

Barriers to Search and Hiring in Urban Labour Markets

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VoxDevLits are wiki-inspired literature reviews that aim to summarise the evidence base on narrowly defined topics related to development economics. Each Lit is written by a community of scholars working on the specific topic addressed in the review. They are intended for both policymakers and researchers. We aim to describe what we have learned from research and to highlight the important questions for which evidence is lacking. The Lits are living documents that will be updated approximately once per year. All published versions will be available on the VoxDev website so that scholars can cite the reviews with confidence that the version cited will be accessible in the future.

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Abstract

This VoxDevLit summarises evidence documenting the labour market barriers faced by urban jobseekers and firms in low and lower-middle income countries, highlighting the role of information frictions on both sides of the market: jobseekers' monetary and psychological search costs; jobseekers' limited networks; and recruitment costs for firms. We also evaluate the impacts of a wide set of interventions designed to address these barriers. We find a fairly strong positive evidence base for interventions that provide information about worker skills, both to firms and to workers. There is also evidence that interventions relieving search costs can boost employment for populations that are liquidity-constrained and with realistic job targets, but effects may not persist. There is mixed evidence on interventions altering jobseekers' beliefs, encouraging jobseekers' use of job platforms and altering firms' recruitment strategies. There is limited evidence on interventions targeting other constraints, such as psychological costs of search or limited networks, and generally less evidence on frictions facing firms than those facing workers. Existing evaluations are generally not informative on (i) displacement effects (i.e. negative employment effects for untreated workers), and (ii) general equilibrium effects that would only materialise when interventions are offered at scale. Evidence suggests search barriers may differ by gender but we have very little evidence showing how job-search policies could be adapted to address this issue.

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Summary

Every year, hundreds of millions of people around the world search for a job, while millions of firms look for new recruits. Here are the key takeaways from evidence documenting the labour market barriers faced by urban jobseekers and firms in low and lower-middle income countries, and evaluating the impacts of a wide set of interventions designed to address these barriers.

Key takeaways

On constraints faced by jobseekers:

1. Well-designed interventions that **provide information about worker skills** consistently improve labour market outcomes, with benefits lasting up to four years after treatment. Average treatment effects are close to a 3 percentage point gain in employment, almost half of the average treatment effect on employment of vocational training for youth (Ghisletta et al. 2021). This is a striking finding, given that the typical skill-information intervention is more than ten times cheaper than the typical training intervention (McKenzie 2017).
 - These benefits arise from firms having better information about workers. Benefits also arise from workers having better information about their own skills and targeting search to jobs that suit them better, but interventions that provide information that cannot be easily conveyed to firms have weaker treatment effects.
2. **Relieving jobseekers' monetary search costs** can improve labour market outcomes in the short run, but has failed to generate employment gains for populations that target out-of-reach jobs and for populations who have sufficient resources to fund job search in the absence of any intervention. Gains may not persist.
3. While the evidence base is small, there is potential for **interventions reducing the psychological costs** of job search to increase search effort or efficacy. Psychological interventions have increased labour supply, improved small business performance and reduced days unable to work due to poor mental health, outcomes which may behave similarly to job search effort.
4. The evidence base is currently mixed on encouraging use of **job search platforms** as a policy intervention. The more promising interventions have provided training on how to use platforms effectively rather than just encouraging greater use.
5. There is good evidence that individuals have biased beliefs about market fundamentals (e.g. the relevant distribution of wages), that beliefs affect job search behaviour, and that beliefs change in response to new information. However, interventions that **provide information about these fundamentals** or that **provide jobseekers with greater exposure to the labour market** to facilitate information acquisition have nuanced and often surprising impacts on outcomes. These interventions have so far failed to systematically generate improvements in labour market outcomes.
6. Jobseekers' **networks** play an important role in their labour market outcomes. Interventions can both build networks, with positive effects on labour market outcomes, and encourage jobseekers to withdraw from informal networks. But there is very little evidence on how encouraging particular behaviours in relation to jobseekers' networks affects labour market outcomes.
7. Existing evaluations are generally not informative on (i) **displacement effects** (i.e. negative employment effects for untreated workers), and (ii) **general equilibrium effects** that would only materialise when interventions are offered at scale.

On constraints faced by firms:

1. Several studies suggest that limited information on worker experience, skills and trustworthiness can indeed limit hiring and are promising targets for intervention, with a now-substantial evidence

base. Furthermore, the impacts of information and other interventions may be muted if they are not combined with complementary treatments that address other constraints.

2. While there is some evidence to suggest that firms do not optimise recruitment strategies and efforts, likely due to limited experimentation with different recruitment methods, the evidence does not currently establish that this limits the quantity or likelihood of hiring. However, it could still be that the lack of experimentation with recruitment technologies may influence the quality of hired workers and worker turnover. More work is needed to understand the implications of hiring costs in different settings.

Search barriers may differ by gender. Evidence suggests women may value different job attributes to men and find it difficult to find jobs matching these preferences. Employers often discriminate against women. Women and men may search for work differently, meaning that they experience search frictions in distinct ways. And there is some evidence that all these search barriers lead to women who report wanting to work opting out of active search. Unfortunately, we have very little evidence showing how job-search policies could be adapted to best meet these constraints. We thus flag this as an important area to make progress.

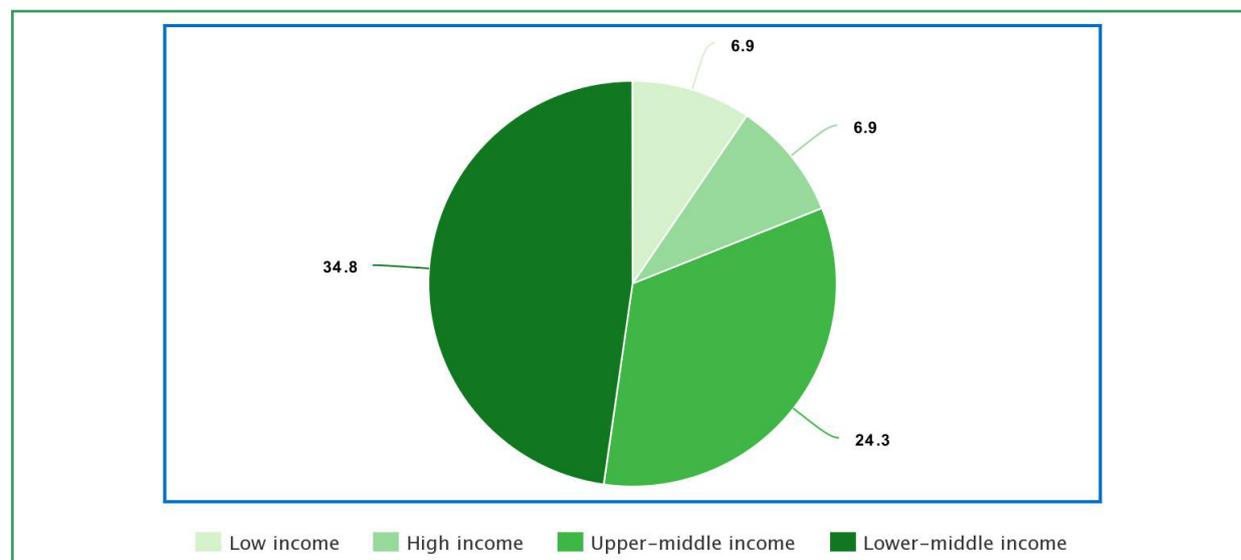
I. Introduction

Every year, hundreds of millions of people around the world search for a job, while millions of firms look for new recruits. Their efforts enable a large number of households to secure a stable stream of income, and support firms in finding talent and skills. Many of these jobseekers live in cities in low and lower-middle-income countries and a large share are young and first-time entrants to the labour market. While, until recently, the study of search in labour markets was primarily focused on OECD economies, the last few years have seen the emergence of a rich body of evidence documenting the labour market barriers faced by jobseekers and firms in low and lower-middle income countries, and evaluating the impacts of a wide set of interventions designed to address these barriers. This emerging literature is the focus of this review.

Who is searching for work in poor countries?

People who search for a job are either unemployed individuals who want to start working, or employed individuals who want to transition to a new employer. A substantial portion of those who search for work are unemployed, and low and lower-middle-income country labour markets are characterised by substantial unemployment rates. Low-income countries have overall unemployment rates above the world average (see Table 1).¹ Unemployment rates in these countries are higher among young people than among the general population. Indeed, the bulk of young unemployed people globally live in poor countries. The ILO estimates that there are about 73 million jobseekers worldwide between the age of 15 and 24. Among these, 41.7 million (57%) live in a low or lower-middle-income country (see Figure 1).

Figure 1: World youth unemployment (in millions).



Source: ILOSTAT, ILO modelled estimates, November 2021.

¹ Low and lower-middle-income countries also face substantial labour underutilisation. The ILO's "jobs gap" measure captures all people who would like to work but do not have a job. In 2023, there were 453 million such people globally, including 191 million unemployed people and 262 million who want employment but do not qualify as unemployed (e.g. they are discouraged from searching or can't take up work at short notice due to caregiving responsibilities). This is 11.7% of the population. The percentage of people who would like to work but do not have a job is highest in low income countries (21.5%), and higher in lower-middle (11.5%) and upper-middle (11.2%) income than high income countries (8.2%) (ILO 2023).

Table 1: Unemployment and youth unemployment by world and by country income group, 2022.

Country group	Unemployment rate (percentages)	Youth Unemployment rate (percentages)	Youth Unemployment (millions)
World	5.3	14.9	73.0
Low income	5.7	9.8	6.9
Low-middle income	5.1	17.0	34.8
Upper-middle income	5.7	16.1	24.3
High income	4.6	11.0	6.9

Sources: ILOSTAT, ILO modelled estimates, November 2021.

The employed in poor countries also often search for a new job while working. On-the-job search is poorly captured in labour market surveys, in part because many surveys only collect questions on search for the unemployed. But job instability is high by international standards. Donovan et al. (2023) collect comparable labour market flows data for a sample of 49 countries ranging from 5,000 to 50,000 USD per capita. They find that the poorer half of the countries in this range have exit rates from employment, job-to-job transitions, and job finding rates that are about twice as high as those of richer countries.² The occupation-switching rate is four times as high. This suggests many workers are in highly temporary, insecure jobs of short duration and are thus also searching. Studies of active young jobseekers find high rates of on-the-job search (Abebe et al. 2021a, Carranza et al. 2022).

What do search barriers consist of?

In a typical labour market, jobseekers and firms spend considerable effort searching for one another: jobseekers look for job openings with desirable characteristics, while firms look for recruits with the required skills and abilities. When a good match between a jobseeker and a firm is realised, a job is formed. This process is, however, both costly and risky. Search costs are monetary, psychological and related to the opportunity cost of time. Further, search is risky both because of the stochastic nature of the matching process – one cannot be sure ex-ante as to the time it would take to find a good match – and because both firms and jobseekers often have limited information on market fundamentals as well as on the characteristics of the parties they encounter during the search process (e.g. the true level of skills of a worker, or the true level of amenities of a job). Search costs and limited information can thus make it harder for jobseekers and firms to find the right match. This can decrease the efficiency with which talent is allocated to jobs in the economy.

Five stylised facts about the labour markets of low and lower-middle-income countries are consistent with the existence of meaningful barriers to search.

1. As we describe above, these labour markets are characterised both by high levels of search, and high rates of exit from employment (into either unemployment or inactivity). Job search spells can also be quite long (e.g. mean unemployment duration in the 2013 Ethiopian Labour Force survey is 9 months). In other words, it takes a long time for workers to find a job that is a good match between their preferences and those of the employer. Consistent with this, in low-income countries wages tend to increase more slowly as people age compared to richer economies, but they increase faster once people find a good match (Lagakos et al. 2018, Donovan et al. 2023).
2. As we explain in detail in the next section, existing surveys suggest that the cost of job search is substantial for the typical active jobseeker. In studies from Ethiopia, Jordan, South Africa and Uganda, job search expenses among active jobseekers amount to at least 16% of total jobseeker expenditure or at least 18% of earnings.

² These results do not reflect composition effects

3. Employers often report that a lack of skilled workers or the difficulty of identifying a good hire are a constraint to firm growth. The World Bank reports that about 23% of firms cite workforce skills as a significant constraint to their operations. In some African and Latin American countries, this share rises to 40–60% (World Bank 2023).³
4. Employers regularly hire through social networks. In a recent cross-country survey, 50% of workers in developing countries report having relied on social networks to find their current job (Sapin et al. 2020). The studies we reviewed report similar descriptive findings.⁴
5. Online platforms designed to facilitate search are becoming increasingly popular, but their use is far from universal, and can give rise to new search barriers specific to online marketplaces (Fernando et al. 2023, Wheeler et al. 2022).

Overall, these facts are consistent with the presence of search barriers that lengthen search times and worsen the allocation of workers to firms, generating job instability. However, they can also be rationalised by different theories of the labour market, for example by theories that emphasise a mismatch between the skills offered by jobseekers and those demanded by firms. We review the body of work that mainly uses randomised control trials to identify search barriers in specific settings to rigorously establish the presence of search barriers and to quantify their importance.

Table 2: Youth unemployment and unemployment rates by sex, world and by country income group, 2022.

Country group	Sex	Youth Unemployment rate (percentages)	Youth Unemployment (millions)
World	Female	14.5	27.4
	Male	15.2	45.6
Low income	Female	9.6	3.1
	Male	10.0	3.8
Lower-middle income	Female	15.9	10.6
	Male	17.5	24.3
Upper-middle income	Female	17.4	10.7
	Male	15.2	13.6
High income	Female	10.3	3.0
	Male	11.6	3.9

Source: ILOSTAT, ILO modelled estimates, November 2021.

An important question that we will consider is whether search barriers differ by gender. At least among youth, unemployment rates tend to be similar across genders (e.g. see Table 2 above). However, this

- 3 In Groh et al. (2015)'s study in Jordan, 60% of surveyed firms find it difficult to distinguish between good and bad workers; 35% say hiring a new young worker is more a question of chance than skill; and 39% agree or strongly agree that it is difficult to find qualified employees. In Uganda, Bassi and Nansamba (2022) find that firm owners report difficulties in observing workers' soft skills among their main perceived constraints. In India, Fernando et al. (2023) find that 69% of their sampled firms flag labour-related constraints as the main barriers to firm growth. These constraints include difficulty finding workers with technical or soft skills, concerns about employee behaviour, screening difficulties, and cost of hiring and training new employees.
- 4 In a sample of urban labour force participants in Kolkata, India, many of whom work in informal and casual labour markets, 45% of employees have helped a friend or relative find a job with their current employer (Beaman and Magruder 2012). In South Africa, surveys of youth and lower income groups suggest that up to 68% of workers found employment via social networks (Schöer et al. 2014). In a sample of young jobseekers in Ethiopia, 48% of those currently working received the job or an interview for the job through a direct referral from a social contact (Caria et al. forthcoming).

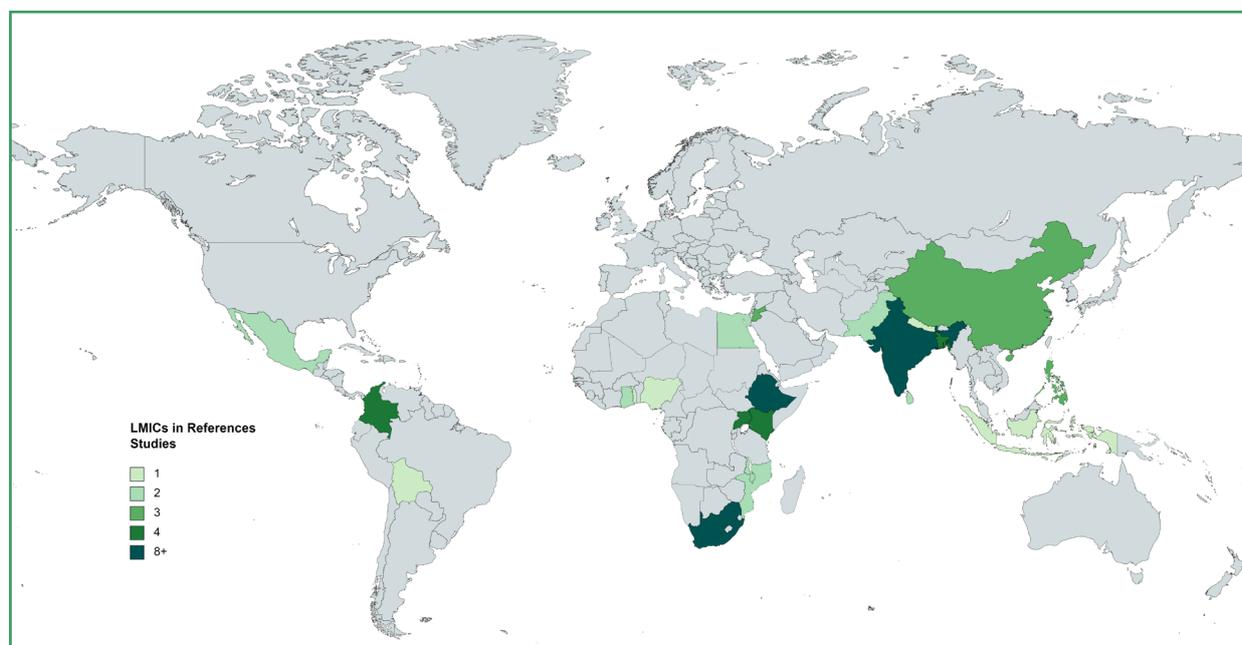
masks the fact that a much larger share of women are inactive (neither working nor searching for work) compared to men.⁵ Differential search barriers could be a reason for these higher rates of inactivity.

Structure of the review

This review is organised as follows. In the first part of the review, we discuss search barriers among jobseekers. We first introduce information barriers and then discuss barriers related to the monetary and psychological cost of job search. In the second part of the review, we present the evidence on the search barriers faced by firms. In the third part of the review, we discuss whether search barriers differ by gender. Most of the evidence we discuss in this review quantifies impacts at the level of the individual firm or jobseeker. In the final part of the review, we consider the question of spillovers and general equilibrium effects.

In this current version of the review, we cover 80 studies from 23 low- and middle-income countries, published mostly in the last 10 years. Figure 2 below shows the geographical distribution of the evidence we have gathered.

Figure 2: The evidence base from LMICs.



5 The unemployment rate is defined as the number of unemployed people (i.e. individuals who do not have a job, but are available to work and are searching for work) over the number of people who are either employed or unemployed. Thus the unemployment rate does not capture individuals who are inactive (i.e. out of work, but either unavailable for work or not searching for work).

II. Barriers to jobseeker search

IIA. Limited information about skills and search strategies

The barrier

After finding a suitable vacancy, jobseekers need to convince recruiters of their employability. Being able to convey credible information about one's talents and skills is thus essential to secure a job. Unfortunately, however, credential and certification systems are often under-developed in low and lower-middle-income countries. Furthermore, for groups that have limited labour market experience, references from former employers – a key tool to signal ability in many labour markets – are unavailable. In this section, we explore a number of interventions designed to equip jobseekers with better signals about skills. We also discuss other types of interventions – e.g. search platforms and mentors – that may similarly help individuals increase the effectiveness of their job search.

Interventions providing information on jobseekers' skills

A number of studies show that providing signals of jobseekers skills through certificates can improve jobseekers' outcomes in the labour market. Abebe et al. (2021a) find that a job application workshop and related skill certification for young people in Addis Ababa (i) increases the probability of formal work and open-ended-contract work without increasing search intensity, one year after treatment, and (ii) raises earnings four years after treatment by 25% compared to a control group. They contrast this to the more short-term effects of their transport subsidy treatment arm to suggest that the inability to signal skills is the dominant barrier in the long run. The certification intervention included: (i) a Raven test score, (ii) a test of reading ability, (iii) a test of mathematical ability, and (iv) a work sample test to capture non-cognitive skills related to the ability of completing a piece of work. Carranza et al. (2022) and Bassi and Nansamba (2022) (discussed below) also report positive labour market impacts from certification interventions. Carranza et al. (2022) certify six skills (communication, concept formation, focus, grit, numeracy and planning), while Bassi and Nansamba (2022) certify five soft skills (communication, willingness to help others, trustworthiness, creativity and attendance).

Awards or reference letters can also convey information about jobseeker skills and thus improve jobseekers' outcomes in the labour market. A recent RDD study in Colombia finds that individuals who narrowly win a government sponsored award have higher earnings for up to five years compared to nearly identical students who just failed to win the award (Busso et al. 2023). In South Africa, Abel et al. (2020) shows that encouraging individuals to obtain a reference letter from their former employers raises employment rates by 5.9 percentage points for women from a control mean of 11.7%, three months after treatment (in the pooled sample, effects on employment are sizable but insignificant). Finally, Banerjee and Chiplunkar (2023) show that information about jobseekers' job preferences is also missing in India, and that providing this information to placement officers in a large training institute improves the quality of the matches that are created.

Overall, Kreft (2023) uses meta-analytic methods to demonstrate that the expected effect of these information interventions is a three percentage point increase in employment – a reasonably confident posterior – while there is more uncertainty on the impacts on earnings. Given the low cost of these interventions – a point that we discuss in more detail in the final section of the review – these results suggest that interventions providing information about skills are highly cost effective. Additionally, the

heterogeneity of effects across studies is found to be limited, so estimates are likely to be informative of treatment effects in other settings. Finally, the meta-analytic evidence suggests that these types of information interventions work particularly well for those from less-advantaged groups who enter the market with weaker signals.

Carranza et al. (2022) show that effects of certification reflect both firms learning about jobseekers' skills and jobseekers learning about their own skills and changing search behaviour. They run two separate experiments, In an audit-style experiment, they submit applications on behalf of disadvantaged South African job seekers, randomising whether skill certificates with information on jobseekers' skills are included. They find that employers are more likely to interview an applicant with a certificate, though these effects diminish when more applicants have certificates, consistent with firms acquiring more information about jobseekers' skills from certificates. In an experiment with jobseekers, they randomly chose some participants to receive branded, "public" certificates that could be provided to employers and others to receive just information about their skills, but not in a form that could be provided to employers (without their names or any branding). Both certificates improved outcomes, but the public certificates, which could be shared with firms, improved employment rates, earnings, wages and job quality significantly more than the private information, available only to jobseekers, suggesting both sides of the market lacked relevant information about jobseekers' skills.

Bassi and Nansamba (2022) also study the effects of certification on firms and workers, focusing on soft skills. They invite firms and workers in Uganda to a matching workshop and randomly provide soft skills certificates to some firm-worker pairs. Treatment leads firm managers to update their beliefs positively about workers' soft skills, with larger effects for higher-skilled workers and higher-ability managers. The treated higher-ability managers are then more likely to hire workers from the matching workshop. Treated jobseekers have higher expected earnings and employment probabilities. In their design, prospective employers receive the same information as jobseekers, so effects on actual labour market outcomes might reflect jobseeker- or firm-side learning.

Kiss et al. (2023) further document how jobseekers having limited information about their skills distorts search behaviour. Using lab-in-the field measures of beliefs about skills and preferences over jobs requiring different skills with a similar sample to Carranza et al. (2022), they show that many jobseekers believe that their comparative advantage (CA) over different job-relevant skills is different to their CA measured in standardised skill assessments, where CA is defined as the skill in which the jobseeker ranks highest, relative to other jobseekers who have taken the same assessments. Giving jobseekers information about their assessment results shifts their beliefs toward their assessment results, and makes them more likely to apply to jobs that demand their skill CA. This does not shift their total search effort, and increases their earnings, even if they are not able to provide certification of their skills to firms.

Interventions encouraging use of job search and matching platforms

Job search and matching platforms offer the prospect of greater information about the labour market, as well as cheap and fast job search, potentially both lowering search costs and improving jobseekers' information about the labour market.

Several papers study the consequences of encouraging jobseekers to register on these platforms or use platforms more. A number of studies find null or negative effects on labour market outcomes. Kelley et al. (*forthcoming*) find that encouraging vocational training students in India to register on *JobShikari* reduces employment, which they attribute to rising reservation wages due to platform enrollment. Jones and Sen (2022) find minimal effects on employment or earnings of encouraging Mozambican vocational training graduates to use *Biscate*, a freelancing platform, and *Emprego*, a conventional platform for finding formal jobs, but they do find some suggestive evidence of benefits for women using the informal matching platform. Chakravorty et al. (2023) find that encouraging vocational training graduates in Bihar

and Jharkhand to use a job matching platform had no impact on labour market outcomes, potentially because very few employers posted jobs on the platform.

In contrast to these generally null or negative effects, Wheeler et al. (2022) find large positive effects of training participants in job readiness programmes in Johannesburg to use *LinkedIn*. The training curriculum explained how to register on the platform, create a profile, research jobs and employers, and submit applications. Employment rose for treated participants at the end of training and persisted for at least a year, with suggestive evidence this was driven by using the platform to research potential employers rather than make network connections or apply for jobs. Afridi et al. (2023) find that encouraging registration on *HelpersNearMe* can raise employment for married men in Delhi but not their wives, even though both spouses were encouraged to use the platform. They argue this reflects gender-specific expectations about appropriate work, potentially reinforced through women's social networks. Field et al. (2023) find large effects on job search of encouraging greater use of a job search platform in Lahore, discussed in the section on psychological interventions to reduce search costs.

Encouraging learning through networks

Research documents many ways jobseekers learn from and obtain work opportunities through each other. Alfonsi et al. (2022) show that matching graduating vocational students with older mentors leads to quicker transitions into employment and subsequently higher earnings. This appears driven by mentees' learning general information about entry level jobs and employment dynamics, rather than learning about or getting referrals to specific employers. Beaman (2016) reviews earlier work documenting multiple ways networks can be used in job search: learning about labour market conditions, learning about specific jobs, and encouraging current employers to hire people in the employees' networks (the last of which is covered in this review in the section on barriers to firm search).

However, labour market interventions can have unanticipated side effects by reducing information sharing through networks. Caria et al. (*forthcoming*) show that many jobseekers in Addis Ababa are members of informal networks, in which they share information about specific vacancies as well as sharing the cost of transport for job search. When some jobseekers receive transport subsidies, they partly withdraw from these networks, leading to lower search effort for other jobseekers in the network and suggestive evidence of lower employment for some subsamples. This shows that information can flow through networks and that networks can shift in response to changes in search opportunities.

Policy take-aways

Providing information on jobseekers' skills

Providing information to jobseekers about their skills is likely to be a valuable policy intervention in different contexts and a cheap addition to existing job search assistance programmes.

More evidence is needed to understand how to best collect this information, generating those signals that are most useful to firms and jobseekers, and minimising noise in test results. More evidence is also needed on how the provision of certificates can complement other interventions at both the firm and the jobseeker level, and how it changes labour market trajectories in the longer run (the study that has the longest follow-up currently estimates impacts four years after the intervention, while most studies have a shorter time frame).

Finally, existing studies largely fail to document negative impacts for individuals who receive a negative signal. This may reflect the fact that certificates are used more for horizontal rather than vertical differentiation (e.g. see the discussion in Carranza et al. 2022). However, more evidence is needed to

understand whether this would remain true in a world where certificate use is ubiquitous, and hence where jobseekers find it harder to conceal bad test results.

Encouraging use of job search and matching platforms

The evidence base is currently mixed on encouraging use of these platforms as a policy intervention. Differing results across settings may reflect differences in the underlying labour market conditions. But it might also suggest that simply encouraging platform use or registration is insufficient to facilitate effective use, and that slightly more training is required.⁶ And findings suggest that other barriers, such as social norms about work, may mean platforms only help specific groups of workers. Many questions remain open. For example, we understand little about the general equilibrium impacts of platform adoption and expansion in developing economies (a broader issue discussed in the last section), or about how jobseekers use platforms as part of a portfolio of search strategies. Given the reach of job search platforms and the low cost of using them to deliver interventions, more research is potentially high value.

A particularly promising direction may be moving beyond encouraging platform take-up to study how variation in the design of platforms affects jobseekers' labour market outcomes. This idea has been explored more in high-income countries.⁷ However, some of these interventions can require good existing data on which types of vacancies are best suited to jobseekers, which may be difficult to find in LMIC settings.

Learning through networks

Studies highlight that jobseekers' networks play an important role in their labour market outcomes, and labour market interventions should consider effects on jobseekers' networks in their design. Interventions can both build networks, with positive effects on labour market outcomes, and encourage jobseekers to withdraw from informal networks. There is very little evidence on how encouraging particular behaviours in relation to jobseekers' networks affects labour market outcomes.

IIB. Limited information about the labour market

The barrier

Multiple studies in developing economies find jobseekers' beliefs about their probability of being employed and wages they would earn if employed are often very different, and generally higher than the average outcomes for jobseekers similar to them on observable characteristics, or than their own subsequent outcomes. Examples include Alfonsi et al. (2022) and Bandiera et al. (*forthcoming*) in Uganda, and Jones and Santos (2022) in Mozambique. At least part of the overly optimistic wage beliefs reflects overly optimistic beliefs about the probability of getting offers at "better" jobs, e.g. white-collar jobs in Addis Ababa in Ethiopia (Abebe et al. 2022), or jobs in city centres rather than outlying low-income areas in South Africa (Banerjee and Sequeira 2023).

Potential migrants also face imperfect information. However, they tend not to systematically overestimate their likely labour market outcomes: their beliefs about different labour market outcomes can be more optimistic or more pessimistic than average outcomes. Prospective migrant workers from Nepal overestimate their earnings in migrant destinations (Shrestha 2020), as do male prospective migrant

6 The curriculum studied by Wheeler et al. (2022) required only four hours but was more hands-on than some other studies that simply informed participants about the platforms or encouraged them to register.

7 For example, several papers document that job application decisions are sensitive to the language used in job adverts or the inclusion of wage information (e.g. Belot et al. 2022a, He et al. 2023, Marinescu and Wolthoff 2020). Other work studies the design of systems to recommend specific vacancies to jobseekers (e.g. Altmann et al. 2022, Behaghel et al. 2020, Belot et al. 2019).

workers from Tonga (McKenzie et al. 2013) and rural migrants to Dhaka (Bryan et al. 2014). In contrast, female prospective migrants' expectations from Tonga match actual earnings (McKenzie et al. 2013), and rural Kenyans underestimate earnings in cities, potentially because migrants underreport their earnings to their relatives in rural areas (Baseler 2023). Beliefs about other labour market outcomes can also be overly optimistic or pessimistic: rural migrants to Dhaka on average found jobs slightly faster than they expected (Bryan et al. 2014). Prospective migrant workers from Nepal are also overly pessimistic about their mortality risk from migration (Shrestha 2020). Finally, information problems also vary over more versus less public attributes of jobs: migrant workers in Dhaka start in firms that post higher wages but have worse working conditions, then move over time to firms with better working conditions (Boudreau et al. *forthcoming*).

Theoretically, overly optimistic beliefs might increase or decrease the level of search effort relative to accurate beliefs. Abebe et al. (2022) show theoretically that the effect of labour market expectations on search effort can be non-monotonic when search outcomes are a discontinuous function of search effort. Kiss et al. (2023) show that expected returns to search, which might be closely tied to expected search outcomes, have a theoretically ambiguous effect on search effort. They either increase search effort by raising the marginal return to search effort, or decrease search effort because less effort is needed to reach the same expected outcome.

Interventions providing information about the labour market

A number of studies examine the effects of providing jobseekers with information about likely labour market outcomes on the beliefs, search behaviour and/or outcomes of participants in the labour market.

Jobseekers

Information interventions can shift jobseekers' beliefs about the labour market and, in some cases, change some search decisions and outcomes. Chakravorty et al. (2023) show that giving information about wages at potential jobs to vocational training students in India's Bihar and Jharkhand provinces increases the probability that the students stay in their first post-training position. Other patterns in the data suggest this might reflect negative treatment effects on beliefs about labour market prospects. Jones and Santos (2022) study how graduating students from vocational training in Mozambique respond to information about the actual wage distributions earned by similar students in the recent past. Treated recipients update their wage expectations downwards, with larger updates for the smaller group whose baseline beliefs were pessimistic. While they do not estimate treatment effects on employment, they find a moderate negative association between earnings expectations and employment in cross-sectional data, suggesting individuals who were more open to revise beliefs downward – from initially optimistic levels – were also more likely to obtain employment.

Specific features of online labour market platform design also influence jobseekers' information sets during search, which can shift their search behaviour. Banfi and Villena-Roldan (2019) show that vacancies on a Chilean job board that explicitly post higher wages attract more applicants, with a smaller relationship for vacancies whose language implicitly suggests higher wages. Subramanian (2023) shows that Pakistani women's online application decisions are sensitive to information about the gender composition of the workplace and supervisors, as well as primes about family expectations for women working.

Workers

Information also alters on-the-job search. Wu and Wang (2023) study how manufacturing workers in Addis Ababa respond to information about promotion prospects and wage growth in their current firm. Treated workers on average update their beliefs toward the information provided and those who update their beliefs upward are less likely to quit. Abel et al. (2022) show that workers in Mexico underestimate formal sector wage growth and that this might contribute to searching more for informal than formal sector jobs, even though the latter offer substantially higher earnings over time.

Migrants

Migration decisions are also responsive to new information. Shrestha (2020) shows that giving information about earnings and mortality risks lowers expectations about both outcomes and leads to respectively lower and higher migration rates. Results are driven by workers without experience of migrant work, consistent with a learning interpretation. Beam (2016) shows that giving prospective migrants from Bulan in the Philippines information about prevailing wages and minimum qualifications in potential destinations increases individuals' expectations about the wages they could earn abroad, and also raises their reservation wages.

Interventions providing information through job fairs, matching or exposure to new labour markets**Job fairs**

Researchers have also sought to match jobseekers to work opportunities and studied the effects of these interventions on jobseekers' beliefs about the labour market. Abebe et al. (2022) show that facilitating interviews at a job fair in Addis Ababa in Ethiopia generates very few job offers, but increases subsequent job search, and increases employment for some subsets of jobseekers. They combine these results with a survey of similar jobseekers' beliefs to argue this pattern arises because jobseekers are overly optimistic about their labour market prospects, lower their expectations in response to their experience at a job fair, and hence search more to get closer to their initial expectations. Bandiera et al. (*forthcoming*) study how jobseekers in Uganda react to a facilitated job application to a highly desirable job. For jobseekers already enrolled in vocational training, the job application outcomes are worse than expected, lowering their expectations about the job offer rate and wage distribution they face. But in contrast to the jobseekers in Abebe et al., they lower their search effort, leading them into lower-quality jobs. For jobseekers not enrolled in vocational training, the job application outcomes are in line with their expectations, leading to limited effects on search activity or outcomes. The two preceding papers imply contrasting belief-search relationships, which might reflect differences in the study contexts or the theoretical ambiguity highlighted above.

Beam (2016) shows that inviting jobseekers to a job fair shifts them from self-employment into formal employment, but not at the firms who attended the job fair. Attendance increases the likelihood of searching outside the region and receiving a job offer outside the region. The increase in search outside the province is concentrated entirely among those who look for work through family or friends. While jobseekers' beliefs are not measured, it is plausible that job fair attendance changes beliefs about returns to search outside the region and encourages respondents to broaden their search for work using their social network.

Exposure to new labour markets

Banerjee and Sequeira (2023) study belief updating in the context of a transport subsidy experiment in Johannesburg, South Africa, also covered in the search costs section. Treated jobseekers receive either cash transfers or transport subsidies, both labelled as job search subsidies. Both treatments lead to more search in the city centre where jobseekers would otherwise struggle to afford to travel and a decrease in initially overly optimistic expectations about earnings and the probability of getting a job near the city centre. Their average employment rate is unaffected. But some subgroups become more likely to both search and work in nearby jobs, rather than searching for jobs in the city centre. This suggests a process of learning during job search which shifts search behaviour.

In work currently in the field, Dean et al. (*forthcoming*) hypothesise that a major reason that individuals do not travel more within a city in search of jobs is because people don't like going to unfamiliar places. They study people's familiarity with different neighbourhoods and their willingness to accept offers to travel to different parts of the cities. They also test whether an assisted visit to an unfamiliar part of the city increases subsequent willingness to do a job in the same neighbourhood.

Information about labour market intermediaries

Migration agencies

Labour market intermediaries are an important feature of developing country labour markets. They may be particularly important for migrant workers, as many international migrants either choose or are required to use migration agencies. These agencies may simply assist with job search, but many have more comprehensive roles, charging substantial fees to manage large parts of the process of applying for jobs, applying for visas, travelling, and securing accommodation. There is scope for deeply imperfect information about these agencies because migration is a differentiated good, with many difficult-to-observe attributes, “purchased” relatively infrequently. Improving information about migration agencies might shift behaviour by both migrants and the agencies themselves. Bazzi et al. (2023) provide prospective migrants with ratings for migration agencies, based on past migrants’ experiences. This leads to lower migration rates, specifically with poorly-rated agencies, and subjectively better experiences for those who do migrate. The authors argue that this pattern arises because better information encourages prospective migrants to search for longer to find a highly-rated agency.⁸

Online gig work

Online gig work platforms offer the prospect of supplying labour directly from developing countries to high-income countries. Labour and trade economists have begun to study how these platforms operate (e.g. Agrawal et al. 2015), but there is less research on the consequences of this type of work for workers and labour markets in developing countries. If the quality of work opportunities differs between different intermediaries, providing jobseekers with information on this might be a promising channel for intervention.

Policy take-aways

Interventions providing information about the labour market

Overall, studies highlight the importance of jobseekers’ beliefs about labour market conditions in determining their search behaviour. Most labour market interventions will have effects on labour market outcomes in part by changing jobseekers’ beliefs, even if this isn’t the primary intention of the intervention. In particular, research highlights that labour market interventions can encourage changes in beliefs and search strategies which have unintended effects on jobseekers, decreasing employment rather than boosting it. The design of labour market interventions should consider how the language and framing used in interventions and the signals provided to jobseekers may change jobseekers’ search behaviour. Evaluations should capture changes in jobseekers’ beliefs as a result of interventions.

Studies also show that jobseekers are often incorrect about average labour market outcomes. However, we caution against recommending interventions targeting jobseekers’ beliefs as part of labour market policy on the basis of current evidence, given a number of gaps in the existing evidence. First, most studies only follow jobseekers for a limited period and some do not examine the effects on labour market outcomes of changes in search behaviour. This prevents studies drawing conclusions about whether this information hurts or helps jobseekers’ progress in the labour market. While it is clear that jobseekers’ beliefs and behaviour change after they receive information about the labour market, it often remains unclear whether these changes are welfare-enhancing or whether their biased beliefs may have been second-best optimal, for example, because they provided much-needed motivation to search for work.

8 Such interventions can also improve behaviour of migration agencies. Fernando and Singh (2023) study a government programme in Sri Lanka to publicly rate migration agencies. In the two-year period after the rating programme was announced, but before ratings were publicly released, agencies did more to screen foreign employers and placed migrants in less abusive and better-paying jobs.

Second, while it is possible to derive and provide jobseekers with information about the likely average returns to different job search strategies or types of work from labour market surveys, this information may not apply to them individually and is not necessarily causally identified. Fundamentally, it is difficult for researchers to identify areas where incorrect beliefs are causing suboptimal behaviour or “good” search strategies in these labour markets because of a lack of data, and hence to identify what information to provide to jobseekers. Such interventions have been possible in high-income countries, but rely on rich data which is not available in poor countries.⁹ These interventions rely on rich data on jobseekers’ skills and characteristics, matched to data on their job-to-job transitions, to enable recommendations on jobseeker search strategies. While the growth of labour market platforms may enable better data collection and such interventions in future, platforms do not capture off-platform search or hiring, a significant part of labour market activity. In our view, this is a less productive avenue for labour markets policy than some other interventions.

Third, studies tend to examine changes in particular beliefs, such as about average wages, rather than studying jobseekers’ learning processes. Studying the joint determination of beliefs, search activity, and search outcomes and feedback loops between them is a promising direction for future work. For example, “news” about labour market prospects might initially shift search activities, hence shifting search outcomes and hence further shift beliefs about labour market prospects. Standard labour market surveys cannot easily capture this process, as they seldom collect data at a sufficiently high frequency to describe the co-evolution of beliefs and search. Mueller and Spinnewijn (2022) suggest measuring beliefs about “search primitives”, such as expected search outcomes conditional on different levels of search effort. Under appropriate assumptions, combining panel data on search effort and these types of expectations measures can allow researchers to describe both how jobseekers move along a belief-search curve and test if this curve shifts. Some patterns described in Abebe et al. (2022) and Bandiera et al. (*forthcoming*) are consistent with this idea.

Labour market intermediaries

Interventions providing information on labour market intermediaries may be a promising target for intervention, given their prominent role in enabling jobseekers to navigate the labour market. However, much more research is needed in this area.

IIC. Search costs

The barrier

Finding a job is often a long process that entails different types of costs. Individuals have to gather information about open vacancies, apply to some of these vacancies, attend screening tests and job interviews, and finally make a decision on an offer. These different steps typically impose monetary, time-related and psychological costs.

- First, meaningful **monetary costs** typically arise whenever individuals need to use public transport to reach employers, such as when information about vacancies is acquired by visiting firms directly or when interviews are in person. One study in Addis Ababa documents that median job-search expenditure among active jobseekers amounts to about 16% of total expenditure (see Table 3 below and Abebe et al. 2021a). Another in Johannesburg finds mean expenditure among those searching is 18% of total earnings for those who are employed (Carranza et al. 2022).
- Second, the time invested in job search can have a high **opportunity cost**, especially when

⁹ For example, several studies have given jobseekers information about the occupations or sectors where jobseekers similar to themselves have successfully searched, which have shifted search strategies and improved some labour market outcomes (Altman et al. 2022, Belot et al. 2019, 2022b).

individuals have access to informal income-generating opportunities which they have to give up in order to spend time searching for a stable, formal job.

- Third, job search can be stressful and frustrating. Jobseekers often receive many rejections before securing a job offer and face substantial uncertainty as to when they will receive their first offer. This likely imposes significant **psychological costs**.

Table 3: Job search behaviour and costs

Paper	Country	Proportion searching	Search costs among active jobseekers	Search hours
Abebe et al. (2021b)	Ethiopia	75% (past 6 months) 50% (past week)	16% of overall expenditure	-
Alfonsi et al. (2022)	Uganda	93%	40% of earnings ¹⁰	-
Caria et al. (2023)	Jordan	43% of Syrian refugees 57% of Jordanians	38.4% of expenditure for Syrian refugees - 39.2% of expenditure for Jordanians	4.16 hours (past week) for Syrian refugees 5.79 hours (past week) for Jordanians
Carranza et al. (2022)	South Africa	97% (past week)	18.6% of earnings (past week) at endline	17 hours (past week)

Quantifying total search costs is challenging, as non-monetary costs cannot be measured reliably in a survey. To obviate this problem, Abebe et al. (2021b) offer a structural estimate of the total cost of applying for a clerical job in Addis Ababa for the population of individuals that called the employer to inquire about the position. They estimate that the average total application cost amounts to approximately 13.5% of the monthly wage offered for the position. Additionally, Abebe et al. (2021b) estimate that this cost is substantially heterogeneous across applicants.¹¹ Interestingly, structural estimates of search costs in the US and Hungary produce similar findings: the cost of additional search effort tends to be high on average, but also substantially heterogeneous across individuals (Paserman 2008, Della Vigna et al. 2017).

The main implication of high job-search costs is that individuals exert less job-search effort than they would in a low-search-cost environment. This likely worsens the performance of the labour market in two important cases. First, when there are external benefits to job search, e.g. benefits to firms or benefits to society at large from employment. In this case, jobseekers do not fully internalise the returns from their efforts, and thus search less than what would be optimal from a social point of view. Second, when jobseekers are liquidity constrained. In this second case, jobseekers would find it optimal to invest more resources in job search, but cannot do so as they cannot raise the liquidity to finance the additional search. Importantly, the literature has provided initial evidence, which we describe below, of both external gains to firms and liquidity constraints.

Finally, it is important to note that the heterogeneity of search costs has an additional implication: these costs can generate inequality in labour market outcomes. Two equally talented individuals may have very different outcomes based on their differential ability to invest in job search. Abebe et al. (2021b) leverage a high-frequency survey to provide observational evidence on how the job finding rates of high-ability individuals differ by two proxies for their job search costs (distance from the city centre and savings).

¹⁰ The figure assumes jobseekers search for work for 10 days per month.

¹¹ Interestingly, structural estimates of search costs in the US and Hungary produce similar findings: the cost of additional search effort tends to be high on average, but also substantially heterogeneous across individuals (Paserman 2008, Della Vigna et al. 2017).

Search cost subsidy interventions

The literature has explored two types of interventions designed to help individuals pay job search costs: conditional and unconditional subsidies.

Conditional subsidies

Conditional subsidies have raised employment and employment quality in Ethiopia, but have not impacted labour market outcomes in South Africa. Both Franklin (2018) and Abebe et al. (2021a) evaluate a conditional job-search subsidy designed to help young individuals travel to the centre of Addis Ababa, where they can find information about job openings and visit firms. Treated youth can collect a small cash transfer equivalent to a public bus fare at a designated location in the centre of town, up to three times a week, for a limited number of weeks. The cash transfer thus works in practice as a reimbursement for the cost of reaching the centre of the city. Both papers find that the subsidy boosts job search among treated individuals. Most importantly, Franklin (2018) finds that, three months after treatment, this intervention leads to a (significant) gain in employment of 6.7 percentage points and an (insignificant) gain in open-ended-contract employment of 4.3 percentage points. Abebe et al. (2021a) find that, one year after treatment, this intervention leads to a (insignificant) gain in employment of 3.7 percentage points, and a (significant) gain in open-ended-contract employment of 3.3 percentage points. These gains, however, do not seem to persist for longer time frames: four years after treatment there are no detectable positive impacts from this intervention. In South Africa, on the other hand, a conditional subsidy that covered about 40 return trips from Soweto to Johannesburg Central Business District (CBD) boosted job search, but did not increase employment or employment quality (Banerjee and Sequeira 2023). A key reason for the lack of impact seems to be that this population held particularly optimistic beliefs about wages paid by jobs in the CBD. The intervention led to a correction of these beliefs and persuaded individuals to give up searching for CBD jobs.

Unconditional subsidies

Unconditional subsidies have increased employment and earnings among Syrian refugees in Jordan, but failed to do so among Jordanian nationals or in South Africa. Caria et al. (2023) study the impacts of a small unconditional cash transfer offered to Syrian refugees and Jordanian nationals to support job search costs. They find that, among Syrian refugees, the intervention increased job search, raised employment by a significant 3.6 percentage points and earnings by a significant 65%, four months after treatment. Among Jordanians cash did not activate job search and did not affect employment outcomes. Further, in a separate arm in their trial in South Africa, Banerjee and Sequeira (2023) find that an unconditional subsidy boosted job search, but not employment outcomes. Importantly, both of these interventions show that individuals *increase* job search in response to small unconditional transfers, which suggests that at least some individuals in these contexts search less than they would like due to liquidity constraints.¹²

Finally, Abebe et al. (2021b) demonstrate that a small monetary application subsidy increased the size and quality of the pool of applicants attracted by an employer in Addis Ababa. In this context, lowering application hurdles improved selection as the marginal jobseekers who were most discouraged by high application costs had higher-than-average ability – a surprising correlation driven by a dynamic selection mechanism.¹³ Importantly, the intervention had a positive internal rate of return for the employer, suggesting

12 Conditional transfers are less informative about liquidity constraints due to the fact that they in effect force individuals to increase travel to the city centre (and hence decrease the effective price of job search) in order to collect the subsidy. We would expect a boost in job search in response to a conditional transfer even in the absence of liquidity constraints. On the contrary, small unconditional transfers do not change the price of job search and have only second-order income effects on expenditure. It is thus natural to interpret the fact that they increase job search as evidence that control individuals would like to invest more in job search, but do not do so for lack of liquidity.

13 Dynamic selection works in the following way: high-ability jobseekers who face lower application costs search harder, find jobs faster and thus stop searching earlier compared to jobseekers of similar ability who face higher application costs. Due to this, high-cost, high-ability individuals become progressively over-represented in the

that boosting job search among talented-but-constrained jobseekers can have positive external impacts on firms.

Psychological interventions

Reducing psychological costs of job search

The potential psychological costs of job search imply that psychological interventions to reduce these costs may increase search effort. Field et al. (2023) find large effects on job search of encouraging greater use of a job search platform in Lahore, Pakistan. Jobseekers are randomly assigned to learn about relevant vacancies by only SMS or SMS and a phone call. The phone call substantially increases job application rates, the marginal applications have roughly the same interview probability as inframarginal applications, and the increase in job search effort does not have negative spillover effects on other jobseekers. They argue this pattern arises because the phone call makes the application decision more passive and less active, lowering the psychological cost of initiating applications in a similar way to default “opt-in” settings on savings accounts (Dellavigna 2009). These results show that simple tweaks to platform design can substantially change job search, and potentially improve search outcomes.

Treating mental health disorders

Another strand of literature examines whether clinical treatments that treat mental ill-health may also affect the extent to which people supply labour to the market at all and how intensively they search. Mental health disorders are known to reduce the extent to which people fulfil their normal social and economic roles, and in particular make exerting effort and planning toward and executing of goals difficult (Edlund et al. 2018). Jobseekers with such disorders may face particularly high psychological costs of job search.

Lund et al. (2023) run a systematic review and meta-analysis of all randomised controlled trials evaluating treatments for mental ill-health and measuring economic outcomes in LMICs. They find that, across nine interventions treating common mental disorders like depression with psychotherapy, treatment reduces days on which people are unable to work by 0.09 standard deviations. They also compile a pooled dataset of 8243 participants and use a 2SLS strategy to find that a one standard deviation improvement in depression increases days that people experiencing depression are able to work per month by a substantial 1.75 days (SE 0.78), or 46%. They can only assess impacts on outcomes already measured by multiple trials, so cannot examine impacts on job search directly, but their analysis suggests treating mental health disorders for those affected by them may affect economic measures of labour supply.

Few studies in economics have examined the effects of mental health treatments on job search. Angelucci and Bennett (*forthcoming*) find no effects of antidepressants and therapy for depression respectively on job search in India, and Bhat et al. (2022) and Fuhr et al. (2019) find that a therapy had no effect on job search hours or availability to take a job opportunity. However, Weobong et al. (2017) find that a therapy for depression led to a 0.15 standard deviation increase in job search hours per week and a nearly 0.2 standard deviation increase in availability to take a job. However, except for Angelucci and Bennett (*forthcoming*), all the studies are much smaller than economic studies powered to examine treatment effects on job search, suggesting at least some of them may be underpowered.

Psychological interventions to boost future orientation

A growing literature in behavioural development economics studies the effects of psychological interventions to reduce psychological barriers on behaviours requiring effort, particularly where gains may be far in the future and costs are incurred immediately. Interventions have not studied job search specifically, although job search is likely to be a good example of a behaviour requiring effort. However, these interventions have had strong positive effects on labour supply.

pool of jobseekers, generating a correlation between cost and ability.

Some papers find that psychological interventions to boost aspirations increase labour supply. Bernard et al. (2023) conduct an RCT in rural Ethiopia that seeks to change how people perceive their future opportunities using a video documentary on role model-like figures, and find that five years post-treatment, treated households had increased their labour supply by about 7% of the control mean, or nearly an hour a day across all adult household members. Orkin et al. (2023) conduct a similar intervention in Kenya as part of a multi-armed trial and find labour supply increases among the treated by 5%.

Other studies find soft skills training interventions, to achieve greater self-efficacy, ambitious mindsets, delayed gratification and higher aspirations, improve small business performance. Campos et al. (2017) find that personal initiative training increases profits and business survival among small businesses in Togo. Treated firms also utilise more capital and labour inputs. Cecchi et al. (2022) find such a training course among dairy farmers in Bolivia increased the likelihood of producing milk in the last three days. Rojas Valdes et al. (2022) find that such training among borrowers from a microfinance lender in Mexico result in improved microenterprise performance and increased business employment and plans to hire. Such training has not been tested with jobseekers, but may plausibly increase job search effort.

Other studies train people using psychological techniques to encourage them to visualise the future. An imagery-based training with would-be entrepreneurs in Colombia led to improved business survival, but not labour demand (Ashraf et al. 2022). A visualisation intervention in Kenya (John and Orkin 2022) not only increased the targeted preventative health investment in Kenya, but also had a highly significant positive effect on hours worked after three years, with individuals working 2.4 more hours (an 18% increase).

Policy take-aways

Overall, the evidence suggests that, for jobseekers, well-targeted search-cost subsidies have the potential to improve labour market outcomes in the short run. However, it is unclear that gains persist. The South Africa study further highlights that subsidies are not effective when jobseekers initially target out-of-reach jobs. Further, the Jordan study highlights that for some populations of better-off jobseekers search costs are not an important barrier to search. Subsidies can, however, have positive external benefits for firms, who would otherwise miss out on the talents of the most constrained jobseekers. Further, jobseekers also boost job search expenditure when they receive unconditional cash, suggesting that they would like to search more intensely than they currently are.

More research is needed on the long-term and the equilibrium impacts of these policies. Furthermore, it is unclear how search-cost subsidies interact with the information interventions described in the next section, and in particular whether the two sets of policies would complement or substitute one another.

There is limited evidence on the effects of interventions to reduce the psychological costs of job search. However, some initial results from studies to encourage job search directly, as part of labour market interventions, suggest future research may be promising. Similarly, psychological interventions to boost aspirations, self-efficacy, or ability to visualise the future have led to large and sustained effects on labour supply, suggesting they may also encourage job search.

III. Barriers to firm search

In rapidly growing and changing urban labour markets in lower income countries, firms may also face barriers in the recruitment and retention of workers, perhaps contributing to the disproportionately large number of small firms that exist in these countries. In this subsection, we aim to shed light on firm-level factors that influence hiring in lower-income countries.

IIIA. Limited information

We start by considering the employer's hiring problem. Once an employer decides to hire a new worker, they must both locate and screen applicants. To locate applicants, the employer must decide how and where to post a vacancy – i.e. whether they should pursue referrals, post on online/offline job boards, work with employment agencies, etc. Upon gathering applications, the employer must screen applicants to determine their suitability for the job, paying particular attention to characteristics related to productivity. As limited information¹⁴ on productivity-relevant traits can lead to costly hiring mistakes, employers' beliefs and experiences about different hiring strategies are therefore bound to shape their choice of recruitment methods and, potentially, the growth prospects of their business. We first consider evidence for how the screening problem shapes hiring and then whether firms face significant costs in attracting qualified applicants to vacancies.

Referrals / hiring via networks

Hiring through networks – i.e. through family, friends, co-workers or their referrals – is very common in labour markets throughout the world. A literature examines why firms find it advantageous to hire through networks. A common hypothesis is that hires through referrals mitigate an information asymmetry (either about the worker's unobserved type or their effort), help match workers to jobs which they are less likely to leave, or reduce search frictions.¹⁵

In a low-income country setting, a weaker set of institutions and legal infrastructure may exacerbate moral hazard issues in the workplace and raise the gains to firms for hiring referred workers whose referrers can monitor them and increase their effort. Heath (2018) argues that referrals help solve a moral hazard problem in garment factories in Bangladesh: factories appear to give a linked contract to the referral provider and referral recipient that punishes the referral provider if the recipient does not perform well, which provides the referral recipient incentives for high effort.

However, referrals may not improve efficiency. In a model in which a job provides a rent because wages are above equilibrium, firms may use the ability to grant a referral as a reward to a favoured employee. Using Chinese data, Wang (2013) finds that the death of a father-in-law decreases a man's wage by 7%. She interprets the fact that this effect is stronger in state-owned enterprises as evidence that the channel for this effect is nepotism, rather than a model in which the father-in-law provides information about the son-in-law that is valuable to firms. In the Egyptian context, Osman et al. (2022) find that when high-productivity establishments hire individuals socially connected to the owner, these employees tend to be less productive, consistent with nepotism. By contrast, social connections of employees who are not owners tend to be more productive.¹⁶

A second body of research has examined the distributional consequences of network-based hiring. This is a natural question to study given that social networks often exhibit homophily – a tendency for similar individuals to connect to one another. Beaman and Magruder (2012) demonstrate in India that an employee's choice of referral is affected by experimentally-manipulated rewards for the employee's performance. This result suggests that, while referrals do contain valuable information, they also operate within networks of favour-exchange, which might not work in firms' favour. Moreover, these networks

14 We use the term "limited information" rather than the more common "asymmetric information" as it is now understood that workers may also have imprecise beliefs about their own productivity-relevant traits

15 Evidence that referrals provide information about a worker's type (Pallais and Sands 2016) or improve match quality (Burks et al. 2015, Friebe et al. 2023) comes from papers that focus on high-income countries.

16 Relatedly, Magruder (2010) documents that intergenerational correlations in industry-specific employment in South Africa are consistent with parents helping children find jobs, which might reflect information transmission to firms about their children or directly to their children about applying for jobs. The paper does not assess the extent to which network-based hiring is productive.

differentially hurt women jobseekers, whom men seem reluctant to refer (Beaman et al. 2018).¹⁷ More broadly, Chandrasekhar et al. (2020) show that network-based job search and hiring can be a locally efficient solution to imperfect information but be globally inefficient by keeping hiring too narrow.

It is also important to consider that social networks respond to the incentives generated by policies in ways that can worsen the distributional consequences of network-based hiring, and also harm firms. Caria et al. (*forthcoming*), discussed in the section on jobseekers learning through networks, find that a job-search assistance intervention actually decreases information-sharing between treated individuals and the network members with whom they search for jobs. This is consistent with a model in which individuals garner benefits from membership in job-search networks, but if they gain a sufficiently large individual-specific advantage, it is no longer valuable to help other network members.¹⁸ Chiplunkar et al. (2023) show that when job information becomes more rival, jobseekers share less information and tend to skew their information sharing towards lower ability peers. This decreases the quality of the applicant pool that can be attracted by relying on information diffusion in social networks.

Finally, it is important to understand the global efficiency implications of the common reliance on network-based hiring. Chandrasekhar et al. (2020) study this question. The key intuition of the paper is that even if individual firms find it beneficial to hire using referrals because of information frictions, overall output may still be lower in a world of hiring through referrals because hiring is limited by the social networks of existing employees. Indeed, they demonstrate theoretically that hiring through networks lowers efficiency and can result in what they call an “information poverty trap”, where entrepreneurs do not make investments in learning the true distribution of worker ability.

Hiring outside networks

If networks limit the scale and scope of hiring, in order to grow, firms must be able to successfully recruit from the external labour market. A number of recent experimental studies investigate how limited information can hinder firms’ willingness to hire outside their networks and shed light on interventions that can improve hiring.

Interventions to signal jobseekers’ work experience to firms

Hardy and McCasland (2023) evaluated a government apprenticeship programme in Ghana that placed young unemployed people with small firms. They find that total employment at treated firms increases by approximately half a worker and these firms experience higher revenues and profits. The authors present evidence that the extensive time commitment of the apprenticeship programme served as a non-monetary screening device retaining higher-ability apprentices who were then successfully placed and employed. Loiacano and Silva-Vargas (2023) find similar results of firms learning from directly observing their own workers’ performance in a more specific labour market in Uganda - they find that working with one refugee worker increases firms’ likelihood of hiring more refugees by adjusting owners’ beliefs about refugees’ skills. References from previous employment can also help more directly - Abel et al. (2020) show that female South African jobseekers can increase employment by using reference letters from past employers.

Beam and Quimbo (2023) find that subsidised summer employment for low-income youths in the Philippines led to increased employment a year later, and find that this is most consistent with work experience serving as a signal of unobservable applicant quality. Beam et al. (2020) supplement this with

17 This echoes findings from the US suggesting that referral networks might be concentrated within race groups (Ioannides and Loury 2004).

18 Beaman (2012) documents a similar pattern of rivalry among job-seeking refugees in the United States; larger previous cohorts of co-nationals improve a refugee’s labour market outcomes (because these cohorts are likely to already have jobs and thus help newly arrived via referrals), while arriving in a larger current cohort hurts a refugee’s labour market outcomes (because these are rivals).

the finding that on average, work experience, and not technical and vocational education and training (TVET) or college experience, affects callback rates in Manila, though they cannot distinguish between the channels of human capital accumulation or signalling of worker quality driving this result. Godlonton (2019) finds in urban Malawi that work experience gained via experimentally varying the probability of a short-term job offer to youth leads to an 11 percentage point increase in average employment, and finds that effects are highest for workers with low numeracy and literacy scores. She does not find evidence for expanded social networks or letters of reference being the relevant mechanisms, suggesting the work experience itself may be the predominant positive signal to firms that employ the treated youths.

Certification

Certification interventions – which we have reviewed in Section IIA – have been shown to have consistent positive effects for firms and jobseekers.

Firm Beliefs

In a lab-in-the-field experiment in Ghana, Caria and Falco (2022) show that employers' beliefs about worker trustworthiness are biased and affect willingness to hire. In the game, the authors allow real employers the opportunity to hire an anonymous worker for a simple task. They elicit beliefs from employers about shirking on the task and find that employers underestimate worker trustworthiness, as 20% more workers successfully complete the task than estimated by employers. These beliefs matter for hiring: employers who hire more in real-life have more positive expectations of worker trustworthiness and are more willing to trust in the game.

Fernando et al. (2023) show that combining applicant identity verification with advertising services on an online job portal increases hiring from the job portal and improves overall vacancy filling. In the experiment, advertising services expand access to skilled applicants and identity verification enables improved screening of these unfamiliar applicants. Verification information likely reassured employers of applicants' skills, trustworthiness, or interest in the job, leading to greater recruiting effort on these out-of-network applicants.

In contrast to the studies discussed thus far, Hensel et al. (2022) do not find evidence of firm response to an applicant screening intervention combined with subsidies for formal vacancy creation for small Ethiopian firms. However, treated firms had also shifted their hiring efforts towards white-collar vacancies, which can be harder to fill and which the firms had little experience recruiting for. This may explain the lack of impacts on hiring. Groh et al. (2016) also find that an initial wage subsidy voucher given to female graduates in Jordan lead to a short-term increase in employment, but this subsides in the long run, and the authors hypothesise that this is likely due to productivity levels not rising above a binding minimum wage in this setting.

Finally, a paper by De Mel et al. (2019) provides evidence on the long-term impacts of a temporary wage subsidy offered to small firms in Sri Lanka. This tests for hiring frictions: in the absence of frictions, a wage subsidy should boost employment only for the duration of the subsidy, whereas, in the presence of frictions, impacts on employment should be persistent or at least should decline only gradually over time. The paper finds that the wage subsidy leads to a 10 percentage point increase in employment one year after the end of the subsidy, but effects decline quickly after that. However, when offered in conjunction with either capital or training, the wage subsidy has a positive impact on employment that lasts at least four years after the end of the subsidy. The effect of the combined treatments are significantly greater than the sum of the individual effects of wage subsidy alone and capital or training alone, suggesting that there may be a genuine complementarity between these interventions.

Policy take-aways

Overall, several studies suggest that limited information on worker experience, skills and trustworthiness can indeed limit hiring and are promising targets for intervention, with a now-substantial evidence base. Furthermore, the impacts of information and other interventions may be muted if they are not combined with complementary treatments that address other constraints (as in both Fernando et al. 2023 and De Mel et al. 2019).

IIIB. Cost of vacancies and attracting applicants

Alongside the screening problem, firms could face high costs for posting vacancies through formal channels or be unfamiliar with methods to attract skilled applicants to vacancies.

Two studies directly subsidise vacancy posting costs and do not find evidence of greater hiring. Hensel et al. (2022) subsidise vacancy creation for small firms in Ethiopia. In their context, the cost of posting a vacancy through formal channels like online/offline job boards or newspapers are significant, exceeding the average monthly wage of employees. Treated firms respond by creating more vacancies through formal means and searching for higher-skilled workers, but do not alter the total number of vacancies. In fact, as desirable applicants fail to materialise, treated firms report a lower likelihood of hiring overall. Their results suggest that costs of formal vacancy creation are not a barrier to firm hiring in their context.

In a similar vein, one of the interventions in Fernando et al. (2023) involves preferential advertising for small firms already posting vacancies on an online job portal in India.¹⁹ While this advertising doubles the number of applicants and improves access to observably skilled candidates for firms, treated firms do not increase their hiring significantly more than control firms. The authors explain that larger applicant pools likely increased the screening burden for firms and, without technologies to assist with screening, employers may not benefit from the larger recruitment pools accessible through internet-based recruitment.

On the other hand, two studies that consider alternative interventions to improve the chances of meeting desirable applicants show that firms may fail to optimise recruitment efforts. Abebe et al. (2021b) randomise application incentives, which are calibrated to cover the transport and the time-cost of application, to job seekers interested in working at a large firm. Treated job seekers are more likely to apply. Importantly, the incentive induces high-ability, but disadvantaged, job seekers to apply more than in the control group. Moreover, employers do not anticipate this result, expecting the incentive to attract worse applicants, suggesting that employers may fail to optimise their recruitment strategies.

Relatedly, Abebe et al. (2022) find that a randomised job fair intervention in Ethiopia leads employers to change search strategies and effort. After attending job fairs, treated employers post more vacancies, particularly for professional positions, and are more likely to use external job boards for vacancy posting. The authors contend that attending the job fairs corrects initial overoptimism of firms about the ability and experience of highly educated workers and reduces the reservation quality of workers the firm is willing to hire. Yet, despite these changes to search behaviour, there is limited change in hiring at treated firms.

Policy take-aways

Overall, while there is some evidence to suggest that firms do not optimise recruitment strategies and efforts, likely due to limited experimentation with different recruitment methods, the evidence does not currently establish that this limits the quantity or likelihood of hiring. However, it could still be that the lack

¹⁹ Unlike in Ethiopia, the cost for this preferential advertising was less than 5% of posted monthly wage for the vacancy.

of experimentation with recruitment technologies may influence the quality of hired workers, as suggested by Abebe et al. (2021b), and worker turnover. More work is needed to understand the implications of hiring costs in different settings.

For example, some educational programmes offer matching services for graduating students. Banerjee and Chiplunkar (2023) study the behaviour of placement officers at vocational training institutions across multiple Indian states. They show that placement officers have systematically inaccurate information about students' preferences, that giving them this information changes which students they recommend for interviews at specific jobs, and that this can increase some proxies for subsequent match quality.

IV. Gender and search frictions

This section considers search frictions which may particularly affect women. In 2022, a quarter of women in low-income countries wanted to work but did not have a job, a rate nearly 50% larger than the comparable figure for men (ILO 2023). What jobs do these women want? Do they face discrimination when they apply? Do women search for opportunities differently from men? In this section, our review explores these questions and finds that, taken together, the evidence suggests large differences in women's and men's job search strategies and outcomes. We end by suggesting that some of these differences mean that common measures of labour underutilisation, such as the unemployment rate, may risk seriously undercounting the forgone contributions of women's labour.

IVA. Searching for different jobs

Female and male jobseekers may be, on average, searching for different types of jobs. Disparities in education and labour market experience might mean that women and men are qualified for, and thus searching for, different types of jobs. However, increasing evidence has highlighted that women and men, on average, may value different things in a job. While it is often useful to refer to men's and women's "preferences", it's important to note that these are likely heavily shaped by factors such as the disproportionate share of domestic work and childcare done by women and the stickiness of norms surrounding gender roles in the home. To this extent, we might expect such preference heterogeneity to be greatest where gendered norms are at their most stringent (Jayachandran 2021).

In higher-income settings, women place a higher value on flexibility (Eriksson and Kristensen 2014, Mas and Pallais 2017), shorter commutes (Le Barbanchon et al. 2021), safer work environments (Becerra and Guerra 2021), and jobs that allow them to work part-time (Wiswall and Zafar 2017). There is less work in lower-income countries that precisely measures differences in the degree to which women and men differently trade-off such job attributes against salary and security. Two important exceptions are Mahmud et al. (2021), who find that women workers in Bangladesh place a higher value on jobs that would allow them to work fewer hours, and Ho et al. (2023), who find a high premium on flexibility among women in India. Other work too suggests that women and men in lower- and middle-income countries may be searching for different jobs. For instance, Berniell et al. (2021) and Bernatzky et al. (2021) both find that upon women becoming parents, their employment becomes increasingly concentrated in the informal sector which, although lower-paid, does bring a higher degree of flexibility.

If women's stronger preferences for various non-wage amenities and more local jobs mean that there are fewer jobs that they would be willing to accept, then the thinness of the markets that women search in may imply that they search for longer or end up with a worse match. We see evidence consistent with the idea that gendered preferences may translate into particularly high frictions and mismatch for women. For instance, Fletcher et al. (2018) show a remarkable mismatch between the types of jobs that women in India want and the jobs that working women actually have: of those working-age women who would be willing to take a job, 73% expressed a preference for "regular, part-time work" but only 10% of employed

women actually worked in such a job. Presumably, this mismatch reduces the number of women accepting a paid job, leads to women accepting jobs that don't fit their preferences, and causes women to search for longer. Consistent with this hypothesis, in Egypt, a recent intervention that provides women with children with both child-care vouchers and a matching service finds very limited take-up of both interventions. Women who have less conservative partners are more likely to apply to the jobs proposed by the matching intervention, but since these jobs do not generally meet women's desired job attributes, the additional applications do not ultimately generate gains in employment (Caria et al. 2021).

IVB. Discrimination and employers' gender preferences

Employers may discriminate by gender or have otherwise gendered preferences over matches. This can lead to search being differentially effective for women as compared to men. In urban Pakistan, Gentile et al. (2023) find that employers were 11.5 percentage points less likely to prefer CVs with a female name in a hypothetical CV-rating exercise and, in the same labour market, the authors found that gender differences in employment outcomes are far larger than gender gaps in indicators of search behaviour. Many employers advertising on prominent job portals in both China and India have been shown to have gendered preferences which, when conveyed either explicitly or implicitly to jobseekers, attract an applicant pool skewed towards those preferences (Chaturvedi et al. 2022, Chowdhury et al. 2018, Kuhn and Shen 2013). In India, both Chaturvedi et al. (2022) and Chowdhury et al. (2018) also find that feminine-coded jobs within the same occupation and location are lower paid.

IVC. Searching differently

Even conditional on searching for the same types of jobs, women and men may search for work differently, meaning that they experience search frictions in distinct ways. Many of the same factors that affect women's choices about whether or not to seek paid employment at all, such as the need to schedule job search around domestic work, may also affect how women search.

In lower-income contexts, job search is often highly structured around social networks and referrals, and a large number of "weak ties" are very useful (Calvó-Armengol and Jackson 2004, Mortensen and Vishwanath 1994). The structure of social networks may disadvantage women in the labour market: social networks are often highly segregated by gender; women often have smaller networks that are more focused on family ties; and women may face mobility and time constraints that prevent them from maintaining social connections outside of the household (Anukriti et al. 2020, Field et al. 2010, Kandpal and Baylis 2019). Network effects might interact in important ways with gendered norms: Afridi et al. (2023) (also cited in the section on job search platforms) find that providing a digital job search platform to both women and their social network had no impact on women's work but benefitted her husband's work, potentially because the network treatment reinforced conservative gender norms about women's work while helping to provide information on job opportunities to men.

There is also evidence that gender differences in constructs such as risk aversion, confidence and impatience might cause differences in search strategies. Archibong et al. (2022) find that on an online job platform in Nigeria, women appear more cautious in their search behaviour, typically applying to fewer jobs, jobs that they are more qualified for, and less-senior positions than observationally similar men.²⁰

²⁰ Amongst US job seekers, Cortés et al. (2023) find that women being more risk-averse and less overconfident contributes to them accepting earlier but lower-paid offers.

IVD. Are women giving up? Latent labour supply and the jobs gap

We see evidence that factors such as different preferences over job attributes or the anticipation of discrimination often lead women and men to direct their search to different labour markets, with indications that women are often overrepresented in thinner and lower-paid markets. Anticipating also the discrimination they may face in hiring decisions and the gendered constraints to the process of job search itself – such as the time demands of unpaid domestic work, mobility constraints, or limited social networks – means that many women might decide that the high costs they face to search are not worth the reward of the type of job that search may realistically bring. Such a situation, where women report wanting to work but neither have a job nor are engaging in a high degree of search activity is an important finding and it is sometimes referred to as these women being “latent” workers (Fletcher et al. 2018, Gentile et al. 2023). The large number of women trapped in this state can be seen by noting that while there are, on average, very small gender differences in unemployment rates, there are very large gender differences in the proportion of people who want a job but don’t have one, with many more women than men being in this state (ILO 2023). This comes down to the fact that to be counted as unemployed someone must have been recently searching for work and must be able to take up a job at short notice. The discrepancy suggests that the underutilisation of the talents and labour that women want to supply may be far greater than a naïve look at the unemployment statistics would suggest.

IVE. Policy take-aways

While it is well-understood that women may face different job-search barriers, we have very little evidence showing how job-search policies could be adapted to best meet these constraints. As mentioned before, both an intervention that combined a job-search intervention with child-care assistance and a digital job-search platform failed to improve female employment outcomes. We thus flag this as an important area to make progress.²¹

V. Welfare and the returns to search interventions

In this final section we discuss four important points on the returns to search interventions.

First, **search interventions tend to be very cheap and hence the marginal return to public funds spent on successful search interventions is very high.** The following comparison is instructive. Kreft (2023) finds that the average treatment effect of a certification intervention is a 3 percentage point increase in employment. For comparison, the average employment treatment effect of youth vocational training is a 6.5 percentage point increase in employment (Ghisletta et al. 2021). At the same time, the certification or subsidy interventions reported in McKenzie (2017) have costs ranging from 7.5 USD to 25 USD per person treated (with the exception of one study in Jordan with costs of 203 USD), while the training interventions have costs ranging from 330 USD to 1722 USD per person treated (with the exception of one study in India that only costed 13 USD per treated respondent). In other words, if we exclude the two outliers, the most expensive search intervention is more than ten times cheaper than the least expensive training intervention. Prima facie, the marginal return to spending public funds in a certification intervention is thus vastly greater than the return to training.

Second, the most important caveat to this conclusion is that **we have very limited evidence to quantify the potential negative employment impacts of interventions on untreated individuals** – the so-called displacement effects. Displacement effects would arise if treated and untreated individuals compete for the same pool of vacancies and, prior to the intervention, most vacancies are filled with a recruit. It is plausible that, at least in the short run, displacement effects can be large, since anecdotally firms in low and

21 The forthcoming VoxDevLit on Female Labour Force Participation features a broader exploration of the determinants of, and potential solutions to, low levels of female labour force participation.

lower-middle income countries do not appear to have a large number of unfilled vacancies. Displacement effects can also limit the effectiveness of training interventions. Whether training interventions and search interventions have different displacement effects remains unclear. If the key short-run constraint is the presence of unfilled vacancies, it is plausible that the displacement effects of these two types of interventions may be similar. More research on these issues is urgently needed.

Similarly, **it would be important to collect more systematic evidence on whether these interventions generate productivity gains for firms** (e.g. gains arising from a better allocation of talent). These gains are at the core of the economic argument for having search interventions, but the evidence on their magnitude is unfortunately limited.

Third, **we also have close to no evidence to assess the general equilibrium (GE) impacts of these interventions when they are offered at scale.**²² One plausible GE impact of search (and training) interventions is an increase in labour demand, since firms cite the inability to find and identify talent as a key constraint to their growth. But there are at least two types of negative GE impacts. First, interventions that increase search can generate congestion and raise average search costs. Second, interventions that generate signals about jobseeker skills can harm low-skilled workers – an effect that would only emerge when skill certificates become expected by employers and hence low-skilled workers are forced to reveal poor skill assessment results. We flag the area of the GE impacts of search interventions as a key area for research.

Finally, it is important to note that there exists **an equity rationale for offering search interventions**, since they are designed to support individuals who would otherwise face search barriers (e.g. liquidity constraints or lack of credentials) and have weaker labour market outcomes as a result of this. There is indeed initial evidence suggesting these interventions are most effective for groups with weaker expected labour market outcomes. This raises the question of whether there would be gains from targeting these interventions more effectively. Caria et al. (2023) estimate some gains from targeting search interventions in the context of an adaptive experiment in Jordan, but much more research is needed on this topic.

22 Field et al. (2023) use data from a job search and matching platform in Pakistan to show that increases in application volumes do not generate negative spillovers on interview invitations, although they do not observe employment.

VI. Table of labour market interventions

The tables below provide a snapshot of all results from labour market interventions cited in this review. For clarity, we have included only those papers that are (i) in LMICs (ii) are RCTs (iii) are specifically labour market interventions (therefore excluding audit studies, willingness to pay RCTs, etc). The summary results below are by construction short and somewhat imprecise, but they are designed to provide a quick reference to interested readers.

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Abel et al. (2020)	South Africa	African youths between the ages of 18 and 34 on the Employment Services of South Africa database who report not having done any work in the last seven days.	Reference letters	Positive (only for female)	-	Positive	Positive
Abel et al. (2019)	South Africa	Unemployed job seekers between the ages of 18 and 35, who registered with Employment Services of South Africa in the previous 18 months and lived within travelling distance from the three urban Labour Centres that were part of the study.	Completing a detailed job- search plan	Positive	-	Positive	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Abel et al. (2022)	Mexico	12th grade students (post-secondary) who are planning to work full-time or part-time after graduation	Wage incentive for holding a formal job	No effect on general studies students or those planning to continue education. Positive effect on graduates of vocational schools and those planning to enter labour market.	Positive (for vocational school graduates)	Cannot reject null of no effect	-
Afridi et al. (2023)	India	Married couples aged 18-45 and their networks in low-income neighbourhoods of Delhi.	Digital job search platform (i) married couples (non-network) (ii) married couples + wife's peer network (network)	Positive for husbands in network	Positive for husbands in network	-	-
Alfonsi et al. (2022)	Uganda	Vocational students poised to make the school-to-work transition in three urban labour markets in Central and Eastern Uganda.	Mentorship programme	Positive	Positive	Positive	Positive
Angelucci and Benett (forthcoming)	India	Adults, mostly women, with symptoms of mild or moderate depression in a peri-urban region near Bangalore, India.	Antidepressants and therapy for depression	Cannot reject null of no effect	Cannot reject null of no effect	Cannot reject null of no effect	-
Ashraf et al. (2022)	Colombia	Sample of would-be entrepreneurs in Bogota	Imagery-based entrepreneurial training	Cannot reject null of no effect	Positive	-	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Bandiera et al. (2023)	Uganda	Young labour market entrants, targeting youth with limited labour market experience	(i) vocational training (ii) matching (iii) vocational training + matching	Positive for vocational training, attenuated by additional matching	Positive for training, attenuated by additional matching	Positive for training, attenuated by additional matching	Positive for vocational training, attenuated by additional matching
Banerjee and Chiplunkar (2023)	India	Trainees who are enrolled infield-specific training programmes with primarily in the service sector in the states of Uttar Pradesh and Delhi	Providing placement managers with information on trainee preferences	Positive	Negative-	-	Positive, but only in the short run)
Banerjee and Sequeira (2023)	South Africa	Jobseekers in the Soweto township, outside of Johannesburg, who were listed as actively seeking a job	Transport subsidy	Cannot reject null of no effect	Negative	Positive	-
Baseler (2023)	Kenya	Rural households in Kenya with at least one member aged 18-35 no more than two hours away from nearest city	Information on labour market conditions in nearby cities	Positive (for families)	Positive (for families)	Positive	-
Bassi and Nansamba (2022)	Uganda	Trainees currently enrolled at 15 partner vocational training institutes in one of the six business sectors covered by the project, and expected to graduate in time for the placement intervention	Certificates on non-cognitive skills of workers	Cannot reject null of no effect	Cannot reject null of no effect overall, positive for highly skilled workers	Positive	Positive
Bazzi et al. (2023)	Indonesia	400 largest migrant-sending villages, reaching nearly 30,000 migration-age eligible women in treated villages	Information on international migration intermediary quality	Cannot reject null of no effect	Cannot reject null of no effect	Positive	Positive

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Beam (2016)	Philippines	People aged 20-35 in rural Philippines	Job fair	Positive for formal sector employment	-	Positive	-
Beam and Quimbo (2023)	Philippines	Low-income youth aged 15-25 who are enrolled or intend to re-enroll in secondary or post-secondary education	Short-term work	Positive	Cannot reject null of no effect	Cannot reject null of no effect	-
Beaman and Magruder (2012)	India	Labour force participants from several neighbourhoods in Kolkata	Varying incentives to refer a highly-skilled employee: (i) fixed pay (ii) performance pay	-	-	-	Positive, but only for those with (i) the ability to refer effectively and (ii) paid adequate performance pay
Beaman et al. (2018)	Malawi	Applicants for enumerator positions in the cities of Blantyre and Lilongwe	Varying incentives to refer a highly-skilled employee: (i) fixed pay (ii) performance pay and Varying whether, man, woman, or either gender referral required	-	-	-	Negative for qualified female candidates (referred less often) driven almost entirely by men exhibiting preference for other men. The performance incentive does not always lead to higher-quality referrals
Bernard et al. (2023)	Ethiopia	Individuals from remote rural Ethiopian administrative district	Aspirations workshop	Positive	-	-	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Bhat et al. (2022)	India	(i) Sample of adults screening positive for depression in Goa (ii) Women with perinatal depression in Goa	Brief course of psychotherapy	Cannot reject null of no effect	Cannot reject null of no effect	Cannot reject null of no effect	-
Bryan et al. (2014)	Bangladesh	Households in the relevant region that reported that they owned less than 50 decimals of land, and that a household member was forced to miss meals during the prior lean season.	Incentive to migrate during lean season as (i) cash or (ii) credit	Positive (migration)	Positive (family)	Positive	Positive
Caria et al. (forthcoming)	Ethiopia	Same as Abebe et al. (2021b)	Transport subsidy (same as Abebe et al. 2021b), where the treatment is the job search partner received subsidy	Cannot reject null of no effect	Cannot reject null of no effect	Negative	-
Caria et al. (2023)	Jordan	Sample of (i) Syrian refugees or Jordanian nationals with valid government identification, (ii) between 18 and 45 years old (inclusive), and (iii) willing to take up low-skilled formal wage work that pays approximately minimum wage in the immediate future.	(i) Labelled cash transfer intended to pay for cost of job search (ii) Information on how to prepare for a formal job and legal rights in formal jobs (iii) Psychological support	Positive for refugees (cash transfer arm)	Positive for refugees (cash transfer arm)	Positive (all arms)	Positive (for refugees) (cash transfer)

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Carranza et al. (2022)	South Africa	Young, active workseekers from low-income backgrounds with limited work experience.	Assessing jobseeker skills and providing ability to credibly have/share results: (i) public certification (ii) private certification and (iii) audit study sending resumes to firms	Positive for public certification only	Positive for both public and private, attenuated in the latter	Positive	Positive
Cecchi et al. (2022)	Bolivia	Dairy farmers in a low-income region	Aspirations workshop	Positive	-	-	-
Chakravorty et al. (2023)	India	Unemployed rural youth aged 15-35 years from poor families with some secondary education (10th or 12th grade) in Bihar and Jharkhand enrolled in flagship government sponsored vocational training and placement programme	Richer information about prospective jobs	Positive (only for retention in original placement)	-	-	-
Chiplunkar et al. (2023)	India	Students in six private colleges in Mumbai which cater to lower-income students across the city	(i) Increasing competition for a job (ii) increasing wages	-	-	-	Negative (worse talent pool due to reduced information sharing), attenuated only partially by higher wages attracting better talent

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Field et al. (2023)	Pakistan	Sample of households across Lahore who sign up for job matching platform	Lowering psychological cost of initiating job applications	Cannot reject null of no effect	-	Positive	-
Franklin (2018)	Ethiopia	Young jobseekers who live far from the centre of a large city	Transport subsidy	Positive	Cannot reject null of no effect	Positive	Positive
Godlonton (2019)	Malawi	Male, aged 18 and older, who completed secondary schooling, who were top performers in an assessment in a real recruitment process	Randomly allocated probabilistic chance of short-term employment in a real job during the recruitment process	Positive	Positive	Cannot reject null of no effect	-
Groh et al. (2015)	Jordan	Unemployed recent university and community college graduates in Amman	Job-matching service	Cannot reject null of no effect	Cannot reject null of no effect	-	-
Groh et al. (2016)	Jordan	Recent female graduates from eight public community colleges with the largest female enrollment numbers	Wage-subsidy	Positive, but only while subsidy in place	Positive, but only while subsidy in place	-	-
Ho et al. (2023)	India	Women from lower-middle-income households in a mix of urban, peri-urban, and rural areas in West Bengal who were not in the labour force or in skills training	Offering flexible short-term and remote data entry jobs	Positive	Positive	-	-
John and Orkin (2022)	Kenya	Women in rural Kenya	Visualisation-based training on preventative health investment	Positive	Cannot reject null of no effect	-	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Jones and Santos (2022)	Mozambique	Representative sample of over 2,000 Mozambican university graduates as they enter the labour market	Information on employment and wages via SMS at the (i) general (ii) university-specific, and (iii) field-specific level	Cannot reject null of no effect	Results on earnings beliefs: optimistic beliefs adjust downwards more in treatment group, but evidence of limited response to negative news	-	-
Jones and Sen (2022)	Mozambique	Recent graduates from technical and vocational colleges in Mozambique	Encouragement to join digital job search platforms	Cannot reject null of no effect on average, positive for female graduates on informal work platform, particularly those with manual vocational qualifications	Cannot reject null of no effect	Positive	Cannot reject null of no effect
Kelley et al. (forthcoming)	India	Recent government-incentivised training programme graduates from 168 training institutes specialising in 4 pre-selected trades (Telecom, Logistics, Sales and Security).	(i) Enrollment in digital job search platform (access) (ii) Enrollment + information (more notifications on new opportunities)	Negative for enrollment, attenuated by additional information	Cannot reject null of no effect	Cannot reject null of no effect	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Kiss et al. (2023)	South Africa	Young, active jobseekers with at least high school education who attended school in low-income areas	Assessment of jobseekers' communication and numeracy skills, and giving them the assessment results	Cannot reject null of no effect	Positive	Positive	Positive
Orkin et al. 2023	Kenya	Women from households living in poverty in villages	Aspirations workshop	Positive	Positive	-	-
Shrestha (2020)	Nepal	Any male passport applicants who had just finished submitting their applications and expressed an intention of working in Malaysia or the Persian Gulf countries was eligible	Information provision to potential international work migrants on wages and mortality incidences at their intended destinations	Beliefs corrected, migration decisions corrected accordingly	Cannot reject null of no effect	Cannot reject null of no effect	Cannot reject null of no effect
Subramanian (2023)	Pakistan	Any male passport applicants who had just finished submitting their applications and expressed an intention of working in Malaysia or the Persian Gulf countries was eligible	(i) Information provision to women about supervisor gender on job listing (ii) Additionally making family job search discussions salient during application decision	-	-	No effect of information on gender at application stage without salience, strong preference to work in female dominated environment at the stage of accepting an offer	-
Weobong et al. (2017)	India	Sample of adults screening positive for depression in Goa	Therapy	-	-	Positive	-

Mainly Worker-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (any)	Earnings or Consumption	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Wheeler et al. (2022)	South Africa	Participants in existing job readiness programmes in large South African cities. The programmes help young, disadvantaged work seekers prepare and apply for jobs in growing sectors, primarily call centres.	Training jobseekers to join and use job platform LinkedIn	Positive	-	Positive	Positive

Mainly Firm-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (hiring or vacancy-filling)	Revenue or Profits	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Campos et al. (2017)	Togo	Informal microenterprises not in agriculture with fewer than 50 employees	Personal initiative training	Positive	Positive	-	-
de Mel et al. (2019)	Sri Lanka	Urban microenterprises with two or fewer paid employees, owned by males aged 20 to 45 and operating in nonagricultural sectors.	Short-term subsidy to hire more labour	Positive in short term, no impact on long term	Cannot reject null of no effect	-	-
Fernando et al. (2023)	India	Firms posting vacancies on specific online job portal in Bengaluru	(i) Advertising (ii) Ability to verify applicant identity (ii) Joint (both) to encourage firms to use online job portals	Positive (more hiring) for joint treatment firms	-	-	Positive for joint treatment, and for advertising only

Mainly Firm-side Interventions							
Paper	Location	Sample	Intervention	Treatment Effects			
				Employment (hiring or vacancy-filling)	Revenue or Profits	Search (quantitative or qualitative changes)	Match Quality (different proxies)
Hardy and McCasland (2023)	Ghana	Unemployed young people interested in apprenticeships and small firms in Ghana	Placement as apprentices with small firms	Positive	Positive	-	-
Hensel et al. (2022)	Ethiopia	Randomly-selected subset of small and medium-sized firms in Addis Ababa	Subsidise cost of formal vacancy posting by firms	Negative	-	Positive only for formal vacancy posting, persistent creating of white-collar vacancies	Cannot reject null of no effect
Loiacano and Silva-Vargas (2023)	Uganda	Firms and refugees in the manufacturing and services sectors Uganda	Subsidising firms to hire refugees for a weeklong internship	Positive (refugee hiring)	-	-	-
Rojas Valdes et al. (2022)	Mexico	Women in savings and credits groups	Aspirations workshop	Positive	Cannot reject null of no effect	Positive	-
Wu and Wang (2023)	Ethiopia	Private formal firms that are actively hiring in Addis Ababa	Employment agency recommendation to firms	Positive	-	-	Positive

VII. References

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