NBER WORKING PAPER SERIES

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Working Paper 33908
http://www.nber.org/papers/w33908

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2025

We thank the editor, Nathan Nunn, for helpful feedback on this article. No outside funding was required for this review article, and the authors have no financial relationships relevant for this work. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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June 2025
JEL No. E24, J22, J23, J31, J63, J64, O15, O17

ABSTRACT

The process of development is accompanied by marked changes in the structure of the labor market. We lay out a broad set of stylized features that distinguish developing country labor markets from those in richer countries. We organize our review around one particularly striking difference: in poor countries, working age individuals are employed in wage work only 20-50% of the time. There is evidence that this low wage employment reflects high levels of involuntary unemployment (often masked by self-employment), along with frictions such as wage rigidity, market power, and search and matching frictions. At the same time, there is growing documentation that workers prefer self-employment or unemployment to many of the wage jobs that are available to them, especially low-skill work in the formal sector. We offer evidence on several ways in which poverty itself can dampen labor supply, so that "low" labor supply may itself be an outcome of under-development. Throughout our review, we highlight how three core aspects of poverty—missing markets, the importance of social ties, and institutional irregularity—are important for understanding why developing country labor markets may behave differently from those in richer settings. This has relevance for understanding how labor markets change in response to, and help facilitate, the process of development.

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1. Introduction

The process of development does not only entail a change in wealth. As economies develop, this has historically been accompanied by changes in the structure of the labor market. This includes changes in human capital levels and the distribution of occupations and sectors. It also entails substantial changes in how labor is organized in production—for example, a transition from small firms with a single owner-worker to large ones, from self-employment to wage employment, and from irregular casual work to formal jobs.

Labor markets are key to the study of development because of their centrality for both welfare and output. Labor is by far the most abundant resource of people in poverty. It is what they draw on for earnings, as well as for consumption smoothing in the face of shocks. Labor is also by far the largest factor input into production in poor countries. For these reasons, the earliest development literature put labor markets front and center in theories of development and growth (e.g. Lewis, 1954; Harris and Todaro, 1970).

We review the literature on labor markets in developing countries, with an emphasis on research from the last ten years. We discuss three aspects of developing country settings that are inherently tied to poverty and which we view as particularly consequential for labor market functioning: missing markets, the importance of social ties, and the volatility and institutional irregularity faced by individuals in their daily lives. In our view, these features are important for understanding why labor markets in developing countries may behave differently from those in richer settings. We refer to these features in interpreting evidence throughout our review.

Labor markets in poor countries differ markedly from those in richer countries. We present a broad set of characteristics that distinguish developing country labor markets. We argue that many of these features remain under-explored in the literature.

We then highlight one particularly stark pattern: in poor countries, there are strikingly low levels of wage employment and high levels of self-employment. For example, in a given month, individuals are employed in wage work on only 20-50% of days. How should we interpret the low rate of wage employment?

We organize our review around three possible categories of explanations. First, it may reflect high levels of involuntary unemployment—indicating the presence of substantial labor market frictions. We argue there is evidence for involuntary unemployment, which can be linked to wage rigidity, market power, social redistribution, and search and matching frictions.

Second, it may stem from a shortage of skilled workers due to low human capital levels. While there is a dearth of evidence on the labor market returns of schooling, the limited evidence on human capital investments like vocational training largely do not find large returns. However, it is unclear whether this reflects a lack of returns to such investments, or low quality of existing programs.

Third, low wage employment may reflect low levels of labor supply to wage work because workers find existing jobs undesirable. A growing number of studies finds evidence that workers

do not want the jobs available to them, especially formal low-skilled jobs such as factory work. We argue that at least some of this "low" labor supply is itself a consequence of the conditions associated with poverty—complicating its interpretation as "voluntary" unemployment. We review evidence on factors such as social complementarities in labor supply and the impacts of volatility and norms on supply levels. This research leaves open the possibility of multiple equilibria in aggregate labor supply levels.

Finally, we assess the evidence on the consumption smoothing role of labor markets. The evidence indicates that wages or earnings capacity often falls when the marginal utility of consumption is highest. This highlights how missing markets in other domains impact labor market behavior, with potentially worrying implications for welfare.

The literature on labor markets in developing countries is vast. In this review, we restrict to work that is inherently about labor market functioning in developing countries. Consequently, a rich body of excellent papers that are set in a low-income country setting, but primarily test general ideas from other literatures—such as labor, personnel, or behavioral economics—are not covered in detail. In addition, we focus on private sector employment, and do not cover broad literatures in development and political economy that examine workers in the public sector (see (Finan et al., 2017) for an excellent review). Finally, the changes in the labor market that are associated with the development process may be inhibited by many other factors—such as capital constraints among firms, technology innovation, and government capacity (see, e.g., Gollin and Kaboski, 2023). We view these other factors as extremely important. Examining how such factors interact with or influence labor market functioning is an interesting and understudied area of research.

Our review proceeds as follows. We begin in Section 2 with the goals of well-functioning labor markets. In Section 3 we introduce the three features of under-development that are particularly relevant for understanding the labor market. Our presentation of stylized facts from developing country labor markets, chiefly the low levels of wage employment, is in Section 4. We then turn to the three potential explanations for low wage employment. First, Sections 5 and 6 explore the idea that some of the low employment may be involuntary and caused by market frictions. Second, Section 7 investigates the extent to which low levels of human capital might explain this fact. Third, Sections 8 and 9 examine labor-supply as an explanation and its link with the conditions of underdevelopment. The consumption-smoothing role of labor markets is discussed in Section 10, and Section 11 concludes.

2. Goals of well-functioning labor markets

When labor markets work well, they should accomplish three sets of goals. First, they should provide wage employment to those who want it; in other words, workers should be on their labor supply curves. Failure to do so—for example, in the presence of high involuntary unemployment—will affect welfare, and also potentially output.

Second, well-functioning labor markets should allocate workers to jobs, and moreover, the "right" workers to the "right" jobs. This typically occurs through the wage mechanism, which may be undermined in the presence of wage rigidities or search and matching frictions. A failure in the allocative role played by the labor market can lower output by reducing the total amount of labor used in production, and through labor misallocation.

Finally, the process of development has historically required structural transformation—an expansion of jobs in non-traditional sectors (e.g. outside of agriculture) and a move from casual informal employment, to longer-term more formal employment (e.g. factory or services jobs). Of course, factors outside the labor market are essential for the creation of firms that may provide formal jobs (e.g. Verhoogen, 2023). However, for such firms to be viable, it is the labor market that must facilitate the transition of workers from traditional to non-traditional jobs.

3. Labor markets and Under-development

The inherent features of poverty—economic, social, and institutional—fundamentally change the opportunities and choices of low-income individuals. In this section, we highlight three specific features of under-development, which we view as particularly consequential for labor market functioning. These features have direct implications for labor supply, labor demand, and the structure of labor markets. We provide a general introduction and overview in this section, and then refer to these features to aid in interpreting specific bodies of evidence throughout our review below.

First, a key characteristic of developing country economies is the prevalence of missing markets. For example, individuals face imperfect markets for savings, credit, and insurance. This leads to coping strategies such as the use of labor supply as a primary consumption smoothing mechanism and a reliance on informal insurance networks. As we discuss below, these strategies have important consequences for labor supply levels and welfare. Missing credit markets could also depress labor demand, lowering employment levels. As another example, information frictions, such as missing markets for skill certification, may exacerbate search and matching frictions—with potential implications for employment levels and labor misallocation.

Second, in developing countries, social ties are strongly entwined with economic exchange. For example, in village economies, transactions in labor, land, credit, retail, and services are often undertaken amongst co-villagers who are dependent on each other for socialization and marriages, as well as risk sharing and job referrals. This greatly expands the scope for social considerations and norms to affect the labor market. Below, we discuss research showing impacts on labor supply decisions, the matching process, migration, worker beliefs, and market power.

Third, in developing countries, the inherent volatility and irregularity that is built into daily life may also constrain employment levels. For example, workers face frequent shocks that hinder labor supply, including illness and work injuries, attending to sick family members, and

Feature	Description	Example Potential Implications
Low wage employment	In Sub-Saharan Africa and South Asia, wage employment rates are typically 20-50%	High involuntary unemployment. Limitations to using labor supply as a consumption smoothing device. Suggests possibility of demand side frictions or supply side factors.
High self employment	The majority of individuals are self-employed	Misallocation of labor across firms due to separation failures. Larger scope for workers' liquidity constraints to affect labor productivity.
Spot markets, short term contracts	The majority of informal labor is traded in spot markets, where the modal contract is one day long	May amplify search and bargaining costs because new match must be formed daily. Limits returns to investing in worker skills.
High turnover and absenteeism	High levels of turnover in long-run jobs	Limits returns to investing in worker skills. May prevent firms from adopting labor augmenting technology, or production processes that create complementarities across workers (e.g. assembly lines).
Prevailing wages or modal wages	In many contexts there are clear benchmark wages that all workers expect to earn for a given task	Wage compression. Workers are not paid their marginal product. Low returns to skill or experience.
Large fluctuations in labor demand	Seasonality and weather shocks affect labor demand in urban and rural settings	Under wage frictions, could generate labor rationing or shortages. Increases challenge of using labor supply as consumption smoothing device for workers. Potential increasing returns to firm size as smaller firms have periods of excess capacity or must turn down orders.
Productivity fluctuations from health shocks	Frequent illness	Lowers marginal product of labor, lowers labor supply. On aggregate, increases worker turnover. Reduced earnings capacity when need for income is especially high.
Poor working conditions	Safety concerns, long work hours, low reliability of employer to pay on time	Reduces labor supply for wage jobs. Workplace injuries can lower future earnings potential.
Large sectoral and spatial wage gaps	Large wage gaps between rural vs. urban areas, and agricultural vs. non-agricultural sectors	High potential returns to migration or human capital increases.
High transport and commuting costs	High time and money costs to travel to jobs or for job search in both rural and urban areas, especially in Sub-Saharan Africa.	Can limit job search and worsen spatial mis-allocation and wage gaps.
Optimistic beliefs about job finding rates	Young job-seekers tend to have over-optimistic beliefs about labor market conditions and about their own skills. This is also true for beliefs about the likelihood of obtaining high-paying government jobs.	Affects job search strategies and likelihood of accepting job offers. Also may distort human capital investments.
Cultural and social norms about labor supply	Sorting of ethnic or religious groups into occupations. Stigmatization of manual wage labor. Social norms may alter the acceptability of different pay levels. Employment as a form of redistribution.	Norms may dampen overall labor supply, or alter the types of wage jobs individuals are willing to take. Could generate wage compression or wage rigidity. Potential for groups of workers or employers to implicitly coordinate on supply or demand levels, generating market power. Redistribution through employment versus cash may decrease labor productivity.
Gender gaps in labor force participation and wages	Norms about the acceptability of women working outside the home. Gendered norms over household responsibilities, occupational sorting, acceptability of commuting, and sexual harassment. Breadwinner norms.	Gender gaps in labor force participation and wages. Depresses aggregate employment levels. Segmented labor markets by gender. More limited mobility among women could increase monopsony power.

TABLE 1. Key Features of Developing Country labor markets

social obligations on weekdays such as weddings and festivals. Moreover, volatility can constrain underlying human capital by reducing worker health and education levels—for example, through student or teacher absences. Similarly, variability in labor demand among casual daily workers, along with extreme seasonality in agriculture, exacerbates employment volatility. This has the potential to affect the contracting environment in labor markets, and as we discuss below, may endogenously affect employers' and workers' preferences for offering and accepting stable formal jobs.

4. Features of Developing Country Labor Markets

We begin by laying out a set of stylized facts. Table 1 summarizes features that distinguish labor markets in developing countries from those in richer ones. It also discusses some potential implications of each feature for labor market functioning. We refer to these features when relevant in the following review. However, we should note that there is often limited evidence examining the causes or consequences of many of these features—providing substantial fodder for new research directions.

4.1. **Low wage employment and high self-employment.** Figure 1 presents mean employment rates tabulated separately by rural and urban areas for a range of lower income countries. The countries are sorted on the x-axis by region, in ascending order of GDP per capita. We

define the employment rate as the *fraction of days* per month a worker is employed in wage employment or total employment (wage plus self employment). Given the predominance of casual daily work and family businesses in developing countries, measuring the proportion of days employed is a more appropriate measure of employment rates than a person-level classification (e.g. whether the individual reports a primary occupation over the course of the year).[1]

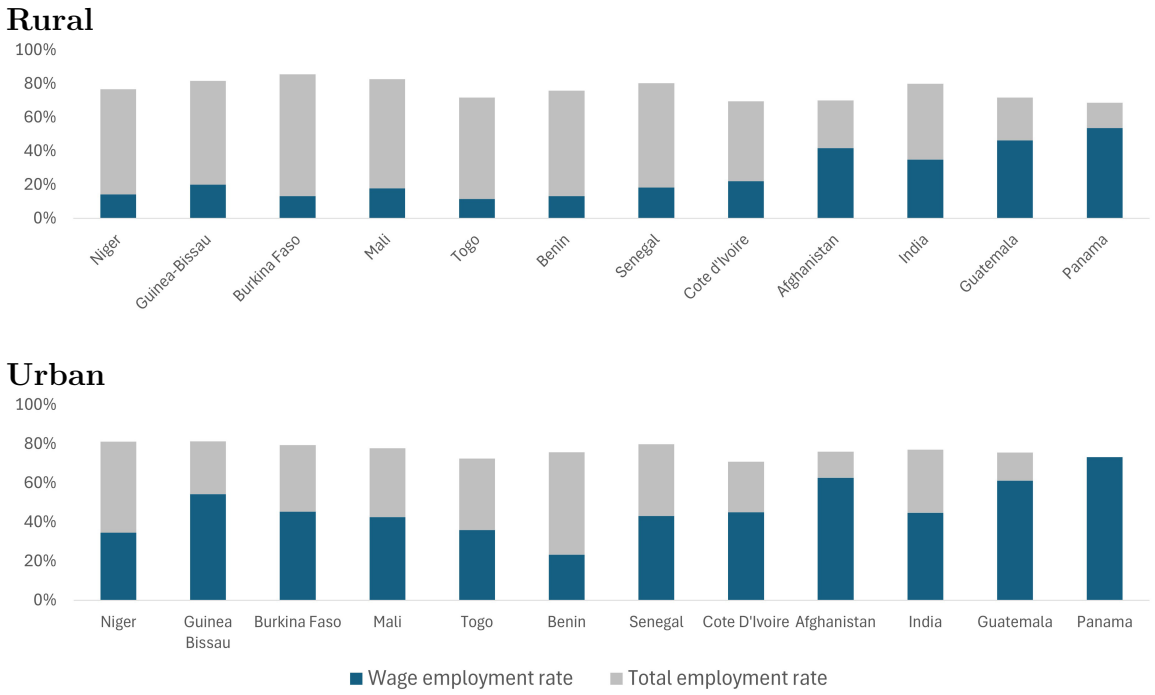

FIGURE 1. Wage and Total Employment Rates

Source: India - 68th round National Sample Survey, Afghanistan - Income, Expenditure and Labour Force Survey (2019-20), Panama - Living Standards Measurement Study 2000, All other countries - Living Standards Measurement Study 2018

On average, in most developing countries, workers are employed more than 80% of the days in a given month. Assuming a full workweek is 5-6 days per week, on the surface, this magnitude corresponds to one what might expect under full-employment. However, this masks a stark compositional pattern that is unique to developing country settings: the share of wage employment is low, and the overwhelming majority of days worked are in self-employment. The wage employment rate typically ranges from 10-15% in rural areas; even in urban areas, it is only 25-50% across most countries in this sample.

4.2. **Additional empirical patterns.**

Short job spells. When workers do work wage jobs, they are typically of short duration. The majority of the world's poor find employment in spot labor markets. In villages, spot contracts

[1]The high prevalence of self-employment across developing countries has been widely documented, for example, in Donovan et al. (2023) and Banerjee and Duflo (2008).

are bilaterally arranged among employers and workers through some combination of employer or worker-directed search. In urban areas, much of informal employment, such as construction jobs, is secured via spot contracts at labor stands—spaces where workers gather to await potential employers. In spot markets, the modal contract is one day long, and contracts rarely span longer than a week (Dreze et al., 1986; Rosenzweig, 1988; Kaur, 2019; Cefala et al., 2024b).

Even among longer-term labor contracts for formal factory jobs, work durations are often short. As we discuss further below, studies from a range of countries tend to find that the average factory worker separates from their job in less than six months of being hired (e.g. Blattman and Dercon, 2018). This represents an important puzzle that has motivated a variety of studies, as we discuss below.

Wage compression. There is often a gender-specific "prevailing wage" for each task or occupation (e.g. planting, weeding in farm work, construction helper, mason). While the limited amount of contract-level data makes the prevalence of this phenomenon difficult to quantify, several studies have documented the presence of prevailing wages or a small set of modal wages (e.g. Dreze et al., 1986; Breza et al., 2018; Cefala et al., 2024a,b). This is more likely in cases where workers are paid a flat wage, rather than a piece rate, and in spot labor markets. This suggests wage compression: wages may vary less than the marginal product of labor. This raises natural questions, such as how workers are allocated to jobs if there is limited differentiation by ability.

There is also limited work explaining the causes for wage compression. Breza et al. (2018) provide evidence for strong fairness norms around wage levels, and Breza et al. (2022) cite the importance of norms in enabling workers to coordinate labor supply levels. Alternately, it may also be possible that prevailing wages avoid bargaining costs, which would become prohibitive in spot markets since contracts must be negotiated daily. The causes and implications of wage compression remain understudied.

Low Returns to Experience. The cross-country evidence of Lagakos et al. (2018) and Donovan et al. (2023) suggests that workers in developing countries have much flatter experience-wage profiles than those in high income countries. Donovan et al. (2023) examine labor market flows using harmonized micro-data from 49 countries. They note that this fact is inherently tied to high separation rates: "Workers who move to a higher-wage job are 39 percentage points more likely to return to nonemployment or fall to a lower wage level just one quarter later." This may also be driven, in part, by wage compression: when prevailing wage norms arise, they do not distinguish workers by experience. However, conditional on remaining in a job, workers experience steeper increases in wages with experience than in developed countries. This may possibly reflect worker selection effects if those who stay longest reveal themselves to be good matches. It could also reflect job selection effects, given that spot market workers do not have the possibility to accumulate long tenures. Research unpacking these patterns remains limited.

More broadly, there is scant evidence on understanding the returns to ability and experience in informal labor markets, as well as their dynamic implications—for example, how they change incentives for human capital investment and skill acquisition.

5. Diagnostic Equilibrium Exercises: Tests for Involuntary Unemployment

The first explanation for low wage employment that we consider is that it reflects high levels of involuntary or "disguised" unemployment, where workers want wage jobs but cannot find them—and therefore turn to self-employment as a coping strategy. This would signal the presence of substantial frictions, which may seriously undermine the three goals of the labor market laid out in Section 2. We discuss the evidence on the presence of involuntary employment here and potential microfoundations in Section 6.

We begin by assessing evidence that low wage employment rates reflect high involuntary unemployment. The earliest work in development, such as the surplus labor hypothesis, was premised on the view that developing country economies have large slack (Lewis, 1954). However, the empirical relevance of this view has been unclear, especially in modern times. A set of diagnostic studies sheds light on the nature of the labor market equilibrium. These studies leverage the fact that, in developing countries, labor markets are quite siloed, so that a village or district can be considered its own local labor market.[2] This enables identified analyses of the general equilibrium effects of shocks—allowing researchers to draw inferences about labor market functioning.

5.1. **Evidence for involuntary unemployment.** Well-functioning markets require a well-functioning wage mechanism, whose adjustment is what enables the labor market to clear. Kaur (2019) provides evidence on whether wages are responsive to labor market conditions. She uses local rainfall shocks in rural India to isolate shifts in labor demand, enabling an identified approach to test for wage rigidity. She finds that wages are downwardly rigid: while they rise in response to positive shocks, they do not fall in response to negative shocks. When rigidity binds, this increases unemployment: for example, after a transitory positive shock has dissipated, the inability of wages to adjust back down reduces agricultural employment by 9%—the same magnitude as a drought. The brunt of these employment losses are borne by poorer individuals—the landless and small landholders—who are the primary suppliers of agricultural wage labor, and whose wage employment falls by 34% when wage rigidity binds. This provides evidence for the presence of involuntary unemployment, linked to lack of adjustment in wages. This, along with the descriptive evidence on wage compression in both rural and urban settings cited above, suggests frictions in the wage mechanism—at least to some extent and in some places.

To more directly diagnose whether the labor market exhibits large levels of involuntary unemployment in steady state, Breza et al. (2021) develop a new approach to diagnose labor

[2]Jayachandran (2006) was an early pioneer of this approach to equilibrium analyses.

market slack. They induce transitory hiring shocks in randomly selected Indian villages (i.e. local labor markets): they "remove" on average 24% of male workers by giving them jobs in external jobsites outside of the village for two to four weeks. This shock substantively reduces how many workers remain in the local village economy. Looking at the subsequent local labor market response among the remaining workers and employers enables inferences about the amount of excess labor supply under status quo conditions.

The authors find distinctly different patterns of effects in "lean" versus "peak" months—reflecting seasonality in rural hiring. In "lean" months, consistent with severe labor rationing, removing a quarter of the labor force has no effect on lean season wages or aggregate employment (i.e. employment excluding the external factory jobs). Rationed workers fill the job slots vacated by those who are hired for the external jobs, leaving the total number of people holding a job in the village unchanged. This implies that in the status quo, at least 1 in 4 workers in the economy wanted a wage job but could not find one. In contrast, in "peak" months, the impact of the hiring shock matches a textbook supply and demand model: wages rise instantaneously (i.e. within a week) and aggregate employment in the village falls—so that each new job created in the external jobsites generates 0.737 days of new work in the economy overall. Together, these findings present a more nuanced picture of rural labor markets: they have the capacity to be extremely agile and responsive, but also exhibit extremely high levels of labor rationing in lean months (which comprise at least half of the months in the year).

Descriptive evidence suggests the presence of involuntary unemployment in urban areas as well. Cefala et al. (2024a) find that among workers who show up to labor stands in a large city in India in search of work, only 72% actually secure a job. Since attendance at the stand is a revealed preference measure of labor supply, this implies that on a given day, 28% of casual labor stand workers in their sample are involuntarily unemployed.[3]

Together, these studies raise many questions. What are the micro-foundations for wage rigidity, wage compression, and rationing? When the wage mechanism does not clear the labor market or distinguish between workers, what alternate mechanism is used to allocate labor to production? For example, how do employers choose which workers receive rationed jobs? What are the resultant allocative and distributional implications for output and welfare?

Recognizing the problem of under-employment, many governments have turned to workfare programs, where individuals are provided with public works employment for a set number of days. However, these types of programs will have very different effects on employment, private sector wages, and earnings depending on the level of slack in the local labor market. Given that labor market tightness tends to vary temporally and spatially across settings, this can potentially help to explain some of the mixed impacts of workfare programs in the literature (Hoddinott et al., 2012; Beegle et al., 2015; Imbert and Papp, 2015; Azam, 2012; Berg et al.,

[3]This figure may under-estimate the extent of involuntary unemployment because an expected chance of not finding a job can lower a worker's willingness to pay the commuting cost to the stand. Alternately, it may over-estimate it in the presence of intertemporal substitution of labor.

2012; Zimmermann, 2024; Bertrand et al., 2021).[4] More work is needed to build policy diagnostics for when to deploy such programs, and more generally, for how to compare them with other types of social safety net programs.

5.2. **Self-employment and disguised unemployment.** The above studies also shed light on the flip side of low wage employment: high self-employment levels. Both Kaur (2019) and Breza et al. (2021) find that when workers are rationed out of the wage labor market, they sharply increase self-employment—so that workers' total employment level remains essentially unchanged. In lean months, at least 24 percent of self-employment stems from workers being rationed out of wage labor. Among farmers with small landholdings, this shift to self-employment is especially high: in lean months, at least 64% of the work on small farms would not occur if those farmers could find wage jobs at the prevailing wage instead.

These results indicate that a substantial fraction of self-employment stems from poor labor market prospects, rather than high growth entrepreneurship opportunities. This also matches the patterns in Donovan et al. (2023), who find that developing country workers appear to treat unemployment and self-employment symmetrically. This can help us understand why broadly-targeted interventions such as credit, wage subsidies, and training for microenterprises tend to generate low average returns. The above findings establish the prevalence of "disguised unemployment"—unemployment which is disguised as self-employment. This relates to a long and robust literature in development economics on separation failures (Singh et al., 1986; Udry, 1997; LaFave and Thomas, 2016). In the canonical presentation of Benjamin (1992), if household labor is rationed in the labor market (and if land or asset markets are frictional), households will allocate labor to self-employment activities past the level that equates the marginal product to the market wage. Thus, the marginal household worker in the business will earn a shadow wage below the market wage, and the household business will appear to have a depressed marginal product of labor. While theoretically, non-separation can arise in response to many different types of market failures (e.g., incomplete insurance and credit markets), recent empirical evidence points to the relevance of labor market frictions for generating non-separation in a range of contexts (Dillon et al., 2019; Jones et al., 2022; Breza et al., 2021).

5.3. **Implications for labor market analysis.** In contexts with labor rationing, the two core assumptions of well-functioning markets are no longer guaranteed: first, workers are not always on their labor supply curves; and second, the wage need not equal the worker's marginal product or play a role in allocating labor to production. However, the logic of many commonly-used estimation approaches relies upon these assumptions—including studies of sectoral or spatial wage gaps, misallocation, and value-added estimates. Moreover, the importance of seasonality for labor market functioning has implications for the temporal aggregation of employment data. For example, data aggregated at an annual frequency might produce misleading results. New

[4]Muralidharan et al. (2023) further highlight the relevance of employer monopsony power for mediating the impacts of workfare, while Murgai et al. (2016) focus on the productivity impacts of the public works.

types of theoretical and empirical approaches are needed in the presence of labor rationing and seasonality.

6. Frictions: Evidence for Micro-foundations

Early theoretical work in development economics proposed numerous micro-foundations for involuntary unemployment, from implicit insurance to nutrition efficiency wages (e.g. Azariadis, 1975; Shapiro and Stiglitz, 1984; Dasgupta and Ray, 1986). However, there remains limited empirical support for these explanations. For example, while nutrition does affect productivity (Schofield, 2020), Deaton and Drèze (2009) and Schofield (2014) both suggest that liquidity constraints are unlikely to be the primary drivers of poor nutrition among workers. In this section, we discuss evidence for other frictions that could potentially generate low equilibrium wage employment.

6.1. **Worker and employer market power.**

The scope of formal unions is limited in many developing country settings. However, the prominent role of social ties raises the possibility that groups of decentralized workers may nonetheless be able to leverage social capital to coordinate labor supply in their collective interest. Breza et al. (2022) document norms against accepting wage or price cuts in a range of markets including rural agricultural workers and urban construction workers in India and Kenya. In each case, respondents state that undercutting the prevailing wage is considered unacceptable, and that doing so would result in a range of socially-enforced sanctions, from being ostracized to others withholding future job referrals. The authors use a field experiment to show that social observability dramatically reduces the willingness for workers to accept job offers below the prevailing wage. In a complementary lab-in-field exercise, workers are willing to pay to sanction those who violate the local wage norm. These norms, thus, can sustain a de facto wage floor, limiting aggregate labor supply at lower wages.

Many follow-on questions emerge from the finding that social capital can be used to generate market power. For example: how are wage levels determined; what are the mechanisms through which decentralized groups of workers arrive at these norms; and are there coordination frictions that limit their scope?[5] Second, if norms against wage cuts reduce aggregate employment, does the community play a role in allocating workers to scarce jobs? Are some individuals outside the scope of the collective group, and what are the resultant distributional implications?

The efficiency implications of worker coordination depend crucially on the demand side of the market. For example, employers exerting monopsony power prefer to depress wages, which reduces labor supply and equilibrium employment. If used to counter such employer market

[5]For example, Banerjee et al. (2024) present evidence of collusion that is inconsistent with profit maximization among vegetable vendors.

power, worker market power can decrease rather than increase deadweight loss. Employer market power also constitutes a stand-alone micro-foundation for low wage employment. However, it does not require involuntary unemployment.

There is emerging evidence of the prevalence of monopsony power in development settings (see, e.g., Muralidharan et al., 2023; Felix, 2022; Sharma, 2023). Sharma (2024) identifies collusion through industry associations among firms in India by studying what happens when firms have strong incentives to deviate. Small demand shocks lead to no changes in wages or employment for association members, suggesting that firms are willing to pass up opportunities to sustain collusion. However, following a large firm-specific demand shock, the affected firm raises wages and employment, as expected, but this increase in employment is also observed for unaffected firms in the same association, suggesting a break-down of collusion. While the collusion in Sharma (2024) is among associations of formal firms, Muralidharan et al. (2023) point to the potential relevance of monopsony power among concentrated aggricultural landowners.

6.2. **Information, Search and Matching Frictions.** Information, search and matching frictions have received much recent attention in the literature. These forces could, in principle, depress equilibrium levels of wage employment either through labor demand or labor supply. On the demand side, uncertainty about worker ability or skills could lower the expected marginal product of new workers. On the supply side, search costs and information frictions could lower a worker's net returns to job search, leading workers to accept poor matches or remain in unemployment. Finally, if workers have biased beliefs over either their own skills or labor market conditions, they might hold out for jobs that do not exist.

6.2.1. *Worker Selection.* One approach to mitigating the demand-side costs of adverse selection is to subsidize the costs of learning about worker productivity. Wage subsidies, a commonly-discussed active labor market policy (ALMP), might in principle have this effect.[6] In his review of ALMPs, McKenzie (2017) discusses three experimental studies of wage subsidies, only one of which has a large contemporaneous effect on hiring (Groh et al., 2016). However, even there, once the subsidy is withdrawn, employment levels fall to those of the control group. These results point to either other factors being more important in shaping firm labor demand or to poor quality matches and high rates of worker turnover limiting the impacts of any temporary intervention.

Policy approaches that aim to help workers signal their skills or help firms screen workers can also speak to the role of information frictions in labor markets. A growing body of experimental evidence confirms that job seekers indeed face difficulties conveying their skills to employers. Carranza et al. (2022b), Bassi and Nansamba (2022), and Abebe et al. (2021a) all show that

[6]In addition to lowering training and experimentation costs, subsidies might also relax firm liquidity constraints.

giving job-seekers technologies to credibly signal their skills can increase employment and earnings and improve the match quality of workers with firms.[7] Abebe et al. (2021a) further show that the impacts of a job application workshop on wage earnings persist four years after treatment, and treated workers have longer tenures with their employers, suggesting improvements in match quality. Nonetheless, given the null results of wage subisidies on hiring, it is difficult to quantify the extent to which these better matches raise worker productivity and potentially expand labor demand, or whether in aggregate such interventions simply displace other workers. Hardy and McCasland (2023) provide some evidence that poor match quality limits demand by showing that providing an improved screening technology for hiring apprentices (in the absence of a subsidy) can have positive impacts on both firm-level employment and profits.

Finally, the literature on personnel economics and the design of incentive contracts provides further evidence of adverse selection in developing country labor markets. For example, Brown and Andrabi (2023) document substantial adverse selection in the market for private school teachers in Pakistan. Finan et al. (2017) further discuss experimental evidence on worker selection in the context of public sector jobs.

6.2.2. *Search costs.* In many developing countries, job search is expensive, as searching often requires costly travel and can include hefty application fees. The experimental evidence does suggest that transportation and other subsidies, when well targeted, can increase search intensity and even employment in the short run (Franklin, 2018; Abebe et al., 2021a; Caria et al., 2024a). However, as with the skill-signaling interventions discussed above, the scope for any aggregate employment effects depends on the extent of worker displacement, as intensifying search for some job-seekers may increase competition for a fixed stock of positions.[8] Relatedly, given the high rates of job separation and the difficulties in signaling skills, it is also possible that one-time job search subsidies might have limited longer-run benefits. Abebe et al. (2021a) are well-suited to speak to this. In addition to their job workshop treatment, described above, the authors give a temporary transport subsidy to a separate group of job-seekers. While both the workshop and subsidy groups experience similar short-run increases in formal employment, only the workshop treatment leads to positive earnings impacts four years post-treatment. This work suggests that mitigating search costs without also tackling the information and worker selection problem is likely to have limited impact on aggregate employment.

Increasing the use of online job platforms also has the potential to lower search costs. However, out of the five experimental studies increasing worker access to online portals that Carranza and McKenzie (2024) review, four have null or negative effects. Interestingly the one study finding positive results (Wheeler et al., 2022) uses LinkedIn, which leads to reference

[7]Abel et al. (2020) also shows that reference letters, which potentially signal both skills and experience, can increase call-back rates in job search.

[8]These types of interventions may be still be desirable on equity grounds and could be efficiency-enhancing if liquidity constraints are correlated with other characteristics that are sought by employers such as ability (Abebe et al., 2021b).

requests, which may again help workers to signal their skills and experience. Fernando et al. (2023) study the impacts of giving firms higher visibility on a job search platform, a better screening technology (specifically, verification of the applicant's national ID number), or both. They find that firms only increase their hiring when they both have an exogenously larger set of applicants and the improved screening technology. This evidence again points to information frictions playing a central role, and to potential complementarities in relaxing both search costs and screening costs.

6.2.3. *Networks and information frictions.* One response to the information frictions is a reliance by employers and job-seekers on social networks. Hiring through social network-based referrals is common practice around the world. The experimental evidence of Beaman and Magruder (2012) shows that referrals contain productivity-relevant information that can help employers screen, especially under well-designed incentives.[9] Using data from garment factories, Heath (2018) argues that referral-based hiring can also help to solve a moral hazard problem, as incumbent workers can be held accountable for the poor performance of those they refer.

However, relying on referrals raises both equity and efficiency concerns, as individuals with weak networks may lose out on job opportunities (e.g., gender bias Beaman et al., 2018) and employers may fail to learn about the productivity of poorly connected workers.[10] Caria and Labonne (2024) provide correlational evidence that villages in the Philippines with more fragmented networks have more formalized labor markets with less employment in family firms and higher wages.

Given that the use of network information in labor markets is likely in part a second-best response to information frictions, we should expect the reliance on network-based hiring to fall when those information frictions are mitigated. However, this also raises the possibility that interventions that relax information constraints for only a subset of workers can lead to negative spillovers on the network connections of beneficiaries. Consistent with this, (Caria et al., 2023) find that randomized job search assistance in Ethiopia can lead to worse search and employment outcomes for untreated friends of the the treated. Note that such negative spillovers are distinct from the displacement effects we often worry about in labor market interventions.

Job-seeker Beliefs. Investments in job training and job search rely on beliefs about labor market opportunities, but these beliefs can often be mis-centered (Caria et al., 2024b). In many cases, young job-seekers hold overly-optimistic beliefs about their own ability and likelihood of obtaining high-wage jobs (Santos-Pinto and de la Rosa, 2020; Kiss et al., 2023). Given the prevalence of biased beliefs, an experimental literature explores the impacts of giving workers information—about their own skills and on general labor market conditions—on search and employment outcomes. In Carranza et al. (2022b)'s study of skill certification, learning about

[9]Pallais and Sands (2016) also documents that referrals have positive screening value in an online labor market with international workers.

[10]See Bolte et al. (2020) and Chandrasekhar et al. (2020) for theoretical treatments of these issues.

their own skills causes workers to update their beliefs and change the focus of their job search. While earnings also increase, the effect is larger when the skills can also be credibly signaled to potential employers. Relatedly, Kiss et al. (2023) conduct assessments with job-seekers to measure numeracy and communication skills. In two complementary experiments, participants are randomly given information about their comparative skill advantage. Treated individuals target their search toward jobs that favor their skills and experience higher earnings and wages 3.5 months later.

While teaching job seekers about their own skills can improve job search, other types interventions that change worker beliefs can have more nuanced effects (see e.g., Acevedo et al., 2017; Kelley et al., 2024). For example, Bandiera et al. (2023) find that workers receiving vocational training become more optimistic and increase search intensity, while those who are introduced to firms (but do not necessarily get offered employment) become more pessimistic about the probability of getting a job and decrease search intensity.[11] Banerjee and Sequeira (2023) show that overly-optimistic job seekers update their beliefs and search strategies when randomly given transport subsidies, shifting their focus to lower-paying jobs closer to home.

Individuals also seem to overestimate their perceived chances of obtaining public sector jobs, which are typically viewed as quite desirable. For example, Duflo et al. (2021) highlight wildly optimistic beliefs in Ghana and posit that these beliefs distort human capital investments. It is also possible that these beliefs crowds out young labor market entrants' willingness to take private sector jobs. Finan et al. (2017) document a strong negative relationship between the public-private sector wage gap and GDP per capita, suggesting the broader potential relevance of public sector policies, especially in the market for high-skilled labor. More work is needed to quantify these potential distortions.

If biased job-seeker beliefs distort search behavior and potentially wage labor supply, then it is important to better understand where these beliefs come from. Networks likely play an important role in this process. However, in the face of increases in human capital and structural transformation, many children in developing countries have more education than the adults in their communities and face radically different labor market opportunities. Thus, the information from families and networks may make it difficult for young job-seekers to form accurate beliefs. One potential policy solution is to generate better networks for job-seekers. Alfonsi et al. (2022a) evaluate a mentorship program with vocational trainees. Receiving a mentor leads to sizable increases in employment and earnings, which they attribute to improved information about the labor market and a subsequent reduction in over-optimistic beliefs and reservation wages.

6.3. **Labor regulations.** In developing countries, labor market regulations such as minimum wages and employee protection laws are likely to have limited reach in the large rural and

[11]These different groups of worker also diverge in the types of firms (e.g., high- versus low-wage) where they search and are ultimately employed.

informal sectors. However, where enforcement is feasible, such as in formal firms in urban markets, labor regulations can, in principle, also lead to involuntary unemployment. Even in these cases, whether such policies actually reduce employment, in practice, depends on institutional features such as competitive dynamics and market power, heterogeneity in firm productivity and potential spillovers to the informal market.

Engbom and Moser (2022) study the impacts of a large minimum wage increase in Brazil and find small reductions in employment and large decreases in earnings inequality. They attribute these small disemployment effects to higher productivity firms, which are less affected by the policy, absorbing workers who separate from low productivity firms. Paul-Delvaux (2024) finds similar patterns of worker reallocation in response to minimum wage hikes in Morocco. Moreover, she finds that most workers who are displaced from formal-sector employment transition to lower-wage employment in the informal sector, where the minimum wage laws do not bind. These displacement effects are largest for low-wage workers in markets with low labor mobility.[12] Using data from minimum wage changes in Indonesia, Magruder (2013) argues that incorporating GE effects through worker purchasing power can actually lead to increased formalization and more labor demand.

As countries develop and new technologies become available to facilitate enforcement, the scope for labor market regulation to affect employment outcomes is likely to increase. More work is needed, especially on other types of policies such as employee protection laws (EPLs), where existing evidence is mixed (see, e.g., Besley and Burgess, 2004; Betcherman, 2015).

7. Labor Market Returns to Human Capital

The second category of reasons for low wage employment centers on low human capital levels. Under such explanations, low labor productivity constrains the expansion of wage jobs. This view tracks, for example, historical views of what fueled growth during the "East Asia miracle" economies (Page, 1994). Using data from international migrants in the U.S., Hendricks and Schoellman (2018) argue that over half of cross-country differences in labor earnings can be attributed to differences in human capital. This implies that, under well-functioning markets, country-level investments in human capital could stimulate labor demand and raise wage employment. In this section, we explore the evidence on the returns to health investments, schooling, and vocational training.

7.1. **Returns to Health Investments.**

Residents of LICs are exposed to an array of adverse conditions that are relevant for health. For example, developing countries have a high prevalence of nutrient deficiencies and bear higher burdens from diseases such as malaria and African sleeping sickness, and water borne pathogens such as intestinal worms. Environmental factors also tend to be more challenging, with high temperatures and pollution levels.

[12]Paul-Delvaux (2024) also shows that on net, minimum wages can be effective tools for reducing gender wage and earnings gaps.

There is a limited body of evidence establishing a short-run relationship between health and labor outcomes. For example, preventing or treating common conditions such as anemia, intestinal worms and malaria leads to increases in productivity and labor supply (Thomas et al., 2006; Fink and Masiye, 2015; Dillon et al., 2021), as do reductions in air pollution levels (Adhvaryu et al., 2022a; Hanna and Oliva, 2015). Researchers have also established links between other environmental factors with productivity including noise (Dean, 2024) and sleep quality (Bessone et al., 2021).[13] However, these papers typically focus on one narrow aspect of health at a time and consider settings, such as piece rate work, where wages are most likely to respond to improvements in productivity.

There is also a relatively small literature on the experimental or quasi-experimental impacts of health investments made during childhood on labor market outcomes later in life. Looking at hookworm eradication in the US South, Bleakley (2007) finds that affected children experienced higher adult earnings, coming from both increases in schooling enrollment and higher returns to schooling. Experimental work also shows long-run labor market returns to childhood health interventions. Some of the best-known evidence comes from the long-run followups studying the Kenyan school deworming interventions of Miguel and Kremer (2004). In the short-run, deworming increases school attendance and school enrollment, but not test scores. Remarkably, both one and two decades later, the intervention has sizable effects on self-reported health and earnings (Baird et al., 2016; Hicks et al., 2020), and twenty years post-intervention, individuals treated as children are more likely to have migrated to an urban area, work more in non-agricultural jobs, and earn 13% more per hour. Experimental work from developing countries also documents positive long-run impacts of early-childhood interventions such as improved nutrition or psycho-social stimulation on adult wages (Hoddinott et al., 2008; Gertler et al., 2014). These studies support the general premise that poor health is relevant for labor markets. However, more work is needed to quantify the overall impacts of poor health on employment and earnings, and on the returns to the marginal dollar of health investment made by governments.

7.2. **Returns to Schooling, Vocational Training, and Apprenticeships.**

Returns to Primary and Secondary Schooling. Along with health, worker skills are a core component of human capital. A large body of work uses Mincerian regressions to calculate the returns to schooling finds estimates in the range of 7-14% per year globally (Psacharopoulos and Patrinos, 2018). However, the body of evidence drawing on experimental and quasi-experimental sources of variation is much smaller.[14] Duflo (2001) and Khanna (2023) both use quasi-exogenous aspects of educational expansions and estimate returns to an extra year of primary school of 6.8%-10.3% in Indonesia and 13.4% in India, respectively. Using cross-country

[13]See (Dupas and Miguel, 2017) for a broader review of this literature.

[14]Part of this is due to the long follow-ups needed to identify the returns. Ideally, researchers would capture outcomes for individuals in their mid- to late- 20's when schooling has been completed and workers have accumulated some labor market experience.

evidence, Porzio et al. (2022) find that schooling expansions prompt workers to move out of agriculture to more modern sectors.[15]

While over the past 20 years governments have made tremendous progress toward the Millenium Development Goal of universal primary education, converting these education gains into productivity and earnings gains has likely been slowed due to stagnation in learning outcomes in many countries Angrist et al. (2021); Evans and Mendez Acosta (2021). Some potential explanations for this failure of student learning include absenteeism and low effort by teachers and curricula that are mismatched to students' ability (Bold et al., 2017; Gray-Lobe et al., 2022; Muralidharan, 2017). An open question is whether systematic improvements in education quality and student learning can have longer-run labor market returns. Moreover, general equilibrium effects may affect the returns to schooling "at scale." Duflo (2004) finds negative effects of primary school construction in Indonesia on older cohorts who did not directly benefit. Khanna (2023) also find large GE effects of increased schooling in India, instead looking *within* treated cohorts. More schooling attainment bids up the wages for unskilled workers and decreases the skill premium, leading to a 6.6 percentage point reduction in the returns to schooling in equilibrium. Both results are consistent with firms being slow to adopt skill-biased capital, potentially due to demand-side constraints.

We also have limited high-quality evidence on the labor market returns to secondary schooling in low income countries. Duflo et al. (2021) analyze the 11-year impacts of an RCT offering secondary school scholarships in Ghana. The scholarships increased secondary school completion by 60% and math and reading comprehension scores by 0.16 standard deviations—indicating a meaningful increase in learning. However, the authors find no detectable impacts on private sector employment and no effects on either tertiary education or labor market outcomes for men. Treated women, in contrast, are more likely to enroll in tertiary education and obtain employment in desirable high-wage public sector jobs. However, these jobs generate rents and are highly rationed, suggesting the potential for substantial displacement effects. The authors propose a combination of selection and parental gender preferences to interpret these results – if high ability boys always receive secondary schooling but high ability girls do not, then the marginal girl should have higher returns than the marginal boy. Ozier (2018) and Filmer and Schady (2014) also study secondary schooling returns, using regressions discontinuity designs based on scholarship eligibility. These studies also find no or muted labor market returns—though the shorter follow-up horizon of these studies may not be long enough to measure employment effects if the treatment causes some students to still be in school. On the surface, these studies suggest the labor market returns to expanding secondary schooling are modest at best. However, the surprisingly small number of studies in this topic means that this is by no means a closed question, and further research is needed given its importance.

[15]A large set of studies shows that households' schooling investments respond to changes in labor market opportunities (Shah and Steinberg, 2021, 2017; Jensen, 2012; Oster and Steinberg, 2013; Atkin, 2016; Adukia et al., 2020), suggesting a two-way relationship between schooling and earnings.

Angrist et al. (2002) and Bettinger et al. (2019) study a lottery for vouchers for private (higher-quality) secondary schools in Colombia. After three years, the vouchers increase schooling attainment by 0.1 years and increase test scores by 0.2 standard deviations. After 20 years, lottery winners who applied to vocational secondary schools have 7 percentage point higher tertiary enrollment and 17% higher formal sector earnings. In contrast, applicants to academic schools experience no detectable impacts. The authors speculate that private vocational schools are most able to respond to the needs of the market and raise the possibility that in some cases, firms might not value the skills acquired in school.

In contrast to the work on secondary schooling, the literature on elite tertiary education does tend to find substantial positive impacts on employment and earnings (Saavedra, 2009; Jia and Li, 2021; Londoño-Vélez et al., 2023). However, these studies typically come from middle income countries, and apply to small shares of the labor market. Further, these studies do not shed light on how much of the effects are due to elite schools increasing productivity, versus giving students preferential access to a limited set of desirable jobs.

Job Training and Apprenticeships. Job training and apprenticeship programs are two other policy tools commonly used by governments to increase worker human capital and experience. However, McKenzie (2017) argues that the impacts of vocational training in an initial wave of nine experimental studies are modest, yielding under three new jobs for every 100 people trained. In an updated meta-analysis, Agarwal and Mani (2024) find treatment effects of approximately 4% on employment. Moreover, Carranza and McKenzie (2024) argue that these impacts mask substantial heterogeneity, with typically low returns for at-scale programs run by governments and higher returns for smaller NGO-run programs. As in Bettinger et al. (2019)'s study of private vocational secondary schools, this might indicate higher-quality instruction in privately-provided trainings and a better responsiveness to the skills demanded by firms in the market.

Apprenticeships, in contrast, seek to give young workers on-the-job skills and experience. However, in the meta-analysis of Agarwal and Mani (2024), there are no detectable average impacts on employment or earnings, pooling across studies. These results are also consistent with the stylized fact of low returns to experience in developing country labor markets. One potential explanation again is low quality skills training on-the-job, as discussed in Bandiera et al. (2022). Given the high churn in developing country labor markets, firms have weak incentives to invest in training workers (Caicedo et al., 2022; Cefala et al., 2024b).

A second explanation ties back to the information frictions described above. Specifically, skills and experience gained from an apprenticeship may not have much value if they cannot be signaled to future potential employers. Alfonsi et al. (2020) explore this possibility by constructing a direct experimental test of the relative benefits of certifiable vocational training conducted by a well-regarded NGO versus firm training through apprenticeships. Remarkably, trained workers in both treatments experience similarly large levels of skill acquisition relative

to a control group. However, they experience quite different labor market dynamics. While the firm-trained workers have higher employment and earnings in the short run, the impacts dissipate over time. In contrast, while the vocational training group takes longer to find employment early on, they eventually overtake the firm training group in both employment probability and earnings.

8. Is Labor Supply "Low"?

Structural transformation requires a transition from casual informal jobs in traditional sectors to full-time formal jobs in newer sectors, such as factory work (Harris and Todaro, 1970). However, an increasing number of studies raise the possibility that workers may not be interested in or value such formal jobs—at least not the ones that exist and are available to them. A lack of supply to existing jobs constitutes the third category of reasons for low wage employment. This explanation would imply constraints on the demand side: other factors such as technological progress are needed to improve the quality of available jobs before workers will transition to wage work. To assess this view, we begin by presenting three sets of descriptive facts about labor supply.

First, when jobseekers are offered factory jobs, take-up is often quite low. For example, Donald and Grosset (2024) offer jobseekers in Cote D'Ivoire full-time factory jobs, which pay twice the average worker's baseline hourly earnings, and see only 25% take-up of the job offer. Similarly, Groh et al. (2015) make job matches between young job seekers and firms in Jordan. Among those who receive job offers, 83% decline the job or quit quickly; out of 1,000 job matches, only 9 result in an employment spell lasting longer than a year. In Cefala et al. (2024a), in a sample of casual daily construction workers in Indian urban labor stands, only 31.5% say they would accept a local full-time job if offered one.

Second, when workers do take up formal jobs, separation rates are extremely high. For example, in a representative sample of 1,357 Bangladeshi garment factories, 23% of workers turn over in the first 3 months (Ahmed et al., 2024). Similarly, in a sample of 60 Indian garment factories, 10-15% of workers turnover each month. In data that explicitly isolates quit rates, (Adhvaryu et al., 2022b) find that almost 20% of workers in a large Indian garment factory quit within the first 5 months. Turnover rates in studies from Africa tend to be even higher. For example, Blattman and Dercon (2018) find that one-third of workers separate from new factory jobs in Ethiopia within the first month, and 77% by the end of the first year. Similarly, Donald and Grosset (2024) document that 60% of new factory hires in Cote D'Ivoire turn over by the end of their first year.

Third, among workers who take-up and stay in a given job, absenteeism rates are quite high—in both the formal and informal sector. In Cote D'Ivoire factories that do not explicit termination policies for absences, researchers have documented absenteeism rates of 37-40%

(Carranza et al., 2022a; Donald and Grosset, 2024). Even among large established export-oriented factories which fire workers for absences, absenteeism rates are 11 and 15% per day in Tanzania and India, respectively (Ho and Huang, 2024; Adhvaryu et al., 2022a).

Absenteeism is not limited to formal jobs. Among casual urban labor stand workers in India, employers report an expected 20-30% daily absenteeism rate (Cefala et al., 2024a). There are similar rates of absence in the most traditional sector—casual daily agricultural labor. Data from 4,284 hiring contracts among 1,343 agricultural employers in Burundi reveal that 25% of workers do not come to work on the contracted day—for jobs that are typically arranged just 1-2 days in advance of the workday (Cefala et al., 2024b). Similarly, Breza et al. (2022) find that workers in India do not arrive for agricultural wage work on farms on 34% of days in the peak season; even in the lean season—when more than half of workers report being involuntarily unemployed—the absenteeism rate is 19%.

However, it is not the case that workers in developing countries simply do not want to work. A large set of studies analyzing the impacts of cash and asset transfer programs has documented with remarkable consistency that such transfers tend to *increase* recipients' employment levels (whereas traditional models would predict decreases due to income effects)—often driven by higher self-employment (Bandiera et al., 2017; Banerjee et al., 2015; Crosta et al., 2024). These increases likely stem from capital raising the returns to labor supply, along with potential other benefits such as nutritional improvements or declines in cognitive load (Banerjee et al., 2020; Kaur et al., 2025). This suggests that labor supply responses can be an important amplifying force for the impact of policies. They also highlight the need for additional work on core parameters, such as the labor supply elasticity, which is an important input in predicting policy impacts (e.g. Goldberg, 2016; Kaur, 2019).[16]

9. Under-development and Labor Supply

How should we understand the above empirical patterns around labor supply, turnover, and absenteeism? Of course, dampened labor supply likely reflects the fact that existing jobs are, indeed, often not desirable. These include low wages and dis-amenities including substantial health risks and long commute times (Alfonsi et al., 2022b; Baysan et al., 2024; Blattman and Dercon, 2018; Donald and Grosset, 2024). Moreover, the prevalence of over-optimistic beliefs discussed in Section 6.2.3, above, could also lead to workers holding out for jobs that may not exist or be attainable.

In this section, we assess an additional (and not mutually exclusive) hypothesis: the above labor supply patterns could be a *consequence* of under-development. In principle, the features

[16]For example, Goldberg (2016) finds an attendance elasticity of 0.15 among workers during the lean season Malawi. The estimates from Kaur (2019) imply a labor supply elasticity of 0.8-1.3 among casual agricultural workers in India: positive rainfall shocks shift labor demand, tracing the slope of the labor supply curve, with a 6.3% or 7.2% change in the wage (depending on specification), with an associated estimated employment change of 8.3% or 5.7%, respectively.

of poverty discussed in Section 3 could generate upward or downward pressure on labor supply. In this section, given our goal of explaining low wage employment, we focus on ways in which they could dampen labor supply levels. This evidence complicates the "voluntary unemployment" interpretation of the third category of explanations for low wage employment. Rather, it suggests a more nuanced view of labor supply under poverty.

9.1. **Volatility.** In low-income settings, families experience frequent health shocks—requiring workers to stay home to care for themselves or their kin (e.g. Banerjee and Duflo, 2007). Despite the documented prevalence of such shocks as well as chronic morbidity among low-income individuals, as we discuss in Section 7, there is limited work in development on the labor market implications of health shocks.

Demands from social networks may also necessitate absences. For example, festivals, weddings, and visits from relatives all routinely occur on weekdays. Participating in such events is considered important for maintaining network ties, with potential instrumental value for informal insurance. There also remains limited empirical work on how social demands affect absenteeism.

Cefala et al. (2024a) argue that the impact of such disruptions on labor supply is amplified through a habit formation channel. They use temporary financial incentives to increase labor supply among casual labor stand workers in Chennai, India, and find persistently higher labor supply for 2 months after the incentives are removed. However, treatment effects vanish after a temporary attendance shock, such as a festival, pulls workers out of the labor market for a short spell. The presence of habit formation in labor supply may help explain why so few casual workers desire formal jobs: in developing countries, most workers are used to environments where labor supply is not regular, which may enodgenously affect their preferences.

While speculative, this idea has shaped the historical view, first proposed by Karl Marx, that the introduction of universal schooling in western countries—which habituated children to regularity in attendance—was important for transforming the workforce from casual to factory workers (Bowles, 1976). Potentially consistent with this, Donovan et al. (2023) find that the increase in the share of non-agricultural jobs is driven completely by newly entering workers into the labor force—who have presumably benefited from secondary schooling expansions in recent decades (see Donovan and Schoellman (2023) for a review). Examining how the institutional features of developing countries, such as volatility and schooling, affect the preference for formal work is an open area for research.

9.2. **Labor supply complementarities.** A recent and growing number of studies document various ways in which social ties alter labor supply levels. Donald and Grosset (2024) find evidence for strong social complementarities in labor supply to formal jobs along each of the dimensions discussed in Section 8: job acceptance, turnover, and attendance. For example, when a jobseeker's network members are also offered a factory job, this increases the jobseeker's

job take-up by 16 percentage points (63%) and reduces turnover by 15 percentage points (95%). Using additional variation to examine mechanisms, they argue that being able to commute with a friend greatly lowers the disamenity of the large commuting costs in this setting.

In addition to the transition to formal employment, the process of development has historically been accompanied by a move from rural to urban areas. Bryan et al. (2014) document substantial earnings gains from temporary migration from rural to urban areas in Bangladesh.[17] This has prompted a literature which seeks to understand why rates of migration (especially temporary or seasonal migration), while substantial in many countries, are not higher. In follow-up work Akram et al. (2018) randomize the share of village residents who receive a migration subsidy. Strikingly, control group residents—who did not directly receive any migration inducement—are 12.7 percentage points (34%) to migrate in the high saturation villages relative to the low saturation ones. In other words, villagers are substantially more likely to migrate when many of their co-villagers are also migrating. Relatedly, Munshi and Rosenzweig (2016) argue that some individuals in India give up large potential income gains from migration in order to continue to receive the valuable benefits from local informal insurance arrangements. These findings are consistent with a large literature documenting the prevalence of migrants co-locating with others from their location of origin (Munshi, 2003; Mahajan and Yang, 2020; Munshi, 2020), with implications for labor productivity (Egger et al., 2022; Tang, 2024). Together, these studies suggest that the benefits of co-locating with one's network members—whether due to utility, information, or insurance reasons—is likely an important reason why individuals forego the earnings gains from migration. This constitutes an interesting direction for future work in this space.

The above studies indicate that individuals are willing to drastically increase their labor supply under the right "social" conditions. To the extent that informal insurance or information frictions create large returns to proximity with one's network, this generates a way in which under-development itself creates strong social complementarities.

9.3. **Redistributive pressure and the social tax.** A large body of work has documented that in developing countries, and especially in Sub-Saharan Africa, individuals feel pressure to share their income with others in their kin and social networks (Platteau, 2000, 2014). Informal redistribution, while potentially welfare enhancing, has the potential to dampen the incentive to supply labor. For example, (Carranza et al., 2022a) document that, in a sample of workers in Cote D'Ivoire, 74% agree with the statement, "If someone in the community starts working in a factory or another formal job, people would start asking that person more often for financial help." The authors offer factory workers the option to shield their earnings from redistributive pressure through private blocked accounts, and find this increases worker attendance and earnings by 10% and 11%, respectively. These findings raise the possibility that

[17]This relates to a broader literature examining rural vs. urban and sectoral wage gaps (Lagakos, 2020; Baysan et al., 2024; Bryan and Morten, 2019; Donovan and Schoellman, 2023).

redistributive pressure could dampen the incentive to undertake other costly actions that are needed to generate future income, such as human capital investment or technology adoption—ideas that remain largely unexplored in the literature. Swanson (2024) and Macchi and Stalder (2024) argue that redistributive pressure also affects the demand side of the labor market—helping explain the prevalence of hiring relatives as workers, and depressing labor productivity by imposing costs of firing kin members. More speculatively, this body of work suggests an additional route through which improving formal safety nets could boost labor supply and productivity: by reducing demands for redistribution on others in beneficiaries' networks.

9.4. **Cultural norms.** In many settings, there are strong cultural connotations and norms around wage work. For example, (Oh, 2023) shows that rural workers in India are substantially less likely to accept a casual wage job if the job involves a task that is associated with a different caste group. Using an equilibrium framework, Cassan et al. (2022) further consider the impact of occupational sorting by caste on the static misallocation of human capital, as well as on the inter-generational transfer of skills. Finally, in many societies, performing wage work confers considerably lower social status than self-employment. However, there exists limited work examining the impacts of such status on labor supply and labor market thickness in developing countries. For example, could such concerns help us understand why very little labor is traded for a monetary wage in some Sub-Saharan African countries, but not others.

Developing countries tend to have especially strong norms that promote clear occupational divisions of labor by gender. These gender norms exhibit substantial heterogeneity across contexts and may have deep historical roots (Boserup, 1970; Alesina et al., 2013). A robust set of studies point to gender norms as a driver of low female labor force participation in South Asian and Middle Eastern countries (Bursztyn et al., 2020; Field et al., 2021; Agte and Bernhardt, 2023). Recent work suggests that modifying job characteristics to make them more compatible with social constraints can increase the scope for women's work (Alhorr, 2024). In a field experiment conducted in urban India, Jalota and Ho (2024) show that married women are twice as likely to take a job doing digital work on a smartphone when it can be done from home rather than at an office. Job take-up also falls when women are required to make a short visit to a nearby office each day, a trip that risks making their employment visible to others. For reviews of women's labor force participation, see Jayachandran (2015) and Heath et al. (2024).

9.5. **The possibility of multiple equilibria.** The social determinants discussed above—labor supply complementarities, the social tax, and cultural norms—each implies that one's labor supply is affected by the labor supply levels of others in one's community or network. This raises the possibility of multiple equilibria in labor supply levels. This possibility has been theoretically modeled within the context of the social tax (Hoff and Sen, 2011). However, there exists limited evidence of its empirical relevance. This is a potentially important line of enquiry.

10. Welfare Implications: Counter-cyclical Labor Market Returns

Before concluding, we assess one of the most important roles of the labor market for worker welfare: its ability to serve as a consumption smoothing device. Given incomplete markets for credit and insurance, when faced with shocks, workers may change their labor supply to generate additional earnings. Consistent with this, wage labor supply tends to increase when the household experiences unexpected weather or health shocks (Kochar, 1995; Dupas et al., 2020; Heath et al., 2022; Kleemans and Magruder, 2018; Michuda, 2023) or even during predictable periods of resource scarcity (Fink et al., 2014; Augenblick et al., 2023).

However, individuals' labor earnings potential may fall when the need is highest. Doing manual labor can be painful, costly, or even impossible in the presence of illness or injury. There remains limited empirical work on the relationship between health shocks and the use of labor for consumption smoothing. In addition, the studies in Section 5 indicate that aggregate drops in employment—from seasonality or aggregate negative shocks—are accompanied by increases in involuntary unemployment. This suggests that jobs are harder to find during times when money is the most scarce. Moreover, correlated smoothing strategies across households lead to general equilibrium effects—depressing wages when individuals are increasing labor supply (Jayachandran, 2006; Fink et al., 2014). Collectively, such features generate a countercyclical force on labor market returns. This problematic covariance with the marginal utility of consumption has worrisome implications for welfare.

Despite its empirical prevalence, there is limited work understanding the implications of labor as a consumption smoothing device. For example, this strategy lends itself to occupations where labor supply changes result in immediate earnings changes (such as casual laborers or retail sales), but not to those with longer earnings cycles (such as farming). Consequently, earnings horizons may have large amenity value in the presence of missing markets—an unexplored topic. Similarly, there remains limited work examining whether occupational choice and occupational diversity within households is driven by risk mitigation or consumption smoothing considerations (Banerjee and Duflo, 2007; Adhvaryu et al., 2021). Moreover, there is much more room for work that both theoretically and empirically explores the implications of counter-cyclical labor market returns.

11. Conclusion

We began with the striking stylized fact of low rates of wage labor despite high levels of overall employment. How does this vast literature help us to make sense of this fact?

We show that it often appears that features of the wage mechanism are not working well, either in allocating workers to job or facilitating market clearing. We observe wage compression, wage rigidity and labor rationing in a range of contexts. These forces are also consistent with the low returns to experience earned by workers.

While these results do not pin down the microfoundations for why, they do suggest the presence of frictions or distortions. The empirical relevance of two broad mechanisms stands out. First, the literature points to a role for market power, both on the worker and employer side, to play in explaining low wage employment levels. This is in part a consequence of the strong reliance on social capital in developing country contexts. Second, information frictions appear to be widespread, affecting both the matching process and belief formation among workers.

However, the presence of these forces is not enough for us to conclude that they can explain aggregate employment patterns. For example, the aggregate employment impacts of worker market power depend on whether it is being deployed to offset employer market power. Moreover, while there is some evidence that resolving matching frictions improves employment outcomes for individual workers, it is possible that much of these gains reflect displacement effects—coming at the expense of other workers. Moving toward quantifying aggregate impacts on total employment should be a priority for future work.

Given the evidence, other potential candidate mechanisms involving frictions likely play less of a role. For example, while search costs can be substantial and likely do impact job search strategies, the effects of temporary reductions in those costs are typically short-lived. Moreover, the research on labor market regulations suggests that minimum wage policies need not lead to significant unemployment effects. That said, more work is needed on regulations that impose hiring and firing costs on firms, which may be especially relevant for understanding limits to formal-sector employment.

Turning to human capital, a small body of evidence documents a link between health and productivity or labor supply, both in the short run, and as a result of childhood interventions. While these results are consistent with low health endowments reducing worker productivity in aggregate, the evidence is not conducive to measuring the consequences for labor demand and aggregate employment.

Looking at the evidence on schooling, training and experience, it seems unlikely that low levels of skill-based human capital in conjunction with well-functioning markets is the chief explanation for low levels of employment. However, we have remarkably few estimates of the returns to primary and secondary schooling using experimental or quasi-experimental methods. In some cases, low returns may simply be explained by low quality programming, and it is possible that improving learning or better meeting the skills needs of the labor market could unlock productivity games. In other cases, selection effects may limit the returns to expansions of schooling or skills training if those with the highest ability are already enrolled. Another take-away from the literature is that other types of frictions, notably information and demand frictions, limit the returns to human capital. For example, difficulties signaling skills, especially

those obtained on-the-job, can depress the returns to training and experience. Moreover, over-optimistic beliefs about the labor market benefits from education may distort schooling decisions and reduce the returns.

We also find evidence that workers often do not want the jobs that are available to them—particularly low skill work in the formal sector. However, the reasons for this low supply appear to not stem only from the disamenities present in many such jobs (e.g, safety, health risks, and long commutes). Rather, features of under-development itself—such as volatility, social complementarities, and informal insurance—exert forces that can dampen labor supply. This complicates the notion of "voluntariness" associated with low labor supply. It also suggests the possibility of multiple equilibria in aggregate labor supply levels within networks or communities.

Taken together, the literature points toward many factors that likely contribute to low wage employment levels. Given the extensive differences across settings and sectors, there will be heterogeneity in which factors are more relevant in some places versus others. This heterogeneity will also be driven by the economic, social, and institutional features of poverty that impact behavior across settings.

The evidence we review indicates that these features have first-order consequences for labor markets. However, there remains large scope for examining how aspects of under-development alter labor market functioning. This is essential for understanding why labor markets in low income countries differ from those in rich ones, how they impact the process of development, and the policies that can improve worker welfare and enable structural transformation.

References

Abebe, G., A. S. Caria, M. Fafchamps, P. Falco, S. Franklin, and S. Quinn (2021a): "Anonymity or distance? Job search and labour market exclusion in a growing African city," *The Review of Economic Studies*, 88, 1279–1310.

Abebe, G., A. S. Caria, and E. Ortiz-Ospina (2021b): "The selection of talent: Experimental and structural evidence from ethiopia," *American Economic Review*, 111, 1757–1806.

Abel, M., R. Burger, and P. Piraino (2020): "The value of reference letters: Experimental Evidence from South Africa," *American Economic Journal: Applied Economics*, 12, 40–71.

Acevedo, P., G. Cruces, P. Gertler, and S. Martinez (2017): "Living up to expectations: How job training made women better off and men worse off," Tech. rep., National Bureau of Economic Research.

Adhvaryu, A., N. Kala, and A. Nyshadham (2021): "Booms, busts, and household enterprise: Evidence from coffee farmers in tanzania," *The World Bank Economic Review*, 35, 586–603.

——— (2022a): "Management and shocks to worker productivity," *Journal of Political Economy*, 130, 1–47.

Adhvaryu, A., T. Molina, and A. Nyshadham (2022b): "Expectations, Wage Hikes and Worker Voice," *The Economic Journal*, 132, 1978–1993.

Adukia, A., S. Asher, and P. Novosad (2020): "Educational investment responses to economic opportunity: evidence from Indian road construction," *American Economic Journal: Applied Economics*, 12, 348–376.

Agarwal, N. and S. Mani (2024): "New Evidence on Vocational and Apprenticeship Training Programs in Developing Countries," *Handbook of Experimental Development Economics*.

Agte, P. and A. Bernhardt (2023): "The economics of caste norms: Purity, status, and women's work in India," *Working Paper*.

Ahmed, M. S., L. Boudreau, and R. Heath (2024): "The Roles of Information and Search Frictions in Determining Working Conditions in Bangladesh's Apparel Sector," *Working Paper*.

Akram, A. A., S. Chowdhury, and A. M. Mobarak (2018): "Effects of Emigration on Rural Labor Markets," *NBER Working Paper 23929*.

Alesina, A., P. Giuliano, and N. Nunn (2013): "On the origins of gender roles: Women and the plough," *The quarterly journal of economics*, 128, 469–530.

Alfonsi, L., O. Bandiera, V. Bassi, R. Burgess, I. Rasul, M. Sulaiman, and A. Vitali (2020): "Tackling youth unemployment: Evidence from a labor market experiment in Uganda," *Econometrica*, 88, 2369–2414.

Alfonsi, L., M. Namubiru, and S. Spaziani (2022a): "Meet your future: Experimental evidence on the labor market effects of mentors," *Working Paper*.

——— (2022b): "Meet your future: Experimental evidence on the labor market effects of mentors," .

Alhorr, L. (2024): "Virtual Windows Through Glass Walls? Digitalization for Low-Mobility Female Entrepreneurs," Tech. rep., The World Bank.

Angrist, J., E. Bettinger, E. Bloom, E. King, and M. Kremer (2002): "Vouchers for private schooling in Colombia: Evidence from a randomized natural experiment," *American economic review*, 92, 1535–1558.

Angrist, N., S. Djankov, P. K. Goldberg, and H. A. Patrinos (2021): "Measuring human capital using global learning data," *Nature*, 592, 403–408.

Atkin, D. (2016): "Endogenous skill acquisition and export manufacturing in Mexico," *American Economic Review*, 106, 2046–2085.

Augenblick, N., B. K. Jack, S. Kaur, F. Masiye, and N. Swanson (2023): "Retrieval Failures and Consumption Smoothing: A Field Experiment on Seasonal Poverty," Tech. rep., Technical Report, University of California, Berkeley.

Azam, M. (2012): "The impact of Indian job guarantee scheme on labor market outcomes: Evidence from a natural experiment," *Available at SSRN 1941959*.

Azariadis, C. (1975): "Implicit Contracts and Underemployment Equilibria," *Journal of Political Economy*, 83, 1183–1202.

Baird, S., J. H. Hicks, M. Kremer, and E. Miguel (2016): "Worms at work: Long-run impacts of a child health investment," *The quarterly journal of economics*, 131, 1637–1680.

Bandiera, O., V. Bassi, R. Burgess, I. Rasul, M. Sulaiman, and A. Vitali (2023): "The search for good jobs: evidence from a six-year field experiment in Uganda," Tech. rep., National Bureau of Economic Research.

Bandiera, O., R. Burgess, N. Das, S. Gulesci, I. Rasul, and M. Sulaiman (2017): "Labor markets and poverty in village economies," *The Quarterly Journal of Economics*, 132, 811–870.

Bandiera, O., A. Elsayed, A. Smurra, and C. Zipfel (2022): "Young adults and labor markets in Africa," *Journal of Economic Perspectives*, 36, 81–100.

Banerjee, A., E. Duflo, N. Goldberg, D. Karlan, R. Osei, W. Parienté, J. Shapiro, B. Thuysbaert, and C. Udry (2015): "A multifaceted program causes lasting progress for the very poor: Evidence from six countries," *Science*, 348, 1260799.

Banerjee, A., G. Fischer, D. Karlan, M. Lowe, and B. N. Roth (2024): "Does the Invisible Hand Efficiently Guide Entry and Exit? Evidence from a Vegetable Market Experiment in India," Tech. rep., National Bureau of Economic Research.

Banerjee, A., D. Karlan, H. Trachtman, and C. R. Udry (2020): "Does poverty change labor supply? Evidence from multiple income effects and 115,579 bags," Tech. rep., National Bureau of Economic Research.

Banerjee, A. and S. Sequeira (2023): "Learning by searching: Spatial mismatches and imperfect information in Southern labor markets," *Journal of Development Economics*, 164, 103111.

Banerjee, A. V. and E. Duflo (2007): "The economic lives of the poor," *Journal of economic perspectives*, 21, 141–167.

——— (2008): "What is middle class about the middle classes around the world?" *Journal of economic perspectives*, 22, 3–28.

Bassi, V. and A. Nansamba (2022): "Screening and signalling non-cognitive skills: experimental evidence from Uganda," *The Economic Journal*, 132, 471–511.

Baysan, C., M. H. Dar, K. Emerick, Z. Li, and E. Sadoulet (2024): "The agricultural wage gap within rural villages," *Journal of Development Economics*, 168, 103270.

Beaman, L., N. Keleher, and J. Magruder (2018): "Do job networks disadvantage women? Evidence from a recruitment experiment in Malawi," *Journal of Labor Economics*, 36, 121–157.

Beaman, L. and J. Magruder (2012): "Who gets the job referral? Evidence from a social networks experiment," *The American Economic Review*, 3574–3593.

Beegle, K., E. Galasso, and J. Goldberg (2015): "Direct and Indirect Effects of Malawi's Public Works Program on Food Security," *Working Paper*.

Benjamin, D. (1992): "Household composition, labor markets, and labor demand: Testing for separation in agricultural household models," *Econometrica: Journal of the Econometric Society*, 287–322.

Berg, E., S. Bhattacharyya, R. Durgam, and M. Ramachandra (2012): "Can rural public works affect agricultural wages? Evidence from India," *Working Paper*.

Bertrand, M., B. Crépon, A. Marguerie, and P. Premand (2021): "Do workfare programs live up to their promises? Experimental evidence from Cote D'Ivoire," Tech. rep., National Bureau of Economic Research.

Besley, T. and R. Burgess (2004): "Can labor regulation hinder economic performance? Evidence from India," *The Quarterly journal of economics*, 119, 91–134.

Bessone, P., G. Rao, F. Schilbach, H. Schofield, and M. Toma (2021): "The economic consequences of increasing sleep among the urban poor," *The Quarterly Journal of Economics*, 136, 1887–1941.

Betcherman, G. (2015): "Labor market regulations: What do we know about their impacts in developing countries?" *The World Bank Research Observer*, 30, 124–153.

Bettinger, E., M. Kremer, M. Kugler, C. A. Medina-Durango, C. M. Posso-Suárez, and J. E. Saavedra (2019): "School vouchers, labor markets and vocational education," *Working Paper*.

Blattman, C. and S. Dercon (2018): "The impacts of industrial and entrepreneurial work on income and health: Experimental evidence from Ethiopia," *American Economic Journal:*

Applied Economics, 10, 1–38.

Bleakley, H. (2007): "Disease and development: evidence from hookworm eradication in the American South," *The quarterly journal of economics*, 122, 73–117.

Bold, T., D. Filmer, G. Martin, E. Molina, B. Stacy, C. Rockmore, J. Svensson, and W. Wane (2017): "Enrollment without learning: Teacher effort, knowledge, and skill in primary schools in Africa," *Journal of Economic Perspectives*, 31, 185–204.

Bolte, L., N. Immorlica, and M. O. Jackson (2020): "The role of referrals in immobility, inequality, and inefficiency in labor markets," *arXiv preprint arXiv:2012.15753*.

Boserup, E. (1970): *Woman's Role in Economic Development*, London: George Allen and Unwin Ltd.

Bowles, S. (1976): "Schooling in Capitalist America," .

Breza, E., S. Kaur, and N. Krishnaswamy (2022): "Social Norms as a Determinant of Aggregate Labor Supply," *NBER Working Paper*.

Breza, E., S. Kaur, and Y. Shamdasani (2018): "The morale effects of pay inequality," *The Quarterly Journal of Economics*, 133, 611–663.

——— (2021): "Labor Rationing," *American Economic Review*, 111, 3184–3224.

Brown, C. and T. Andrabi (2023): "Inducing Positive Sorting through Performance Pay: Experimental Evidence from Pakistani Schools," *Working Paper*.

Bryan, G., S. Chowdhury, and A. M. Mobarak (2014): "Underinvestment in a profitable technology: The case of seasonal migration in Bangladesh," *Econometrica*, 82, 1671–1748.

Bryan, G. and M. Morten (2019): "The aggregate productivity effects of internal migration: Evidence from Indonesia," *Journal of Political Economy*, 127, 2229–2268.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020): "Misperceived social norms: Women working outside the home in Saudi Arabia," *American economic review*, 110, 2997–3029.

Caicedo, S., M. Espinosa, and A. Seibold (2022): "Unwilling to train?—Firm responses to the Colombian apprenticeship regulation," *Econometrica*, 90, 507–550.

Caria, A. S., G. Gordon, M. Kasy, S. Quinn, S. O. Shami, and A. Teytelboym (2024a): "An adaptive targeted field experiment: Job search assistance for refugees in Jordan," *Journal of the European Economic Association*, 22, 781–836.

Caria, A. S. and J. Labonne (2024): "Village social structure and labor market performance: Evidence from the Philippines," *Journal of Economic Behavior & Organization*, 219, 371–380.

Caria, S., S. Franklin, and M. Witte (2023): "Searching with friends," *Journal of Labor Economics*, 41, 887–922.

Caria, S., K. Orkin, R. Garlick, N. Singh, R. Heath, and A. Andrews (2024b): "Barriers to Search and Hiring in Urban Labour Markets," Tech. rep., Technical Report, Vox Dev Literature 2024.

Carranza, E., A. Donald, F. Grosset, and S. Kaur (2022a): "The Social Tax: Redistributive Pressure and Labor Supply," Tech. rep., National Bureau of Economic Research.

Carranza, E., R. Garlick, K. Orkin, and N. Rankin (2022b): "Job search and hiring with limited information about workseekers' skills," *American Economic Review*, 112, 3547–3583.

Carranza, E. and D. McKenzie (2024): "Job training and job search assistance policies in developing countries," *Journal of Economic Perspectives*, 38, 221–244.

Cassan, G., D. Keniston, and T. Kleineberg (2022): "A Division of Laborers: Identity and Efficiency in India," *Working Paper*.

Cefala, L., S. Kaur, H. Schofield, and Y. Shamdasani (2024a): "Habit Formation in Labor Supply," *Working Paper*.

Cefala, L., P. Naso, M. A. Ndayikeza, and N. Swanson (2024b): "Under-training by Employers in Informal Labor Markets: Evidence from Burundi," *Working Paper*.

Chandrasekhar, A. G., M. Morten, and A. Peter (2020): "Network-based hiring: Local benefits; global costs," Tech. rep., National Bureau of Economic Research.

Crosta, T., D. Karlan, F. Ong, J. Rüschenpöhler, and C. R. Udry (2024): "Unconditional cash transfers: A Bayesian meta-analysis of randomized evaluations in low and middle income countries," Tech. rep., National Bureau of Economic Research.

Dasgupta, P. and D. Ray (1986): "Inequality as a determinant of malnutrition and unemployment: Theory," *The Economic Journal*, 1011–1034.

Dean, J. T. (2024): "Noise, cognitive function, and worker productivity," *American Economic Journal: Applied Economics*.

Deaton, A. and J. Drèze (2009): "Food and nutrition in India: facts and interpretations," *Economic and political weekly*, 42–65.

Dillon, A., J. Friedman, and P. Serneels (2021): "Health information, treatment, and worker productivity," *Journal of the European Economic Association*, 19, 1077–1115.

Dillon, B., P. Brummund, and G. Mwabu (2019): "Asymmetric non-separation and rural labor markets," *Journal of Development Economics*, 139, 78–96.

Donald, A. and F. Grosset (2024): "Complementarities in Labor Supply: Joint Commute and Work Decisions," *Working Paper*.

Donovan, K., W. J. Lu, and T. Schoellman (2023): "Labor market dynamics and development," *The Quarterly Journal of Economics*, 138, 2287–2325.

Donovan, K. and T. Schoellman (2023): "The role of labor market frictions in structural transformation," *Oxford Development Studies*, 51, 362–374.

Dreze, J., L. Leruth, and A. Mukherjee (1986): "Rural Labour Markets in India: Theories and Evidence," in *8th World Congress of the International Economic Association, New Delhi, December*.

Duflo, E. (2001): "Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment," *American economic review*, 91, 795–813.

——— (2004): "The medium run effects of educational expansion: Evidence from a large school construction program in Indonesia," *Journal of Development Economics*, 74, 163–197.

Duflo, E., P. Dupas, and M. Kremer (2021): "The impact of free secondary education: Experimental evidence from Ghana," Tech. rep., National Bureau of Economic Research.

Dupas, P. and E. Miguel (2017): "Impacts and determinants of health levels in low-income countries," in *Handbook of economic field experiments*, Elsevier, vol. 2, 3–93.

Dupas, P., J. Robinson, and S. Saavedra (2020): "The daily grind: Cash needs and labor supply," *Journal of Economic Behavior & Organization*, 177, 399–414.

Egger, D., D. Auer, and J. Kunz (2022): "Effects of migrant networks on labor market integration, local firms and employees," *Unpublished Manuscript. url: https://drive. google. com/file/d/1S7dvH-7Per7fiFhtlNovNGdyaV14TAU7/view*.

Engbom, N. and C. Moser (2022): "Earnings inequality and the minimum wage: Evidence from Brazil," *American Economic Review*, 112, 3803–3847.

Evans, D. K. and A. Mendez Acosta (2021): "Education in Africa: What are we learning?" *Journal of African Economies*, 30, 13–54.

Felix, M. (2022): "Trade, Labor Market Concentration, and Wages," *Working Paper*.

Fernando, A. N., N. Singh, and G. Tourek (2023): "Hiring frictions and the promise of online job portals: Evidence from India," *American Economic Review: Insights*, 5, 546–562.

Field, E., R. Pande, N. Rigol, S. Schaner, and C. Troyer Moore (2021): "On her own account: How strengthening women's financial control impacts labor supply and gender norms," *American Economic Review*, 111, 2342–2375.

Filmer, D. and N. Schady (2014): "The medium-term effects of scholarships in a low-income country," *Journal of Human Resources*, 49, 663–694.

Finan, F., B. A. Olken, and R. Pande (2017): "The personnel economics of the developing state," *Handbook of economic field experiments*, 2, 467–514.

Fink, G., B. K. Jack, and F. Masiye (2014): "Seasonal credit constraints and agricultural labor supply: Evidence from Zambia," *NBER Working Paper*.

Fink, G. and F. Masiye (2015): "Health and agricultural productivity: Evidence from Zambia," *Journal of health economics*, 42, 151–164.

Franklin, S. (2018): "Location, search costs and youth unemployment: experimental evidence from transport subsidies," *The Economic Journal*, 128, 2353–2379.

Gertler, P., J. Heckman, R. Pinto, A. Zanolini, C. Vermeersch, S. Walker, S. M. Chang, and S. Grantham-McGregor (2014): "Labor market returns to an early childhood stimulation intervention in Jamaica," *Science*, 344, 998–1001.

Goldberg, J. (2016): "Kwacha gonna do? Experimental Evidence about labor supply in rural Malawi," *American Economic Journal: Applied Economics*, 8, 129–49.

Gollin, D. and J. P. Kaboski (2023): "New views of structural transformation: insights from recent literature," .

Gray-Lobe, G., A. Keats, M. Kremer, I. Mbiti, and O. W. Ozier (2022): "Can education be standardized? Evidence from Kenya," *Evidence from Kenya (September 16, 2022). University of Chicago, Becker Friedman Institute for Economics Working Paper*.

Groh, M., N. Krishnan, D. McKenzie, and T. Vishwanath (2016): "Do wage subsidies provide a stepping-stone to employment for recent college graduates? Evidence from a randomized experiment in Jordan," *Review of Economics and Statistics*, 98, 488–502.

Groh, M., D. McKenzie, N. Shammout, and T. Vishwanath (2015): "Testing the importance of search frictions and matching through a randomized experiment in Jordan," *IZA Journal of Labor Economics*, 4, 1–20.

Hanna, R. and P. Oliva (2015): "The effect of pollution on labor supply: Evidence from a natural experiment in Mexico City," *Journal of Public Economics*, 122, 68–79.

Hardy, M. and J. McCasland (2023): "Are small firms labor constrained? experimental evidence from ghana," *American Economic Journal: Applied Economics*, 15, 253–284.

Harris, J. R. and M. P. Todaro (1970): "Migration, unemployment and development: a two-sector analysis," *The American economic review*, 60, 126–142.

Heath, R. (2018): "Why do firms hire using referrals? Evidence from Bangladeshi garment factories," *Journal of Political Economy*, 126, 1691–1746.

Heath, R., A. Bernhardt, G. Borker, A. Fitzpatrick, A. Keats, M. McKelway, A. Menzel, T. Molina, and G. Sharma (2024): "Female labour force participation," *VoxDevLit*, 11, 1–43.

Heath, R., G. Mansuri, and B. Rijkers (2022): "Labor supply responses to health shocks: Evidence from high-frequency labor market data from urban Ghana," *Journal of Human Resources*, 57, 143–177.

Hendricks, L. and T. Schoellman (2018): "Human capital and development accounting: New evidence from wage gains at migration," *The Quarterly Journal of Economics*, 133, 665–700.

Hicks, J. H., E. Miguel, M. W. Walker, M. Kremer, and S. Baird (2020): "Twenty year economic impacts of deworming," *NBER Working Paper*.

Ho, Y. and Y. Huang (2024): "Discretionary versus Data-Driven Selection for Promotion: Evidence from a Tanzanian Factory," *Working Paper*.

Hoddinott, J., G. Berhane, D. O. Gilligan, N. Kumar, and A. Seyoum Taffesse (2012): "The impact of Ethiopia's Productive Safety Net Programme and related transfers on agricultural productivity," *Journal of African Economies*, 21, 761–786.

Hoddinott, J., J. A. Maluccio, J. R. Behrman, R. Flores, and R. Martorell (2008): "Effect of a nutrition intervention during early childhood on economic productivity in Guatemalan adults," *The lancet*, 371, 411–416.

Hoff, K. and A. Sen (2011): "The Kin System as a Poverty Trap?" in *Poverty Traps*, ed. by S. Bowles, S. N. Durlauf, and K. Hoff, Princeton, NJ: Princeton University Press, 95–115.

Imbert, C. and J. Papp (2015): "Labor market effects of social programs: Evidence from India's employment guarantee," *American Economic Journal: Applied Economics*, 7, 233–263.

Jalota, S. and L. Ho (2024): "What Works for Her? How Work-from-Home Jobs Affect Female Labor Force Participation in Urban India," *How Work-from-Home Jobs Affect Female Labor Force Participation in Urban India (January 4, 2024)*.

Jayachandran, S. (2006): "Selling labor low: Wage responses to productivity shocks in developing countries," *Journal of Political Economy*, 114, 538–575.

——— (2015): "The roots of gender inequality in developing countries," *Annual review of economics*, 7, 63–88.

Jensen, R. (2012): "Do labor market opportunities affect young women's work and family decisions? Experimental evidence from India," *The Quarterly Journal of Economics*, 127, 753–792.

Jia, R. and H. Li (2021): "Just above the exam cutoff score: Elite college admission and wages in China," *Journal of Public Economics*, 196, 104371.

Jones, M., F. Kondylis, J. Loeser, and J. Magruder (2022): "Factor market failures and the adoption of irrigation in rwanda," *American Economic Review*, 112, 2316–2352.

Kaur, S. (2019): "Nominal Wage Rigidity in Village Labor Markets," *American Economic Review*, 109, 3585–3616.

Kaur, S., S. Mullainathan, S. Oh, and F. Schilbach (2025): "Do financial concerns make workers less productive?" *The Quarterly Journal of Economics*, 140, 635–689.

Kelley, E. M., C. Ksoll, and J. Magruder (2024): "How do online job portals affect employment and job search? Evidence from India," *Journal of Development Economics*, 166, 103176.

Khanna, G. (2023): "Large-scale education reform in general equilibrium: Regression discontinuity evidence from india," *Journal of Political Economy*, 131, 549–591.

Kiss, A., R. Garlick, K. Orkin, and L. Hensel (2023): "Jobseekers' beliefs about comparative advantage and (mis) directed search," *Available at SSRN 4593303*.

Kleemans, M. and J. Magruder (2018): "Labour market responses to immigration: Evidence from internal migration driven by weather shocks," *The Economic Journal*, 128, 2032–2065.

Kochar, A. (1995): "Explaining household vulnerability to idiosyncratic income shocks," *The American Economic Review*, 85, 159–164.

LaFave, D. and D. Thomas (2016): "Farms, families, and markets: New evidence on completeness of markets in agricultural settings," *Econometrica*, 84, 1917–1960.

Lagakos, D. (2020): "Urban-rural gaps in the developing world: Does internal migration offer opportunities?" *Journal of Economic perspectives*, 34, 174–192.

Lagakos, D., B. Moll, T. Porzio, N. Qian, and T. Schoellman (2018): "Life cycle wage growth across countries," *Journal of Political Economy*, 126, 797–849.

Lewis, W. A. (1954): "Economic Development With Unlimited Supplies of Labour," *The Manchester School*, 22, 139–191.

Londoño-Vélez, J., C. Rodriguez, F. Sánchez, and L. E. Álvarez-Arango (2023): "Financial Aid and Social Mobility: Evidence from Colombia's Ser Pilo Paga," Tech. rep., National Bureau of Economic Research.

Macchi, E. and J. Stalder (2024): "Informal Redistribution through Work," *Working Paper*.

Magruder, J. R. (2013): "Can minimum wages cause a big push? Evidence from Indonesia," *Journal of Development Economics*, 100, 48–62.

Mahajan, P. and D. Yang (2020): "Taken by storm: Hurricanes, migrant networks, and US immigration," *American Economic Journal: Applied Economics*, 12, 250–277.

McKenzie, D. (2017): "How effective are active labor market policies in developing countries? a critical review of recent evidence," *The World Bank Research Observer*, 32, 127–154.

Michuda, A. (2023): "Rural-Urban Risk Sharing Networks: Uber Driver Labor Supply Responses to Shocks in Uganda," *Workign Paper*.

Miguel, E. and M. Kremer (2004): "Worms: identifying impacts on education and health in the presence of treatment externalities," *Econometrica*, 72, 159–217.

Munshi, K. (2003): "Networks in the modern economy: Mexican migrants in the US labor market," *The Quarterly Journal of Economics*, 118, 549–599.

——— (2020): "Social networks and migration," *Annual Review of Economics*, 12, 503–524.

Munshi, K. and M. Rosenzweig (2016): "Networks and misallocation: Insurance, migration, and the rural-urban wage gap," *American Economic Review*, 106, 46–98.

Muralidharan, K. (2017): "Field experiments in education in developing countries," in *Handbook of economic field experiments*, Elsevier, vol. 2, 323–385.

Muralidharan, K., P. Niehaus, and S. Sukhtankar (2023): "General equilibrium effects of (improving) public employment programs: Experimental evidence from India," *Econometrica*, 91, 1261–1295.

Murgai, R., M. Ravallion, and D. Van de Walle (2016): "Is workfare cost-effective against poverty in a poor labor-surplus economy?" *The World Bank Economic Review*, 30, 413–445.

Oh, S. (2023): "Does identity affect labor supply?" *American Economic Review*, 113, 2055–2083.

Oster, E. and B. M. Steinberg (2013): "Do IT service centers promote school enrollment? Evidence from India," *Journal of Development Economics*, 104, 123–135.

Ozier, O. (2018): "The impact of secondary schooling in Kenya: A regression discontinuity analysis," *Journal of Human Resources*, 53, 157–188.

Page, J. (1994): "The East Asian miracle: four lessons for development policy," *NBER macroeconomics annual*, 9, 219–269.

Pallais, A. and E. G. Sands (2016): "Why the referential treatment? Evidence from field experiments on referrals," *Journal of Political Economy*, 124, 1793–1828.

Paul-Delvaux, L. (2024): "Minimum Wage and Gender Gaps: Evidence from Morocco," *Working Paper*.

Platteau, J.-P. (2000): *Institutions, Social Norms, and Economic Development*, vol. 1, Psychology Press.

——— (2014): "Redistributive Pressures in Sub-Saharan Africa: Causes, Consequences, and Coping Strategies," in *Africa's Development in Historical Perspective*, Cambridge University Press, 153–207.

Porzio, T., F. Rossi, and G. Santangelo (2022): "The human side of structural transformation," *American Economic Review*, 112, 2774–2814.

Psacharopoulos, G. and H. A. Patrinos (2018): "Returns to investment in education: a decennial review of the global literature," *Education Economics*, 26, 445–458.

Rosenzweig, M. R. (1988): "Labor markets in low-income countries," in *Handbook of Development Economics*, Elsevier, vol. 1, 713–762.

Saavedra, J. E. (2009): "The learning and early labor market effects of college quality: A regression discontinuity analysis," *Investigaciones del ICFES*, 1–61.

Santos-Pinto, L. and L. E. de la Rosa (2020): "Overconfidence in labor markets," *Handbook of labor, human resources and population economics*, 1–42.

Schofield, H. (2014): "The economic costs of low caloric intake: Evidence from India," *Working Paper*.

——— (2020): "Ramadan fasting and agricultural output," *Working Paper*.

Shah, M. and B. M. Steinberg (2017): "Drought of opportunities: Contemporaneous and long-term impacts of rainfall shocks on human capital," *Journal of Political Economy*, 125, 527–561.

——— (2021): "Workfare and human capital investment: Evidence from India," *Journal of Human Resources*, 56, 380–405.

Shapiro, C. and J. E. Stiglitz (1984): "Equilibrium unemployment as a worker discipline device," *The American Economic Review*, 433–444.

Sharma, G. (2023): "Monopsony and gender," *Unpublished manuscript*.

——— (2024): "Collusion Among Employers in India," *Working Paper*.

Singh, I., L. Squire, J. Strauss, et al. (1986): *Agricultural household models: Extensions, applications, and policy.*, Johns Hopkins University Press.

Swanson, N. (2024): "All in the Family: Kinship Pressure and Firm-Worker Matching," *Working Paper*.

Tang, Y. (2024): "To Follow the Crowd? Benefits and Costs of Migrant Networks," *Working Paper*.

Thomas, D., E. Frankenberg, J. Friedman, J.-P. Habicht, M. Hakimi, N. Ingwersen, N. Jones, C. McKelvey, G. Pelto, B. Sikoki, et al. (2006): "Causal effect of health on labor market outcomes: Experimental evidence," *Working Paper*.

Udry, C. (1997): "Efficiency and Market Structure: Testing for Profit Maximization in African Agriculture," *Working Paper*.

Verhoogen, E. (2023): "Firm-level upgrading in developing countries," *Journal of Economic Literature*, 61, 1410–1464.

Wheeler, L., R. Garlick, E. Johnson, P. Shaw, and M. Gargano (2022): "LinkedIn (to) job opportunities: Experimental evidence from job readiness training," *American Economic Journal: Applied Economics*, 14, 101–125.

Zimmermann, L. V. (2024): "Why guarantee employment? Evidence from a large Indian public-works program," *Economic Development and Cultural Change*, 72, 000–000.