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Reaching Marginalized Job Seekers Through Public Employment Services: Experimental Evidence from Ethiopia

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ABSTRACT

Reaching Marginalized Job Seekers Through Public Employment Services: Experimental Evidence from Ethiopia

*We present findings from an at-scale randomized trial of a government program providing public employment services in Addis Ababa, Ethiopia, with up-to-date vacancy information. Before the program, women with relatively less education searched more narrowly with worse labor market outcomes than the rest of our representative sample of relevant job seekers. These women also have lower direct intervention take-up than the rest of the sample. However, only these women significantly increase applications, receive more offers, shift from household enterprise work to wage employment, and experience higher earnings in response to the intervention. These employment impacts are larger than can be explained by vacancies directly curated through the intervention. Instead, these women adjust search behavior, expectations, and employment aspirations more broadly. Notably, offers come through friends and family networks, their modal baseline search method, underscoring the potential role of social networks in disseminating employment information to the most marginalized job seekers.

JEL Classification: J08, J16, J64, O15

Keywords: public employment services, labor market frictions, marginalized job seekers, randomized controlled trial (RCT)

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1 Introduction

Labor markets in low-income countries (LIC) tend to have high rates of self employment, low rates of wage employment, and workers frequently move between unemployment and marginal employment without climbing to better paid jobs (Bandiera, Elsayed, Smurra and Zipfel, 2022; Donovan, Lu and Schoellman, 2023). Increasingly, information frictions are recognized as a key factor preventing efficient allocation of workers to jobs in these contexts.[1] They can potentially exacerbate labor market segmentation and gaps in labor market outcomes, particularly for marginalized job seekers who may struggle to access relevant information or engage in costly search. Women, in particular, often face higher barriers to job search and labor force participation and may be differentially impacted by such information frictions.[2]

To address these frictions at scale, policymakers increasingly turn to online job platforms for their potential to reduce these search costs. However, these platforms can also remain inaccessible to more marginalized groups with limited access to mobile devices, difficulty navigating complex interfaces, and language barriers (Chakravorty, Bhatiya, Imbert, Lohnert, Panda and Rathelot, 2023).[3] Public Employment Services (PES) represent a potential alternative. They can provide personalized and localized support to job seekers while addressing access constraints. While PES have proven effective in supporting job seekers in high-income countries (Behaghel, Crépon and Gurgand, 2014), rigorous evidence from low-income contexts remains scarce.

This paper presents evidence from a citywide randomized control trial in Addis Ababa, Ethiopia, that evaluated a program enhancing public employment services with up-to-date vacancy information. This program was motivated by Ethiopia's urban labor markets showing stark disparities by gender and education. Youth unemployment stands at 26 percent overall, but reaches 33 percent for women versus 20 percent for men. Among those with only primary education, unemployment rates are nearly twice as high for women compared to men (Maaskant, 2023).[4] These patterns motivate our pre-registered focus on heterogeneous treatment effects by gender and education, using the completion of more than 12th grade education to distinguish between lower- and higher-skill respondents.[5]

[1] See, for example, Carranza and McKenzie (2024) and Donovan and Schoellman (2023) for recent reviews. Existing work in LICs has found that (i) job search is costly and spatially constrained (e.g. Abebe, Caria, Fafchamps, Falco, Franklin, Quinn and Shilpi, 2020; Franklin, 2018), (ii) firms and workers lack relevant information (e.g. Carranza, Garlick, Orkin and Rankin, 2022) and (iii) job seekers hold biased beliefs about job opportunities (e.g. Alfonsi, Namubiru and Spaziani, 2022; Kelley, Ksoll and Magruder, 2022).

[2] In contexts where referral-based hiring through social networks is prevalent (Carranza and McKenzie, 2024, Table 1), women can be significantly disadvantaged (Beaman, Keleher and Magruder, 2018). In recent work with a large online job search platform, Archibong, Benshaul-Tolonen, Annan, Okunogbe and Oliobi (2022) find that women appear to be differentially more impacted by skills mismatches and information frictions.

[3] Rigorous evidence on their effectiveness remains mixed (Afridi, Dhillon, Roy and Sangwan, 2023; Jones and Sen, 2022; Kelley et al., 2022; Wheeler, Garlick, Johnson, Shaw and Gargano, 2022).

[4] In our baseline data, women with less education experience significantly lower employment rates, substantially lower incomes, and distinctive job search patterns. These lower-skill women are less likely to use online platforms, conduct more geographically constrained searches, and disproportionately target low-skill positions.

[5] Our sample includes those with at least 10 years of education and we define lower-skill individuals as those with

The randomized intervention leveraged complementarities between existing job search channels, combining the accessibility of PES with the systematic organization of up-to-date data from less accessible information sources. The program exploits Addis Ababa's administrative structure, where public employment services are provided through centers located in each of the city's 113 districts (*woredas*). Each center serves the local population within its district.[6] Working with government partners, we randomly assigned half of all centers across Addis Ababa to receive improved vacancy information for a period of 14 weeks. A service provider collected, digitized, and categorized vacancies from multiple online and offline sources across the city, creating weekly booklets containing about 600 listings for distribution to treated offices. We complemented this with awareness campaigns to inform job seekers about the improved services.

We estimate impacts of this city-wide intervention using representative data on all relevant job seekers across Addis Ababa. Our data collection builds on a unique sampling frame that we constructed through an extensive household listing across Addis Ababa – addressing a key challenge in studying urban labor markets in low-income countries, where representative data on job seekers is often unavailable. In each city district, we randomly selected three enumeration areas and surveyed all households to identify 40,040 eligible job seekers (adults with at least 10 years of schooling willing to take up wage employment).[7] From this listing, we randomly sampled 3,530 individuals, stratified by enumeration area, gender, and education. We analyze data from three sources: the initial job seeker listing, an in-person baseline, and two waves of endline surveys during and immediately after the intervention period.

Lower-skill women in our sample are significantly less likely to be aware of the program than other job seekers in treated districts (72.3 percent vs. 61.6 percent). They are also less likely to use the booklets in treated PES centers directly, and almost no lower-skill women in our sample apply to jobs they saw in the booklets. However, our findings imply large impacts of the program on job search, employment, and earnings specifically for *only* these lower-skill women.

We find that lower-skill women in treated districts increase their number of applications submitted by more than 50 percent during the intervention period and also receive about 33 percent more offers for employment both during and immediately after the intervention, relative to lower-skill women in control districts. These positive effects on applications and offers accompany positive effects on downstream labor market outcomes. Treated lower-skill women turn away from subsistence entrepreneurship, reporting a 7.3 percentage point decrease in household business work, a 5.4 percentage point increase in paid wage employment (over a control mean of 37.1 percent), and a 22.1 percent increase in earned income at endline. These findings are robust to various alternative controls, adjustments for multiple hypothesis testing, controlling

less than or equal to 12 years of schooling, the median split of listed individuals ahead of our baseline.

[6] This spatial organization is particularly valuable given the existing evidence on spatial constraints to job search in the same context (Abebe, Caria, Fafchamps, Falco, Franklin and Quinn, 2020; Franklin, 2018).

[7] The choice to limit sampling to job seekers with at least 10 years of schooling stemmed from the expected match between the skills of these job seekers and the needs of formal sector employers in the local labor market.

for spillovers, tests for experimenter demand, and checks using randomization inference.

Our results on lower-skill women demonstrate unusually large impacts for an information intervention, particularly notable given that we work at-scale, embedded within existing government infrastructure.[8] While we cannot speak to longer-term effects, the magnitude of these short-term impacts provides the first rigorous evidence that public employment services can effectively serve job seekers in low-income country contexts. In particular, our findings show that PES can specifically serve job seekers that are otherwise often marginalized in other studied job programs (e.g. online job platforms).

The intervention's effectiveness for lower-skill women – who shift away from subsistence entrepreneurship into wage employment – is especially noteworthy, contributing to our understanding of constraints to female labor supply in low-income countries. Women typically face compounded barriers to labor market participation, including mobility constraints, limited networks, and significant household responsibilities (Delecourt and Fitzpatrick, 2021; Heath, 2017). While policymakers have increasingly advocated for digital solutions to address gender employment gaps (OECD, 2018; UN-Women, 2020), existing research on such interventions remains scarce and inconclusive (Afridi et al., 2023; Kelley et al., 2022; Wheeler et al., 2022). Our findings suggest that locally-embedded, community-based services may be particularly effective at reaching marginalized women who face barriers to accessing online platforms.

Beyond providing specific vacancy information, our intervention appears to shift lower-skill women's search behavior, aspirations, and expectations more generally. Lower-skill women search 0.5 more hours in 7 days before our survey, shifting their search focus from low- and medium-skill jobs to higher-skill job vacancies. They report a larger gap in reservation wage for temporary-to-permanent jobs, driven by a lower willingness to accept temporary employment. They are also more likely to expect a job offer, and expect higher earnings over the next four months.

Recent work suggests that limited labor force participation may stem from constrained aspirations (Ahmed, Mahmud, Said and Tirmazee, 2024; Orkin, Garlick, Mahmud, Sedlmayr, Haushofer and Dercon, 2023) and systematically biased beliefs about job opportunities (Alfonsi et al., 2022; Kelley et al., 2022). Our estimated impacts on the aspirations and expectations of lower-skill women at endline are in line with these previous findings. These findings suggest that lower-skill women are learning something about themselves and the labor market, rather than merely making use of the possibility of applying to a specific booklet listing. Indeed, the overall increase in jobs for lower-skill women across Addis Ababa, implied by our estimated treatment effect on sampled women's paid employment, is over six times the total number of op-

[8] While extensive evidence documents how information asymmetries impede efficient matching between workers and firms (Carranza et al., 2022; Carranza and McKenzie, 2024), we provide some of the first rigorous evidence on an at-scale, government-implemented solution in a low-income country. Our impacts on lower-skill women are larger than the majority of at scale labor market interventions within the literature. The intervention we evaluate is also highly cost effective particularly for reaching marginalized job seekers often left out of labor market programs of comparable cost.

portunities relevant to lower-skill women listed in the booklets over the course of the program.

These economically meaningful impacts of improved PES for lower-skill women do not, however, come from direct engagement with the PES. Instead, multiple pieces of evidence from both qualitative interviews and quantitative analysis suggest that personal networks played a key role in the impact of improved PES on lower-skill women search and labor market outcomes. In open-ended questions at endline, respondents who used the booklet mention sharing vacancy information with friends and family members. Although treated lower-skill women do not detectably shift search toward personal networks in response to the intervention at endline, they are 6.2 percentage points more likely to have received an offer through this channel (which is also the modal source of offers for the control group at endline). In fact, we find that the treatment effects on lower-skill women's job applications and, to a lesser extent, offers are fully mediated by their neighbors' awareness of the booklets, rather than lower-skill women's own awareness.[9] Taken together, our findings suggest that the program impacted lower-skill women not through direct awareness and their own take-up, but rather through a shift in the quality of labor market information provided through their existing search methods.

This paper proceeds as follows. Section 2 introduces our project background, including key details on the urban labor market in Addis Ababa and the details of the program. Section 3 presents the experimental design, including randomization, timeline, sampling, data collection, and estimation strategy. Section 4 presents our main findings. Section 5 explores mechanisms. Section 6 concludes.

2 Study Setting and Intervention Design

2.1 Job Search and Labor Market Outcomes in Urban Ethiopia

Ethiopia's urban labor markets show patterns common to many low-income country labor markets. Data from the Government's Urban Employment and Unemployment Survey (UEUS) shows youth unemployment at 26 percent in 2020, with a significant increase since 2016 (Ethiopian Statistical Service, 2020; Maaskant, 2023). Women face persistently higher barriers: urban youth unemployment reaches 33 percent for women versus 20 percent for men, with young women three times more likely to be inactive than young men. These gender gaps intersect with education levels, as 80 percent of unemployed youth between 2006 and 2020 had not completed secondary education. Among those with only primary education, unemployment rates are nearly twice as high for women (39 percent) compared to men (21 percent).

Our baseline survey data confirms significant gaps across these dimensions (Table 1). Lower-skill women (LSW) lag behind other job seekers: their paid employment rate (34 vs. 56 percent), monthly income (1,082 versus 3,508 Birr), and job search activity (0.9 vs. 1.6 hours searched in

[9] We are defining neighbors through close proximity of up to 0.5 kilometers away from the GPS household location of the lower-skill female job seeker.

the past 7 days). Their search patterns are distinctive: They are significantly less likely to use offline and online media (7 versus vs. 27 percent) and predominantly target low- and medium-skill positions (22 versus 17 percent). When conducting in-person searches, LSW operate within a smaller geographical radius, visiting fewer neighborhoods and traveling shorter distances. While personal networks are the most common search method across all groups, LSW rely more exclusively on this channel. These stark contrasts motivated our analytical focus on comparing LSW with the rest of the sample (RoS).

This reliance on networks exists within a job search environment with fragmented information channels. Low-skill job vacancies are primarily advertised on centrally-located job boards, requiring costly travel (Abebe, Caria, Fafchamps, Falco, Franklin and Quinn, 2020). While online platforms are growing in popularity, they primarily serve higher-skill job seekers. In contrast, public employment service centers are distributed throughout residential neighborhoods, making them geographically accessible. However, these centers are widely perceived as ineffective due to outdated information.[10]

2.2 Intervention Design and Implementation

In 2019, the Ethiopian government launched a reform of active labor market policies focusing on improved employment and intermediation services through approximately 1,700 government service centers across the country. The goal of this reform was to reduce information frictions by bringing vacancy data to government offices. We worked closely with federal and local government partners and a private online jobs platform to design, implement, and evaluate a pilot program in Addis Ababa to realize this goal.

The program processed, collated, and aggregated vacancy postings from existing offline and online channels. This information was curated into weekly booklets that were provided to government public employment service centers in randomly selected districts throughout the city. In Addis Ababa's administrative structure, each district (*woreda*) has one PES center, also known as "one-stop service center" (OSSC), and residents are required to use the center in their district of residence.[11]

Prior to our intervention, PES centers faced significant limitations in their ability to serve job seekers effectively. While these centers offered free, in-person services with caseworker support in accessible neighborhood locations, they lacked reliable, up-to-date information on job vacancies. The centers had no prior systematic connection to vacancy data flows from either online or offline sources and no digital case management system. Job information was sporadic, often

[10] We elicited detailed beliefs about the returns to job search through various channels. We asked respondents about their expected number of job offers in the next four months if they only searched for work in one channel. Among respondents living in control areas, the public employment services are seen as the least efficient, generating on average 1.5 offers in expectation. Online job search is seen as more effective, generating 2.95 offers in expectation. Costly private intermediation agencies are seen as most effective, generating 3.81 offers in expectation.

[11] See Appendix Figure A1a for a map.

outdated, and largely dependent on employers directly contacting specific PES centers.

The program explicitly aimed to addresses key limitations of, and leverage complementarities between, existing job search methods: Public employment offices offered localized, free, in-person services with caseworker support, but were viewed as ineffective due to outdated and incomplete vacancy information. In contrast, online jobs platforms provided systematic organization and up-to-date vacancy data but remained inaccessible to many marginalized job seekers.

Between early November 2022 and early February 2023, a dedicated service provider collected vacancy data daily from multiple online job websites, physical job boards, newspapers, brokers, and other sources across the city. These vacancies were digitized, de-duplicated, and manually coded by occupation and skill level, generating an average of 596 listings per week, of which 15.3 percent were low- and medium-skill positions.[12] Our research team manually reviewed the listings every week. The processed vacancies were added to our partner's online jobs platform and made available through their existing online channels.

In treated districts, the PES office received weekly printed booklets organizing all current vacancies, which were available for job seeker consultation during opening hours. The booklet was delivered every Thursday morning to ensure that the PES office and their staff could plan accordingly.[13] Booklets were professionally typeset, illustrated, and branded with the logos of the Ethiopian federal government, the online job search platform, and the University of Oxford. They also included instructions for their use and contact information of the government and the online job search platform. To ensure the availability of the booklets, our team worked with a separate survey firm to conduct unannounced audits in randomly selected PES offices.[14] To ensure that job seekers residing in treated areas were aware of the booklets, we conducted an awareness campaign in November 2022. The campaign involved posting banners across treated areas, including information on the location of the local PES office and an explanation of the booklet contents.

On average, each weekly booklet contained approximately 600 vacancies, about 15 percent of which we classified as low- or medium-skilled jobs. Following norms in this context, these low- and medium-skill jobs were further divided into two categories: sales and services and manufacturing and construction. Vacancies were roughly split evenly between these two categories. A vacancy could appear in the booklet more than once, provided its application deadline met the inclusion criterion of being at least two days after booklet delivery. Across the 14 weeks of the

[12] We followed the International Standard Classification of Occupations (ISCO) from the International Labor Organization (ILO) in coding the vacancies.

[13] The choice of physical booklets rather than electronic delivery was informed by our qualitative research, which identified potential constraints in both infrastructural capacity at employment centers and digital literacy among lower-skill job seekers. Given the widespread use of print media for job search in this context, physical booklets represented the most appropriate delivery mechanism. Figure A4 shows examples of the booklet structure and content, including vacancies in sales and services classified as low- or medium-skilled.

[14] 53 visits were conducted during the intervention period, of which 46 visits met our criteria for sufficient availability of the booklet. Among the 7 visits with insufficient availability, 4 were due to the booklet not being available and 3 were due to the PES center being closed.

intervention, the booklets featured 2,669 unique vacancies, of which we classified 1,156, or about 43 percent, as low- or medium-skilled. Typical low- and medium-skill vacancies included positions in supermarkets, store keeping, clerical roles, and jobs in the hotel and restaurant sector. Table A2 summarizes key statistics on the booklet contents.

In total, 13 different booklets were made available during the 14-week intervention period. The first booklet was delivered to local public employment centers on November 2, 2022, and the final booklet on February 8, 2023. The booklet delivery was paused for the week of January 18, 2023 due to the Ethiopian Epiphany holiday (*Timkat*). Data from our random implementation audits suggests that the booklets were actively used. During our audit visits, PES center staff were asked to estimate the number of job seekers in the previous seven days and the number of booklet users. At the median, 50 job seekers visit a PES center per week, with 15 of them actively using the booklet.

3 Experimental Design

Our study employs a cluster-randomized design at the district level across Addis Ababa combined with a bespoke job seeker census and stratified sampling protocol designed to provide representative estimates of the community-level intervention on individual job seekers by our pre-specified gender and education categories. Figure 1 illustrates the experimental design in a Consolidated Standards of Reporting Trials (CONSORT) chart.

3.1 Randomization

We randomize all of Addis Ababa's 113 districts (*woredas*) with PES offices into 57 treatment and a 56 control districts, stratified by the 11 higher-level administrative divisions ("subcities") of Addis Ababa.[15] This randomization exploits Addis Ababa's administrative structure, where public employment services are provided through centers located in each district. Each PES center – also known as a "one-stop service center" (OSSC) – serves only the local population within its district, and residents are required to use the center in their district of residence.

In treated districts, the PES offices were provided with improved services through the weekly vacancy booklet described in subsection 2.2. Residents in treated districts were also informed about the improved services with an awareness campaign that involved flyers in centrally located locations in the district (e.g. bus stops, community centers). In control districts, the existing PES infrastructure continued to operate as before.[16]

[15] There are 116 districts in total. We work in 113 out of 116, excluding three districts that did not have a functioning PES office at the time of data collection.

[16] In addition to this intervention, a second independent individual-level intervention was fielded, focusing on providing information about the labor market. That intervention was randomized orthogonally to the district-level PES intervention and is not part of this paper. We control for this individual-level intervention throughout our analysis.

3.2 Construction of Sampling Frame

Our data collection and analysis draws on a representative sample of job seekers in Addis Ababa with at least 10 years of education. We define "job seekers" as individuals willing and available to take up employment if offered, regardless of whether they are actively searching.[17]

In the absence of an existing job seeker census or suitable administrative data in Ethiopia, we constructed our own sampling frame through door-to-door surveying in randomly selected enumeration areas (EAs) across Addis Ababa's districts.[18] From 605 EAs provided by the Ethiopian Central Statistical Agency, we randomly selected 375 EAs, ensuring a minimum of three EAs per district (Appendix Figure A1b). The listing survey was conducted between May and July 2022. Our stratification by geography, gender, and education level (a binary dummy for more than 12 years of education) ensures representativeness across Addis Ababa.

Enumerators visited every household within the selected enumeration areas.[19] Respondents had to be members of the household (e.g., not housemaids or gatekeepers) and at least 18 years old. In 35 percent of cases, the household head was interviewed, while in 21 percent it was their spouse, and in 25 percent one of their adult children. Overall, 56 percents of respondents were female.[20]

Based on this listing, we defined an eligible job seeker for our intervention as anyone who is willing to take up wage employment in Addis Ababa within the next three or six months.[21] This process identified a sampling frame of 40,040 eligible job seekers. From this pool, we randomly sampled 3,530 individuals for our study, stratified by city divisions (*subcity*), city district, enumeration area, gender, and completion of more than 12th grade education.

3.3 Data

We present three waves of data on our experimental sample: (i) job seeker listing data (May to July 2022), (ii) baseline data prior to intervention implementation (August to October 2022), and (iii) endline data collected in two waves during and after the intervention (March to June 2023).[22] Appendix Figure A2 provides a timeline of data collection and intervention delivery.

[17] Consequently, not all individuals in our sample were actively searching for employment at the baseline survey. This is in line with other recent papers in the same context (Abebe, Caria, Fafchamps, Falco, Franklin and Quinn, 2020).

[18] Enumeration areas are clearly delineated, non-overlapping geographical units comprising 150 to 200 housing units. See also Abebe, Caria, Fafchamps, Falco, Franklin, Quinn and Shilpi (2020).

[19] To ensure comprehensive coverage, enumerators were required to make at least three visits to each household at six-hour intervals, including at least one visit on a different day, before a household could be classified as unreachable.

[20] Enumerators visited households on weekdays as well as on weekends and holidays to improve response rates. Overall, 19.1 percent of households could not be reached within three attempts. Refusal rates were relatively low, at 3.5 percent.

[21] In our listing survey, this was elicited with two separate questions to give us flexibility in sampling.

[22] We also collected phone follow-up surveys between baseline and endline, but we omit them here for clarity.

Listing The listing data serves dual purposes. Beyond constructing our sample of job seekers, it provides information on the overall number of job seekers in a given geographic area. Since enumeration areas comprise approximately 150 to 200 housing units, they can serve as a proxy for a job seeker's immediate neighbors. For each enumeration area resident that is reached by our listing, we document skill level and job search behavior, including active search within the past 30 days and willingness to accept employment within 3 to 6 months. These data also enable analysis of household composition, particularly regarding the proportion of working-age household members engaged in job search. In total, the listing reached 103,227 individuals across the 375 sampled EAs.

Baseline The baseline was collected between end of August 2022 and late October 2022. The baseline survey data collection was conducted face-to-face with 3,530 individuals and captures a plethora of characteristics of job seekers.

We conducted face-to-face baseline surveys with 3,530 individual job seekers between August and October 2022. The baseline instrument collected data on household characteristics, schooling, cognitive and non-cognitive skills, risk and time preference, decision making, activities, employment and time use, job search behavior, job search expectations and beliefs, plans to start a business, and various income sources. Appendix Table A1 summarizes our baseline sample.

Endline We conducted endline surveys six months after the beginning of intervention implementation, following the same format as the baseline. The endline achieved an 85 percent response rate, reaching 3,003 participants from the original sample. To minimize attrition, we conducted phone surveys with a reduced questionnaire for participants who had relocated from Addis Ababa.

The endline data collection was randomly stratified into an early (March to April 2023) and a late (April to June 2023) wave, allowing us to examine how treatment effects evolved over time. With the final vacancy booklet delivered to PES offices on February 8, 2023, the early wave captures effects while job listings remained relevant, while the late wave measures impacts after the intervention had concluded. The early wave included 1,507 respondents (50.2 percent of endline sample) while the late wave included 1,496 respondents (49.8 percent).[23]

The endline survey incorporated additional modules to assess treatment uptake, including questions about respondents' proximity to employment centers, perceived returns to different search methods, and open-ended questions about booklet usage for those who accessed them.

[23]It is worth noting that the early endline period coincided with Adwa Victory Day commemorations and related protests, which in 2023 generated significant tensions in Addis Ababa and may have temporarily disrupted normal job search activities.

3.4 Balance and Attrition

Overall, baseline observables appear balanced on treatment assignment for lower-skill women (Table B1), for the rest of sample (Table B2), as well as for the overall pooled sample (Table B3). For example, among the twenty variables tested for balance, we only find one significant difference between treatment and control for lower-skill women, consistent with what would be expected by chance. Observable characteristics also appear balanced on treatment assignment while accounting for attrition at endline. [24]

The endline response rate is high, with 85 percent of the original sample participating.[25] For lower-skill women, we observe some small, weakly significant differential attrition. For instance, a 1-percentage-point difference in treatment status is detected between the full baseline sample and the experimental sample (those who completed the endline survey). However, this difference is practically negligible. For the larger group of job seekers excluding lower-skill women, no differential attrition is observed.[26]

3.5 Empirical Strategy

To estimate the effect of the district-level PES intervention on individual job seeker outcomes, we use the following OLS regression specification:

$$y_{iw} = \alpha + \beta_1 Treatment_w + X'_{iw}\delta + \varepsilon_{iw} \quad (1)$$

where y_{iw} is the outcome of interest for job seeker i residing in district w. $Treatment_w$ indicates whether district w was randomly assigned to receive vacancy booklets in the local district PES office. X_{iw} is a vector of control variables, which includes (1) strata fixed effects, (2) controls for relevant imbalanced baseline covariates identified in our balance tests, (3) additional controls selected using the post-double selection method of Belloni, Chernozhukov and Hansen (2014), (4) an indicator for an orthogonal information intervention for another study, and (5) the baseline value of the outcome variable when available. We cluster standard errors at the district level, the unit of randomization. We adjust our estimation using sampling weights to reflect the stratified sampling design and estimate the average treatment effect for the representative sample of Addis Ababa job seekers with at least 10 years of education. For our main outcomes of interest, we focus on endline measures pooling the early and the late survey round. However, to better understand the mechanism at play, we also exploit the random variation in timing of the two endline survey rounds.

[24] These results are reported in Table B4 for lower-skill women, Table B5 for the rest of the sample, and Table B6 for the pooled sample.

[25] Table B7,Table B8, and Table B9 report tests for potential differential attrition across our three analysis sample groups - lower-skill women, the rest of the sample, and the pooled sample, respectively.

[26] See Figure A3 for the visual depiction of the number of eligible job seekers listed, sampled, and not attrited at endline.

As pre-registered, given the disparities documented at baseline, we analyze heterogeneous treatment effects by gender and education level, using high school completion (12 years of education) as the cutoff between lower- and higher-skill individuals. This analysis focuses particularly on lower-skill women (LSW), who showed the most disadvantaged baseline outcomes, compared to the rest of the sample (RoS). The heterogeneous treatment effects are estimated by interacting the treatment indicator with group indicators.

4 Results

4.1 Intervention Take-Up

Job seekers in treated districts generally report being aware of the PES program, though awareness is significantly lower for lower-skill women (61.6 percent among lower-skill women vs. 72.3 percent of the rest of sample, Table 2).[27] Actual usage of the booklet remains modest, again with lower usage reported by lower-skill women (10 percent of lower-skill women reporting use vs. 15 percent of the rest of the sample). Most strikingly, applications to vacancies listed in the booklet are rare across the entire sample and appear to be virtually absent among lower-skill women.[28]

4.2 Job Search and Labor Market Outcomes

Lower-skill women in treated districts report improved job search and labor market outcomes, relative to lower-skill women in control districts. The rest of the sample are not detectably impacted on such outcomes.[29]

Job Search Outcomes The intervention substantially improved job search outcomes exclusively for lower-skill women, increased their job applications by more than 50 percent and increased job offers received by about 33 percent (Table 3, Panel A, columns 1 and 2). While the increase in applications occurred only during the intervention period when the booklet was available, the increase in job offers persisted beyond the intervention's end (Panel B). Crucially, the rest of the sample showed no significant changes in either applications or offers. For offers, the difference in treatment effects between groups is statistically significant. These results are particularly meaningful given that lower-skill women lagged considerably behind other job seekers at baseline on these outcomes; the intervention enabled this group to reduce the gap in both applications submitted and offers received.

[27] Table D1 reports the pooled estimates for program awareness and take-up.

[28] The extremely low control group mean of approximately 5 percent for awareness and just 1 percent for usage further suggests the absence of information spillovers from treated to untreated districts.

[29] Table D2 reports the pooled estimates for job search outcomes and labor market outcomes.

Labor Market Outcomes Lower-skill women in treated districts report a statistically significant 22 percent increase in their total earned income over the past 30 days (Table 3, Panel A, column 5). They report a statistically significant increase in employment for pay (5.4 percentage points over a control mean of 37.1 percent, column 3) and a decrease in household business work (a 7.3 percentage point reduction over a control mean of 16.8 percent).[30] Echoing the lack of detectable impacts for their job search outcome, we also find no detectable impacts on labor market outcomes for job seekers in the rest of our sample.

Employment and earnings gains for lower-skill women materialized primarily after the intervention ended, while their reduction in household business engagement occurred both during and after the intervention period (Panel B). This timing reflects the natural job search sequence: applications submitted during the intervention translate into offers received during and after, with employment outcomes following subsequently. The rest of the sample showed no significant treatment effects in either period (Table C1).

4.3 Robustness and Discussion of Main Findings

Our main results remain robust across alternative specifications and inference procedures.

Randomization Inference We employ randomization inference to test whether our treatment effects could have arisen by chance under alternative treatment assignments. This approach provides exact p-values without relying on large-sample approximations or distributional assumptions – particularly valuable given the heterogeneous nature of the treatment effects. We generate 1,000 alternative random assignments, reporting results for all main outcomes reported in Table 3. The estimated coefficients for lower-skill women fall in the extreme tail of the distribution, confirming statistical significance (Figure B1). The estimated treatment effects for the rest of the sample remain close to zero (Figure B2).

Controls Without Post-Double Selection Our main findings remain significant when we exclude the post-double selection Lasso procedure and use only pre-specified controls and controls for variables that appear imbalanced at baseline (Table B10). This test addresses concerns that our results might be sensitive to the data-driven variable selection inherent in the Lasso estimator (Belloni et al., 2014).

Testing for Spillovers In our context, direct spillovers from treated to untreated clusters are unlikely since job seekers must use the PES office in their district. We still rigorously test for spillovers using our main treatment effects estimating equation with the addition of an indi-

[30] Employment for pay includes both wage employment and temporary/casual jobs, although the results are primarily driven by an increase in wage employment. Notably, much of this increase in wage employment stems from public sector jobs.

cator for whether the nearest PES in a neighboring district (within the same subcity) received treatment.[31] Exploiting this random variation in treatment proximity, we find no evidence of spillover effects from treated to untreated clusters in our study.[32] Importantly, the inclusion of the spillover indicator leaves our main results unchanged for both lower-skill women and the rest of the sample (Table B17 and Table B18).

Adjusting for Multiple Hypothesis Testing Our primary findings remain robust when adjusting p-values to control the False Discovery Rate using the Benjamini and Hochberg (1995) procedure (Table B11).

Experimenter Demand Effects We explore the potential for experimenter demand effects, the concern that our findings could be driven by changes in perceived reporting expectations in treated districts rather than actual experienced changes, given that our main outcomes rely on survey data. We leverage a concurrent intervention for another study that involved randomly calling job seekers individually to provide them with labor market information. This orthogonal intervention included a placebo group receiving generic information about job search and the PES, alongside a control group receiving no calls. If experimenter demand effects were meaningfully present, impacts of the booklet intervention should be more pronounced among those receiving placebo calls relative to those receiving no calls at all. However, we find that our treatment effects are, if anything, instead driven by job seekers who received no calls (Table B12).

Magnitude, Scalability, and Cost Effectiveness Our at-scale evaluation demonstrates that information provision through government infrastructure can achieve substantial impacts for marginalized populations at very low costs. While we do not find impacts in our pooled sample of representative job seekers across Addis Ababa, the intervention increased monthly earnings for lower-skill women by 22.1 percent (95% CI: [2.2%, 42.0%]) – nearly three times the average earnings impact of 7.8 percent reported across labor market interventions on more accessible populations reviewed by Carranza and McKenzie (2024) (Figure C2). Similarly, we find an increase in paid employment for lower-skill women of 5.4 percent (95% CI: -0.07, 11.5]), compared to 0.64 percent across recent evaluations (Figure C3).[33]

The evaluated intervention is fiscally and logistically scalable. We estimate the total cost of

[31] This indirect treatment indicator is effectively randomized. See Table B13, Table B14, Table B15 and Table B16 for balance.

[32] We note that this method does not test for spillovers within a cluster from one job seeker to another. However, spillovers within a cluster would not yield bias in our estimated average impacts, which are derived from comparisons between job seekers across districts.

[33] It is worth clarifying that, although we do not detect any impacts on outcomes for the rest of our sample, we are not powered to fully rule out negative impacts on the rest of our sample that may result from within cluster spillover mechanisms arising from job scarcity. Any significant impacts on lower-skill women should thus be interpreted specifically as impacts on the employment of this marginalized group, rather than an overall impact on employment within the community.

the intervention for three months to be 1.7 million Ethiopian birr (approximately USD 33,072), primarily for printing and design (Appendix A.1). Since the largest share of costs are variable, rolling out the intervention across the entire city would cost less than double this amount – approximately USD 250,000 per year.[34] Our implementation across half of Addis Ababa demonstrates the intervention's scalability through existing government infrastructure and delivery mechanisms.

The evaluated program is also highly cost effective in producing impacts for the most marginalized job seekers. Our intervention targeted an estimated 321,127 job seekers in treated districts.[35] However, as a community-level information intervention, our cost-effectiveness calculations differ fundamentally from targeted individual programs, and the average cost per targeted beneficiary depends on the underlying job seeker population. Considering our pooled sample, the intervention cost USD 0.11 per job seeker reached, with no detectable average earnings impact – yielding a null cost-benefit ratio for the general population. However, when we focus on the total number of targeted lower-skill women job seekers, average costs increase to USD 0.40.[36] This compares favorably to programs reviewed by Carranza and McKenzie (2024), such as Colombia's vocational training (19.6 percent earnings increase at USD 812 per participant) or Côte d'Ivoire's youth program (16.9 percent at USD 1,109 per participant). Notably, our intervention achieves comparable or larger impacts among a more marginalized population at less than one percent of the per-beneficiary cost.

5 Exploration of Mechanisms

The employment effects we observe for lower-skill women cannot be explained by direct placement into booklet-advertised positions. The booklet contained approximately 650 jobs suitable for lower-skill women over the 14-week intervention period – roughly 50 vacancies per week in low- and medium-skill sales and service positions (Table A2). However, our treatment effects imply approximately 4,179 new employment instances for lower-skill women across treated districts of Addis Ababa, far exceeding the available booklet positions.[37]

[34] Assuming that the intervention costs for three months and half of Addis Ababa scales slightly less than linearly to an entire year and the entire city. Notably, the total costs represents a fraction of alternative approaches: a concurrent World Bank supported youth employment program in urban Ethiopia budgeted 7 million USD over five years to reach 18,000 job seekers with improved labor market intermediation (World Bank, 2020).

[35] In our listing survey, we sampled a total of 40,010 eligible job seekers. Out of these, 20,231 were in treated districts. Given the effective sampling rate of 6.3 percent of our listing, we estimate that the total number of job seekers in treated districts was 321,127.

[36] At listing, we have a total of 5,266 LSW job seekers in treated woredas. As above, given our effective sampling rate of 6.3 percent, we estimate the total number of LSW job seekers in treated districts to be 83,587. Implied cost per job seeker in the rest of our sample is USD 0.143.

[37] In our listing survey, we find 5,266 LSW in our sampled enumeration areas. With an effective sampling rate of of 6.3 percent (332 randomly drawn enumeration areas from the universe of 5,267 enumeration areas across Addis Ababa), we estimate approximately 83,587 LSW in all treated areas. Our estimated effect of 5 new employment opportunities per 100 LSW thus implies 4,179 new employment opportunities across all treated districts.

This discrepancy suggests that the intervention's impact likely operated through broader labor market learning rather than direct job matching. Qualitative evidence supports this interpretation: treated women report gaining insights about salary ranges, skill requirements, and the structure of labor demand across occupations.[38]

5.1 Job Search Behavior, Aspirations, and Expectations

We formally test whether exposure to this information shift job search behavior and aspirations (Table 4).[39] The intervention's treatment effects on these outcomes are concentrated entirely among lower-skill women. These women increased their job search intensity by approximately 0.5 hours over the past 7 days, nearly doubling from the control mean (Column 1). They also direct their search toward higher-skill positions, with the probability of targeting high-skill jobs increasing by 3.3 percentage points—nearly doubling from the control mean of 3.6 percent (Column 2).

This change in targeted search corresponds to an increase aspirations, proxied by reservation wages. The gap in reservation wages between permanent vs. temporary positions for lower-skill women in treated districts significantly increases by 724 Ethiopian birr (Column 4), directionally driven by a (non-significant) increase in reservation wages for temporary work (Column 6). Finally, we document increased expectations for offer arrivals and offered salaries in the next four months. Specifically, we estimate a 6.2 percentage point increase in expecting any offer and a 17.3 percent unconditional increase in the expected salary offered for lower-skill women in treated areas.

In contrast, the intervention had no detectable effects on the rest of the sample across any of these dimensions. The differences in treatment effects between lower-skill women and other job seekers are statistically significant for search intensity, targeted search toward high-skill jobs, as well as offer and salary expectations.

5.2 Community Networks as Potential Impact Channel

Offers Come Through Personal Networks Analysis of lower-skill women's job search methods and offer channels suggests that lower-skill women's community members play a key role in disseminating relevant vacancy information. Although we do not observe a shift toward greater reliance on personal networks for job searching, it is noteworthy that personal networks were already the primary method of job search at baseline (Table 5). Additionally, the intervention significantly increases the likelihood of lower-skill women receiving job offers through family

[38] Examples include "[The booklet] helps me learn about different types of jobs and the variety of opportunities available"; "When I check the booklet and see many job vacancies in my field, it gives me hope and helps me feel that I have a variety of job opportunities"; "It helped me see different job types [and] helped evaluate what job types I could work in"; "[I could gain] accurate information about the qualifications required for a position."

[39] Table D3 provides treatment effect estimates on search behaviors, reservation wages, and expectations for the pooled sample.

and friends, with a 6.2 percentage point increase from a control group mean of 7.1 percent. These findings are consistent with translations of recorded responses to open-ended questions at endline mentioning sharing booklet information and insights with friends and family.

Neighbors' Program Awareness Mediates Impacts We compute the average controlled direct effect (ACDE) of the intervention fixing the potential mediators of interest — that is, the effect that the intervention would have had on the lower-skill women's job applications and job offer outcomes if the behavior captured by the mediator had not happened.[40] The ACDE captures the impact of an intervention when a particular mediator is not allowed to respond to the treatment. We can thus assess the importance of a given mediator by comparing the original treatment effect to the ACDE. We show these comparisons in the two panels of Figure 2.

The figure shows the original treatment effect and various mediated treatment effects on two different outcomes of interest: the lower-skill women's number of job applications (panel a) and number of job offers received (panel b). The top coefficient in both panels displays the original, unmediated treatment effects for reference (dashed line). Below that, both panels show the effect of the booklet treatment on the outcomes when the respondent's own awareness of the vacancy booklet is fixed as a mediator. For both outcomes, the ACDE fixing the respondent's own booklet awareness remains very similar. This means that the effect that the booklet treatment would have had on the lower-skill women's job applications and job offers if their own awareness of the booklet had not changed would have been statistically indistinguishable from the original treatment effect (to be precise, 11 percent larger for the number of job applications and 36 percent smaller for the number of job offers). This changes when looking at mediators relating to the respondents' *neighbors'* awareness of the vacancy booklet, as shown in the bottom three coefficient in both panels: fixing the booklet awareness of the neighbors living within different radii around the respondent (0.5km, 0.75km, 1km) substantially reduces the original treatment effects. For the number of job applications, had the neighbors living close to the respondent not been aware of the booklet, the treatment effect of the booklet on the respondents' job applications would have been indistinguishable from zero (a reduction by up to 115 percent). Similarly but less strongly, had the close neighbors (within 0.5km) of the respondent not been aware of the booklet, the treatment effect on her number of job offers would have decreased by up to 50 percent.

Heterogeneity in Impacts by Listed Neighbors and Household Members While we lack data to understand detailed personal networks, we can construct baseline network proxies using our listing data. Using these data, we can cautiously explore whether treatment effects on job offers vary by the number of other job seekers in a lower-skill woman's household or enumeration area at baseline. Although not fully robust and potentially confounded by other neighborhood or

[40] We follow the recommendations on mediation analysis of Acharya, Blackwell and Sen (2016) to more formally rule out the hypothesis that the increases in applications and offers is driven by actual booklet use (in line with the findings from Table 2).

household characteristics, we do see evidence that lower-skill women with relatively more job seeking neighbors and lower-skill women with relatively more job seeking household members drive the documented impacts on offers.[41]

6 Conclusion

This paper provides rigorous evidence that enhanced public employment services can generate meaningful positive impacts on marginalized job seeker outcomes in low-income countries. Our at-scale evaluation demonstrates that improved information provision through existing government infrastructure achieved a 22.1 percent increase in monthly earnings and 14.6 percent increase in paid employment rates for lower-skill women in Addis Ababa, Ethiopia. These significant magnitudes, achieved at a fraction of typical program costs, underscore the potential for scalable solutions to labor market frictions experienced by marginalized job seekers in low-income country labor markets.

Overall, our evaluation provides strong empirical validation for the mechanisms that Carranza and McKenzie (2024) identify as critical to effective job search assistance. Our estimated impacts on job search behavior, aspirations, and expectations of lower-skill women corroborate the finding by Carranza and McKenzie (2024) that interventions appear to work best when enabling job seekers to fundamentally recalibrate their understanding of labor market opportunities – reassessing which types of jobs and sectors to target and adjusting expectations about wages.

Our evaluated program appears to reach these marginalized job seekers through community networks rather than direct program uptake, with lower-skill women in treated districts receiving offers through personal networks rather than through a shift toward PES services themselves. Qualitative interviews at endline and mediation analysis of job search outcome impacts support this finding, suggesting that community member take-up and general awareness of the program were drivers of improvements experienced by lower-skill women in treated districts.

The community dissemination mechanism suggested by our analysis could explain both the intervention's effectiveness and its scalability: by working through existing social structures and delivery systems, public employment services can reach precisely those marginalized groups who often remain excluded from technology-based solutions in low- and middle-income countries.

[41] Appendix Figure C1 depicts the relationship between impacts on job offers received by low-skilled women at endline and how many other job seekers live nearby – either in their neighborhood or in their household.

Tables

Table 1: Baseline Employment, Income and Job Search

	Entire Sample	Lower Skill Women	Rest of Sample	(2)-(3) Δ	(2)-(3) p-value	Obs
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Job Search and Labor Market Outcomes						
# Applications	0.65	0.29	0.77	-0.485	0.000	3,530
# Offers	0.16	0.07	0.19	-0.108	0.000	3,530
Employment for Pay	0.50	0.34	0.56	-0.208	0.000	3,530
Work in HH Business	0.13	0.10	0.14	-0.043	0.002	3,530
Total Income	2,918.10	1,082.21	3,507.62	-2,365.596	0.000	3,530
Panel B: Job Search Behaviors						
# Hours Searched	1.44	0.89	1.62	-0.600	0.002	3,530
Directed Search: High skill vacancies	0.23	0.06	0.28	-0.218	0.000	3,530
Directed Search: Low and medium skill vacancies	0.18	0.22	0.17	0.057	0.001	3,530
Panel C: Reservation Wages						
Gap	1478.56	641.37	1748.08	-1,175.210	0.000	3,519
Permanent	7,613.95	4,493.09	8,616.83	-4,070.287	0.000	3,528
Temporary	9,073.75	5,136.20	10,341.40	-5,207.631	0.000	3,519
Panel D: Expectations						
Any offer	0.81	0.80	0.82	0.000	0.985	3,530
Salary	6,300.62	3,665.02	7,145.26	-3,400.733	0.000	3,457
Panel E: Job Search Method						
PES	0.00	0.01	0.00	0.002	0.427	3,530
In-person search	0.16	0.11	0.18	-0.054	0.000	3,530
Media search	0.22	0.07	0.27	-0.197	0.000	3,530
Brokers/agencies	0.07	0.08	0.06	0.021	0.058	3,530
Family and friends	0.24	0.19	0.26	-0.051	0.002	3,530
Panel F: Detail of In-Person Job Search, Conditional on Searching In-Person						
Number of search neighborhoods	1.79	1.49	1.85	-0.327	0.001	569
Average distance (km)	5.27	4.02	5.52	-1.334	0.003	569
Total distance (km)	10.41	6.14	11.27	-4.609	0.000	569

Notes: This table provides an overview of our sample and illustrates differences between lower-skill women and the rest of the sample. The baseline sample includes 858 lower-skill women. The panels explore disparities in employment status, income, and job search behavior. With the exception of Panel C and D and the number of hours searched in Panel B, all outcomes are measured within the last 30 days. Panel B first reports the number of hours searched in the last 7 days (winsorized at the 0 and 99 percentiles) and then focuses on directed search outcomes in the last 30 days. Here, vacancies are divided into high- and low-and medium-skill vacancies following the ILO ISCO skill classification. Panel C focuses on reservation wages, reporting reservation wages for permanent and temporary jobs (both winsorized at the 0 and 99 percentiles) as well as the gap between the two measures. Panel D displays expectations over whether the respondent would receive a job offer in the next four months and what the corresponding salary would be (winsorized at the 0 and 99 percentiles). Panel E reports differences in job search methods. In-person job search refers to looking for jobs via physical job boards or by visiting worksites. Media search includes both online and offline channels. Online search comprises web-based platforms, SMS, and social media applications such as Telegram, WhatsApp, and Facebook. Traditional media includes newspapers, radio, and television. Panel F provides additional detail on in-person search. The number of neighborhoods indicates how many distinct neighborhoods were visited in person to search for jobs. Average distance is the mean distance from the respondent's household to job boards or worksites in the neighborhoods visited. Total distance is the sum of these distances across all visited neighborhoods. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Take-up of the Intervention

	Aware of booklet	Used booklet	Applied to booklet
	(1)	(2)	(3)
TE for LSW	0.558***	0.089***	0.007
	(0.029)	(0.017)	(0.005)
TE for RoS	0.667***	0.145***	0.022***
	(0.016)	(0.012)	(0.005)
Difference	-0.109***	-0.056***	-0.015**
	(0.033)	(0.021)	(0.007)
Control Mean LSW	0.058	0.011	0.000
Control Mean RoS	0.056	0.005	0.000
N LSW	737	737	737
N RoS	2,266	2,266	2,266

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. The table reports heterogeneous treatment effects between lower-skill women (LSW) and the rest of the sample (RoS). All specifications include strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 3: Treatment Effect Estimates on Job Search and Labor Market Outcomes

	Job Search Outcomes		Labor Market Outcomes		
	# Applications	# Offers	Employment for Pay	Work in HH Business	Total Income
	(1)	(2)	(3)	(4)	(5)
Panel A: Treatment Effect (TE) for Lower-Skill Women (LSW) vs. Rest of Sample (RoS)					
TE for LSW	0.085*	0.070**	0.054*	-0.073***	287.159*
	(0.048)	(0.028)	(0.031)	(0.023)	(158.419)
TE for RoS	0.003	-0.032	-0.014	-0.011	-182.090
	(0.066)	(0.023)	(0.019)	(0.015)	(185.282)
Difference	0.082	0.102***	0.068*	-0.062**	469.249*
	(0.081)	(0.037)	(0.036)	(0.027)	(243.087)
Control Mean LSW	0.137	0.214	0.371	0.168	1,298.736
Control Mean RoS	0.475	0.403	0.624	0.160	4,305.507
N LSW	737	737	737	737	737
N RoS	2,266	2,266	2,266	2,266	2,266
Panel B: Treatment Effect for Lower-Skill Women (LSW), during vs. after Intervention					
TE for LSW during Intervention	0.181**	0.072*	0.043	-0.085***	137.678
	(0.072)	(0.041)	(0.042)	(0.031)	(197.117)
TE for LSW after Intervention	-0.003	0.066**	0.085*	-0.067**	587.237***
	(0.058)	(0.031)	(0.045)	(0.033)	(224.403)
Difference	0.185**	0.006	-0.042	-0.018	-449.559
	(0.089)	(0.052)	(0.062)	(0.046)	(288.904)
Control mean During	0.092	0.086	0.416	0.162	1,470.303
Control mean After	0.184	0.248	0.324	0.173	1,121.419
N during	371	371	371	371	371
N after	366	366	366	366	366

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. Panel A reports heterogeneous treatment effects between lower-skill women (LSW) and the rest of the sample (RoS). Panel B examines heterogeneity by endline survey round for LSW only. The endline survey was conducted in two rounds. The first round overlapped with the final booklet release, allowing us to capture treatment effects during and after the intervention. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table 4: Treatment Effects on Search Behaviors, Reservation Wages, and Expectations

	Search Behaviors			Reservation Wages			Expectations	
	# Hours	High Skill Job Dummy	Low-Medium-Skill Dummy	Gap	Permanent	Temporary	Any offer	Salary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TE for LSW	0.456*	0.033**	-0.031	724.429**	-101.619	665.685	0.062*	601.946**
	(0.272)	(0.017)	(0.029)	(321.954)	(222.362)	(406.695)	(0.033)	(260.858)
TE for RoS	-0.344	-0.014	0.004	347.563	133.002	404.389	-0.003	-11.910
	(0.315)	(0.019)	(0.016)	(214.787)	(219.753)	(332.930)	(0.017)	(266.962)
Difference	0.800*	0.047*	-0.035	376.866	-234.621	261.296	0.064*	613.856*
	(0.429)	(0.025)	(0.033)	(383.807)	(312.387)	(525.027)	(0.037)	(372.101)
Control mean LSW	0.252	0.036	0.184	448.983	4,994.997	5446.715	0.771	3,471.275
Control mean RoS	1.001	0.248	0.134	2025.841	9,516.452	11,509.147	0.806	6,964.408
N LSW	737	737	737	731	737	731	737	721
N RoS	2,266	2,266	2,266	2,240	2,258	2,244	2,266	2,227

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. The table reports heterogeneous treatment effects between lower-skill women (LSW) and the rest of the sample (RoS). Columns (1) to (3) focus on updates in search behaviors. Specifically, column (1) reports the winsorized number of hours searched in the past 7 days (winsorized at the 0 and 99 percentiles) while columns (2) and (3) examine directed search behavior based on the skill levels required for the job in the past 30 days. Jobs are classified into high-skill versus low- and medium-skill categories according to the ISCO skill classifications. Columns (4) to (6) present information on reservation wages. While columns (5) and (6) provide the winsorized reservation wages (winsorized at the 0 and 99 percentiles) for permanent and temporary positions, respectively, column (4) reports the gap between these two measures. Finally, columns (7) and (8) explore job seekers' expectations regarding offer arrivals over the next four months. Column (7) reports whether job seekers expect to receive any offers within this period, and column (8) reports the expected winsorized salary (winsorized at the 0 and 99 percentiles) of these anticipated offers. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

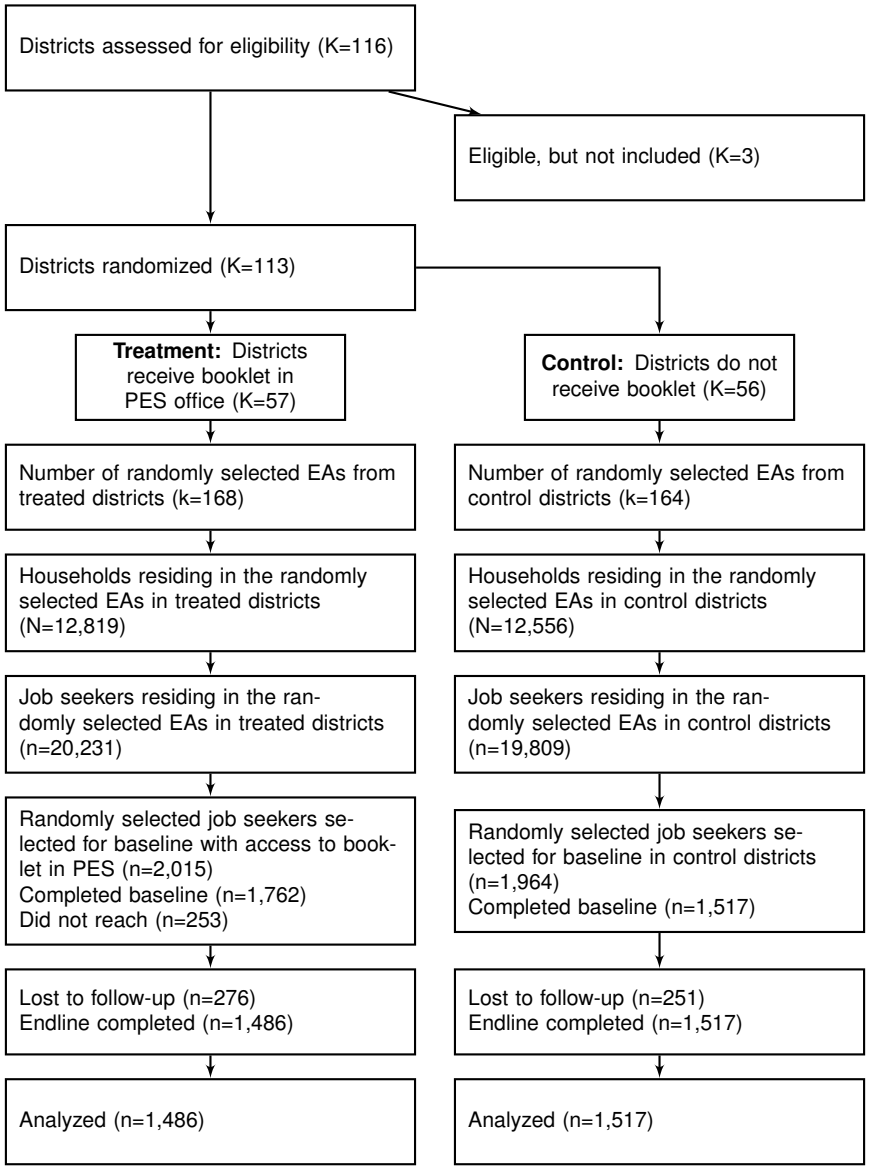
Table 5: Treatment Effects on Search and Offer Channels

	PES	In-person search	Online and offline media	Brokers and agencies	Personal networks
	(1)	(2)	(3)	(4)	(5)
Panel A: Search Methods					
TE for LSW	0.020	0.014	0.005	0.014	0.016
	(0.013)	(0.022)	(0.016)	(0.018)	(0.029)
Control mean	0.014	0.088	0.052	0.052	0.151
Number of obs.	737	737	737	737	737
Panel B: Offer Channels					
TE for LSW	-0.008	0.004	0.003	0.007	0.062***
	(0.006)	(0.010)	(0.003)	(0.011)	(0.023)
Control mean	0.011	0.019	0.000	0.019	0.071
Number of obs.	737	737	737	737	737

Notes: This table reports treatment effects on search methods and offer channels, focusing exclusively on lower-skill women (LSW). Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. Panel A reports treatment effects on the use of different search methods, disaggregated into five channels. Physical methods include both job boards and visits to work sites, while media comprises both offline and online resources, including newspapers, websites, SMS, and Telegram. Personal networks refer to searching for or receiving job information through friends and family. Panel B examines treatment effects on the types of job offers received, using the same channel breakdown as in Panel A. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figures

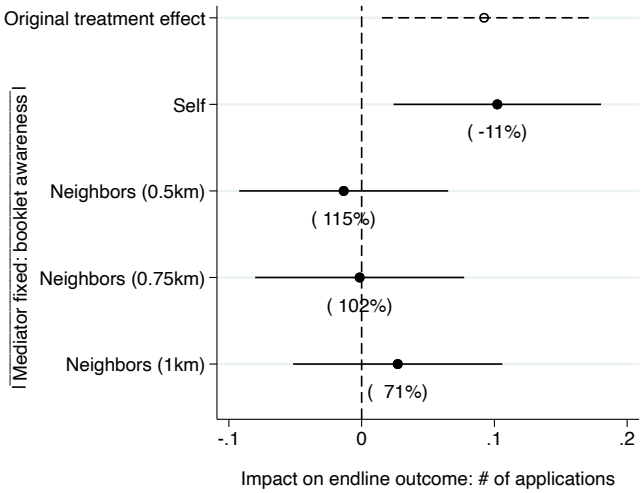
Figure 1: Cluster Randomization Flow Diagram



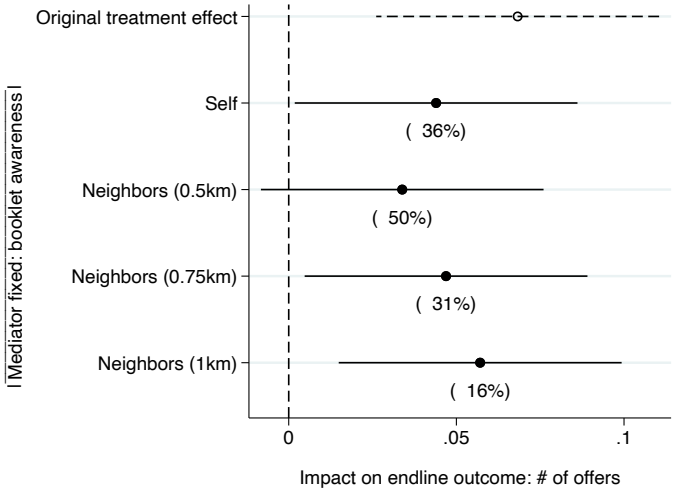
Notes: This flowchart follows the Consolidated Standards of Reporting Trials (CONSORT) recommendations (Eldridge, Chan, Campbell, Bond, Hopewell, Thabane and Lancaster, 2016). Randomization was conducted at the district (*woreda*) level. At the time of listing, there were 116 districts, of which 3 were excluded from randomization because they did not have a functioning public employment services office at the time of data collection. Treatment assignment refers to individuals with access to a booklet. Within the randomized districts, 117,107 individuals were assessed for eligibility. Eligibility was defined as having at least 10 years of education and expressing interest in finding work in the next 3 or 6 months, where a total of 40,040 individuals were deemed eligible. 3,979 job seekers were randomly selected for the baseline survey. At baseline, 3,530 individuals were successfully surveyed, and 3,003 were surveyed again at endline for the final analysis.

Figure 2: Mediation Analysis for Treatment Effects on Lower-Skill Women (Own vs. Neighbors's Awareness of Intervention)

Panel a) Applications (number)



Panel b) Offers (number)



Notes: This figure depicts results from mediation analysis following the techniques outlined in Acharya et al. (2016). Panels (a) and (b) show estimated treatment effects at endline for lower-skill women on the number of job applications and the number of offers, respectively. Original treatment effects are shown at the top of each figure with hollow circles. Solid circles depict the average controlled direct effect (ACDE) of the intervention, each time fixing a different potential mediator of interest, which are booklet awareness of the respondent herself and booklet awareness of neighbors in varying proximity. The number in parentheses below each ACDE estimate is the percentage reduction in the ACDE relative to the original treatment effect. 90% confidence intervals are shown.

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Online Appendix

Reaching Marginalized Job Seekers through Public Employment Services: Experimental Evidence from Ethiopia

Morgan Hardy, Christian Johannes Meyer, Johanna Roth, Marc Witte

Table of Contents

A Context and Experimental Details **2**
A.1 Intervention Cost Estimates 8

B Design Tests and Robustness **9**
B.1 Balance and Attrition 9
B.2 Robustness of Main Findings 18
B.3 Spillover Analysis 23

C Additional Results **29**

D Analysis of Pooled Sample **33**

A Context and Experimental Details

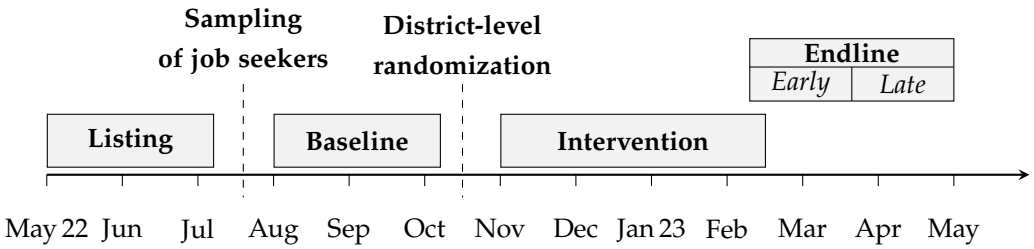
Figure A1: Maps of Enumeration Areas and PES Offices in Addis Ababa

(a) Treated vs. Control PES Offices

(b) Sampled Enumeration Areas

Notes: Panel (a) displays the public employment service office locations by treatment status. Crosses indicate treated locations, circles indicate control locations. Panel (b) shows the enumeration areas used for constructing our job seeker sampling frame. Shaded polygons indicate the 375 randomly selected enumeration areas from a list of 605 in Addis Ababa. The 605 EAs are randomly selected from a total of 5,627 EAs across Addis Ababa. The map data is based on OpenStreetMap.

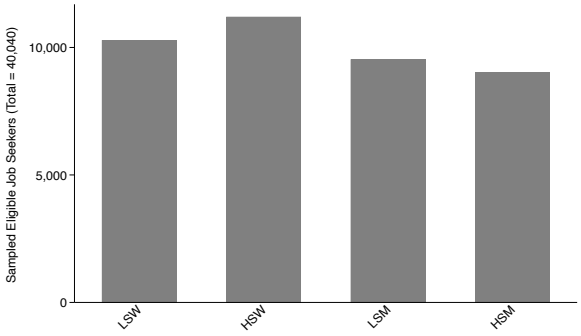
Figure A2: Experimental Timeline



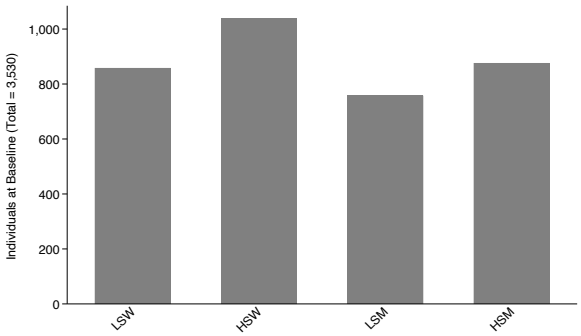
Notes: This figure illustrates the study timeline. The experiment started in May 2022. We collected data for our job seeker listing between May and of July 2022. Based on this, we identified eligible job seekers for our baseline survey, which was implemented from August to October 2022. The intervention was fielded in early November 2022 and lasted three months. After the end of the intervention, we again interviewed all baseline survey participants at endline between March and June 2023. The endline survey was fielded in two phases with the first phase overlapping with the last available booklet in the local employment centers.

Figure A3: Sample Composition Listed, Sampled and Analyzed

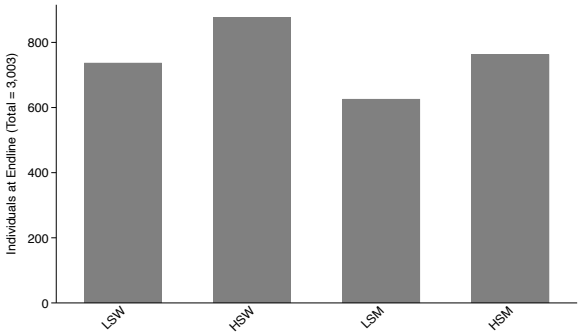
(a) Number of Eligible Listed Individuals



(b) Number of Sampled Individuals (Baseline)



(c) Number of Individuals Analyzed at Endline

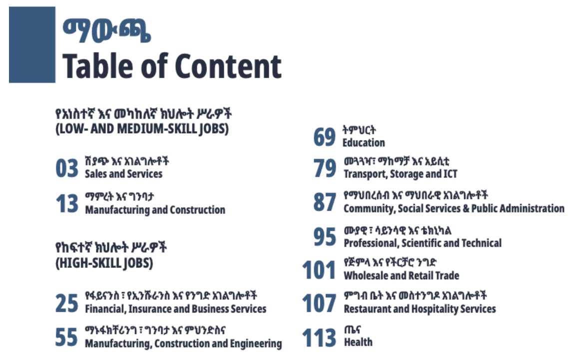


Notes: This figure details the number of listed (panel a), sampled (panel b), and analyzed (panel c) individuals. As shown in Panel A, lower-skill women are a minority compared to the rest of the strata in the universe of eligible job seekers in Addis Ababa. Eligible job seekers are defined as individuals with at least 10 years of education between the age of 18 and 60 who are looking for a job either in the next 6 months of the survey.

Figure A4: Weekly Vacancy Booklet Provided to PES Offices

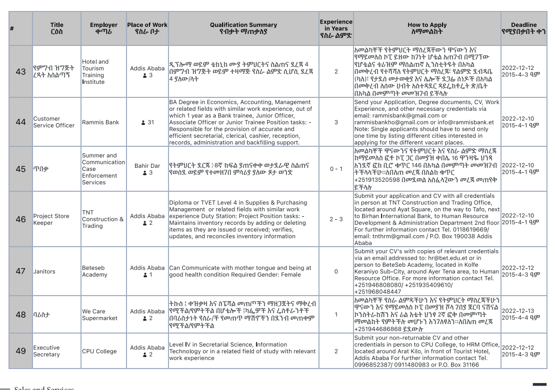
(a) Cover Page

(b) Content Page



(c) Cover Page Example for Section

(d) Example of low- and medium-skill vacancies



#	Title ርዕስ	Employer ቀጣሪ	Place of Work የስራ ቦታ	Qualification Summary የብቃት ማጠቃለያ	Experience in Years የስራ ልምድ	How to Apply ለማመልከት	Deadline የሚያበቃበት ቀን
43	የምግብ ዝግጅት ረዳት አሰልጣኝ	Hotel and Tourism Training Institute	Addis Ababa 3	ዲፕሎማ ወይም ቴክኒክ ሙያ ትምህርትና ስልጠና ደረጃ 4 በምግብ ዝግጅት ወይም ተዛማጅ የስራ ልምድ ሲሆሲ ደረጃ 4 ያለው/ላት	2	አመልካቾች የትምህርት ማስረጃቸውን ዋናውን እና የማይመለስ ኮፒ ይዘው ከገነት ሆቴል አጠገብ በሚገኘው የሆቴልና ቱሪዝም ማሰልጠኛ ኢንስቲትዩት በአካል በመቅረብ የተሻሻለ የትምህርት ማስረጃ፤ የልምድ ደብዳቤ (ካለ)፤ የታደሰ መታወቂያ እና ሌሎች ደጋፊ ሰነዶች በአካል በመቅረብ ለሰው ሀብት አስተዳደር ዳይሬክቶሬት ጽ/ቤት በአካል በመምጣት መመዝገብ ይችላሉ	2022-12-12 2015-4-3 ዓም
44	Customer Service Officer	Rammis Bank	31	BA Degree in Economics, Accounting, Management or related fields with similar work experience, out of which 1 year as a Bank trainee, Junior Officer, Associate Officer or Junior Trainee Position tasks: - Responsible for the provision of accurate and efficient secretarial, clerical, cashier, reception, records, administration and backfilling support.	3	Send your Application, Degree documents, CV, Work Experience, and other necessary credentials via email: rammisbank@gmail.com or rammisbankho@gmail.com or info@rammisbank.et Note: Single applicants should have to send only one time by listing different cities interested in applying for the different vacant places.	2022-12-10 2015-4-1 ዓም
45	ጥበቃ	Summer and Communication Case Enforcement Services	Bahir Dar 3	የትምህርት ደረጃ ፦8ኛ ክፍል ያጠናቀቀ ወታደራዊ ስልጠና የወሰደ ወይም የተመዘገበ ምሳሪያ ያለው ጾታ ወንድ	0 - 1	አመልካቾች ዋናውንና የትምህርት እና የስራ ልምድ ማስረጃ ከማይመለስ ፎቶ ኮፒ ጋር በመያዝ ቀበሌ 16 ዋንዛዬ ህንጻ አንደኛ ፎክ ቢሮ ቁጥር 146 በአካል በመምጣት መመዝገብ ትችላላችሁ።ለበለጠ መረጃ በስልክ ቁጥር +251913520598 በመደወል አስፈላጊውን መረጃ መጠየቅ ይችላሉ	2022-12-10 2015-4-1 ዓም
46	Project Store Keeper	TNT Construction & Trading	Addis Ababa 2	Diploma or TVET Level 4 in Supplies & Purchasing Management or related fields with similar work experience Duty Station: Project Position tasks: - Maintains inventory records by adding or deleting items as they are issued or received; verifies, updates, and reconciles inventory information	2 - 3	Submit your application and CV with all credentials in person at TNT Construction and Trading Office, located around Ayat Square, on the way to Tafo, next to Birhan International Bank, to Human Resource Development & Administration Department 2nd floor For further information contact Tel. 0118619669/ email: tnthrm@gmail.com / P.O. Box 190038 Addis Ababa	2022-12-10 2015-4-1 ዓም
47	Janitors	Beteseb Academy	Addis Ababa 1	Can Communicate with mother tongue and being at good health condition Required Gender: Female	0	Submit your CV's with copies of relevant credentials via an email addressed to: hr@bet.edu.et or in person to BeteSeb Academy, located in Kolfe Keraniyo Sub-City, around Ayer Tena area, to Human Resource Office. For more information contact Tel. +251946808080/ +251935409610/ +251968048447	2022-12-12 2015-4-3 ዓም
48	ባሪስታ	We Care Supermarket	Addis Ababa 2	ትኩስ ፤ ቀዝቃዛ እና ስፔሻል መጠጦችን ማዘጋጀትና ማቅረብ የሚችል/የምትችል በሆቴሎች ፤ካፌዎች እና ሬስቶራንቶች በባሪስታነት የሰራ/ች የመጠጥ ማሽኖችን በደንብ መጠቀም የሚችል/የምትችል	1	አመልካቾች የስራ ልምዳችሁን እና የትምህርት ማስረጃችሁን ዋናውን እና የማይመለስ ኮፒ በመያዝ ሾላ ገበያ ጀርባ ናሽናል ኮንስትራክሽን እና ሪል እቴት ህንፃ 2ኛ ፎቅ በመምጣት ማመልከት የምትችሉ መሆኑን እንገለፃለን።ለበለጠ መረጃ +251944686868 ይደውሉ	2022-12-13 2015-4-4 ዓም
49	Executive Secretary	CPU College	Addis Ababa 2	Level IV in Secretarial Science, Information Technology or in a related field of study with relevant work experience	2	Submit your non-returnable CV and other credentials in person to CPU College, to HRM Office, located around Arat Kilo, in front of Tourist Hotel, Addis Ababa For further information contact Tel. 0996852387/ 0911480983 or P.O. Box 31166	2022-12-12 2015-4-3 ዓም

Sales and Services 11

Notes: The four panels illustrate the design of the vacancy booklet. Panel (a) displays the cover page, which includes the publication week for the job opportunities and prominently features the logos of the study's partner organizations. Panel (b) shows the table of contents, organized by skill level—low- and medium-skill jobs versus high-skill jobs—and by relevant sectors. Panels (c) and (d) provide examples of how pages targeting low- and medium-skill job seekers are structured. Panel (c) presents a sample sector cover page, here for the Sales and Services sector. Panel (d) displays a typical content page, where vacancies are presented in a tabular format summarizing the key details of each posting.

Table A1: Baseline Socioeconomic Characteristics, Employment, Job Search and Skills

	Entire Sample	Lower Skill Women	Rest of Sample	(2)-(3) Δ	(2)-(3) p-value	Obs
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Socioeconomic Characteristics						
Age	30.86	31.05	30.80	-0.084	0.831	3,530
Married	0.44	0.49	0.42	0.051	0.015	3,530
Household size	4.50	4.57	4.47	0.081	0.341	3,530
# People sleeping in same room	2.73	2.88	2.68	0.205	0.000	3,530
Amharic as Native Language	0.84	0.81	0.85	-0.030	0.034	3,530
Panel B: Employment, Income, Job Search						
Paid employment (last 7d)	0.39	0.27	0.43	-0.163	0.000	3,530
Income from paid work (last 7d)	246.22	77.54	300.38	-223.043	0.000	3,530
Permanent job (last 30d)	0.24	0.14	0.27	-0.140	0.000	3,530
Written agreement / contract (last 30d)	0.29	0.18	0.33	-0.156	0.000	3,530
Total household income (last 30d)	9,124.63	6,919.17	9,832.81	-2,905.252	0.000	3,530
Any job search (last 7d)	0.23	0.14	0.26	-0.118	0.000	3,530
# Applications (last 30d)	0.65	0.29	0.77	-0.485	0.000	3,530
# Offers (last 30d)	0.16	0.07	0.19	-0.108	0.000	3,530
Search via PES (last 7d)	0.00	0.00	0.00	0.001	0.628	3,530
ETB spent on job search (last 7d)	26.76	9.70	32.24	-20.880	0.000	3,530
Panel C: Skills						
# correct Raven out of 10	6.21	5.76	6.36	-0.575	0.000	3,530
Non-cognitive skills (1 = high, 5 = low)	2.86	2.90	2.85	0.048	0.000	3,530

Notes: This table provides an overview of our sample and illustrates differences between lower-skill women and the rest of the sample. The baseline sample includes 858 lower-skill women. Panel A examines differences in socio-economic characteristics, while the remaining panels explore disparities in employment status, income, and job search behavior as well as skills. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Number and Type of Vacancies Posted in Job Information Booklets

	Mean per week	Total across all weeks	Unique across all weeks
	(1)	(2)	(3)
All occupations and sectors	596	7,748	2,669
of which: low and medium skill	91	1,187	1,156
of which: sales and services	50	652	621
of which: manufacturing and construction	41	535	535

Notes: Data based on all booklets published every week between November 2022 and February 2023. Note that a vacancy could appear in multiple editions of the booklet, as long as the vacancy application deadline met the booklet inclusion criterion of being at least two days after the booklet's delivery. Column 3 reports the sum of unique vacancies across all weeks, adjusting for vacancies that were published more than once in the booklet. In practice, high-skill postings tended to remain active for a longer period than low- and medium-skill postings.

A.1 Intervention Cost Estimates

The largest costs associated with providing the vacancy booklet are linked to its weekly distribution across the 50 treated woredas over a 12-week period. The largest expense is printing, which amounts to 707,143 ETB ($\sim$ 13,454 USD), followed by the cost linked to the design of booklet with 441,504 ETB ($\sim$ 13,454 USD). Additional smaller cost categories include the collection of offline vacancy sources, which are integrated with online vacancies from our private jobs platform partner HahuJobs (94,608 ETB ($\sim$ 1,800 USD)). Lastly, the distribution of the booklet, along with small incentives for the intervention implementers at the OSSCs, totals 270,000 ETB ($\sim$ 5,137 USD) and 225,000 ETB ($\sim$ 4,281 USD) respectively. Thus, the overall cost of the booklet intervention comes to 1,738,255 ETB ($\sim$ 33,072 USD).

B Design Tests and Robustness

B.1 Balance and Attrition

Table B1: Baseline Balance (Lower-Skill Women)

	Treatment		Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.83	9.29	31.29	9.53	-0.362	0.621	858
Married	0.48	0.50	0.51	0.50	-0.026	0.447	858
Household size	4.57	1.96	4.57	2.19	0.035	0.808	858
# People sleeping in same room	2.89	1.41	2.88	1.33	-0.070	0.485	858
Amharic as Native Language	0.82	0.38	0.81	0.40	0.004	0.882	858
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.27	0.44	0.27	0.45	-0.007	0.817	858
Income from paid work (last 7d)	103	589	50	323	60	0.024	858
Permanent job (last 30d)	0.13	0.34	0.15	0.36	-0.014	0.547	858
Written agreement / contract (last 30d)	0.18	0.38	0.19	0.39	-0.016	0.544	858
Total household income (last 30d)	7,013	5,420	6,818	5,662	340	0.477	858
Any job search (last 7d)	0.14	0.35	0.13	0.34	0.013	0.586	858
# Applications (last 30d)	0.30	1.16	0.29	1.61	-0.012	0.887	858
# Offers (last 30d)	0.09	0.35	0.05	0.27	0.035	0.106	858
Search via PES (last 7d)	0.00	0.00	0.00	0.05	-0.002	0.288	858
ETB spent on job search (last 7d)	10.27	40.21	9.07	60.31	3.503	0.356	858
Panel C: Skills							
# correct Raven out of 10	5.78	1.51	5.74	1.57	-0.028	0.805	858
Non-cognitive skills (1 = high, 5 = low)	2.91	0.33	2.89	0.33	0.037	0.150	858

Notes: All covariates come from our baseline survey. This balance table considers only lower-skill women. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B2: Baseline Balance (Rest of Sample)

	Treatment		Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.81	8.73	30.79	9.06	0.250	0.517	2,672
Married	0.43	0.49	0.41	0.49	0.011	0.608	2,672
Household size	4.56	1.94	4.39	1.94	0.204	0.020	2,672
# People sleeping in same room	2.75	1.46	2.61	1.39	0.131	0.039	2,672
Amharic as Native Language	0.86	0.35	0.84	0.37	0.018	0.277	2,672
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.43	0.50	0.43	0.50	-0.001	0.960	2,672
Income from paid work (last 7d)	303	1,208	297	1,187	-3.924	0.951	2,672
Permanent job (last 30d)	0.27	0.44	0.27	0.45	-0.005	0.838	2,672
Written agreement / contract (last 30d)	0.32	0.47	0.34	0.47	-0.015	0.522	2,672
Total household income (last 30d)	9,957	7,372	9,712	7,584	401	0.295	2,672
Any job search (last 7d)	0.25	0.43	0.27	0.44	-0.030	0.149	2,672
# Applications (last 30d)	0.80	2.16	0.73	3.36	-0.039	0.801	2,672
# Offers (last 30d)	0.18	0.52	0.20	0.58	-0.020	0.380	2,672
Search via PES (last 7d)	0.00	0.00	0.00	0.04	-0.001	0.141	2,672
ETB spent on job search (last 7d)	31.93	110.72	32.54	106.62	-2.256	0.619	2,672
Panel C: Skills							
# correct Raven out of 10	6.37	1.62	6.34	1.71	0.030	0.710	2,672
Non-cognitive skills (1 = high, 5 = low)	2.85	0.34	2.85	0.32	-0.004	0.817	2,672

Notes: All covariates come from our baseline survey. This balance table is considering everyone but lower-skill women. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B3: Baseline Balance (Pooled Sample)

	Treatment		Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.81	8.87	30.91	9.17	0.092	0.804	3,530
Married	0.44	0.50	0.43	0.50	0.003	0.869	3,530
Household size	4.56	1.94	4.43	2.00	0.166	0.034	3,530
# People sleeping in same room	2.78	1.45	2.67	1.38	0.086	0.131	3,530
Amharic as Native Language	0.85	0.36	0.83	0.38	0.014	0.401	3,530
Female	0.54	0.50	0.54	0.50	0.001	0.917	3,530
> 12 years of education	0.53	0.50	0.56	0.50	-0.034	0.052	3,530
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.39	0.49	0.40	0.49	-0.008	0.730	3,530
Income from paid work (last 7d)	253	1,089	239	1,056	6.413	0.894	3,530
Permanent job (last 30d)	0.23	0.42	0.25	0.43	-0.010	0.589	3,530
Written agreement / contract (last 30d)	0.28	0.45	0.30	0.46	-0.019	0.335	3,530
Total household income (last 30d)	9,215	7,047	9,034	7,282	317	0.354	3,530
Any job search (last 7d)	0.22	0.42	0.24	0.42	-0.022	0.199	3,530
# Applications (last 30d)	0.67	1.97	0.63	3.04	-0.048	0.688	3,530
# Offers (last 30d)	0.16	0.48	0.16	0.53	-0.009	0.649	3,530
Search via PES (last 7d)	0.00	0.00	0.00	0.04	-0.002	0.075	3,530
ETB spent on job search (last 7d)	26.47	98.30	27.04	98.25	-1.340	0.717	3,530
Panel C: Skills							
# correct Raven out of 10	6.22	1.61	6.20	1.70	0.007	0.919	3,530
Non-cognitive skills (1 = high, 5 = low)	2.87	0.34	2.86	0.32	0.007	0.648	3,530

Notes: All covariates come from our baseline survey. This balance table considers the pooled sample. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B4: Baseline Balance, Considering Attrition at Endline (Lower-Skill Women)

	Treatment		Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.90	9.23	31.34	9.61	-0.228	0.768	737
Married	0.49	0.50	0.51	0.50	0.002	0.955	737
Household size	4.50	1.98	4.59	2.10	-0.037	0.808	737
# People sleeping in same room	2.88	1.41	2.87	1.31	-0.093	0.389	737
Amharic as Native Language	0.82	0.39	0.79	0.41	0.012	0.721	737
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.27	0.44	0.26	0.44	0.002	0.953	737
Income from paid work (last 7d)	90	507	50	334	50	0.059	737
Permanent job (last 30d)	0.13	0.34	0.15	0.35	-0.005	0.838	737
Written agreement / contract (last 30d)	0.18	0.38	0.18	0.39	-0.003	0.923	737
Total household income (last 30d)	6,833	5,054	6,691	5,556	262	0.604	737
Any job search (last 7d)	0.12	0.33	0.13	0.34	-0.009	0.739	737
# Applications (last 30d)	0.33	1.24	0.25	1.35	0.049	0.534	737
# Offers (last 30d)	0.08	0.33	0.04	0.23	0.033	0.122	737
Search via PES (last 7d)	0.00	0.00	0.00	0.05	-0.003	0.286	737
ETB spent on job search (last 7d)	8.91	37.91	9.50	63.42	1.223	0.747	737
Panel C: Skills							
# correct Raven out of 10	5.81	1.49	5.71	1.58	0.042	0.741	737
Non-cognitive skills (1 = high, 5 = low)	2.91	0.33	2.88	0.32	0.036	0.167	737

Notes: All covariates come from our baseline survey. This balance table is considering only lower-skill women who responded to both our baseline and endline survey. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B5: Baseline Balance, Considering Attrition at Endline (Rest of Sample)

	Treatment		Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.77	8.75	30.74	9.14	0.253	0.556	2,266
Married	0.43	0.49	0.41	0.49	0.008	0.739	2,266
Household size	4.60	1.95	4.40	1.92	0.221	0.015	2,266
# People sleeping in same room	2.79	1.47	2.61	1.38	0.147	0.038	2,266
Amharic as Native Language	0.85	0.35	0.84	0.37	-0.001	0.939	2,266
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.44	0.50	0.44	0.50	-0.001	0.957	2,266
Income from paid work (last 7d)	306	1,227	271	1,106	29	0.663	2,266
Permanent job (last 30d)	0.26	0.44	0.28	0.45	-0.013	0.590	2,266
Written agreement / contract (last 30d)	0.32	0.47	0.35	0.48	-0.023	0.345	2,266
Total household income (last 30d)	9,815	7,267	9,586	7,400	386	0.312	2,266
Any job search (last 7d)	0.25	0.43	0.27	0.45	-0.037	0.098	2,266
# Applications (last 30d)	0.77	2.02	0.80	3.59	-0.169	0.338	2,266
# Offers (last 30d)	0.19	0.54	0.19	0.53	-0.012	0.619	2,266
Search via PES (last 7d)	0.00	0.00	0.00	0.03	-0.001	0.315	2,266
ETB spent on job search (last 7d)	31.74	111.90	32.96	106.47	-2.760	0.593	2,266
Panel C: Skills							
# correct Raven out of 10	6.39	1.63	6.32	1.70	0.060	0.496	2,266
Non-cognitive skills (1 = high, 5 = low)	2.85	0.34	2.86	0.33	-0.007	0.687	2,266

Notes: All covariates come from our baseline survey. This balance table is considering everyone but lower-skill women who responded to both our baseline and endline survey. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B6: Baseline Balance, Considering Attrition at Endline (Pooled Sample)

	Treatment		**Control**		**Delta**		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.80	8.87	30.88	9.26	0.136	0.728	3,003
Married	0.44	0.50	0.44	0.50	0.008	0.720	3,003
Household size	4.57	1.96	4.44	1.96	0.156	0.065	3,003
# People sleeping in same room	2.81	1.45	2.67	1.37	0.088	0.169	3,003
Amharic as Native Language	0.84	0.36	0.83	0.38	0.001	0.933	3,003
Female	0.54	0.50	0.54	0.50	0.007	0.641	3,003
> 12 years of education	0.54	0.50	0.55	0.50	-0.025	0.165	3,003
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.40	0.49	0.40	0.49	-0.005	0.821	3,003
Income from paid work (last 7d)	252	1,096	218	983	30	0.555	3,003
Permanent job (last 30d)	0.23	0.42	0.25	0.43	-0.014	0.466	3,003
Written agreement / contract (last 30d)	0.28	0.45	0.31	0.46	-0.021	0.309	3,003
Total household income (last 30d)	9,06/	6,901	8,891	7,109	315.676	0.346	3,003
Any job search (last 7d)	0.22	0.41	0.24	0.43	-0.032	0.074	3,003
# Applications (last 30d)	0.66	1.87	0.67	3.20	-0.127	0.344	3,003
# Offers (last 30d)	0.16	0.49	0.16	0.48	-0.002	0.910	3,003
Search via PES (last 7d)	0.00	0.00	0.00	0.04	-0.001	0.159	3,003
ETB spent on job search (last 7d)	26.01	99.17	27.33	98.37	-2.079	0.616	3,003
Panel C: Skills							
# correct Raven out of 10	6.24	1.62	6.18	1.69	0.058	0.480	3,003
Non-cognitive skills (1 = high, 5 = low)	2.87	0.34	2.86	0.33	0.005	0.793	3,003

Notes: All covariates come from our baseline survey. This balance table considers the pooled sample who responded to both our baseline and endline survey. Columns (1) to (4) report unadjusted means and standard deviations for the treatment and control groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the treatment indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B7: Attrition Balance (Lower-Skill Women)

	Full Sample		Experimental Sample		Difference		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	31.12	9.42	31.05	9.40	0.143	0.233	1,595
Married	0.50	0.50	0.49	0.50	0.005	0.493	1,595
Household size	4.54	2.04	4.57	2.07	-0.028	0.364	1,595
# People sleeping in the same room	2.87	1.36	2.88	1.37	-0.014	0.512	1,595
Amharic as Native Language	0.80	0.40	0.81	0.39	-0.007	0.123	1,595
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.26	0.44	0.27	0.44	-0.002	0.724	1,595
Income from paid work (last 7d)	70.34	430.46	77.54	479.90			1,595
Permanent job (last 30d)	0.14	0.35	0.14	0.35	-0.000	0.980	1,595
Written agreement / contract (last 30d)	0.18	0.39	0.18	0.39	0.002	0.705	1,595
Total household income (last 30d)	6,917.25	6,196.30	7,089.33	6,465.85	-210.861	0.075	1,595
Any job search (last 7d)	0.13	0.34	0.14	0.34	-0.010	0.086	1,595
# Applications (last 30d)	0.29	1.30	0.29	1.39	-0.007	0.817	1,595
# Offers (last 30d)	0.06	0.28	0.07	0.31			1,595
Search via PES (last 7d)	0.00	0.04	0.00	0.03	0.000	0.364	1,595
ETB spent on job search (last 7d)	9.20	52.06	9.70	50.88	-0.853	0.344	1,595
Panel C: Skills							
# correct Raven out of 10	5.76	1.53	5.76	1.54	-0.010	0.692	1,595
Non-cognitive skills (1 = high, 5 = low)	2.90	0.32	2.90	0.33	-0.002	0.668	1,595
Panel D: Treatment Status							
Booklet treatment	0.51	0.50	0.52	0.50	-0.011	0.090	1,595

Notes: This table is testing for differences between our full baseline sample and the sample answering to the endline survey, considering only lower-skill women. Columns (1) to (4) report unadjusted means and standard deviations for these two groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the attrition indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention as well as existing baseline imbalances. We furthermore control for baseline imbalances (income from paid work (last 7d), number of offers (last 30d)). Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B8: Attrition Balance (Rest of Sample)

	Full Sample		Experimental Sample		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.76	8.95	30.80	8.90	0.014	0.869	4,938
Married	0.42	0.49	0.42	0.49	0.001	0.776	4,938
Household size	4.50	1.93	4.47	1.94			4,938
# People sleeping in same room	2.70	1.43	2.68	1.43			4,938
Amharic as Native Language	0.85	0.36	0.85	0.36	0.000	0.865	4,938
Female	0.39	0.49	0.39	0.49	-0.001	0.808	4,938
$>$ 12 years of education	0.72	0.45	0.72	0.45	0.005	0.154	4,938
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.44	0.50	0.43	0.50	0.003	0.539	4,938
Income from paid work (last 7d)	288.33	1,167.03	300.38	1,197.17	-12.380	0.264	4,938
Permanent job (last 30d)	0.27	0.45	0.27	0.44	0.001	0.753	4,938
Written agreement / contract (last 30d)	0.33	0.47	0.33	0.47	0.001	0.813	4,938
Total household income (last 30d)	10,280.96	9,370.13	10,423.19	9,496.49	-205.852	0.030	4,938
Any job search (last 7d)	0.26	0.44	0.26	0.44	0.000	0.914	4,938
# Applications (last 30d)	0.79	2.92	0.77	2.83	0.015	0.520	4,938
# Offers (last 30d)	0.19	0.53	0.19	0.55	-0.000	0.985	4,938
Search via PES (last 7d)	0.00	0.02	0.00	0.03	-0.000	0.375	4,938
ETB spent on job search (last 7d)	32.36	109.15	32.24	108.64	-0.376	0.691	4,938
Panel C: Skills							
# correct Raven out of 10	6.35	1.67	6.36	1.66	-0.006	0.692	4,938
Non-cognitive skills (1 = high, 5 = low)	2.85	0.33	2.85	0.33	0.003	0.202	4,938
Panel D: Treatment Status							
Booklet treatment	0.49	0.50	0.49	0.50	-0.006	0.220	4,938

Notes: This table is testing for differences between our full baseline sample and the sample answering to the endline survey, considering everyone but lower-skill women. Columns (1) to (4) report unadjusted means and standard deviations for these two groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the attrition indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. We furthermore control for baseline imbalances (household size, number of people sleeping in the same room).The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

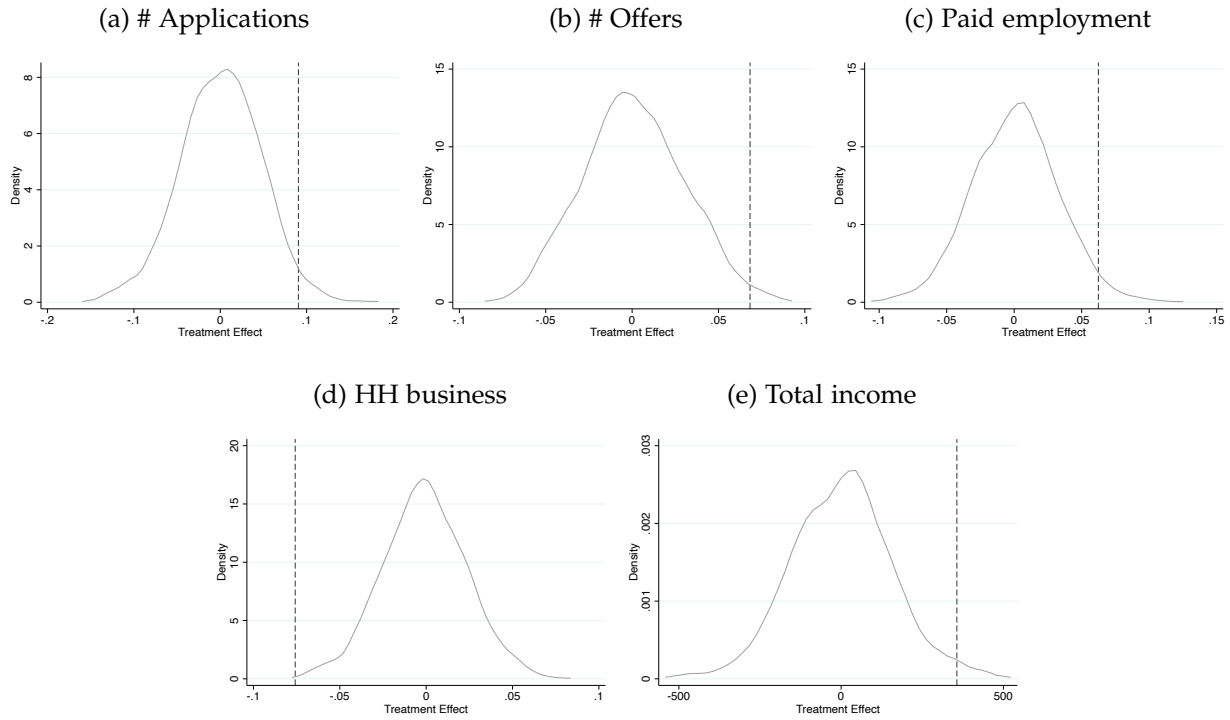
Table B9: Attrition Balance (Pooled Sample)

	Full Sample		Experimental Sample		Difference		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.76	8.95	30.80	8.90	0.035	0.658	4,938
Married	0.42	0.49	0.42	0.49	0.004	0.395	4,938
Household size	4.50	1.93	4.47	1.94			4,938
# People sleeping in the same room	2.70	1.43	2.68	1.43	0.021	0.064	4,938
Amharic as Native Language	0.85	0.36	0.85	0.36	-0.000	0.885	4,938
Female	0.39	0.49	0.39	0.49	-0.003	0.442	4,938
$>$ 12 years of education	0.72	0.45	0.72	0.45			4,938
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.44	0.50	0.43	0.50	0.002	0.615	4,938
Income from paid work (last 7d)	288.33	1,167.03	300.38	1,197.17	-12.911	0.243	4,938
Permanent job (last 30d)	0.27	0.45	0.27	0.44	0.000	0.930	4,938
Written agreement / contract (last 30d)	0.33	0.47	0.33	0.47	-0.000	0.973	4,938
Total household income (last 30d)	9,698.66	7,334.37	9,832.81	7,479.57	-204.444	0.008	4,938
Any job search (last 7d)	0.26	0.44	0.26	0.44	0.001	0.861	4,938
# Applications (last 30d)	0.79	2.92	0.77	2.83	0.011	0.629	4,938
# Offers (last 30d)	0.19	0.53	0.19	0.55	0.000	0.980	4,938
Search via PES (last 7d)	0.00	0.02	0.00	0.03			4,938
ETB spent on job search (last 7d)	32.36	109.15	32.24	108.64	-0.337	0.721	4,938
Panel C: Skills							
# correct Raven out of 10	6.35	1.67	6.36	1.66	-0.009	0.555	4,938
Non-cognitive skills (1 = high, 5 = low)	2.85	0.33	2.85	0.33	0.003	0.203	4,938
Panel D: Treatment Status							
Booklet treatment	0.49	0.50	0.49	0.50	-0.006	0.238	4,938

Notes: This table is testing for differences between our full baseline sample and the sample answering to the endline survey, considering the pooled sample. Columns (1) to (4) report unadjusted means and standard deviations for these two groups. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on the attrition indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. We furthermore control for baseline imbalances (household size, $>$ 12 years education, search via PES (last 7d)). The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

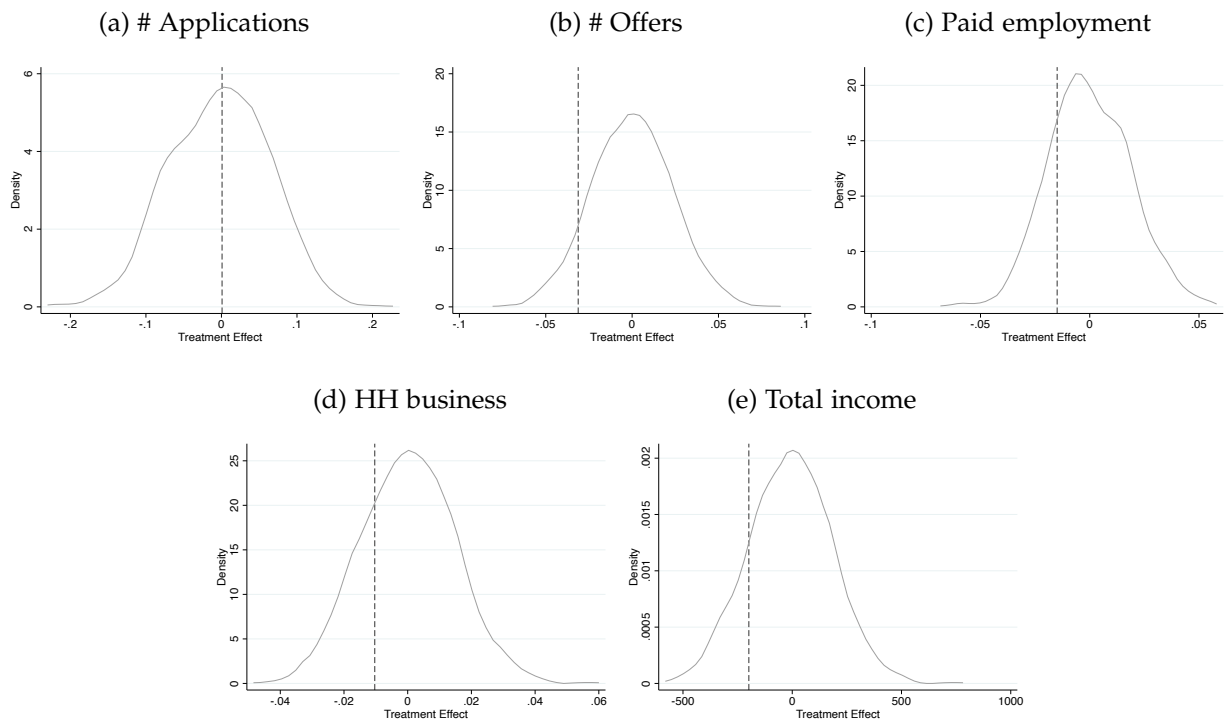
B.2 Robustness of Main Findings

Figure B1: Main Findings – Randomization Inference (Lower-Skill Women)



Notes: These figures present the distribution of placebo treatment effects for lower-skill women from randomization inference with 1,000 re-randomizations using the *ritest* command (Heß, 2017). The dashed vertical line illustrates the observed treatment effect, as reported in Table 3.

Figure B2: Main Findings – Randomization Inference (Rest of Sample)



Notes: These figures present the distribution of placebo treatment effects for everyone but lower-skill women from randomization inference with 1,000 re-randomizations using the *ritest* command (Heß, 2017). The dashed vertical line illustrates the observed treatment effect, as reported in Table 3.

Table B10: Main Findings – Without Control Variables from Post-Double Selection Lasso

	Job Search Behavior		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for LSW	0.087	0.072**	0.054	-0.077***	304.565*
	(0.059)	(0.030)	(0.033)	(0.029)	(178.481)
TE for RoS	-0.031	-0.032	-0.022	-0.009	-144.545
	(0.066)	(0.024)	(0.028)	(0.017)	(221.068)
Difference	0.119	0.104***	0.076	-0.068**	449.110
	(0.082)	(0.036)	(0.047)	(0.033)	(306.079)
Control mean LSW	0.137	0.214	0.371	0.168	1,298.736
Control mean RoS	0.475	0.403	0.624	0.160	4,305.507
N LSW	737	737	737	737	737
N RoS	2266	2,266	2,266	2,266	2,266

Notes: This table replicates panel A of Table 3, however without adding the controls using post-double selection (Belloni et al., 2014). Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table B11: Main Findings – Multiple Hypothesis Testing

	Job Search Behavior		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for LSW	0.085*	0.070**	0.054*	-0.073***	287.159*
	(0.048)	(0.028)	(0.031)	(0.023)	(158.419)
	[0.052]*	[0.023]**	[0.052]*	[0.007]***	[0.052]*
TE for RoS	0.003	-0.032	-0.014	-0.011	-182.090
	(0.066)	(0.023)	(0.019)	(0.015)	(185.282)
	[1.000]	[1.000]	[1.000]	[1.000]	[1.000]
Difference	0.082	0.102***	0.068*	-0.062**	469.249*
	(0.081)	(0.037)	(0.036)	(0.027)	(243.087)
Control mean LSW	0.137	0.214	0.371	0.168	1,298.736
Control mean RoS	0.475	0.403	0.624	0.160	4,305.507
N LSW	737	737	737	737	737
N RoS	2266	2,266	2,266	2,266	2,266

Notes: This table replicates panel A of Table 3, reporting additional minimum q-values from two-stage false discovery rate correction. Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level and reported in parenthesis. Minimum q-values from two-stage false discovery rate correction are displayed in brackets. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table B12: Main Findings – Experimenter Demand (Lower-Skill Women)

	Job Search Behavior		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for Job Search Reminder Call	0.037	0.039	-0.002	-0.073*	148.096
	(0.083)	(0.051)	(0.060)	(0.042)	(346.819)
TE for No Call	0.001	0.095**	0.186**	-0.212***	1422.086***
	(0.114)	(0.045)	(0.092)	(0.057)	(460.254)
Difference	0.036	-0.056	-0.188*	0.139*	-1.3e+03**
	(0.147)	(0.068)	(0.110)	(0.071)	(585.901)
Control mean Job Search Reminder Call	0.173	0.239	0.433	0.154	1734.192
Control mean No Call	0.130	0.170	0.261	0.239	884.043
N Job Search Reminder Call	203	203	203	203	203
N No Call	92	92	92	92	92

Notes: The table reports heterogeneous treatment effects for lower-skill women (LSW) receiving job search reminder calls vs those receiving no call to test for experimenter demand effects. In the case of experimenter demand effects, our findings should be driven entirely by those receiving the calls which we can rule out based on this table. Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.3 Spillover Analysis

Table B13: Baseline Balance (Lower-Skill Women Spillover Proxy)

	Neighboring PES Treated		Neighboring PES Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	31.39	9.77	30.76	9.08	0.518	0.505	858
Married	0.47	0.50	0.50	0.50	-0.055	0.157	858
Household size	4.47	2.13	4.66	2.02	-0.160	0.372	858
# People sleeping in same room	2.84	1.33	2.92	1.41	-0.028	0.797	858
Amharic as Native Language	0.82	0.38	0.81	0.39	0.001	0.982	858
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.27	0.44	0.27	0.45	-0.011	0.736	858
Income from paid work (last 7d)	72.42	476.54	81.93	483.23	-2.095	0.938	858
Permanent job (last 30d)	0.16	0.37	0.12	0.33	0.031	0.207	858
Written agreement / contract (last 30d)	0.20	0.40	0.17	0.38	0.015	0.568	858
Total household income (last 30d)	6,816.27	5,349.22	7,007.37	5,694.99	-553.571	0.247	858
Any job search (last 7d)	0.15	0.35	0.13	0.33	0.025	0.330	858
# Applications (last 30d)	0.32	1.48	0.27	1.31	0.023	0.855	858
# Offers (last 30d)	0.08	0.33	0.06	0.30	0.010	0.643	858
Search via PES (last 7d)	0.00	0.00	0.00	0.05	-0.003	0.296	858
ETB spent on job search (last 7d)	10.17	41.93	9.29	57.50	0.597	0.879	858
Panel C: Skills							
# correct Raven out of 10	5.89	1.51	5.65	1.56	0.237	0.058	858
Non-cognitive skills (1 = high, 5 = low)	2.90	0.34	2.90	0.32	-0.002	0.933	858

Notes: This balance table restricts the sample to lower-skill women, with all covariates drawn from the baseline survey. Columns (1) to (4) present unadjusted means and standard deviations for two groups, defined by a binary indicator for whether the respondent's neighboring woreda was assigned to the treatment group. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on this indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B14: Baseline Balance, Considering Attrition at Endline (Lower-Skill Women Spillover Proxy)

	Neighboring PES Treated		Neighboring PES Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	31.54	9.91	30.76	8.98	0.861	0.301	737
Married	0.47	0.50	0.53	0.50	-0.084	0.043	737
Household size	4.46	2.16	4.61	1.94	-0.086	0.668	737
# People sleeping in same room	2.81	1.32	2.93	1.39	-0.049	0.695	737
Amharic as Native Language	0.81	0.39	0.80	0.40	-0.005	0.878	737
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.27	0.44	0.26	0.44	0.009	0.791	737
Income from paid work (last 7d)	75.27	497.88	66.21	365.11	14.898	0.601	737
Permanent job (last 30d)	0.16	0.37	0.12	0.32	0.035	0.158	737
Written agreement / contract (last 30d)	0.20	0.40	0.17	0.38	0.010	0.730	737
Total household income (last 30d)	6,562.09	4,898.88	6,930.55	5,622.53	-617.689	0.214	737
Any job search (last 7d)	0.14	0.34	0.12	0.33	0.008	0.765	737
# Applications (last 30d)	0.28	1.16	0.30	1.40	-0.122	0.220	737
# Offers (last 30d)	0.08	0.33	0.04	0.23	0.013	0.588	737
Search via PES (last 7d)	0.00	0.00	0.00	0.05	-0.004	0.300	737
ETB spent on job search (last 7d)	9.20	41.48	9.20	59.54	-0.539	0.892	737
Panel C: Skills							
# correct Raven out of 10	5.87	1.50	5.67	1.56	0.216	0.098	737
Non-cognitive skills (1 = high, 5 = low)	2.91	0.33	2.89	0.32	0.006	0.851	737

Notes: This balance table restricts the sample to lower-skill women who answered the endline survey, with all covariates drawn from the baseline survey. Columns (1) to (4) present unadjusted means and standard deviations for two groups, defined by a binary indicator for whether the respondent's neighboring district was assigned to the treatment group. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on this indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B15: Baseline Balance (Rest of Sample Spillover Proxy)

	Neighboring PES Treated		Neighboring PES Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.99	9.10	30.61	8.69	0.243	0.542	2,672
Married	0.43	0.50	0.40	0.49	0.025	0.317	2,672
Household size	4.41	1.94	4.54	1.93	-0.013	0.895	2,672
# People sleeping in same room	2.68	1.37	2.68	1.49	0.006	0.935	2,672
Amharic as Native Language	0.86	0.35	0.84	0.37	0.019	0.299	2,672
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.44	0.50	0.42	0.49	0.032	0.182	2,672
Income from paid work (last 7d)	267.73	1,110	332.41	1,276	-89.200	0.081	2,672
Permanent job (last 30d)	0.29	0.45	0.26	0.44	0.036	0.098	2,672
Written agreement / contract (last 30d)	0.35	0.48	0.31	0.46	0.047	0.035	2,672
Total household income (last 30d)	10,227	7,623	9,446	7,318	702.482	0.066	2,672
Any job search (last 7d)	0.27	0.44	0.25	0.43	0.015	0.519	2,672
# Applications (last 30d)	0.68	1.86	0.85	3.53	-0.202	0.249	2,672
# Offers (last 30d)	0.19	0.58	0.19	0.52	0.017	0.578	2,672
Search via PES (last 7d)	0.00	0.00	0.00	0.04	-0.001	0.203	2,672
ETB spent on job search (last 7d)	31.76	103.07	32.71	113.88	-1.734	0.732	2,672
Panel C: Skills							
# correct Raven out of 10	6.40	1.64	6.32	1.68	0.047	0.614	2,672
Non-cognitive skills (1 = high, 5 = low)	2.84	0.32	2.86	0.34	-0.012	0.489	2,672

Notes: This balance table restricts the sample to everyone but lower-skill women, with all covariates drawn from the baseline survey. Columns (1) to (4) present unadjusted means and standard deviations for two groups, defined by a binary indicator for whether the respondent's neighboring district was assigned to the treatment group. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on this indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B16: Baseline Balance, Considering Attrition at Endline (Rest of Sample Spillover Proxy)

	Neighboring PES Treated		Neighboring PES Control		Delta		
	Mean	SD	Mean	SD	Beta	P-Value	Obs
Panel A: Socioeconomic Characteristics							
Age	30.90	9.19	30.61	8.71	0.221	0.619	2,266
Married	0.44	0.50	0.40	0.49	0.036	0.174	2,266
Household size	4.42	1.92	4.57	1.95	-0.052	0.628	2,266
# People sleeping in same room	2.70	1.38	2.69	1.47	0.017	0.840	2,266
Amharic as Native Language	0.86	0.35	0.84	0.37	0.029	0.120	2,266
Panel B: Employment, Income, Job Search							
Paid employment (last 7d)	0.45	0.50	0.43	0.50	0.035	0.159	2,266
Income from paid work (last 7d)	271.37	1,128.42	305.22	1,204.52	-48.446	0.368	2,266
Permanent job (last 30d)	0.29	0.45	0.25	0.44	0.040	0.091	2,266
Written agreement / contract (last 30d)	0.36	0.48	0.31	0.46	0.057	0.017	2,266
Total household income (last 30d)	10,174.35	7,466.90	9,224.64	7,171.82	854.590	0.022	2,266
Any job search (last 7d)	0.27	0.44	0.26	0.44	0.006	0.794	2,266
# Applications (last 30d)	0.70	1.91	0.87	3.66	-0.213	0.281	2,266
# Offers (last 30d)	0.18	0.52	0.20	0.54	-0.002	0.938	2,266
Search via PES (last 7d)	0.00	0.00	0.00	0.03	-0.001	0.317	2,266
ETB spent on job search (last 7d)	31.90	104.56	32.82	113.58	-2.025	0.711	2,266
Panel C: Skills							
# correct Raven out of 10	6.41	1.64	6.30	1.70	0.077	0.434	2,266
Non-cognitive skills (1 = high, 5 = low)	2.85	0.33	2.86	0.34	-0.008	0.649	2,266

Notes: This balance table restricts the sample to everyone but lower-skill women who answered the endline survey, with all covariates drawn from the baseline survey. Columns (1) to (4) present unadjusted means and standard deviations for two groups, defined by a binary indicator for whether the respondent's neighboring district was assigned to the treatment group. Columns (5) and (6) report coefficients and p-values from separate regressions of each covariate on this indicator, controlling for strata fixed effects and an unrelated, cross-randomized intervention. The variables Income from paid work, Total household income, and ETB spent on job search are winsorized at the 0 and 99 percentiles. Standard errors are clustered at the district level. Sampling weights are applied.

Table B17: Main Findings – Neighborhood Spillovers (Lower-Skill Women)

	Job Search Outcomes		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for LSW	0.090*	0.068***	0.063**	-0.076***	353.794**
	(0.048)	(0.026)	(0.031)	(0.023)	(156.214)
2nd closest OSSC has booklet	0.000	-0.012	0.015	0.001	-71.574
	(0.049)	(0.033)	(0.032)	(0.024)	(164.764)
Control mean	0.116	0.207	0.344	0.164	1,320.370
Number of obs.	737	737	737	737	737

Notes: This table replicates panel A of Table 3 for lower-skill women (LSW), controlling in addition for the constructed spillover proxy. Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (*woreda*) where the vacancy booklet was available in the PES office. To test for spillover effects, this table includes a binary indicator whether the second closest PES is also treated, that is receiving the vacancy booklet. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (income from paid work (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B18: Main Findings – Neighborhood Spillovers (Rest of Sample)

	Job Search Outcomes		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for RoS	-0.008	-0.028	-0.014	-0.009	-217.601
	(0.067)	(0.023)	(0.019)	(0.015)	(186.413)
2nd closest OSSC has booklet	0.027	0.016	-0.026	-0.017	-177.292
	(0.063)	(0.024)	(0.019)	(0.015)	(192.201)
Control mean	0.467	0.392	0.604	0.178	4,246.919
Number of obs.	2,266	2,266	2,266	2,266	2,266

Notes: This table replicates panel A of Table 3 for the rest of sample (RoS), controlling in addition for the constructed spillover proxy. Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (*woreda*) where the vacancy booklet was available in the PES office. To test for spillover effects, this table includes a binary indicator whether the second closest PES is also treated, that is receiving the vacancy booklet. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (Household size, # people sleeping in the same room, any job search (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

C Additional Results

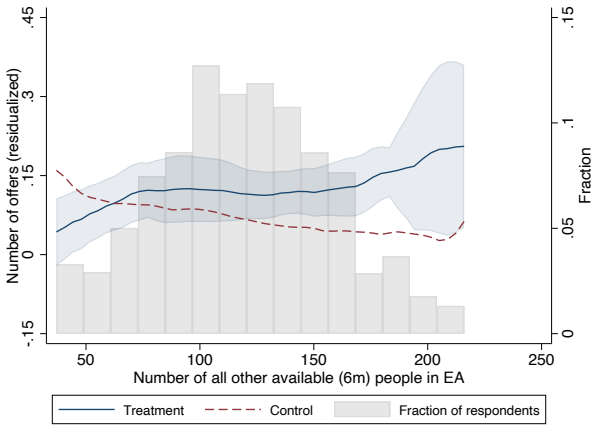
Table C1: Main Findings During vs End of the Intervention (Rest of Sample)

	Job Search Outcomes		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE during intervention	0.020	-0.031	-0.005	-0.012	-240.584
	(0.095)	(0.039)	(0.026)	(0.020)	(260.061)
TE after intervention	-0.038	-0.027	-0.020	-0.004	-177.537
	(0.092)	(0.025)	(0.026)	(0.021)	(263.547)
Difference	0.058	-0.004	0.015	-0.008	-63.047
	(0.132)	(0.047)	(0.037)	(0.029)	(369.183)
Control mean during	0.546	0.247	0.625	0.154	4,377.480
Control mean after	0.401	0.443	0.622	0.167	4,230.082
N during	1,154	1,154	1,154	1,154	1,154
N after	1,112	1,112	1,112	1,112	1,112

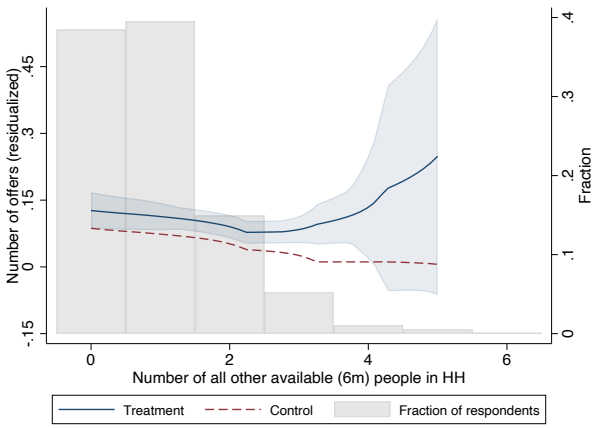
Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (*woreda*) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. The table examines heterogeneity by endline survey round for everyone but lower-skill women. The endline survey was conducted in two rounds. The first round overlapped with the final booklet release, allowing us to capture treatment effects during and after the intervention. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (Household size, # people sleeping in the same room, any job search (last 7d), see Appendix B.1 for more details). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure C1: Number of job offers for low-skill women at endline, by treatment status and by number of other job seekers in neighborhood (panel a) or household (panel b)

Panel a) Other job seekers in neighborhood

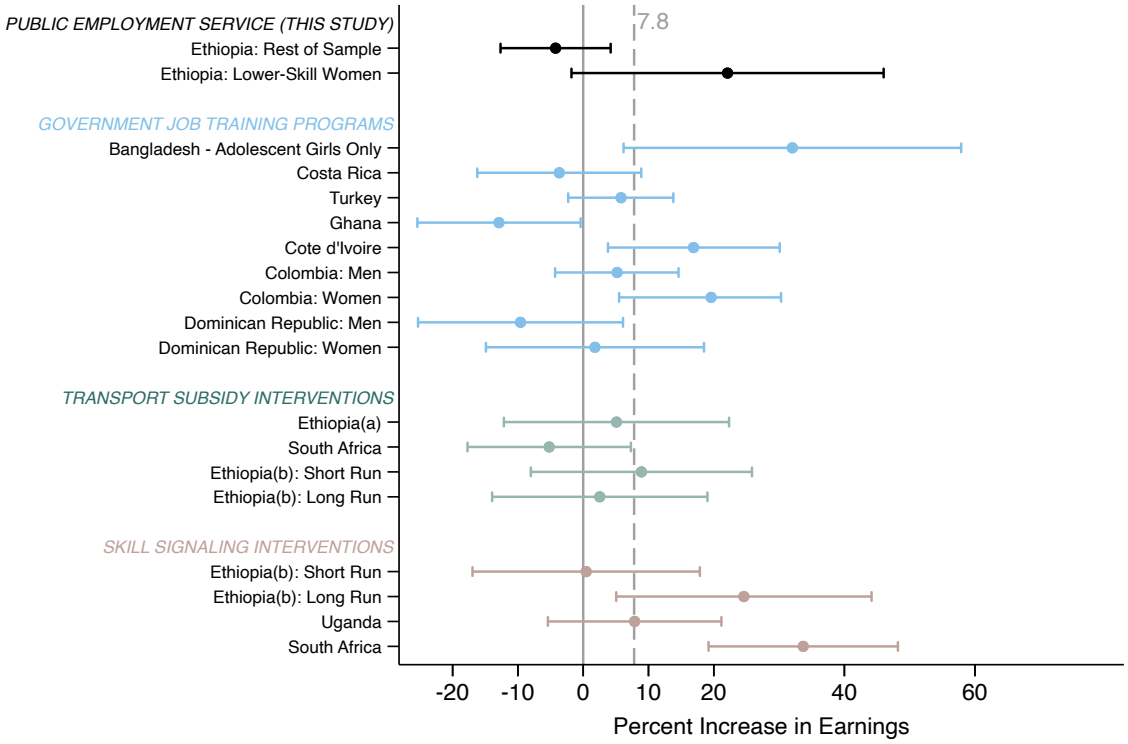


Panel b) Other job seekers in household



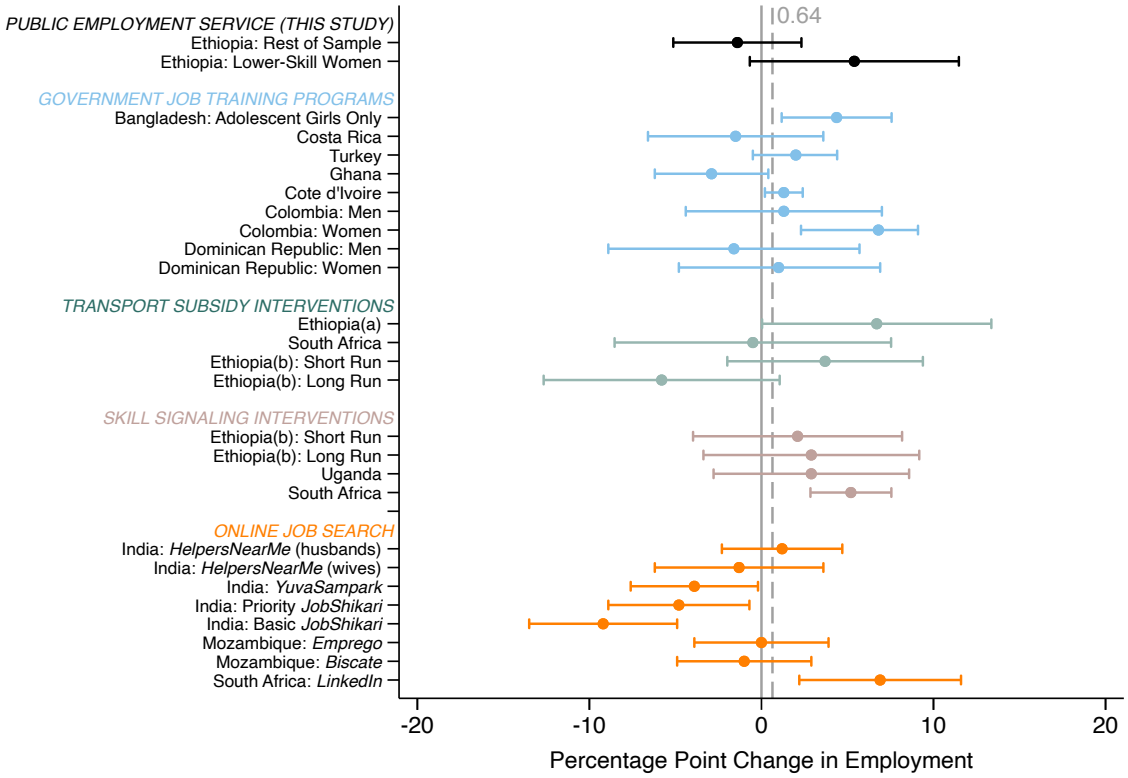
Notes: This figure shows a kernel-weighted (Epanechnikov) local polynomial regression of the number of job offers low-skilled females received at endline on the number of other job seekers living either in the respondent's neighborhood (left panel) or her household (right panel). The local polynomial regression is shown separately by whether the individual lives in a treated Woreda (blue solid line) or control Woreda (red dashed line), with 90% confidence bands shown for the treated group. Job seekers are defined as all people available to take up a job in the next six months, either living in the respondent's enumeration area (EA, left panel) or household (right panel). The grey histograms in the background show the fraction of low-skill female respondents living in an EA or household with the respective number of other job seekers.

Figure C2: Comparison of Estimated Treatment Effects with Evaluations of Labor Market Interventions in the Literature: Earnings Impacts



Notes: This figure presents the estimated earnings impact of various job training programs across low-income countries, taken from Carranza and McKenzie (2024) (Figures 3 and 4). The percent increase in earnings is reported in comparison to the control mean. Point estimates are shown with 95 percent confidence intervals. The interventions are organized into four categories: public employment services (our study), government job training programs, transport subsidy interventions, skill signaling interventions. Online job search portals are excluded as no earnings impacts are reported by Carranza and McKenzie (2024). The dashed line shows the average earnings increase of 7.8 percent across across all studies (excluding our study). Sources for estimates are: Dominican Republic (Paloma, Guillermo, Paul and Sebastian, 2020), Colombia (Attanasio, Guarín, Medina and Meghir, 2017), Côte d'Ivoire (Crépon and Premand, 2024), Ghana (Hardy, Mbiti, Mccasland and Salcher, 2019), Costa Rica (Novella, Rosas-Shady and Freund, 2024), and Bangladesh (Amin and Makino, 2024) for newer studies. Ethiopia (a) estimates are from Franklin (2018) at four months post-intervention; South Africa estimates from Banerjee and Sequeira (2023) at one year post-intervention; Ethiopia (b) estimates from Abebe, Caria, Fafchamps, Falco, Franklin and Quinn (2020) at one year and four years post-intervention; Uganda estimates from Bassi and Nansamba (2022) at one year post-intervention; South Africa estimates from Carranza et al. (2022) at four months post-intervention.

Figure C3: Comparison of Estimated Treatment Effects with Evaluations of Labor Market Interventions in the Literature: Employment Impacts



Notes: This figure presents the estimated employment impact of various job training programs across low-income countries, taken from Carranza and McKenzie (2024) (Figures 3, 4, and 5). Employment is defined as engaging in any paid work. Point estimates are shown with 95 percent confidence intervals. The interventions are organized into five categories: public employment services (our study), government job training programs, transport subsidy interventions, skill signaling interventions, and online job search platforms. The dashed line indicates the average employment impact of 0.64 percentage points across all studies (excluding our study). Sources for estimates are: Dominican Republic (Paloma et al., 2020), Colombia (Attanasio et al., 2017), Côte d'Ivoire (Crépon and Premand, 2024), Ghana (Hardy et al., 2019), Turkey (Hirshleifer, McKenzie, Almeida and Ridao-Cano, 2016), Costa Rica (Novella et al., 2024), and Bangladesh (Amin and Makino, 2024) including newer studies for government job training program. Ethiopia (a) estimates are from Franklin (2018) at four months post-intervention; South Africa estimates from Banerjee and Sequeira (2023) at one year post-intervention; Ethiopia (b) estimates from Abebe, Caria, Fafchamps, Falco, Franklin and Quinn (2020) at one year and four years post-intervention; Uganda estimates from Bassi and Nansamba (2022) at one year post-intervention; South Africa estimates from Carranza et al. (2022) at four months post-intervention for transport subsidy and skill signaling interventions. Sources for online job search studies are as follows. India estimates for *Helpersnearme* platform are from Afridi et al. (2023); India estimates for basic and priority *YuvaSampark* platform are from Chakravorty et al. (2023); India *JobShikari* is from Kelley et al. (2022); Mozambique estimates for *Biscate* (informal manual jobs) and *Emprego* (formal jobs) platforms come from Jones and Sen (2022); South Africa's *LinkedIn* platform estimates come from Wheeler et al. (2022).

D Analysis of Pooled Sample

Table D1: Take-up of the Intervention (Pooled Sample)

	Aware of booklet	Used booklet	Applied to booklet
	(1)	(2)	(3)
TE for Pooled Sample	0.638***	0.132***	0.018***
	(0.014)	(0.010)	(0.004)
Control mean	0.057	0.007	0.000
Number of obs.	3,003	3,003	3,003

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. The table reports treatment effects for the pooled sample. All specifications include strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (household size, any job search (last 7d), see Table B6). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D2: Main Findings (Pooled Sample)

	Job Search Outcomes		Labor Market Downstream Outcomes		
	# Applications	# Offers	Employment for pay	Work in HH business	Total Income
	(1)	(2)	(3)	(4)	(5)
TE for Pooled Sample	0.017	-0.005	0.007	-0.027**	-50.658
	(0.051)	(0.019)	(0.016)	(0.012)	(144.464)
Control mean	0.394	0.359	0.563	0.162	3584.040
Number of obs.	3003	3003	3003	3003	3003

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (*woreda*) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. Total income is winsorized at the 0 and 99 percentiles. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (household size, any job search (last 7d), see Table B6). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table D3: Job Search Aspirations (Pooled Sample)

	Search Behaviors			Reservation Wages			Expectations	
	# Hours	High Skill Job Dummy	Low- & Medium-Skill Dummy	Gap	Permanent	Temporary	Any offer	Salary
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
TE for Pooled Sample	-0.774	-0.003	-0.005	457.891**	89.302	491.402*	0.013	162.156
	(1.037)	(0.015)	(0.014)	(180.671)	(172.777)	(267.455)	(0.015)	(210.008)
Control mean	3.550	0.197	0.146	1,646.809	8,429.392	10,053.842	0.798	6,146.729
Number of obs.	3,003	3,003	3,003	2,971	2,995	2,975	3,003	2,948

Notes: Treatment Effect (TE) is a binary indicator for treatment assignment, defined as living in a district (woreda) where the vacancy booklet was available in the PES office. All outcomes are measured at endline. The table reports treatment effects for the pooled sample. Columns (1) to (3) focus on updates in search behaviors. Specifically, column (1) reports the number of hours searched in the past 30 days, while columns (2) and (3) examine directed search behavior based on the skill levels required for the job. Jobs are classified into high-skill versus low- and medium-skill categories according to the ISCO skill classifications. Columns (4) to (6) present information on reservation wages. While columns (5) and (6) provide the winsorized reservation wages (winsorized at the 0 and 99 percentiles) for permanent and temporary positions, respectively, column (4) reports the gap between these two measures. Finally, columns (7) and (8) explore job seekers' expectations regarding offer arrivals over the next four months. Column (7) reports whether job seekers expect to receive any offers within this period, and column (8) reports the expected winsorized salary (winsorized at the 0 and 99 percentiles) of these anticipated offers. All specifications include the baseline value of the dependent variable, strata fixed effects, and an indicator for an unrelated, cross-randomized intervention. We control for baseline imbalances, accounting for attrition at endline (Household size,Any job search (last 7d), see Table B6). In addition to these, further controls are selected using post-double selection (Belloni et al., 2014). Standard errors are clustered at the district level. Sampling weights are applied. * p < 0.10, ** p < 0.05, *** p < 0.01.