseline	(2) Impact with different educ. at baseline	(3) Difference in impact: (1)-(2)	(4) Similar educ. at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.01	-0.39***	0.38**	-0.17	0.49	123
	(0.14)	(0.11)	(0.18)	(0.13)	(0.50)	
	[0.93]	[0.00]***	[0.04]**	[0.18]		
Searched boards (7d)	0.02	-0.33***	0.35**	-0.15	0.34	123
	(0.13)	(0.08)	(0.16)	(0.11)	(0.48)	
	[0.88]	[0.00]***	[0.03]**	[0.18]		
Searched in networks (7d)	-0.06	-0.17	0.11	-0.16	0.45	123
	(0.14)	(0.11)	(0.18)	(0.13)	(0.50)	
	[0.65]	[0.14]	[0.55]	[0.22]		
Searched boards (1m)	-0.21	-0.21*	-0.00	-0.19	0.72	123
	(0.14)	(0.11)	(0.18)	(0.12)	(0.45)	
	[0.14]	[0.05]*	[0.98]	[0.11]		
Searched in network (1m)	-0.10	-0.01	-0.09	0.04	0.72	123
	(0.12)	(0.11)	(0.17)	(0.11)	(0.45)	
	[0.41]	[0.93]	[0.60]	[0.69]		
Searched at work sites (1m)	-0.00	-0.13	0.13	-0.09	0.27	123
	(0.12)	(0.11)	(0.17)	(0.11)	(0.45)	
	[0.99]	[0.26]	[0.45]	[0.42]		
Searched at agency (1m)	-0.09	-0.05	-0.04	0.06	0.15	123
	(0.10)	(0.08)	(0.13)	(0.09)	(0.36)	
	[0.39]	[0.55]	[0.74]	[0.54]		
Searched at central locations (1m)	-0.10*	-0.02	-0.07	0.08	0.06	123
	(0.06)	(0.02)	(0.07)	(0.07)	(0.23)	
	[0.09]*	[0.32]	[0.26]	[0.21]		
Searched internet (1m)	-0.12	0.11	-0.23*	0.09	0.15	123
	(0.10)	(0.09)	(0.14)	(0.08)	(0.36)	
	[0.24]	[0.22]	[0.09]*	[0.26]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the job-search partner and the seed have similar levels of education at baseline. We limit the sample to active job-search partners. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D8: Impacts on job market expectations

	(1) Treatment effect	(2) Mean of control search partners (SD)	(3) Max pairwise difference	(4) Obs.
Offers expected (next 4m)	-0.05	1.65	0.02	450
	(0.23)	(2.12)		
	[0.82]			
Reservation wage (in ETB)	-203.88	2628.36	0.04	499
	(223.44)	(2758.72)		
	[0.36]			
Aspired wage (in 5y, in ETB)	-1494.03	9721.51	0.03	514
	(1639.37)	(19971.20)		
	[0.36]			

Notes: This table shows, for job-search partners, the effect of having a treated seed on job market expectation outcomes. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level. In column 3, we calculate the pairwise difference between the two group means and divide this by the standard deviation of the variable, following Imbens (2015).

Table D9: Impacts on job search for job-search partners living in and outside the city centre at baseline

	(1) Treat. effect for In centre at baseline	(2) Treat. effect for non-In centre at baseline	(3) Treatment difference: (1)-(2)	(4) In centre at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.10	-0.07	-0.03	0.00	0.34	540
	(0.20)	(0.04)	(0.20)	(0.14)	(0.48)	
	[0.62]	[0.13]	[0.88]	[0.97]		
Searched boards (7d)	-0.01	-0.07**	0.06	-0.02	0.17	540
	(0.15)	(0.03)	(0.16)	(0.09)	(0.38)	
	[0.93]	[0.03]**	[0.71]	[0.80]		
Searched in networks (7d)	0.08	-0.03	0.12	-0.06	0.34	540
	(0.21)	(0.05)	(0.22)	(0.14)	(0.47)	
	[0.69]	[0.48]	[0.59]	[0.65]		
Searched boards (1m)	-0.09	-0.17**	0.08	-0.04	0.52	540
	(0.24)	(0.07)	(0.24)	(0.11)	(0.50)	
	[0.71]	[0.02]**	[0.74]	[0.71]		
Searched in network (1m)	-0.17	-0.07	-0.10	-0.07	0.72	540
	(0.21)	(0.04)	(0.22)	(0.13)	(0.45)	
	[0.42]	[0.12]	[0.64]	[0.57]		
Searched at work sites (1m)	0.03	-0.01	0.04	-0.07	0.15	540
	(0.14)	(0.03)	(0.15)	(0.07)	(0.36)	
	[0.84]	[0.75]	[0.79]	[0.29]		
Searched at agency (1m)	-0.28***	-0.02	-0.27***	0.19**	0.10	540
	(0.09)	(0.02)	(0.09)	(0.09)	(0.30)	
	[0.00]***	[0.46]	[0.00]***	[0.04]**		
Searched at central locations (1m)	-0.01	-0.02**	0.01	-0.02**	0.02	540
	(0.01)	(0.01)	(0.01)	(0.01)	(0.14)	
	[0.29]	[0.04]**	[0.15]	[0.03]**		
Searched internet (1m)	-0.10	0.03	-0.14	0.02	0.08	540
	(0.09)	(0.03)	(0.10)	(0.09)	(0.27)	
	[0.26]	[0.25]	[0.16]	[0.81]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the job-search partner lives in the city centre at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D10: Impacts on social interaction for job-search partners living in and outside the city centre at baseline

	(1) Treat. effect for In centre at baseline	(2) Treat. effect for non-In centre at baseline	(3) Treatment difference: (1)-(2)	(4) In centre at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	0.00	0.02	-0.02	-0.11	0.72	490
	(0.23)	(0.05)	(0.23)	(0.14)	(0.45)	
	[0.99]	[0.69]	[0.93]	[0.43]		
Travel to Addis (30d)	0.03	-0.04	0.08	-0.04	0.25	540
	(0.19)	(0.05)	(0.19)	(0.14)	(0.43)	
	[0.86]	[0.34]	[0.69]	[0.76]		
Shared travel expenses (30d)	-0.09	-0.07	-0.02	-0.03	0.24	540
	(0.18)	(0.05)	(0.18)	(0.14)	(0.42)	
	[0.60]	[0.12]	[0.90]	[0.84]		
Shared information (6m)	0.08	-0.04	0.12	0.00	0.41	540
	(0.26)	(0.06)	(0.27)	(0.17)	(0.49)	
	[0.76]	[0.53]	[0.65]	[0.98]		
Lent/borrowed (ever)	0.11	0.03	0.07	0.01	0.25	540
	(0.19)	(0.04)	(0.20)	(0.12)	(0.44)	
	[0.58]	[0.42]	[0.72]	[0.94]		
Hours spent with seed (30d)	0.35	-0.24	0.59	-12.27***	15.49	490
	(2.59)	(3.01)	(3.74)	(2.36)	(25.61)	
	[0.89]	[0.94]	[0.87]	[0.00]***		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the job-search partner lives in the city centre at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D11: Impacts on job search, by whether the seed works at endline

	(1) Treat. effect for Seed working at endline	(2) Treat. effect for non-Seed working at endline	(3) Treatment difference: (1)-(2)	(4) Seed working at endline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.03	-0.11	0.09	-0.00	0.34	540
	(0.05)	(0.07)	(0.09)	(0.07)	(0.48)	
	[0.59]	[0.10]	[0.33]	[0.98]		
Searched boards (7d)	-0.08*	-0.04	-0.04	0.06	0.17	540
	(0.04)	(0.04)	(0.06)	(0.05)	(0.38)	
	[0.05]*	[0.38]	[0.47]	[0.16]		
Searched in networks (7d)	-0.02	-0.03	0.00	0.04	0.34	540
	(0.06)	(0.07)	(0.09)	(0.07)	(0.47)	
	[0.72]	[0.71]	[0.96]	[0.57]		
Searched boards (1m)	-0.15*	-0.19*	0.04	-0.02	0.52	540
	(0.09)	(0.11)	(0.14)	(0.11)	(0.50)	
	[0.09]*	[0.09]*	[0.80]	[0.82]		
Searched in network (1m)	-0.04	-0.09	0.05	0.04	0.72	540
	(0.06)	(0.06)	(0.09)	(0.06)	(0.45)	
	[0.48]	[0.12]	[0.55]	[0.51]		
Searched at work sites (1m)	0.00	-0.02	0.02	0.02	0.15	540
	(0.04)	(0.05)	(0.06)	(0.04)	(0.36)	
	[0.92]	[0.75]	[0.75]	[0.61]		
Searched at agency (1m)	-0.03	-0.02	-0.01	-0.02	0.10	540
	(0.03)	(0.04)	(0.04)	(0.03)	(0.30)	
	[0.19]	[0.51]	[0.81]	[0.64]		
Searched at central locations (1m)	-0.03*	-0.00	-0.02*	0.03***	0.02	540
	(0.01)	(0.00)	(0.01)	(0.01)	(0.14)	
	[0.06]*	[0.31]	[0.09]*	[0.01]***		
Searched internet (1m)	0.03	0.02	0.00	-0.01	0.08	540
	(0.04)	(0.04)	(0.05)	(0.03)	(0.27)	
	[0.43]	[0.56]	[0.93]	[0.75]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the seed works at endline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D12: Impacts on social interaction, by whether the seed works at endline

	(1) Treat. effect for Seed working at endline	(2) Treat. effect for non-Seed working at endline	(3) Treatment difference: (1)-(2)	(4) Seed working at endline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	0.05	-0.03	0.08	-0.06	0.72	490
	(0.07)	(0.08)	(0.11)	(0.07)	(0.45)	
	[0.44]	[0.71]	[0.43]	[0.38]		
Travel to Addis (30d)	-0.02	-0.07	0.05	-0.05	0.25	540
	(0.05)	(0.07)	(0.09)	(0.07)	(0.43)	
	[0.70]	[0.33]	[0.58]	[0.52]		
Shared travel expenses (30d)	-0.06	-0.10	0.05	-0.05	0.24	540
	(0.06)	(0.07)	(0.09)	(0.07)	(0.42)	
	[0.32]	[0.15]	[0.60]	[0.44]		
Shared information (6m)	-0.05	0.00	-0.06	0.07	0.41	540
	(0.08)	(0.10)	(0.13)	(0.10)	(0.49)	
	[0.50]	[0.97]	[0.66]	[0.49]		
Lent/borrowed (ever)	-0.03	0.11	-0.14	-0.03	0.25	540
	(0.05)	(0.07)	(0.09)	(0.07)	(0.44)	
	[0.48]	[0.13]	[0.10]	[0.69]		
Hours spent with seed (30d)	1.72	-2.37	4.09	-2.26	15.49	490
	(3.95)	(4.43)	(5.95)	(4.07)	(25.61)	
	[0.66]	[0.59]	[0.49]	[0.58]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the seed works at endline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D13: Impacts on job search, by seed's baseline distance to centre

	(1) Treat. effect for Short distance to center at baseline	(2) Treat. effect for non-Short distance to center at baseline	(3) Treatment difference: (1)-(2)	(4) Short distance to center at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Searched job (7d)	-0.15**	0.03	-0.19**	0.08	0.34	540
	(0.06)	(0.06)	(0.09)	(0.06)	(0.48)	
	[0.01]**	[0.63]	[0.03]**	[0.22]		
Searched boards (7d)	-0.13**	-0.04	-0.09	0.08	0.17	540
	(0.05)	(0.04)	(0.07)	(0.06)	(0.38)	
	[0.02]**	[0.37]	[0.20]	[0.13]		
Searched in networks (7d)	-0.12*	0.10	-0.21**	0.07	0.34	540
	(0.06)	(0.08)	(0.10)	(0.07)	(0.47)	
	[0.07]*	[0.19]	[0.03]**	[0.34]		
Searched boards (1m)	-0.19**	-0.13	-0.05	0.02	0.52	540
	(0.09)	(0.11)	(0.14)	(0.11)	(0.50)	
	[0.05]**	[0.21]	[0.70]	[0.85]		
Searched in network (1m)	-0.16***	0.08	-0.24***	0.05	0.72	540
	(0.06)	(0.07)	(0.09)	(0.06)	(0.45)	
	[0.01]***	[0.24]	[0.01]***	[0.41]		
Searched at work sites (1m)	-0.03	0.05	-0.09	0.00	0.15	540
	(0.05)	(0.05)	(0.07)	(0.05)	(0.36)	
	[0.47]	[0.31]	[0.22]	[0.95]		
Searched at agency (1m)	-0.04	-0.06**	0.02	0.04	0.10	540
	(0.04)	(0.02)	(0.05)	(0.04)	(0.30)	
	[0.34]	[0.02]**	[0.67]	[0.28]		
Searched at central locations (1m)	-0.03*	-0.01	-0.02	0.01	0.02	540
	(0.02)	(0.02)	(0.02)	(0.02)	(0.14)	
	[0.07]*	[0.68]	[0.30]	[0.57]		
Searched internet (1m)	-0.00	0.05	-0.05	0.05	0.08	540
	(0.04)	(0.04)	(0.06)	(0.04)	(0.27)	
	[0.94]	[0.25]	[0.40]	[0.23]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on job search outcomes. We show effects by whether the seed's residence is located above or below the median distance from the city centre at baseline. We present ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

Table D14: Impacts on social interaction, by seed's baseline distance to centre

	(1) Treat. effect for Short distance to center at baseline	(2) Treat. effect for non-Short distance to center at baseline	(3) Treatment difference: (1)-(2)	(4) Short distance to center at baseline (control)	(5) Mean of control search partners (SD)	(6) Obs.
Spent time with seed (30d)	0.02	-0.00	0.02	0.03	0.72	490
	(0.08)	(0.08)	(0.11)	(0.08)	(0.45)	
	[0.84]	[1.00]	[0.88]	[0.70]		
Travel to Addis (30d)	-0.04	-0.05	0.01	0.02	0.25	540
	(0.07)	(0.07)	(0.10)	(0.07)	(0.43)	
	[0.52]	[0.44]	[0.93]	[0.81]		
Shared travel expenses (30d)	-0.08	-0.07	-0.01	0.02	0.24	540
	(0.07)	(0.07)	(0.10)	(0.07)	(0.42)	
	[0.22]	[0.32]	[0.88]	[0.79]		
Shared information (6m)	-0.03	-0.05	0.03	-0.00	0.41	540
	(0.09)	(0.09)	(0.13)	(0.09)	(0.49)	
	[0.75]	[0.57]	[0.84]	[0.98]		
Lent/borrowed (ever)	0.07	0.02	0.05	-0.06	0.25	540
	(0.05)	(0.07)	(0.09)	(0.06)	(0.44)	
	[0.19]	[0.75]	[0.60]	[0.36]		
Hours spent with seed (30d)	-3.03	-0.03	-3.00	5.97	15.49	490
	(4.50)	(3.99)	(6.04)	(4.25)	(25.61)	
	[0.50]	[0.99]	[0.62]	[0.16]		

Notes: This table shows, for job-search partners, the effect of having a treated seed on social interaction outcomes. We show effects by whether the seed's residence is located above or below the median distance from the city centre at baseline. ANCOVA estimates of job-search partner variable differences by seed treatment status. Outcome variables are listed on the left. Regressions control for the baseline outcome as well as variables that are imbalanced at baseline. Standard errors are in parentheses and are clustered by seed individual. Stars on the coefficient estimates and brackets reflect unadjusted p-values (in brackets). p-values are in brackets. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

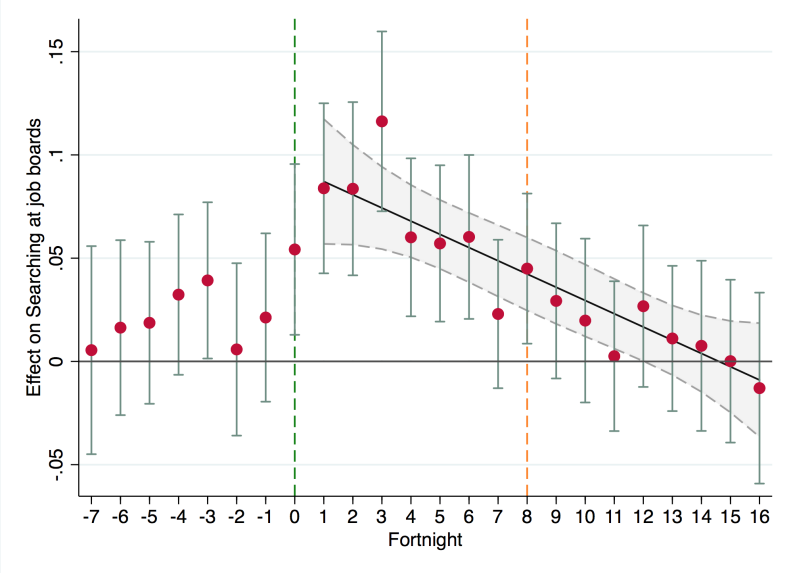
Table D15: Direct impacts on seeds moving within or out of Addis

	(1) Moved within Addis	(2) Moved out of Addis
Treatment effect	0.00674	0.000963
	(0.0455)	(0.0179)
Constant	0.0854**	0.0122
	(0.0316)	(0.0124)
N	158	158

Notes: OLS regression of a binary variable, indicating whether a seed individual moved, on a treatment indicator. Outcomes missing for seven seed individuals. Standard errors are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. level.

E Figures

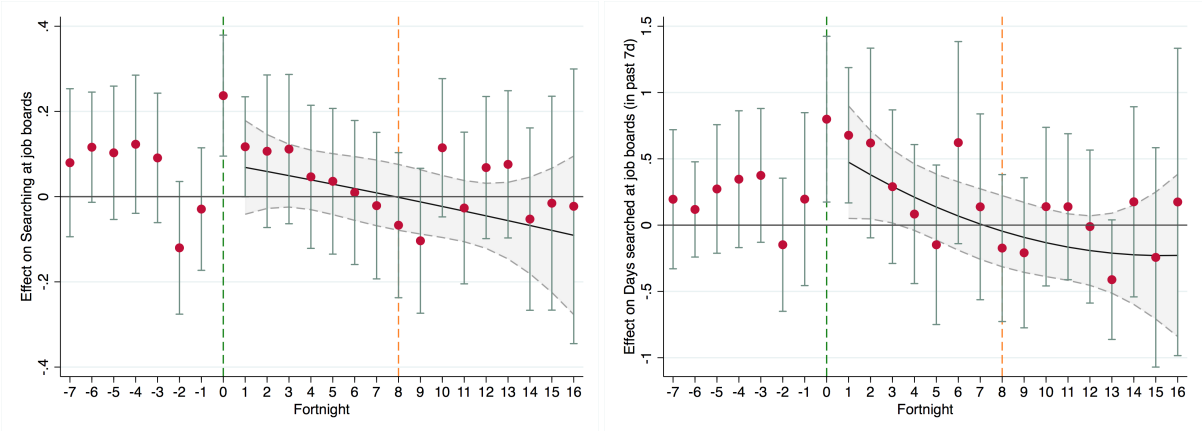
Figure A1: Impact trajectory of the transport treatment: impact on searching at the job boards



Notes: The green dotted line indicates the fortnight when the treatment begins. The orange dotted line indicates the week when the treatment ends. From Abebe et al. (2016).

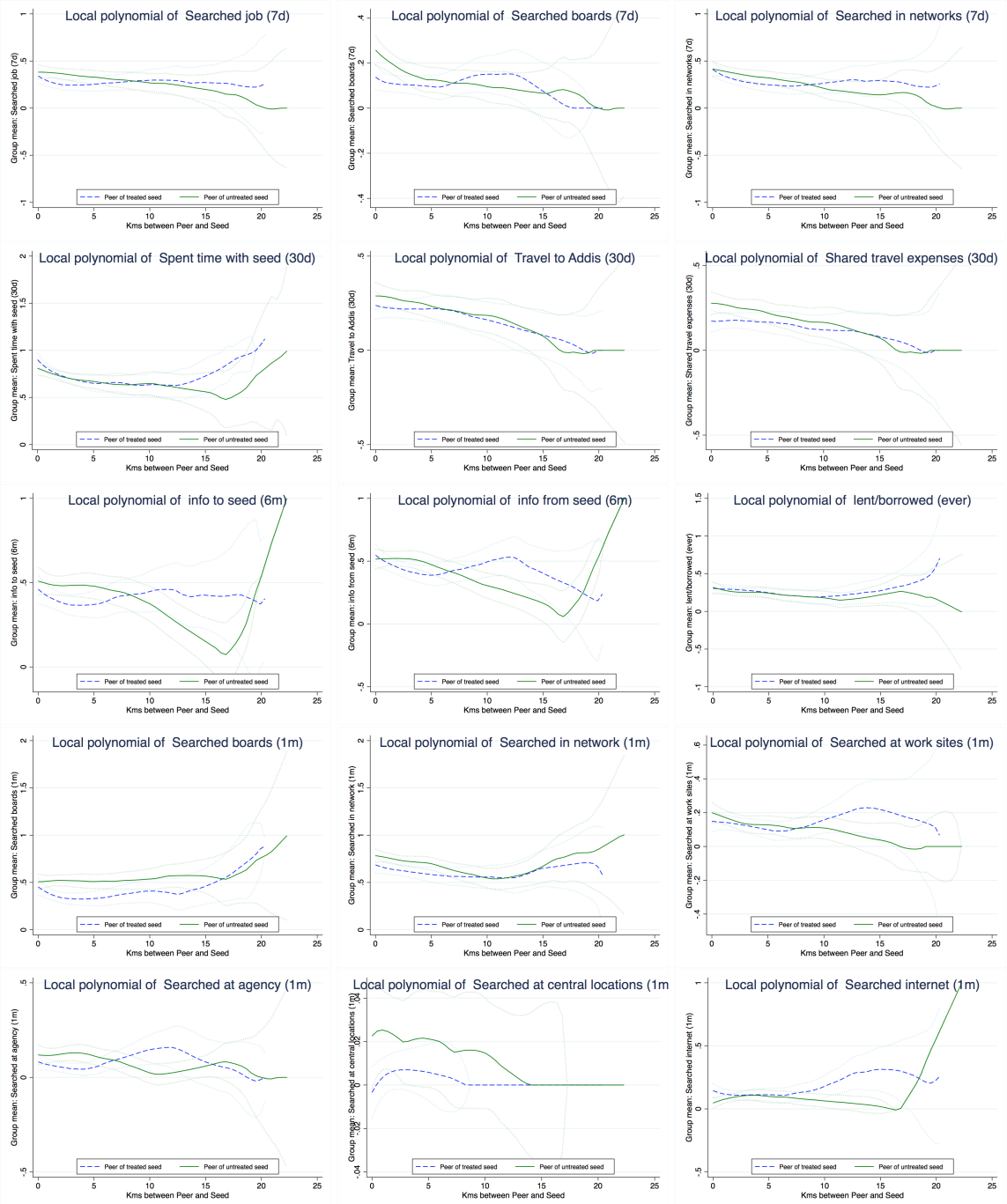
Figure A2: Impact trajectory of the transport treatment for the seed individuals

(a) Searching at the job boards (extensive margin) (b) Days searching at boards (intensive margin)



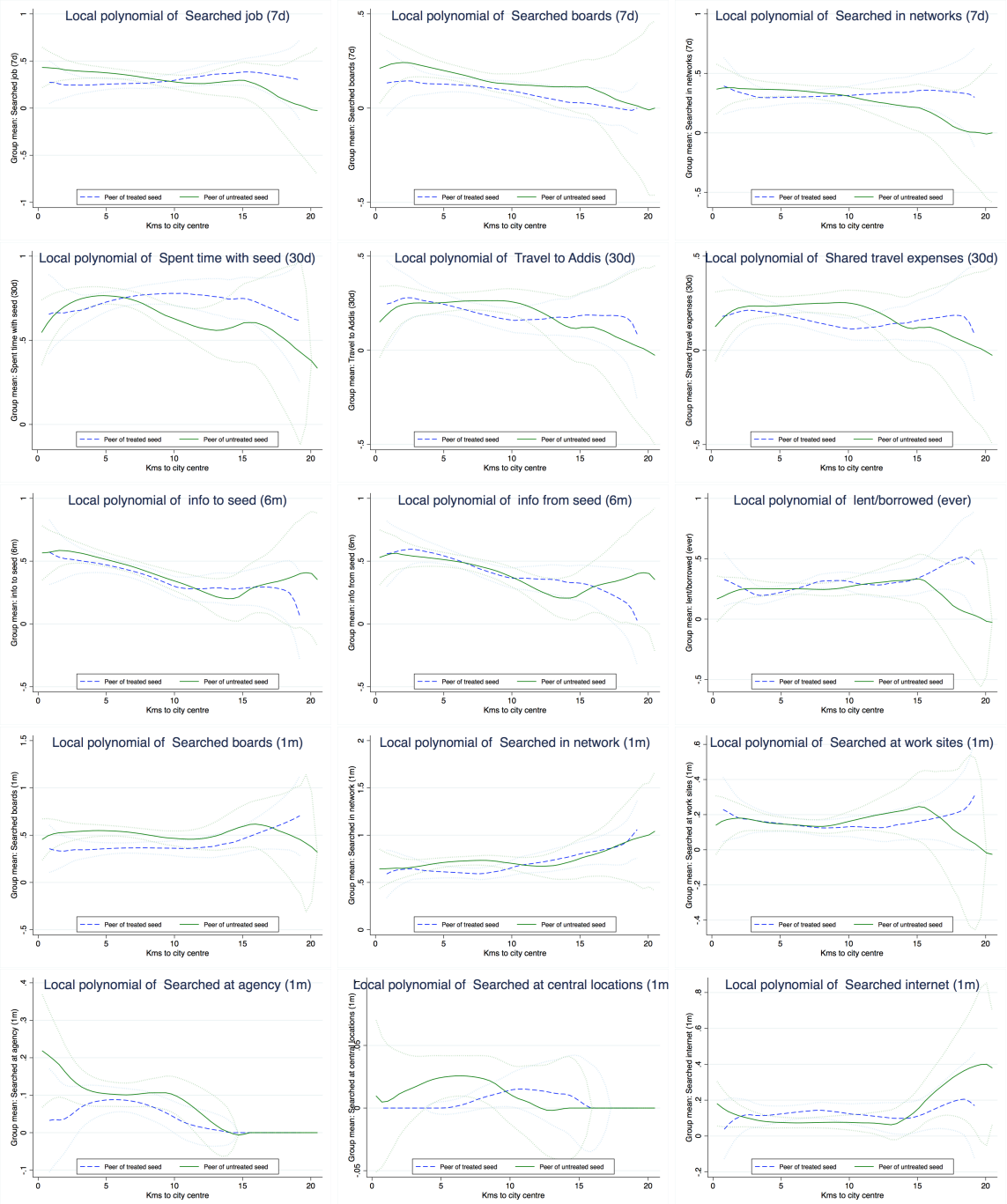
Notes: The green dotted line indicates the fortnight when the treatment begins. The orange dotted line indicates the week when the week when the treatment ends. Own calculations, using the 165 seed individuals. The results are very similar when using the complete control group sample ($N \simeq 800$).

Figure A3: Local polynomials of the intervention effects, by the distance between the job-search partner and the seed



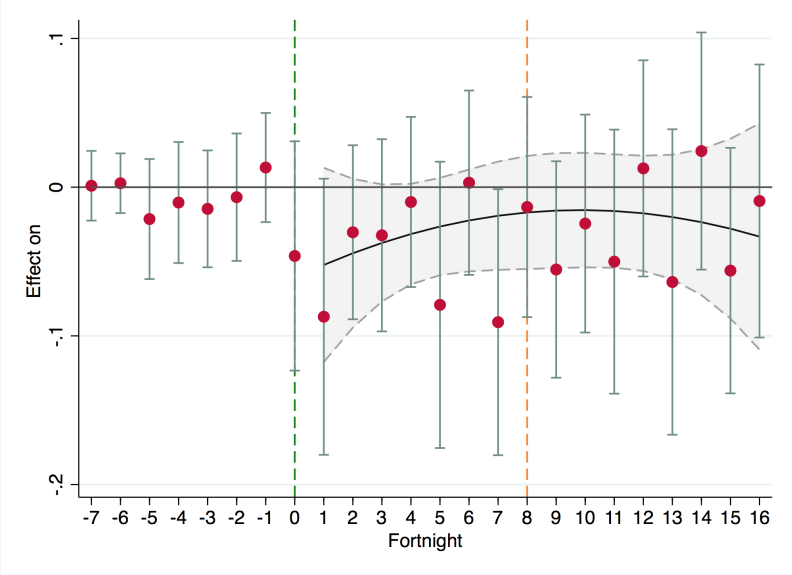
Notes: Kernel-weighted (epanechnikov) local polynomial regression of the variable on the y-axis on distance between job-search partner and seed, by seed treatment status. Thin lines display 95% confidence intervals.

Figure A4: Local polynomials of the intervention effects, by the distance between the job-search partner's residence and the city centre



Notes: Kernel-weighted (epanechnikov) local polynomial regression of the variable on the y-axis on distance between job-search partner residence and city centre, by seed treatment status. Thin lines display 95% confidence intervals.

Figure A5: Impact trajectory of the transport treatment for seeds: impact on whether seed talked to friends



Notes: The green dotted line indicates the fortnight when the treatment begins. The orange dotted line indicates the week when the treatment ends. Own calculations, using the 165 seed individuals. The results are very similar when using the complete control group sample ($N \simeq 800$).