Can online Job Adverts help SMEs find the Right Workers? Evidence from Ghana*

Monica Lambon-Quayefio, Kofi Asante, James Dzansi, Henry Telli†

May 2024

Abstract

In developing countries, a paradox exists in labour markets where high youth unemployment co-exists with SMEs struggling to find workers. In this study we challenge the perception that hiring in the informal sector is straightforward due to the reliance on personal networks. Within a randomized experiment framework, we investigate the efficacy of a government online job portal in Ghana on SME hiring outcomes. The results highlight significant information constraints in conventional hiring practices and show that detailed online adverts significantly enhance the quality of applicants and expedite the hiring process. The study underscores the potential of online job platforms to mitigate hiring challenges in the informal sector of developing countries..

Keywords: Labour market efficiency, online jobs, experiment, matching.

JEL classification codes: D22, J23, J28, J46, J63, M51, O1

*This study was undertaken with funding from the International Growth Centre (IGC). We sincerely thank the Youth Employment Agency (YEA) for working in close partnership with us to implement the interventions. We are particularly grateful to the YEA Jobcentre Partnerships team lead by Mr Agya Yaw Nsiah, Mr Luise Kudom, and Mr Abraham Jakalia. We are also grateful to the team at DataPlas – Kojo Mensah Sedzro, Martin Agbodzi and all the enumerators for their support with the Data collection. We thank Kekeli Adonu and Francis Ekow Bediako Evans Abakah and Dorcas Asaah Peprah for their Research Assistantship at various stages of the project. We appreciate the support from Prof. William Baah Boateng and the IGC Ghana Programme Leadership team. We are also grateful for feedback from participants from the Northeast Universities Development Conference (NEUDC) and also from Jamie McCasland, Dennis Egger. This study was pre-registered at the AEA RCT Registry (ID: AEARCTR-0007381) and has IRB approval in University of Ghana.

† Asante: Institute of Statistical Social and Economic Research (ISSER), University of Ghana Dzansi: International Growth Centre, London School of Economic and Political Science (LSE) Lambon-Quayefio: Department of Economics, University of Ghana (Corresponding Author) Telli: International Growth Centre, London School of Economic and Political Science (LSE)

1 Introduction

The challenge of rising unemployment is rife in most countries in SSA and at the same time, firms struggle to find workers. A possible explanation for this puzzle is the role of labour market frictions where information frictions and search costs, both for firms and jobseekers make it difficult firms to find the suitable candidate for vacant positions. Especially for micro, small and medium firms, this challenge is non-trivial. In recent times, digital tools in the form of online platforms have emerged as a solution to this challenge. However, is not clear how MSMEs can best utilise these platforms. Especially given that costs involved in posting vacancies on such platforms is costly, both with respect of to time and money costs. In this study we evaluate the impact of providing detailed vacancy description on a government online platform within the context of a randomized controlled trial.

In a context where the labour market is characterised by high unemployment and high prevalence of Micro, Small and Medium Scale Enterprises (MSMEs), the unemployed youth who have limited opportunities in the formal wage sector are likely to be the labour pool from which MSMEs rely (Hardy et al. 2023). However, there are still unmet labour needs for the SMEs in Africa (Barnejee and Sequiera, 2020). A possible explanation for this paradox (i.e. coexistence of high youth unemployment and high unmet labour needs for SMEs) is the inefficiencies in the labour market (Chade et al., 2017). Contrary to widespread belief, the highly informal recruitment practices among MSMEs in the African context makes it difficult for employers and jobseekers to find each other easily. In most cases, both job seekers and employers incur high costs to find each other (Abebe et al., 2021b). Such costs include transportation costs (Franklin, 2018; Abebe et al., 2021a), screening costs (Abebe et al., 2021a) and entrance fees (Hardy and McCasland, 2023).

In this paper, we focus on understanding the nature and degree of matching inefficiency as well as investigating whether a national online jobs portal can help improve labour market efficiency, particularly for MSMEs. We proceed by first investigating if MSMEs are finding the workers they need quickly and effectively. Within a randomized controlled trial framework, we then test whether placing MSME job adverts on a freely available government-operated online job portal improves their ability to find the right workers quickly. First, we undertook a vacancy search baseline survey in Accra. This focused on vacancies that had not been published in any formal outlet (such as newspapers and online job websites) and had not been widely publicised. The purpose of this was to understand the extent to which such unpublicised vacancies are prevalent in the city and to obtain a sample of job vacancies that were eligible for the experiment. The number of such vacancies realised from the survey suggested that the lack of jobs is not the only constraint in the labour market.Second, we undertook two follow-up surveys of the MSMEs who had vacant job positions at baseline to determine, among other things, whether the vacancies had been filled. We discovered,

from these follow-up surveys, that MSME employers do face significant difficulties in finding the workers they need; to the extent that 30 percent of the vacancies remained unfilled six months after the baseline survey. Third, we undertook an experiment where we treated random samples of the job vacancies by publishing them (and publicising them) on a national online job centre established by the government of Ghana.

The experiment had two treatment arms – basic/limited job vacancy information and detailed/full job description with person specification – both published on the government website. The control job vacancies were not published online and followed the status quo recruitment strategy of the SMEs. These experimental arms allow us to test directly the value addition of providing detailed description in advertising vacancies. This is because, firms incur costs – time and monetary costs in advertisement to find suitable workers. The evaluation focused on three outcomes: (i) quality/competitiveness of the recruitment process, (ii) the probability of finding the needed worker; and (iii) suitability of the worker employed to fill the vacancy (quality of matching). Although the intervention being evaluated does not strictly deal with matching employees with employers on various pre-specified parameters, it serves as an information intervention where job seekers and employers find each other using technology, thereby reducing matching information asymmetries. As noted by Jones and Sen (2022), such interventions make employees (employers) fully aware of suitable vacancies (candidates) in the labour market, thereby improving labour market inefficiencies. This is particularly beneficial to MSMEs who particularly find it difficult to find employees for their firms (Hensel et al., 2021; Hardy and McCasland, 2023).

We randomly split a sample of 590 positions into three groups – control, treatment 1 and treatment 2. While vacant positions in treatments 1 and 2 were both published on the online job portal, they differed in the level detail published on the portal. Positions in first treatment had only basic information about the position – job title, type/nature of business of the firm, location (name of locality), how to apply and contact details for receiving applications. For example: "Primary Teacher wanted for a basic school located at Adenta; call 024X XXX XXX". This was done to use the online portal to mimic how most MSME's employers advertise their vacant positions, often using banners or posters displayed on or near their business premises (see Figure 1 in the appendix for examples of such status quo job adverts). The detailed information – including full job description and person specifications are published for positions in treatment 2. The employers whose positions are randomized into the control group were left to use their usual method of finding the workers (status quo) for the vacant positions they had. Note that randomisation was at the position level, which means that for some positions, the firms were looking to hire more than 1 worker to fill that position. In total, 1,016 workers were needed for the 590 positions.

We estimated an average treatment effects (ATE) model to measure the impact of treat-

ments on the three main study outcomes stated above – the quality of recruitment process; probability of matching and quality of matching (from the perspective of both employer and employee). Each of these outcomes are indexes constructed indexes based on indicators such as whether the position is filled, the number of (qualified) people who applied, the employer's level of satisfaction with the person(s) they employed to fill the vacancy, the employee's level of satisfaction, etc.

The results show that when job vacancies are advertised on the online portal, it improves the recruitment process and enhances the potential of a match between jobseeker and employer. Further, the results suggest that the quality of a match is not statistically different for firms who published basic information of the position (treatment 1) and firms who relied on conventional hiring practices (conrol). However, we find evidence of benefits in publishing full job description and person specification on the online portal as it significantly improves the quality of the match from both employer and employees perspectives.

Our study fits into a growing literature that focuses on evaluating various interventions aimed at improving labour market efficiency in developing country contexts. Several studies, including McKenzie (2017), Hardy and McCasland (2023), Kelley et al. (2022) and Fernando et. al., (2023) have evaluated various interventions which were aimed at minimising search frictions for jobseekers and prospective employers. While some studies (such as Fernando et al., 2023; Bassi and Nansamba, 2022; Kelley et al., 2022; and Abebe et al., 2021b) have focused on reducing search frictions, others (such as Hensel et al., 2021; Hardy and McCasland, 2023; Banerjee and Sequeira, 2020; Crepon et al, 2019; and Abebe et al, 2021a) have evaluated the impacts of subsidizing search costs for employers. Largely, the impacts of such interventions that seek to facilitate the matching process have been mixed results, as noted by Banerjee and Chiplunkar (2018) and Groh et al. (2015). For instance, a recent experiment that provided job information to youth in India through a job portal found that the efficiency of the portal to reduce unemployment among youth largely depends on expectations of the youth (Kelley et al., 2023). In the same context, increasing firms' access to skilled candidates alone through a job portal does not enhance firms' recruitment efforts. Identity verification services provided on the portal are most effective for firms and allows them to successfully leverage on the one expanded recruitment pool that the portal offers, Fernando et. al., (2023). Other interventions by Groh et al. (2015) also emphasised the role of reservation prestige in the effectiveness of the matching process.

Largely, employers and job seekers spend a significant amount of resources in the attempt to find the most suitable candidate and the best job, respectively. According to Carranza et al. (2022), job seekers in Johannesburg, for instance, spend about 30 percent of their weekly expenditure on job search related activities. Similarly, employers face the problem of examining numerous applications in search of the most suitable match for a particular

vacancy (Hensel et al., 2021). Particularly for small and medium-scale firms, the time and money costs is even higher (Hensel et al., 2021; Hardy and McCasland, 2022).

Various technologies have been deployed in a few studies to test efficiency in the matching process. In Peru, Dammert et al. (2015) employed SMS and formal job platforms were used by Fernando et al. (2023), Kelley et al. (2022) and Chakravorty et al. (2021) to minimize search frictions as was implemented in Mozambique by Jones and Sen (2022). Reducing search frictions is expected to improve the matching between jobseekers and employers. Other studies have also considered other interventions to improve matching between jobseekers and employers. Jensen (2012), Franklin (2014) and Groh et al., (2015) have provided information about jobs and interview skills, transport cost subsidies to job seekers to facilitate the matching of job seekers to employers. To facilitate the matching process, Fernando et al. (2023) also provide identity verification services to improve trust for employers. Through job websites, Beam et al., (2014) have provided information about international migration opportunities to facilitate recruitment for job seekers. While these interventions have largely found positive effects on employment, others (eg. Kelley et al., (2022), Abebe et al., (2021a) and Groh et al., (2015) have emphasized the role of expectations of jobseekers in the matching process.

Our study differs from the most related literature (Kelley et al., 2023; Groh et al., 2015; and Abebe et al. 2018a) in two ways. First, while Kelley and colleagues evaluate the impact of providing an increased number of matched job positions to jobseekers, we go a step further in this study to directly test the impact of providing more detailed descriptions of the job vacancies on matching efficiencies. Our study is most related to Fernando et al. 2023 in part because they increase the visibility of vacancies through premium advertisement on a job portal but also differs from our study because they focus on additional identity verification services to signal the trustworthiness of the candidates.

In our study we focus more on the nature of the advertisement. Writing full job descriptions and person specifications can be time-consuming and costly to MSME employers, but it is not clear how much these practices contribute to finding more suitable candidate for advertised positions. Providing the details of job vacancies including the nature of the job, its salary and benefits, and other requirements such as experience level are all likely to better inform prospective applicants and, therefore, increase the quality of applicants and the suitability of the person who are eventually hired for the position. Second, in the current study, in addition to measuring impacts on hiring and retention as seen in Fernando et al. (2023) we measure the impact of the interventions more directly on matching by evaluating the impacts on job satisfaction and employer satisfaction with hired employee. We are also able to measure the impact of the quality of matching from the perspective of the employee.

2 The Study Context and the YEA Job Portal

2.1 Study Context

With a population of 30.8 million, Ghana is transitioning from a population dominated by children to one that is dominated by young people, where about 40 percent of the population are within the ages of 15-35 years (GSSb, 2021). The most recent firm census conducted in 2015 shows that the economy is dominated by Micro, Small, and Medium Enterprises bracket (MSMEs) which make more than 85 percent of all firms, with 90 percent of the firms operating informally (GSS, 2015). The 2021 population census showed that the labour market is also characterised by high informality with about 67 percent of the 11.5million labour force engaged in informal employment (GSSa 2021). The census data also shows that most of the employed people (66.7 percent) are self-employed (with or without employees). Additionally, the data indicated that 313,174 people were unemployed at the time the census was conducted in June-July 2021 with many of them (34 percent) being first-time job seekers.

In seeking employment, prospective employees spend a lot of time and money in the bid to find suitable jobs. According to GSS (2015), the most popular means of finding jobs is through personal networks. Specifically, the report notes that close to half (46.7%) of people in the labour force relied on informal networks to find jobs. This means that many business establishments in the country rely on informal channels to recruit their employees. Despite the existence of online job portals, most MSMEs and informal business do not use these portals. The Greater-Accra region was chosen for this study because it is the most populous region (GSS, 2021) and has the highest concentration of business establishments according to the Integrated Business Establishment Survey (GSS, 2015). The same report (ie GSS (2015) highlights the prevalence of network-based recruitment practices among business establishments in the Accra Metropolis. Baffoe (2016) reinforces this fact using qualitative data on 1000 SMEs in Accra. A major reason for the heavy reliance on such informal channels of recruitment is the perceived low upfront cost associated with such practices. In effect, there is an increased likelihood of employers ending up with unqualified and less suitable candidates for vacant positions. The inefficiency in matching vacancies may also result in less job satisfaction and productive employees, which may have implications for the growth and profitability of businesses.

2.2 The Youth Employment Agency Online Job Centre

In November 2019, the government of Ghana, through its Youth Employment Agency (YEA) established a Job Centre online platform to coordinate and facilitate job placements. The portal, available via www.yeajobcentre.gov.gh, is the first public online jobs portal that provides free employment services to Ghanaian residents, especially the youth who are searching

for entry to mid-career level positions across all the sectors. Employers can register their businesses or institutions for free and place their job adverts on the online platform or they can request the Job Centre to recruit personnel for them. Jobseekers can also register, search for jobs, create their CVs and apply for jobs online for free. The Job Centre portal (JCP) reduces the time and financial commitments associated with employing through formal means. The relatively new nature of the portal meant that most MSME employers, especially in the informal sector, were either not aware of it or had not switched to using the portal for their recruitment needs. This offered a great opportunity for us to design our intervention in partnership with the YEA and their team of partnership officers.

2.3 Study Design

We implement a two-arm Randomized Control Trial (RCT) to evaluate the impact of two levels of information interventions – the amount of vacancy details advertised on an online job platform. Our sample is comprised 590 positions which yielded 1016 vacancies collected over a period of 3 months from June to August from 352 employers. We randomly assigned positions to the two treatment arms: T1=330 (197 positions) and T2=348 (198 positions), with the remainder in the control group (C=342 (196 positions). Immediately after the vacancy information is obtained and verified, vacancies that are randomized into the two treatment arms are shared with the partnership officers from the implementing partner, Youth Employment Agency (YEA) for publication on the online portal. The baseline survey of employers was conducted on a rolling basis as soon as vacancy information is collected. Detailed vacancy and person specifications are collected for all vacancies but this information is withheld based on the arm that the vacancy is randomized into.

In treatment group 1 (T1), we publish only the basic vacancy information on the portal. For example, the publication on the portal will simply read: "Receptionist wanted for a small Hotel [Name of Hotel] located at East Legon, in Accra. Send applications to [Employer's Contact Information] by [Deadline]". In treatment group 2 (T2) – the full job information (i.e. detailed job description; person specification; contract type, salary range, other non-pecuniary benefits etc.) were published on the portal. In the pure control group (T0), vacancies were not published on the portal. Instead, the employers in this group.

Attempts were also made to publicise the vacancies (published on the portal) on various social media platforms consistent with what is done for all vacancies that are advertised through the portal. Two follow-up calls to employers were made four weeks and three months after randomisation and after all the application deadlines for the vacancies have elapsed. This was done to collect data on the status of the vacancy, including the number of applications received for each advertised vacancy. The three- month period coincides with the probationary period of many of the vacancies found in the MSME sector and allows enough

time for both employers and employees to provide their feedback on the outcomes of interest. We designed two separate instruments for employees and employers.

Overall attrition for the vacant positions was moderate. As shown in appendix table 1, attrition for the full sample was about 12.9%. Similar attrition rates were noted across the three arms of the study. Attrition in the control, T1 and T2 were 12.8%, 12.7% and 13.1% respectively. Among employers, the attrition rate for the full sample was about 9.9% with similar rates observed for all arms of the study (see appendix table 1). The highest rates were recorded for employees- 13.9% for the full sample, 15.8% for control, and 14.9% and 10.9% for T1 and T2 respectively. The relatively high attrition rates recorded for the vacancies is because of the unwillingness of employers to share the details of their hired employees for interviewing. Only about 44% of the employers who were interviewed at end-line were willing to share the details of their hired employees.

The survey examined the ex-post suitability and performance of the persons who were employed to fill the vacancies in the three groups. Likert scale type questions were used to measure the satisfaction of the employers and employees on various aspects of the employer-employee relationship. These questions allowed us to measure the impact of treatment on the likelihood of finding a more suitable (productive) worker. The employee survey examined job satisfaction and how well the current job matched their skill set. Other indicators, such as worker retention and satisfaction with supervisors and love for their jobs, among others, were also assessed.

Although the experiment was initially designed to assess the impact of the intervention on vulnerable workers (including new and expectant mothers, people with disabilities etc) directly, the nature of the data collected did not allow us to undertake any meaningful analysis on this category of people.

3 Data and Outcome Indicators

3.1 Data

The analytical sample comprises 590 positions and a total of 648 vacancies. All randomisation was done at the position level. From the total analytical sample, 208 are in the control arm and 216 and 224 in the two treatment arms- T1 and T2, respectively. The baseline survey collected data on the positions that employers were interested in filling. Besides the employer survey instrument, we administered a separate module on the vacancy. Information collected included the ideal gender and education of the employee, whether the position is full time or part-time or whether the position is shift-work. Characteristics of the employer, including the gender and educational level, were also collected.

By the design of the intervention, a midline survey was conducted about three months after the baseline to follow up on the progress of the recruitment of employees. The end-line survey administered after three months of the midline was chosen to coincide with the probationary period of new employees. At the end-line, we surveyed both the employer and their newly hired employees. The employer was asked series of questions regarding their experience with the recruiting process, their overall satisfaction with the employee on various dimensions including performance, general attitude towards work, punctuality, and suitability of the employee. To the employee, similar questions regarding their satisfaction with the job, the working environment, satisfaction with supervisors, love for job, among others, are solicited.

We constructed match quality indexes using the various indicators as shown in table 1. We constructed the indexes such that higher values represent positive or desired outcomes. We then generate z-scores for each variable entering the index using the baseline mean and the standard deviation for that outcome and then we generate means of the z-scores.

3.2 Outcome indicators

To test the main hypotheses of the study, we make use of a set of individual indicators capturing outcomes of interests. We measure the quality of the recruitment process using two indicators- the number of applicants who applied for the position and the number of candidates interviewed or seriously considered for the position. Similarly, the likelihood of obtaining a match is proxied by indicators such as the likelihood that the position is filled, the number of people hired for the position and the difficulty in filling the position. To get a sense of the quality of the match between jobseekers and employers from the perspective of the employer and the employee, we create a match quality index comprised of eight indicators (for the employer) standardized and nine indicators also standardized (for employees) (see table 1 for the outcomes and indicators used to measure them).

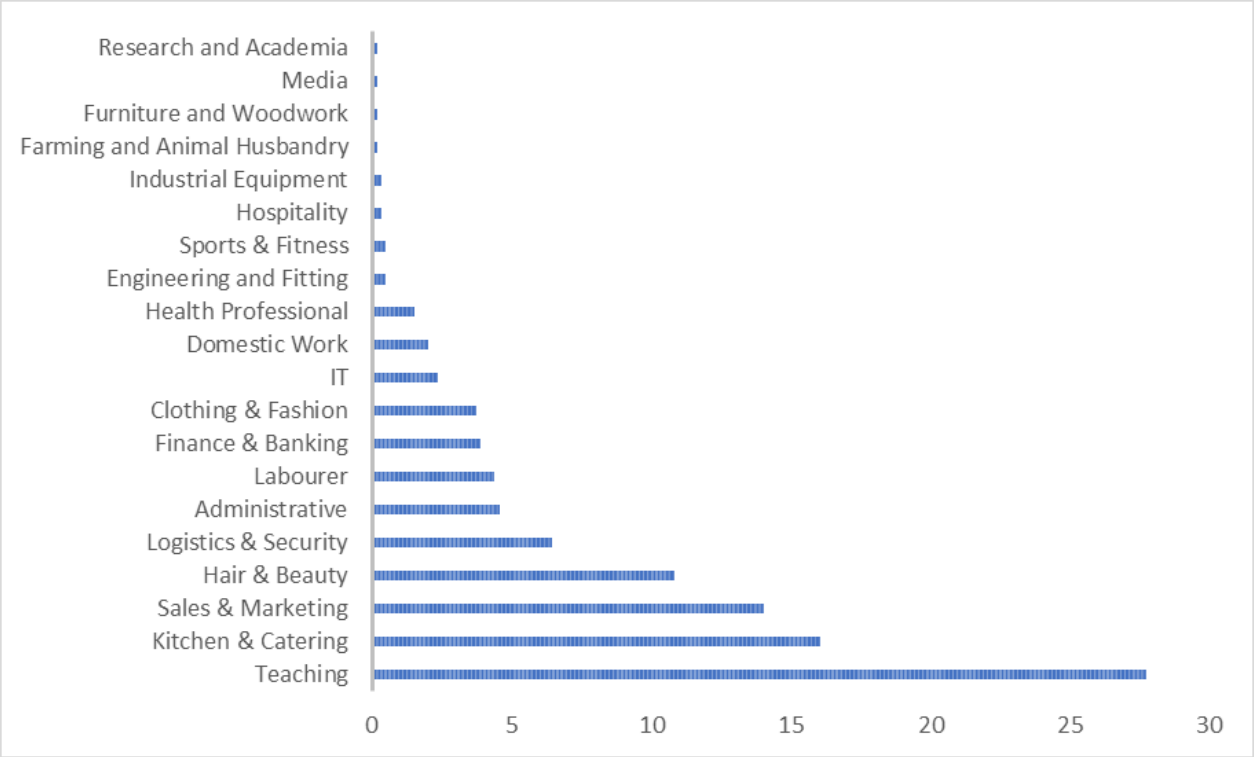
3.3 Summary Statistics and Balance Checks

Over a period of 33 days of field work, the number of positions found was 705 with 2152 vacant positions from 407 employers. On average, the number of vacancies recorded was 3.3. The average age range for advertised vacancies is 21-35 years while the required average years of experience in the sample was about 1 year. Regarding remuneration, range is from GHS 452-650 ((71USD -109USD) per month (see appendix tables 1). As shown in Figure 1, a significant proportion of the positions sampled are found in the informal sector. Per the ranking of the positions, the top five positions are teachers, kitchen and catering, sales and marketing, hair and beauty and logistics and security

Table 1: Summary Statistics

Variables	N	Mean	Standard Deviation
Vacancy Characteristics			
Number of employees sought for position	[648]	2.11	2.40
Number of days of work per week	[648]	5.76	0.81
Minimum salary for vacancy			
Vacancy is a full-time position	[648]	0.97	0.19
Vacancy is a shift work	[591]	0.12	0.32
Age range required	[648]	35.96	8.57
Years of experience			
Minimum education for position is post-secondary	[648]	0.14	0.34
Low or no English proficiency required	[648]	0.20	0.40
Intermediate English proficiency required	[648]	0.50	0.50
High English proficiency required	[648]	0.30	0.46
Employer Characteristics			
Employer is a Male	[361]	0.50	0.50
Employer's education is post-secondary or higher	[361]	0.68	0.47
Employer has a Smart phone	[361]	0.97	0.16
Employer has a laptop	[361]	0.65	0.48
Employer has Access to Internet Enabled Device	[361]	0.96	0.19

Figure 1: Ranking of Vacant Positions at Baseline



However, for the purposes of this study, we focused only on positions that advertised 5 or less vacancy spots. This was to ensure that employers can realistically provide feedback on these employees in the follow up surveys. This reduced the sample to 648 vacancies, which is what we use for the analyses. By the end of the first follow-up call, four weeks after randomisation, about 68% of the vacancies had not yet been filled. Only 18% of the vacancies had been filled. Similarly, after four weeks of publicizing the vacancy on the JCP 66% of the employers had received no application for their advertised vacant positions. Figure 1b shows the categories of positions that had been filled by the endline survey.

Tables 1 reports the summary statistics of the vacancy and employer characteristics and outcomes. Balance checks (see appendix) are also conducted to ensure that the vacancies and employer characteristics are similar across the treatment and control groups. About 50% of employers in the sample are male, with about 68% having attained at least post-secondary education level (close to 50% have tertiary level education). Almost all (97%) of employers in the sample reported owning a smart phone and have access to internet (96%). However, only about two-thirds (65%) reported owning a laptop or computer

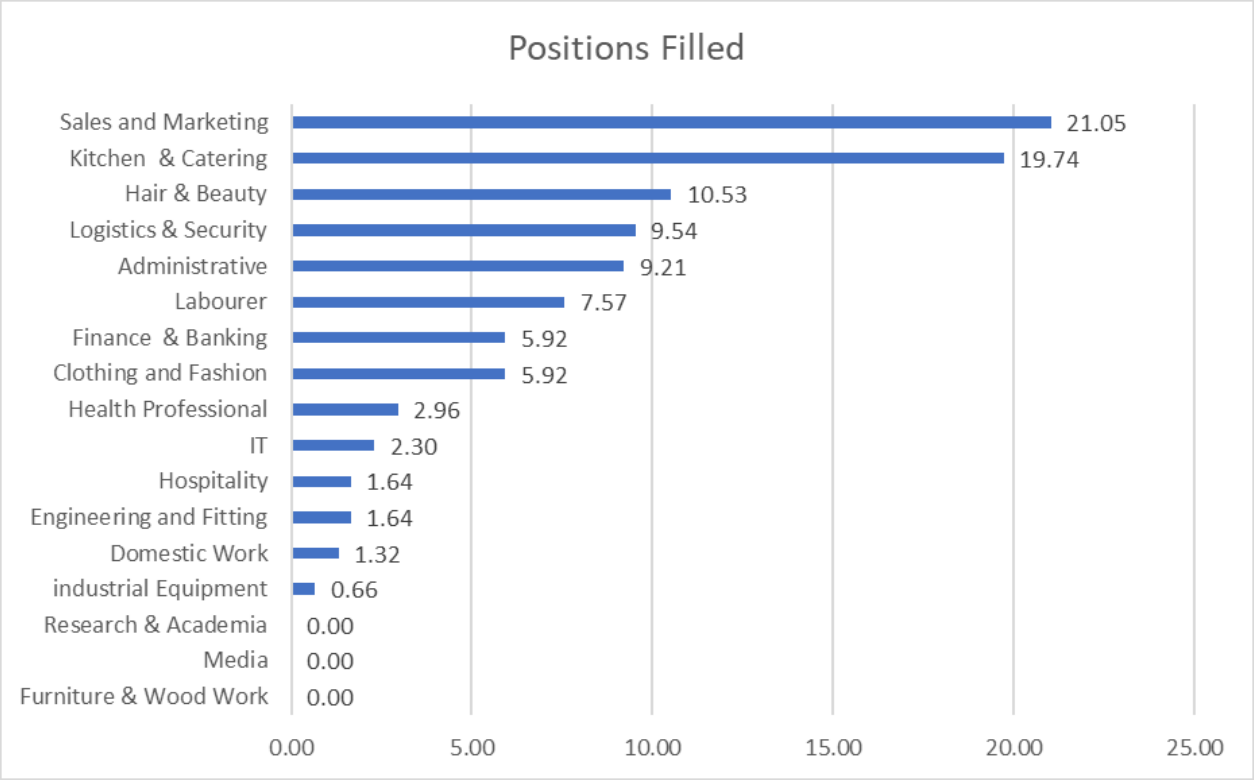
Regarding the vacancy characteristics collected at baseline, about 97% are full-time positions and the average number of days of work required is 6 days. Only a few (11.8%) run a shift system. The positions with the minimum requirement being the post-secondary level form about 14% of the sample. . The average age required for positions is about 36years and close to no years of experience (ie. 1.2years). The data also suggests that about 50% of the vacancies require intermediate English proficiency level.

3.4 Balance Checks

From the balance tables (see appendix), we note that the employer and vacancy characteristics are largely balanced across the three experimental arms. However, there is statistical difference in one of the employer characteristics-whether the employer has a laptop.

For the vacancy characteristics, we note significant differences in whether the position is full time, age and years of experience t and minimum salaries. The balance checks show statistical differences between the control and the two arms. The test suggests that T1 andT2 have more full-time vacancies compared to the vacancies in the control arm. Also, regarding the minimum age requirement of vacancies, the vacancies in the T1 have a significantly higher educational requirement compared to vacancies in T1.. While T1 has a higher age requirement, T2 has a lower age requirement compared to the control group. Moreover, there is statistical differences in the number of years of experience required by T1 and T2. T2 requires an employee to have a higher number of years of experience than it is required by T1. Similar to vacancy characteristics, the employer characteristics are largely balanced,

Figure 2: Positions Filled at Endline



except for gender and ownership of a laptop/computer where more employers in the control group appear to have laptops/computers compared to employers in T1. Also, there seems to be an imbalance between control and T2 vacancies on variables relating to their experiences with the YEA platform.

3.5 Empirical Strategy

We implement an Intention-to-Treat (ITT) estimation to obtain the impact of the intervention. Using Ordinary Least Squares (OLS), we estimate the mean difference by calculating the means of the control and the treatment groups to produce an unbiased estimate that captures the effect of publishing job vacancies on JCP. Through the simple randomization process we employ in this study, the difference in means of the satisfaction levels of employers accurately captures the average treatment effect (ATE). The estimation of the impacts is represented by equation 1 below:

$$\gamma_i = \beta_0 + \beta_1 T1_i + \beta_2 T2_i + \eta Z_i + \lambda day_i + \varepsilon_i \tag{1}$$

The variable γ_i refers to outcomes described in table 1 for employers and employees, depending on the outcome. Since we test our hypotheses across multiple outcomes, we use outcome "families" to construct standardized indexes for the quality of match from the

employer and employees' perspective from 8 and 9 variables (see Table 1). However, with regards to the quality of recruitment process and the probability of a match, we use the individual variables specified in Table 1 as outcome variables for the estimates.

The coefficients $\beta 1$ and $\beta 2$ represent the effects of the T1 and T2, respectively. The vector η represents the coefficients of Z, the control variables which includes demographic characteristics of the employer and employee such as gender, educational level, experience, ownership of a smart phone, laptop, access to internet, marital status and number of children (of employee). Other vacancy characteristics, such as number of employees, ideal and minimum education, whether the employee was interviewed or received training are controlled for in the analysis. For each outcome family considered, covariates are included based on the characteristics that are likely to affect the outcome in question. In addition, we control for the day the position was randomized into treatment status. This variable is important because treatment was assigned on a rolling basis and therefore helps to capture any effect this may have on the outcomes.

It is important to note that the analytical sample for employee outcomes is lower (268) because of the difficulty of interviewing employees. At end-line, more than half of the employers in the study refused to provide details of their employees for them to be interviewed, leading to a significant reduction in the employee sample.

Given the nature of the intervention, we acknowledge the possibility of non-compliance where employers who are assigned treatment groups may go back to using their old ways of recruiting staff. We, therefore, estimate the intention-to-treat (ITT). This allows us to obtain unbiased estimates of the ATE even in the presence of imperfect compliance with the randomization of the treatment. We run two specifications of the first two outcomes' families - recruitment process and potential for a match. The first specification is the full sample which includes teaching positions, and the second specification is the restricted sample that excludes teaching positions. This separation is informed by the fact that a significant proportion of teaching positions were not filled at endline and may be driving the results. We use the restricted sample as the preferred sample.

4 Results and Discussions

We present findings on each outcome family. In the case of the index, we present findings from the index, as well as the effects on the individual indicators used to construct the indexes. The analyses are conducted with relevant control variables.

Table 2: Quality of Recruitment Process

	Teachers Included		Teachers not Included	
	Number of Applicants	Number of Applicants Interviewed	Number of Applicants	Number of Applicants Interviewed
T1 = Basic Vacancy Information	-0.151	-0.321	-4.486*	2.076**
	(2.140)	(1.047)	(2.419)	(0.816)
T2 = Detailed Vacancy Information	-2.564	0.261	-4.558*	1.044
	(1.818)	(0.822)	(2.472)	(1.006)
Control Mean	8.340	5.622	10.168	6.839
T1 = T2 (p-value)	0.256	0.686	0.7401	0.8154
Observations	528	528	379	379
R-squared	0.270	0.726	0.328	0.834

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Controls: day of randomization ideal gender, ideal education, part time/full time job, regular/shift system job, English proficiency, minimum salary, maximum salary, years of experience, short/long term job, location matter, requires SSNIT, age (number of applicants included in the controls of the Number of Applicants Interviewed outcome variable models)

4.1 Effects on Recruitment Process Quality

In Table 2 we compare estimates for the full and the restricted samples. In the full sample, we find no significant effect of the intervention on the quality of the recruitment process. However, when we excluded teaching positions, the estimates suggest that advertising positions on the job portal significantly improves the recruitment process. Although we find a decrease in the number of applications received, suggesting limited visibility, we observe an improvement in the competitiveness of the hiring process through the increased number of interviews conducted by firms whose vacancies were advertised on the job portal. Specifically, estimates show that T1 and T2 received five less applications compared to the control group. However, vacancies in T1 interviewed two more people compared to the control group.

The negative impact on the number of applicants may be due to the mismatch between the types of vacant positions advertised on the JCP and the type of applicants who have access to the JCP. As discussed earlier (see figures 1a and 1b), a large majority of the positions are from the informal sector and as such, the target candidates of such positions may not necessarily have access to the JCP which requires applicants to have access to internet and be able to upload their CVs. The 2021 population and housing census shows that only 7 percent of the population own a laptop and about a third of the population (31.8) do not have access to internet. Putting this together, our results suggest that there is limited visibility of the advertised jobs to candidates who may be more suited and interested in such positions.

4.2 Effects on Likelihood of Job Matches

Similar to the quality of recruitment process outcome, we compare estimates in the two specifications discussed earlier. The effect of the intervention on most of the potential of match outcome indicators is insignificant in the case of the full sample; albeit, the number of applicants was an exception as the intervention has a higher impact on the number of people employed in the positions with detailed advertisement information on JCP than the control group. However, when the teachers' positions are excluded from the sample, we find that, when compared to the control group, positions with detailed advertisement information are more likely to be filled than the control group by a probability of 14 percentage points, nonetheless, it is more difficult to fill such positions by 30 percentage points. . The additional details provided in the advertisement restrict the number of applicants that may apply for the position given that prospective applicants apply for the position based on the information they have about the vacancy relating to their skills and other related information such as its location and benefits. The reduced number of applications may then make it more difficult to get the most suitable candidate to fill the position. Contrary to expectations, our results show that positions that are advertised with basic information only are 27 percentage points more likely to be filled compared to those in the control group. This finding highlights a key insight – job advertisements that are less specific and do not narrowly define candidate specifications attract a larger pool of candidates. The wider applicant pool not only increases competition, but also streamlines the hiring process, thereby facilitating the quicker and more efficient ways of filling a job vacancy.

4.3 Effects on the Quality of Match from Employer's Perspective

Overall, the results shows that providing detailed information in job advertisement significantly enhances the quality of employment matches from the employer's perspective. In table 6A, we observe significant differences between the two treatment arms. While both T1 and T2 show positive estimates, suggesting improvement in match quality, T2 show statistically significant effect. T2 improves match quality by 0.32 SDs above the control mean. The significant difference between T1 and T2 underscores an important point. Providing detailed vacancy descriptions in advertisements can lead to better results compared to providing basic information. By providing comprehensive job descriptions, employers are able to attracts applicants that are closely aligned with the specific requirements of the position. This targeted strategy increases the likelihood of employing someone with the relevant skills set and attitudes. This ultimately reflects in the employer's satisfaction with employee's performance as shown in the table of results. Employers' satisfaction is driven by employee's performance, punctuality and attitude. Providing detailed job description in the advertisement significantly increases the likelihood of an employee's promotion by 13 percentage points and a

21 percentage point rise in skill-job requirement alignment compared to the control group. T2 also improvements employer satisfaction with performance, punctuality and attitude by 25,17 and 27 percentage points respectively compared to the control group.

Similar results are noted when teachers are excluded from the sample. Although the magnitudes of the coefficients are higher (see table 6B), signifying a more pronounced positive effect for non-teaching job vacancies. Put together, this evidence advocates for the efficacy of detailed job descriptions in advertisements in enhancing the quality of employer-employee match in the informal sector.

From the employee's perspective, while advertising job positions with basic information yields no improvement in the quality of match, providing detailed job description in the advertisement does yield significant improvement in the quality of the match by 0.26 standard deviation above the control mean. (see table 7).

The results show advertising job positions on the online portal leads to a significant improvement in the likelihood that jobseekers will be matched with positions is suitable for their skills set compared to the control group. This match improves by 26 percentage points over the control mean. However, merely advertising the position without providing detailed information significantly reduces the likelihood by 35 percentage points of employees utilising their full skill set. Another important result to highlight is the fact that providing detailed job descriptions significantly improves job satisfaction among employees and their understanding of the job requirements by 31 and 16 percentage points compared to the control group. These detailed descriptions attract candidates who are well-informed about their role and ensures a more seamless integration into the role. The results lead to higher satisfaction levels for both employees and employers, thereby, optimizing job performance.

5 Conclusion

In this paper we aim to enhance our understanding of the nature and degree of matching inefficiency as well as investigating whether a national online jobs portal can help improve labour market efficiency. To understand the matching inefficiency, we partner with a government agency to implement an information intervention with emphasis on details of information provided on a job vacancy to test whether the online job portal improves on the recruitment process, the probability of finding a worker and the suitability of the worker employed to fill the position.

We make the following observations. First, we observed that there are several job vacancies that are not being published widely enough. Over just a period of one month, we

documented over 700 job positions from about 400 employers that had not been advertised on any job portal in the country. Second, there are several employers struggling to fill vacant positions. About four weeks after the vacancies were taken, our follow-up phone surveys to the employers showed that about 70% of the vacancies had not been filled yet and about 66% of all the vacancies had received no applications. Six months after the vacancy information was taken, about a third (30%) had still not been filled. Third, we also note that recruitment processes are largely informal and localized. About 65.96% of employers confirmed using their personal networks as their usual recruitment mode while about 32% rely on adverts displayed on site or recruitment agencies. Fourth, we note that majority of the vacancies that were published on the portal were predominantly jobs whose targeted applicants would not necessarily visit the job portal to apply for such jobs.

The study shows significant impact of the intervention on the recruitment process quality, potential for match and quality of match from both the employer and employee's perspectives. With regards to the recruitment process quality, although the intervention does not impact the recruitment process in the full sample, the estimation of the restricted sample – teachers excluded - shows a decrease in the number of applicants in both treatments arms compared to the control by 5. However, we find an improvement in the competitiveness of the recruitment process as the first treatment arm interviews 2 more people than the control group.

Further, in the case of the potential of a match, the number of people employed was higher by 30% in the second treatment arm than the control in the full sample estimate. In the restricted sample, positions in the second treatment arms were more likely to be filled by 14% compared to the control. Also, while it was less difficult for the positions to be filled in the first treatment than the control by 27%, it was rather less difficult for the control to be filled by 30% than the second treatment arm. The findings for the quality of the match from the

employers' perspective are consistent across both the full sample and the restricted sample. Thus, the treatment arm that provided detailed information in the job advertisement shows an improvement in the match quality by 0.325 SD above the control mean. Also, from the employee's perspective, the second treatment arm significantly enhances the quality of the match by 0.26 SD above the control mean. There are also some limitations to the current

study that are worth documenting. First, a large majority of the employers whose vacancies were taken at baseline could not be reached at the initial follow-up calls. Similarly, at end-line, most of the employers who took part in the end-line survey were not willing to share the details of their hired employees at end-line. The high attrition rate, particularly among employees, resulted in a much smaller sample for our analysis of employee outcomes.

Based on our observations and findings from the study, we make the following recommendations. To improve efficiency in the job matching, online job portals should publish detailed

descriptions of the vacancies. The possibility that job information may not be reaching the appropriate or interested candidates may necessitate some tweaking of the job portal. Evidently, the type of people who have access to such online platform may not be interested in the largely informal sector jobs that are published on the online portal. Moreover, the portal may not be accessible to most of the relevant jobseekers (and employers) who may not be fully IT-literate to use and benefit from such portals on their smart-phones. In view of these challenges, future interventions which aim at improving job matching should consider another mechanism that does not cut out majority of the jobseekers in the informal sector.

References

Author, A. A., Author, B. B., & Author, C. C. (Year). Title of article. Title of Periodical, volume number(issue number), pages. https://doi.org/xx.xxx/yyyy

Abebe, G., S. Caria, M. Fafchamps, P. Falco, S. Franklin, and S. Quinn (2021a). 'Anonymity or Distance? Job Search and Labour Market Exclusion in a Growing African City'. Review of Economic Studies, 88(3): 1279– 310. https://doi.org/10.1093/restud/rdaa057

Abebe, G., S. Caria, M. Fafchamps, P. Falco, S. Franklin, S. Quinn, and F. Shilpi (2021b). 'Matching Frictions and Distorted Beliefs: Evidence from a Job Fair Experiment'. G2LMLIC Working Paper 49. Bonn: IZA Institute of Labor Economics.

Baffoe, R.S. (2016). Employee Recruitment and Selection Practices by Small and Medium Sized Enterprises within the Madina Metropolis in the La Nkwantan/Madina Municipality of the Greater Accra region of Ghana. Global Journal of Human Resource Management 4(6)7-33.

Bassi, Vittorio and Nansamba, Aisha, Screening and Signaling Non-Cognitive Skills: Experimental Evidence from Uganda (October 1, 2019). USC-INET Research Paper No. 19-08, Available at SSRN: https://ssrn.com/abstract=3268523 or
http://dx.doi.org/10.2139/ssrn.3268523

Bassi, V., and A. Nansamba (2022). 'Screening and Signalling Non-cognitive Skills: Experimental Evidence from Uganda'. The Economic Journal, 132(642): 471–511.
https://doi.org/10.1093/ej/ueab071

Beam, Emily A., "Do job fairs matter? Experimental evidence on the impact of job-fair attendance," Journal of Development Economics, 2016, 120, 32–40.

Banerjee, Abhijit and Gaurav Chiplunkar. 2018. "How Important Are Matching Frictions in the Labor Market? Experimental & Non-Experimental Evidence from a Large Indian Firm." Working Paper .

Banerjee, Abhijit & Sequeira, Sandra, 2020. "Spatial Mismatches and Imperfect Information in the Job Search," CEPR Discussion Papers 14414, C.E.P.R. Discussion Papers.

Carranza, Eliana, Robert Garlick, Kate Orkin, and Neil Rankin. 2022. "Job Search and Hiring with Limited Information about Workseekers' Skills." American Economic Review 112 (11): 3547– Chade, H., J. Eeckhout, and L. Smith (2017). 'Sorting Through Search and Matching Models in Economics'. Journal of Economic Literature, 55(2): 493–544. https://doi.org/10.1257/jel.20150777 Chandrasekhar, Arun G., Melanie Morten, and Alessandra Peter. 2020. "Network-Based Hiring: Local Benefits; Global Costs." NBER Working Paper 2680

Chakravorty, B., A.Y. Bhatiya, C. Imbert, M. Lohnert, P. Panda, and R. Rathelot (2021). 'Impact of COVID-19 Crisis on Rural Youth: Evidence from a Panel Survey and an Experiment'. GLO Discussion Paper Series 909. Essen: Global Labor Organization

Crepon, Bruno, Esther Duflo, Marc Gurgand, Roland Rathelot, and Philippe amora (2013) "Do Labor Market Policies have Displacement Effects? Evidence from a Clustered

Randomized Experiment," Quarterly Journal of Economics, 128 (2), 531–580.

Dammert, A.C., J. Galdo, and V. Galdo (2015). 'Integrating Mobile Phone Technologies into Labor-Market In- termediation: A Multi-treatment Experimental Design'. IZA Journal of Labor &Development, 4(1): 1–27. https://doi.org/10.1186/s40175-015-0033-7

Fernando, A. Nilesh, Niharika Singh, and Gabriel Tourek. "Hiring Frictions and the Promise of Online Job Portals: Evidence from India." American Economic Review: Insights 5, no. 4 (December 2023): 546–62.
https://doi.org/10.1257/aeri.20220566. Franklin, Simon. (2018). 'Location, Search Costs and Youth Unemployment: Experimental Evidence from Transport Subsidies'. The Economic Journal, 128(614): 2353–79. https://doi.org/10.1111/ecoj.12509

Jones, S. and K. Sen (2022). 'Labour Market Effects Of Digital Matching Platforms: Experimental Evidence From Sub-Saharan Africa'. WIDER Working Paper 2022/69. Helsinki: UNU-WIDER.

Groh, Matthew, David McKenzie, Nour Shammout, and Tara Vishwanath. 2015. "Testing the Importance of Search Frictions and Matching through a Randomized Experiment in Jordan." IZA Journal of Labor Economics 4 (1):7.

Hardy, Morgan and Jamie McCasland (2022), "Are Small Firms Labor Constrained? Experimental Evidence from Ghana," forthcoming, American Economic Journal: Applied Economics

Hensel, Lukas & Tekleselassie, Tsegay & Witte, Marc, 2021. "Formalized Employee Search and Labor Demand," IZA Discussion Papers 14839, Institute of Labor Economics (IZA).

Jensen, Robert (2012) "Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India," Quarterly Journal of Economics ,127 (2), 753–792

Kelley, E.M., C. Ksoll, and J. Magruder (2022). 'How Do Online Job Portals Affect Employment and Job Search? Evidence from India'. Unpublished Working Paper. Washington, DC: World Bank.

Kling, J.R., J.B. Liebman & L.F. Katz. 2007. Experimental analysis of neighborhood health effects. Econometrica 75: 83–119.

McKenzie, David. 2017. "How Effective Are Active Labor Market Policies in Developing Countries? A Critical Review of Recent Evidence." The World Bank Research Observer 32 (2):12.

TABLES

Table 3: Potential of a Match

	Teachers Included			Teachers not included		
	Whether Position is filled	Difficulty in filling Position	Number of People Employed	Whether Position is filled	Difficulty in filling Position	Number of People Employed
T1 = Basic Vacancy Information	0.0103	-0.192	-0.227	0.0747	-0.277**	-0.240
	(0.0497)	(0.125)	(0.154)	(0.0596)	(0.136)	(0.208)
T2 = Detail Vacancy Information	0.0682	0.131	0.308**	0.140**	0.300**	0.327
	(0.0487)	(0.128)	(0.150)	(0.0574)	(0.143)	(0.201)
Control mean	0.681	2.809	1.825	0.642	2.672	2.093
T1 = T2 (p-value)	0.1259	0.0044	0.3777	0.0734	0.0000	0.2037
Observations	528	528	368	379	379	260
R-squared	0.094	0.102	0.694	0.145	0.205	0.708

Notes: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1 Controls: day of randomization ideal gender, ideal education, part time/full time job, regular/shift system job, English proficiency, minimum salary, maximum salary, years of experience, short/long term job, location matter, requires SSNIT, age, number of applicants, number of vacancies available.

Table 4: Quality of Match (Employers perspective; Teachers included)

	(1) Quality of Match Index	(2) Employee Still Working	(3) Employee Skills Match Job	(4) Consider Keeping employee	(5) Consider Promoting employee	(6) Satisfaction with performance of employee	(7) Satisfaction with employee punctuality	(8) Satisfaction with employee attitude	(9) Overall Satisfaction with employee
T1 = Basic Vacancy Information	0.0204	0.0236	0.0123	-0.0127	-0.0351	-0.0231	-0.0335	0.155	-0.0111
	(0.137)	(0.0462)	(0.126)	(0.0389)	(0.0598)	(0.117)	(0.115)	(0.133)	(0.121)
T2 = Detailed Vacancy Information	0.319**	-0.0661	0.216*	0.0129	0.125**	0.251**	0.171*	0.251**	0.218**
	(0.134)	(0.0440)	(0.112)	(0.0347)	(0.0523)	(0.106)	(0.103)	(0.119)	(0.106)
Control Mean	-0.085	1.123	3.910	3.667	0.738	3.787	3.861	3.770	3.852
T1 = T2 (p-value)	0.0575	0.3580	0.2591	0.3426	0.0239	0.0447	0.0928	0.3005	0.1200
Observations	377	377	377	377	377	377	377	377	377
R-squared	0.028	0.109	0.053	0.018	0.077	0.034	0.027	0.022	0.037

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
Controls: day of randomization, years of experience, gender of employee, number of people employed for the position, short/long term job,

Table 6: Quality of Match (Employers perspective; Teachers not included in sample)

	(1) Quality of Match Index	(2) Employee Still Working	(3) Employee skills Match Job	(4) Consider Keeping Employee	(5) Consider promoting Employee	(6) Satisfaction with employee performance	(7) Satisfaction with employee punctuality	(8) Satisfaction with employee attitude	(9) Overall Satisfaction with employee
T1 = Basic Vacancy Information	-0.0154	0.00587	0.0179	0.00670	-0.0502	-0.0211	-0.0792	0.128	-0.0645
	(0.191)	(0.0628)	(0.159)	(0.0521)	(0.0790)	(0.153)	(0.155)	(0.166)	(0.156)
T2 = Detailed Vacancy Information	0.435**	-0.0965	0.271**	0.0166	0.151**	0.338**	0.244*	0.371**	0.313**
	(0.173)	(0.0601)	(0.134)	(0.0501)	(0.0697)	(0.138)	(0.135)	(0.156)	(0.144)
Control Mean	-0.224	1.169	3.783	1.892	0.675	3.687	3.783	3.699	3.759
T1=T2(p-value)	0.0157	0.3950	0.1736	0.6504	0.0235	0.0266	0.0219	0.0522	0.0246
Observations	271	271	271	271	271	271	271	271	271
R-squared	0.049	0.115	0.077	0.027	0.064	0.057	0.037	0.042	0.069

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Controls: day of randomization, years of experience, gender of employee, number of people employed for the position, short/long term job, part time/ full time job, regular/shift system job, a

Table 8: Quality of Match (Employee perspective)

	(1) Quality of Match Index	(2) Satisfaction with Job	(3) Love for work	(4) Job Matches Skills	(5) Satisfaction with Supervisor	(6) Performance with Job	(7) Have Clear understanding of work	(8) Sense of Pride in Work	(9) Recognition for work Given	(10) Job Makes use of Skills
T1= Basic Vacancy Information	0.121	0.0661	0.0687	0.345**	0.107	0.0138	0.0228	-0.0433	0.0158	-0.0900
	(0.159)	(0.116)	(0.0999)	(0.135)	(0.115)	(0.105)	(0.106)	(0.168)	(0.111)	(0.139)
T2= Detailed Vacancy Information	0.263**	0.0972	0.0357	0.258*	0.121	0.0686	0.163**	0.204	0.0775	0.0693
	(0.139)	(0.113)	(0.0817)	(0.135)	(0.0955)	(0.0943)	(0.0814)	(0.142)	(0.0959)	(0.116)
Control Mean	.0056	3.976	4.073	3.963	4.329	4.268	4.207	3.646	3.878	3.988
T1=T2 (p-value)	0.0923	0.5518	0.7574	0.9931	0.4654	0.8703	0.0471	0.0658	0.2265	0.0347
Observations	226	226	226	226	226	226	226	226	226	226
R-squared	0.292	0.165	0.123	0.256	0.125	0.140	0.120	0.111	0.236	0.205

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
Controls: day of randomization, gender of employee, highest education of the employee, marital status, whether employee has children,
whether employee was interviewed, years of experience, is this the kind of job the employee was searching for, employers satisfaction with employer, employee receive fair wages

Figure 3: How SMEs Advertise their Vacancies

APPENDIX FIGURES AND TABLES

Table 9: w)