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# Bureaucracy and Inclusion: State-led recruitment and women’s employment in India\*

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## Abstract

Can bureaucracies promote inclusive growth? We theorize and evaluate the role of the state in supporting Indian women’s labor force participation - an issue of great concern given low and declining rates of women’s employment - through a program where bureaucrats recruited youth into job-linked vocational training. Leveraging arbitrary variation in program eligibility, we show that state-led recruitment doubled women’s enrollment and job take-up with no effect for men. Gender-specific impacts could reflect the state’s capacity to centralize information (the “information effect”), better represent local preferences (the “embeddedness effect”), or signal program legitimacy (the “legitimization effect”). To adjudicate these mechanisms, we conducted

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a randomized experiment varying the participation of the lowest-level, largely female bureaucrats. We find that these highly embedded bureaucrats do not drive our results, and the information and legitimization effects appear to dominate. Ultimately, our results show that bureaucracies can play a crucial role in supporting inclusive growth.

# 1 Introduction

Can governments help ensure that markets and economic growth are inclusive of the historically marginalized? In recent years, global attention has turned towards achieving social equality while promoting economic development. While strategies for development are vast and varied, effective bureaucracies have been linked to economic development (Weber 1978; Besley et al. 2022) and more representative bureaucracies have been shown to improve the inclusion of marginalized groups in social institutions (Meier, Wrinkle and Polinard 1999; Keiser et al. 2002; Gulzar, Haas and Pasquale 2020). Less, however, is known about whether bureaucracies can enable inclusion in *market* institutions without loss of efficiency (Grossman and Slough 2022), with some suggesting bureaucratic implementation can worsen inequalities (Slough 2020).

Marginalized groups face a variety of constraints that could make accessing markets difficult: They are likely to lack networks and information relevant to market inclusion, and they may face discrimination or operate in environments with restrictive norms that limit their market access (Jayachandran 2015). Absent a financial motive, the private sector is unlikely to address information asymmetries, discriminatory patterns, or restrictive norms. When human and social capital are disproportionately allocated to dominant groups, market incentives alone are unlikely to align with those of inclusive growth (Hall and Soskice 2001).

In contrast, we argue that the state often has both motive and opportunity to promote inclusive economic growth. Politicians, accountable to the public, are incentivized to ensure meritocratic and representative state (bureaucratic) institutions (Kuipers 2022). This is evidenced in the proliferation of quotas for historically under-represented communities in bureaucratic selection (Bhavnani and Lee 2021), though representativeness is not always achieved, particularly at higher levels (Purohit 2023). Theories and evidence on the impacts of representative bureaucracies reveal that, by

incorporating embedded bureaucrats (i.e., those directly from the communities they represent), state institutions can generate more inclusive service delivery through improved citizen-based monitoring (Tsai 2007), in-group favoritism (Butler and Broockman 2011; Bhavnani, Lee and Prillaman 2022), and deep knowledge of local needs and cultures (Meier and Stewart Jr 1992; Kasara 2007; Bhavnani and Lee 2018; Grossman and Slough 2022; Balán et al. 2022; Xu 2021). However, others have shown that, absent embedded bureaucrats, bureaucracies can deepen inequalities by responding only to the demands of the most resourced (Slough 2020). Thus, existing evidence suggests that relatively more representative bureaucratic institutions better ensure the representation of historically marginalized communities, which we expect to similarly apply to market-linkage programs.

Less studied are the ways that bureaucracies can promote access to market institutions for marginalized groups independent of the identity of the bureaucrat. The public sector is designed to serve all citizens, regardless of profit or efficiency. This implies that bureaucracies, as compared to markets, are less likely to target the “highest-return” beneficiaries and may even focus instead on the “highest-need” beneficiaries. To do so, we argue that bureaucracies can provide more diverse information than would be strategic for any single market institution. When historic inequities or restrictive social norms align marginality with information asymmetries, the information centralization function of the state could disproportionately benefit those communities and improve overall equity (Alatas et al. 2012). We, therefore, expect that those facing the greatest information asymmetries will benefit the most from bureaucratic intervention in market programs. In addition, information asymmetries and historical marginalization could both contribute to a lack of trust in market institutions. Yet when marginalized individuals perceive state actors to be representative of their group and/or interests or simply more aligned with citizen welfare, bureaucratic action could signal the legiti-

macy of market institutions, building trust that encourages deeper market access among marginalized groups or even shaping norms around acceptable activities.

We study whether and how the state enables market access among the marginalized and whether descriptive representation in bureaucratic institutions is crucial to this market access in the context of one of the most pressing challenges facing India (and many other emerging economies) today: ensuring employment and income-generating opportunities for its large reservoir of talented, relatively well-educated youth, particularly young women. Despite the potential benefits of capitalizing on women's productive capacities, female labor force participation in India hovers around 20%, down from 33% in the mid-1990s and substantially below that of men (70%) (World Bank 2021). Yet national survey data suggests that a majority of out-of-the-labor-force young women want to work (Fletcher, Pande and Moore 2018). Common explanations for this exceptionally low female labor force participation focus on restrictive social norms that limit the set of acceptable work options and conditions for women (Barnett, A. Jamal and Monroe 2021; Jayachandran 2020) and steep information asymmetries in navigating the job search process, particularly when jobs are concentrated in urban areas and require migration (Jensen 2012; Beaman, Keleher and Magruder 2018).

Over the past decade, the Government of India has initiated several programs to solve human capital constraints and matching frictions in the job search process, specifically vocational training programs that mandate job placement. Nearly all of these programs rely on private training companies to identify, recruit, train, and place youth in jobs. Absent their own social motivation, these private training companies behave like market institutions and are likely to perpetuate existing market frictions and inequalities. This is evidenced in the failure of many of these companies to meet mandated minimum thresholds of inclusion of women.

Recognizing these challenges, the east Indian state of Odisha launched the Mission 20

program in 2017 as an add-on initiative to one of the largest national vocational training programs<sup>1</sup>, which made local bureaucrats responsible for recruitment to vocational training. Prior to the Mission 20 program, recruitment to training was the responsibility of private training agencies, who deployed almost exclusively male recruiters to enroll youth into the limited trades offered by their specific center. Instead, the Mission 20 program incentivized two sets of existing bureaucrats to enroll youth: officials working in block-level governments (block officers) and the majority female, village-level bureaucrats that support state-initiated micro-credit collectives (community resource persons supporting Self-Help Groups, or SHGs). Block-level bureaucrats were given recruitment targets and were responsible for holding recruitment fairs that introduced potential trainees to a wide range of training agencies and job opportunities. Simultaneously, village-level bureaucrats were trained and paid to identify potential trainees and provide them and their families with information about the recruitment fairs, training, and jobs.

The Mission 20 program, therefore, allows for a comparison of market-led and bureaucracy-led implementation of a social program targeting market integration. It also allows us to assess the relevance of representative bureaucracy in program outcomes by comparing the two administrative levels involved in program implementation. To evaluate whether bureaucracy-led implementation yields greater market inclusion, particularly for the historically marginalized, we leverage geographic variation in the Mission 20 program's roll-out to compare regions that participated in the program with regions that remained under the status quo. Participation in the Mission 20 program required local SHG infrastructure since SHG staff were to serve as village-level recruiters. In 2017, only a subset of Odisha's blocks had such infrastructure and were eligible to participate in the program. Drawing on information on the assignment mechanism of SHG infrastructure

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<sup>1</sup>The centrally sponsored program is known as the Deen Dayal Upadhyaya Gramin Kaushalya Yojana, or DDU-GKY.

and confirming the parallel trends assumption, we utilize this variation and a difference-in-differences approach to evaluate the impact of bureaucrat-led recruitment on training enrollment and job placement.

We find that the Mission 20 program doubled young women’s participation in vocational training in the year following roll-out, compared to areas with status quo private sector recruiters, but it did not affect young men’s outcomes. Crucially, training increases translated into better labor market attachment: Women in these areas were significantly more likely to be placed in jobs for more than three months.<sup>2</sup> Gender gaps fell by 44% (26 percentage points) compared to the pre-Mission 20 control mean, suggesting bureaucracy-led implementation improved equity without loss of overall performance. In short, bureaucratic implementation of a market-linkage program substantially increased women’s market inclusion.

To disentangle mechanisms, we layered on a village cluster-level randomized experiment in 14 Mission 20 blocks<sup>3</sup> comprising 285 village clusters (known as Gram Panchayats, or GPs). In treated GPs, village-level bureaucrats were trained and incentivized to recruit youth for training.<sup>4</sup> Control GPs, unlike in the state-wide analysis, were part of

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<sup>2</sup>State administrative data only tracks youth’s job retention for three months. In other work, we find that male and female job retention rates after training are similar, if not better, for women - so we think it is unlikely these short-term changes did not translate into a lower gender gap in longer-term employment (Prillaman et al. 2017).

<sup>3</sup>State administration is divided into districts, and districts are comprised of blocks, which oversee implementation of programs across multiple village clusters.

<sup>4</sup>The RCT randomized an additional training to village-level bureaucrats that provided information on gender-specific employment and migration outcomes to reduce information frictions and help recruits understand the potential returns to training. As there is no difference in impacts across these two treatment arms, we pool the analysis for simplicity. The online appendix reports decomposed results.



the Mission 20 program and were nested in blocks where block-level bureaucrats were incentivized to increase enrollment, but village-level bureaucrats were not trained or incentivized to recruit. As a result, we are able to randomize and isolate the embeddedness channel (i.e., the involvement of village-level bureaucrats) while holding constant the presence of higher-level bureaucratic involvement in recruitment (and the diversified information provided through recruitment fairs). Since more than 90% of the village-level bureaucrats used for recruitment were women, this amounts to examining the joint impact of local embeddedness and gender-based representativeness.

Given the positive findings of the bureaucratic embeddedness and representative bureaucracy literatures, our prior was that village-level bureaucrats would be crucial to young women's recruitment due to their ability to serve as role models of working women (Beaman and Magruder 2012) and their ability to leverage local information to identify and target the best-suited and most interested women. Contrary to this, we find that training and incentivizing village-level bureaucrats had no impact on program enrollment and employment for either gender. Post-Mission 20 program implementation, young women's outcomes improved equally in villages that had only block-level bureaucrat involvement in recruitment and those with additional, randomized village-level bureaucrat involvement in recruitment. These experimental results are robust to a state-wide difference-in-differences analysis that compares GPs with and without village-level bureaucrats available to recruit for Mission 20 within Mission 20-eligible blocks. Qualitative and survey evidence suggests that because village-level bureaucrats were almost always women from low-status backgrounds, they could not prevail against the normative and household constraints that kept women out of jobs in the first place. A striking implication of this finding is that it is precisely because of village-level bureaucrats' representativeness as a low-status and norm-constrained group that they were unable to improve women's outcomes.

While we cannot disentangle the relative importance of information and legitimization, evidence points to the crucial role of the information channel in improving women’s outcomes: Women were able to better identify private training agencies that provided the limited set of work opportunities normatively acceptable for them. We show that female trainees in Mission 20 blocks across all of Odisha joined a larger number of training centers without any change in the number of trades, the gender composition of those trades, or job locations. In fact, there is some support that women may have accepted lower salaries on average. Our evidence further suggests that it is unlikely our effects operate exclusively through the legitimization channel because we observe minimal differences in program effects based on women’s pre-Mission 20 training enrollment level, whereas a legitimacy explanation would predict higher take-up in areas with limited earlier enrollment.

Our findings contribute to an understanding of how and when inclusive economic growth can be achieved by highlighting the distinct capacity of the state and bureaucratic institutions to solve identity-based market frictions. This paper also challenges and nuances scholarship on the role of embeddedness in the bureaucracy, building on [Hassan and O’Mealia \(2020\)](#), by demonstrating the limits of embeddedness for positive outcomes in the face of norm- and status-based constraints ([Meier and Stewart Jr 1992](#)). When bureaucrats are embedded within low-status communities, they may be unable to traverse and challenge local power structures to achieve more inclusive growth. Finally, this paper contributes to the significant, largely economics-based scholarship on women’s labor force participation in India that has documented the steep normative hurdles to women’s labor force participation ([McKelway 2020](#); [Field et al. 2021](#); [Jayachandran 2020](#); [Barnett, A. Jamal and Monroe 2021](#)). We build on this literature by highlighting one mechanism to overcome norms against women’s work: alignment of state incentives to provide better information and support for young women’s employment.

## 2 A Theory of Inclusion through Bureaucratic Implementation

An important question is whether bureaucracies promote higher levels of development and economic growth (Weber 1978; Kohli 2004; Besley et al. 2022). On the one hand, effective bureaucracies can solve coordination problems to enforce legal and fiscal institutions that support investment and deliver public services that support human capital and infrastructural development (Johnson 1995). On the other hand, bureaucracies can introduce inefficiencies (“red tape”) in the delivery of services absent incentives and appropriate monitoring (Wilson 2019; Dal Bó, Finan and Rossi 2013; Deserranno 2019; Ashraf and Bandiera 2018; Brierley 2021; Khan, Khwaja and Olken 2016; Dasgupta and Kapur 2020; Olken 2007; Slough 2020; Gulzar and Pasquale 2017; Bhavnani, Lee and Prillaman 2022). Bureaucracies can also shape the distribution of access to the constituents of development. Bureaucracies are incentivized, through politician oversight, to represent the general population and so are subject to democratic accountability as opposed to market-based accountability (Przeworski, Stokes and Manin 1999). Bureaucratic institutions, however, are not immune to the discriminatory biases found in social and market institutions, which can perpetuate identity-based inequalities (Nathan and White 2021; Purohit 2023).

When does bureaucratic implementation of public programs improve outcomes for the historically excluded? One clear answer emerges from the existing literature: When bureaucracies are representative of the diverse populations they serve. A large body of research documents how a descriptively representative bureaucracy can enable the substantive representation of typically underrepresented communities (Meier and Stewart Jr 1992; Keiser et al. 2002; Selden 2015) without loss in overall performance (Bhavnani and Lee 2021). This can be through greater attunement to their needs, better representa-

tion of those needs, or better information on who is neediest (Pitkin 1967; Meier and Stewart Jr 1992; Mansbridge 1999). Bureaucracies, to a greater extent than markets, are better able to select from diverse populations and ensure greater representativeness given politicians’ accountability to citizens (Kuipers and Sahn 2022), such as is seen in the proliferation of quota-based systems (Bhavnani and Lee 2021).

A related body of research shows that embedded bureaucrats - those who emerge from the geographic or identity-based communities they serve - provide better services to their communities (Evans 1995; Xu 2021; Bhavnani, Lee and Prillaman 2022). Street-level bureaucrats often come from and reside in their constituencies and, therefore, are more likely to share the preferences and needs of those constituencies, ensuring descriptive representation becomes substantive representation (Meier and Stewart Jr 1992). A large literature suggests that embedded bureaucrats also improve policy outcomes for their communities because of better information on communities’ needs (Bhavnani and Lee 2018; Balán et al. 2022; Xu 2021). Additionally, embedded bureaucrats may be particularly useful in improving outcomes for populations bound by restrictive social norms as they can frame policies in culturally sensitive ways (Pepinsky, Pierskalla and Sacks 2017).

In line with these literatures, we argue that bureaucracies can shift distributional outcomes in market access through an embeddedness effect when bureaucrats are selected so as to represent marginalized communities (the “embeddedness effect”). Unlike market institutions that often elevate targeting the highest return communities, bureaucracies are incentivized through democratic processes to elevate targeting the highest need communities. Embeddedness enables greater capacity to identify precisely those communities. More recent work, however, demonstrates that there may be limits to the positive impacts of embeddedness. If embedded bureaucrats are themselves restricted by normative paradigms, we might observe their relative failure in delivering services over-

all and to their communities more specifically. This suggests that the positive impacts of embeddedness may be conditioned by the strength and nature of norms governing marginalized communities (Hassan and O’Mealia 2020).

We propose two additional ways in which bureaucracies can generate more equal access to market institutions. First, bureaucracies can increase equity through their functions in centralizing information (the “information effect”). Market efficiency commonly assumes complete information, but we know that, often, there are stark information asymmetries. These information asymmetries are particularly acute for marginalized communities that lack access to networks and valuable inter-generational knowledge (Ioannides and Loury 2004; Calvo-Armengol and Jackson 2004). Additionally, restrictive social norms may constrain the acceptable choice set for some groups (Akerlof 1976; Jayachandran 2020), further limiting access to information. Given bureaucracies’ incentives to serve as large a share of the public as possible, they are more likely to ensure more complete information, which will benefit most those constrained by information asymmetries.

Second, bureaucratic implementation of programs aimed at improving market access can serve as a signal of state endorsement of market institutions (the “legitimization effect”). Legacies of discrimination and adverse outcomes when engaging in market institutions can foster distrust in those institutions and yield norms of non-participation (Acharya, Blackwell and Sen 2016). Market entry, therefore, is not inhibited only by search and matching costs but also by the internalized aversion of these institutions. Additionally, access to market institutions can be explicitly denied for some groups, such as women, to enable the maintenance of economic divisions of power (Field, Jayachandran and Pande 2010; Barnett, A. Jamal and Monroe 2021). In such instances, when norms of what is safe and acceptable inhibit market access, bureaucracies may be uniquely able to signal the legitimacy of these institutions and, thus, challenge these normative

environments.

### 3 The Case of Women’s Labor Force Participation in India

We study these dynamics in the case of female labor force participation in India, a domain of critical importance to India’s growth trajectory. A regularly touted statistic suggests that India’s GDP could be 18% (or \$770 billion) higher if women achieved parity in labor force participation (Woetzel et al. 2018). Data suggest that young adults in India struggle to join the labor force after concluding their education. For example, the 2011 Socioeconomic and Caste Census in the state of Odisha shows that 31% of young men and 70% of young women sat idle, meaning they were neither in school nor employed, and the average employment rate for young women *in the labor force* was only 41%. Figure 1 reveals how young women’s employment rates are declining in their education.<sup>5</sup> These data fit with national patterns that show that women’s labor force participation hovers around 20%, down from 33% in the mid-1990s and substantially below that of men (70%) (World Bank 2021)<sup>6</sup>.

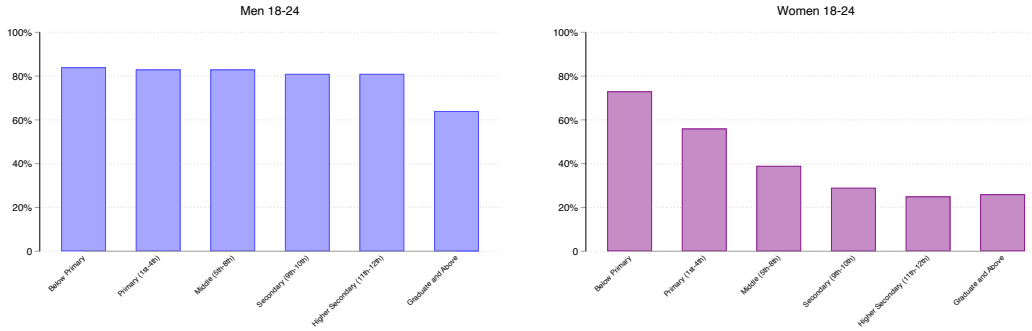
What keeps these youth, especially young, educated women, out of jobs? Existing work suggests matching frictions are an important driver, given the density of labor supply in rural villages and urban-centric labor demand (Mortensen and Pissarides 1994). Steep costs to acquiring information about jobs preclude rural job seekers from learning about available opportunities (Jensen 2012), lead to persistent misperceptions of wages and employment prospects among job seekers (McKenzie, Gibson and Stillman 2013;

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<sup>5</sup>Since this figure conditions on being in the labor force, these effects are not driven by continued schooling.

<sup>6</sup>Rates began to climb again around the time of the Covid-19 pandemic.

Figure 1: Employment rates amongst young men and women are lowest for those with the most education



**Note:** Data are from the 2011 Socioeconomic and Caste Census in the state of Odisha and show the employment rate, conditional on labor force participation, for men and women aged 18 to 24 by education.

Abebe et al. 2020), and leave potential workers uninformed about the most effective job search strategies (Beam 2016). These matching frictions are particularly acute for young women, who are often bound by patriarchal norms that constrain *which* jobs are deemed appropriate or safe, leading to occupational segregation (Barnett, A. Jamal and Monroe 2021) and resulting in higher voluntary unemployment rates as women search for a limited set of gender-appropriate positions (Groh et al. 2016). Women are also less likely to have access to the networks and information that would help them navigate the search process (Beaman, Keleher and Magruder 2018; Prillaman 2021).

### 3.1 Vocational Training in Rural India

Given the inability of markets to solve these matching frictions, the Indian state has deployed a series of policies to increase youth job entry. Most notably, several large-scale national programs have sought to provide youth with skills training and support in job placement. These programs address the human capital constraints to labor market entry through training and address matching frictions through the curation of job opportunities for trainees. DDU-GKY, our program of interest, is one of the largest

of these programs and is implemented by the Ministry of Rural Development with an explicit goal of targeting rural below-the-poverty-line youth.<sup>7</sup>

DDU-GKY is implemented through public-private partnerships, where national and state government ministries fund private training agencies to recruit, train, and place youth in jobs. The government's involvement is largely through the provision of incentives and sanctions to private agencies. *Training agencies* are selected by the state government ministries and typically operate multiple *training centers* across the state. In our study areas, most training centers offer training in only one to six trades. To receive funding, training centers must place at least 75% of trainees in full-time, formal sector employment, and one-third of placed candidates must be women. Dozens of qualitative interviews with training center staff suggest that training centers choose to offer trades based on their ties with employers to ensure they can satisfy placement requirements. Further, job placements are frequently in urban, out-of-state locations.

While publicly funded, private training agencies are subject to market-based incentives. Since their funding is limited, they aim to minimize their costs in youth recruitment and job placement, suggesting that many matching frictions will likely remain unresolved. Administrative data on trainees show that only 33% of trainees are women and, of all trainees in the DDU-GKY program, only 58% are placed in jobs (78% of which are men). While vocational training programs were implemented with the aim of resolving human capital and job-matching asymmetries, these statistics suggest that this program may better serve men. Gender quotas in the DDU-GKY program ensure some representation of women, however, they alone are unlikely to address the more fundamental and structural constraints on women's labor market behavior.

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<sup>7</sup>Anyone aged 15 to 35 (45 for women) is eligible, though entrants are overwhelmingly aged 18 to 25 (Ministry of Rural Development 2016).



### 3.2 Treatment: Mission 20

In 2017, the Indian state of Odisha initiated a new program – Mission 20 – to increase recruitment for DDU-GKY. Mission 20 reformed DDU-GKY recruitment by leveraging existing bureaucratic structures in the trainee recruitment process, essentially taking trainee recruitment out of the hands of private training centers and placing it in the hands of bureaucrats. We study whether the Mission 20 program (i.e., state involvement in trainee recruitment) improved vocational training take-up and job placement, particularly for women.

Prior to Mission 20, recruitment for DDU-GKY was exclusively devolved to private training centers with minimal government oversight. Qualitative insights from visiting dozens of these training centers in Odisha demonstrated that each training center typically hired full-time recruiters to visit nearby villages and recruit youth to their training courses, typically based in district headquarters. District-based recruiters usually served a large number of villages and were rarely local to the communities from which they recruited. To identify potential trainees, training center recruiters typically followed two strategies. First, they relied on their existing networks in these villages, which consisted of well-known village elites and previous trainees, to identify potential recruits. Second, they would visit public spaces to share information about the DDU-GKY program and their training center. As a result, youth better known by village elites and those more present in public spaces were more likely to be recruited via training center recruiters.

While DDU-GKY supported training in 408 trades, training centers typically offered only a few trade options due to the gains from specialization resulting from the need to find qualified trainers and foster relationships with employers; the average training center offered 6.5 trades each year, and the median offered 4. 48% of private training centers trained in only one trade each year. Recruitment focused on bringing in youth for the specific trades offered at that training center. Training center specialization is

only likely to exacerbate matching frictions if youth are only recruited by one training center. If, on the other hand, multiple training centers, each offering a different array of trades, recruit in the same village, then information-based frictions are less likely. Yet our interviews with training center recruiters reveal that training agencies rarely recruit from the same village since they aim to maximize their pool of potential candidates in recruitment visits. Some recruiters described actively coordinating with recruiters at other training centers to ensure that territories were divided. Implementation data we collected from a sample of districts to better understand local recruitment activities suggests that in 78% of villages with any recruitment, only one training center had recruited. As a result, training center recruitment generally limits trade and job options for youth.

Mission 20 sought to transform this private training center-led recruitment by involving local government bureaucrats in the recruitment process. To do so, Mission 20 incentivized existing bureaucrats to support recruitment at two different administrative levels, the block-level<sup>8</sup> (the second administrative tier of local governance) and the Gram Panchayat-level<sup>9</sup> (herein village-level). Existing block-level bureaucrats were assigned two main responsibilities: training village-level bureaucrats on the DDU-GKY program and hosting recruitment fairs for potential trainees to interact with multiple training center representatives. The state government ministry incentivized these activities by providing recruitment targets for each block and regularly monitoring block performance vis-à-vis these targets. Training of village-level bureaucrats consisted of a one-day training at the block office on the eligibility requirements for DDU-GKY, the general structure of DDU-GKY training, the range of trades covered, and the incen-

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<sup>8</sup>Odisha has 314 blocks across 30 districts, each covering 100,000-200,000 citizens.

<sup>9</sup>Gram Panchayats are the lowest level of local governance, agglomerate a small number of villages and covering on average 5,000 citizens in Odisha.

tives they would receive for recruitment. Separately, block bureaucrats were expected to organize regular recruitment fairs where training center representatives hosted information booths and interested youth could speak with private training center recruiters. These fairs were one of the cornerstone components of the block recruitment strategy and provided a centralized forum for interested youth to learn about multiple training opportunities. Our research team conducted short intercept surveys of candidates at a small sample of recruitment fairs and found that most attending youth reported interest in over ten trades, affirming our qualitative observations that potential trainees used these fairs to learn about trades and training centers.

At the village level, Mission 20 leveraged existing bureaucrats that administer state-run microcredit collectives of women (known as Self-Help Groups or SHGs) and oversee the financial management of the SHG's credit portfolio.<sup>10</sup> Under Mission 20, these village-level bureaucrats were expected to recruit youth from their villages to DDU-GKY. To this end, village-level bureaucrats were trained on the DDU-GKY program and paid monetary incentives for each youth they successfully recruited, with additional incentives based on how long these recruited youth stayed in the program and subsequent jobs. Our interviews with more than 30 village-level bureaucrats suggested that they were primarily motivated to recruit by financial incentives and block oversight. Since village-level bureaucrats had only limited information about the program and no information about specific training centers, they primarily directed interested youth to block-level resources and shared information about recruitment fairs.

Whereas block-level bureaucrats were mostly male career officers, village-level bureaucrats were almost exclusively married women from diverse castes with limited employment experience outside of the village. Demographic information on village-level

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<sup>10</sup>These village-level bureaucrats are known as Community Resource Persons (CRPs) and Master Book Keepers (MBKs).

bureaucrats is available in Appendix Table A5.1 and demonstrates that 92% of village-level bureaucrats were women and 53% were from Other Backward Caste groups, 17% were from Scheduled Castes, and 13% were from Scheduled Tribes. These positions were typically filled by younger women (average age of 34 years) who needed flexible work and had often never previously worked outside of agriculture. Since the more general responsibilities of this position are to support collectives of vulnerable women, these positions do not convey the authority of other bureaucratic positions based in government offices. The average tenure in this position was just 2.5 years.

Figure 2: DDU-GKY Recruitment in Odisha

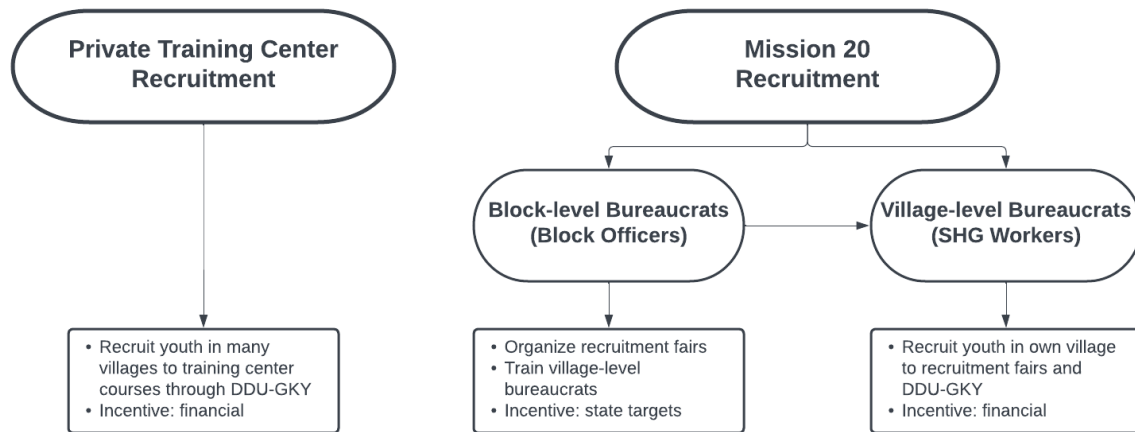


Figure 2 outlines the different components of Mission 20 recruitment and compares them to the approach taken by private training centers. Importantly, under Mission 20, private training centers could still recruit as they always had, and training was still implemented exclusively by private training centers, but government bureaucrats were now directly involved in the recruitment of youth for DDU-GKY training. Ultimately, the Mission 20 program incentivized the local bureaucracy to take on two functions in the recruitment of youth to training: direct selection of potentially interested youth and information agglomeration of training opportunities through recruitment fairs.

## 4 The Impact of State-led Recruitment on Training and Employment

We estimate the impact of the Mission 20 program by leveraging the fact that not all blocks were eligible for the program when it was launched in 2017. We use data on the roll-out assignment mechanism and a state-wide difference-in-differences comparison across blocks that were and were not eligible for the Mission 20 program, assuming and demonstrating parallel trends holds across these two types of blocks, to causally identify the impact of bureaucrat-led recruitment. Later, we leverage a randomized experiment in two districts to disentangle the mechanisms underlying the impact of bureaucrat-led recruitment, specifically estimating the impact of having embedded village-level recruiters. These experimental results are shown to be robust to an observational analysis across the entire state.

### 4.1 Identification of the Impact of Mission 20

Beginning in July 2017, the Mission 20 program was rolled out in 107 “intensive” blocks in Odisha. Blocks were designated as “intensive” in 2009 under the aegis of a World Bank-funded program<sup>11</sup> which supported the creation of SHGs and related infrastructure. To identify intensive blocks, the World Bank program selected ten districts and then ranked blocks within each district based on an index of block-level development, total population, and Scheduled Caste/Scheduled Tribe population shares ([The World Bank and Agriculture Global Practice 2016](#)). The four lowest-ranking blocks were selected as intensive blocks. The village-level bureaucrats leveraged by the Mission 20

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<sup>11</sup>The Targeted Rural Initiatives for Poverty Termination & Infrastructure program (TRIPTI) was active in Odisha from 2009 through 2015 and was later absorbed in the newly launched National Rural Livelihoods Mission.

program (CRPs and MBKS) were hired as part of this SHG federation-building process to support and manage SHG capacity-building and financial activities in these intensive blocks (OLM 2017). Only intensive blocks were eligible for the Mission 20 program because the program relied on existing SHG workers to serve as village-level recruiters. Our qualitative interviews and observations suggest that recruitment continued to be led by private training centers in non-intensive blocks following the implementation of the Mission 20 program. In intensive blocks, however, recruitment was done both through bureaucrats and private training centers.

The key identifying assumption of our difference-in-differences approach is that intensive and non-intensive blocks should have parallel trends in youth training and employment outcomes prior to the initiation of the Mission 20 program. While we test this assumption below, it is important to note that the designation of intensive blocks occurred eight years prior to the Mission 20 program, and selection was unrelated to youth labor market outcomes except through its focus on high-poverty regions. It is unlikely that additional characteristics that determined which blocks were designated as intensive would also determine youth's employment and training outcomes eight years later. Identification concerns would arise if high-poverty blocks were on different economic trajectories (that also impacted job opportunities and labor supply) than low-poverty blocks, and regression controls do not net out these differences. Critically, SHGs had not been used for any recruitment prior to the Mission 20 program. Analyzing village census data from 2011, Appendix Table A2.1 demonstrates that intensive and non-intensive blocks were remarkably similar in 2011. While the data highlight several statistically significant differences, such as in average household size and geographic area, differences are substantively quite small. In terms of variables that may be correlated with job and training outcomes, intensive blocks had more villages with paved roads, and men were slightly less likely to be employed in intensive areas. These differences, however, are

practically quite small. Finally, intensive blocks had more experience with youth training programs but were not more successful overall in terms of the proportion completing on-the-job training or placements. Most importantly, we demonstrate in the next section that DDU-GKY take-up trends are statistically indistinguishable in intensive and non-intensive blocks before the initiation of the Mission 20 program.

## 4.2 Data

Our primary data source is internal administrative tracking data collected by the state department in charge of DDU-GKY and Mission 20. We analyze data on youth enrollment and job outcomes for the universe of youth recruits in the years before and after Mission 20 roll-out. The data are at the trainee level, and our outcomes include whether the trainee completed classroom training, on-the-job training, and at least three months in a job after training. We also have demographic information about all trainees, including their home village, gender, age, caste category/social group, and the highest level of education attained. We additionally have information on training dates, trades studied, training centers joined, and employers in their first job.

## 4.3 Empirical Specification

Given the richness of the administrative data and the eligibility criteria for the Mission 20 program, we evaluate the impact of Mission 20 on youth training and employment using a difference-in-differences design. Our main specification is:

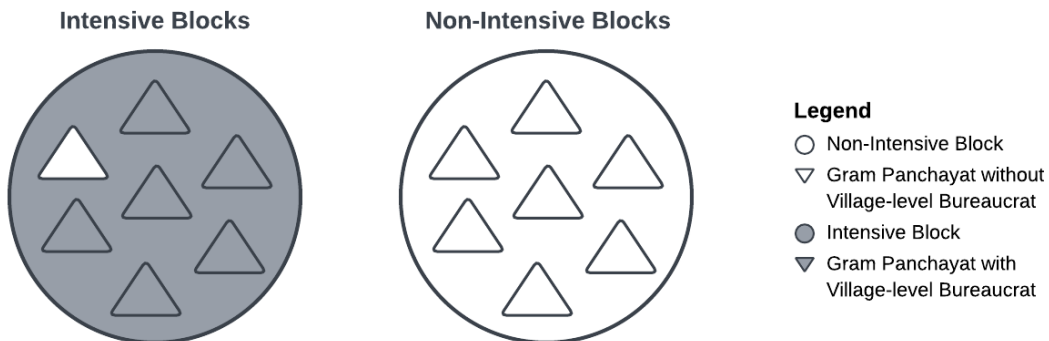
$$y_{bq} = \beta_1 \text{Intensive Block}_b \times \text{Post}_q + \beta_3 \text{Post}_q + \gamma_b + \delta'_b \mathbf{q} + \epsilon_b, \quad (1)$$

where  $y_{bq}$  is a vector of outcomes in block  $b$  and quarter  $q$ . Since training is generally three months long, we analyze data at the block-quarter level. We collapse the

administrative data to the quarter of the training start date so that observations are in reference to the time period in which youth enrolled in training. The analysis includes data for all blocks for four quarters pre- and post-Mission 20 roll-out. Our key estimand is  $\beta_1$ , the difference-in-differences coefficient. We include block fixed effects and a linear block trend to account for the fact that enrollments are likely related to previous youths' training experiences and are expected to vary over time within a given location. We cluster standard errors at the block level, the unit of treatment; results are robust to clustering at the district level. Our results are also robust to a synthetic difference-in-differences approach following [Arkhangelsky et al. \(2021\)](#) and to removing block time trends, though effect sizes attenuate (see Appendix A3).

Only 86% of GPs in intensive blocks developed the SHG infrastructure under the World Bank program necessary to be eligible for the Mission 20 program (see Figure 3 for a graphic depiction of block and GP level treatment assignment). In this specification, we consider all GPs within intensive blocks as treated, therefore estimating the intent-to-treat effect of Mission 20 at the GP level but the average treatment effect at the block level.

Figure 3: Treatment Assignment of Mission 20 Program at the Block-Level





We test our underlying assumption for causal identification, that of parallel trends, by comparing training outcomes across intensive and non-intensive blocks prior to Mission 20 roll-out. We investigate this assumption using the same empirical specification we use in our main analysis but only include quarters before the Mission 20 program roll-out. We interact the intensive block treatment indicator with an indicator for each quarter prior to Mission 20 roll-out while including quarter fixed effects. We include block-level time trends, as in our main specification, as we expect strong temporality in enrollment and placement outcomes (our results are robust to omitting the block time trend). The results, found in Table [A2.3](#), show that pre-Mission 20 trends in intensive blocks with respect to enrollment and placement outcomes were statistically identical to those in non-intensive blocks.

Table 1: Quarterwise Pre-Trends Analysis for All Odisha Impact of Local Recruitment Program

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(4) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * 3 qtrs pre.	2.851 (5.222)	2.791 (4.630)	-0.000 (0.061)	2.169 (3.674)	-0.050 (0.079)
Intensive Block * 2 qtrs pre.	4.505 (7.837)	3.778 (6.812)	-0.007 (0.091)	3.634 (5.680)	-0.075 (0.126)
Intensive Block * 1 qtr pre.	8.190 (10.669)	6.669 (9.357)	0.044 (0.126)	4.435 (7.634)	-0.047 (0.167)
4 qtrs pre	-9.816 (2.537)***	-10.532 (2.223)***	-0.111 (0.026)***	-5.118 (1.808)***	0.002 (0.036)
3 qtrs pre.	-12.324 (5.637)**	-12.790 (4.975)**	-0.079 (0.066)	-4.947 (4.046)	0.109 (0.087)
2 qtrs pre.	-18.962 (8.499)**	-19.355 (7.449)***	-0.114 (0.099)	-7.978 (6.091)	0.154 (0.133)
1 qtr pre.	-25.369 (11.367)**	-27.646 (9.944)***	-0.254 (0.131)*	-9.822 (8.164)	0.184 (0.176)
<i>N</i>	1575	1575	1543	1575	1543
<i>Female Youth</i>					
Intensive Block * 3 qtrs pre.	0.342 (3.482)	0.462 (3.067)	-0.011 (0.089)	0.040 (2.578)	-0.034 (0.098)
Intensive Block * 2 qtrs pre.	0.739 (5.141)	0.733 (4.415)	-0.033 (0.144)	0.616 (3.901)	-0.091 (0.163)
Intensive Block * 1 qtr pre.	0.730 (7.100)	0.392 (6.142)	-0.063 (0.190)	-0.549 (5.330)	-0.159 (0.215)
4 qtrs pre	-5.163 (1.738)***	-5.722 (1.512)***	-0.009 (0.042)	-2.536 (1.319)*	-0.009 (0.048)
3 qtrs pre.	-5.676 (3.741)	-6.926 (3.276)**	-0.036 (0.100)	-1.179 (2.858)	0.045 (0.113)
2 qtrs pre.	-10.666 (5.631)*	-11.797 (4.870)**	-0.085 (0.153)	-3.234 (4.241)	0.037 (0.172)
1 qtr pre.	-10.848 (7.582)	-13.721 (6.549)**	0.014 (0.202)	-1.410 (5.729)	0.215 (0.228)
<i>N</i>	1575	1575	1534	1575	1512
<i>Male Youth</i>					
Intensive Block * 3 qtrs pre.	2.514 (2.523)	2.329 (2.220)	0.011 (0.089)	2.139 (1.704)	0.035 (0.098)
Intensive Block * 2 qtrs pre.	3.771 (4.287)	3.041 (3.749)	0.033 (0.144)	3.028 (2.999)	0.091 (0.163)
Intensive Block * 1 qtr pre.	7.470 (5.800)	6.271 (5.032)	0.063 (0.190)	4.998 (3.864)	0.159 (0.215)
4 qtrs pre	-4.653 (1.307)***	-4.809 (1.130)***	0.009 (0.042)	-2.581 (0.860)***	0.009 (0.048)
3 qtrs pre.	-6.653 (3.000)**	-5.864 (2.618)**	0.035 (0.100)	-3.778 (2.007)*	-0.045 (0.113)
2 qtrs pre.	-8.301 (4.629)*	-7.553 (4.040)*	0.085 (0.153)	-4.754 (3.125)	-0.037 (0.172)
1 qtr pre.	-14.531 (6.100)**	-13.920 (5.285)***	-0.014 (0.202)	-8.426 (4.103)**	-0.215 (0.228)
<i>N</i>	1575	1575	1534	1575	1512

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. Block fixed effects and block trends are included. All outcomes are measured at the block-quarter level using ORMAS MIS data. Pre-quarters are the four quarters prior to the start of Mission 20.

## 4.4 The Impact of Mission 20

Table 2 reports the estimated impact of the Mission 20 program at the block level for a range of training and job placement outcomes for all youth (the top panel), female youth (the middle panel), and male youth (the bottom panel). Column 1 in the first panel shows that Mission 20 substantially increased training recruitment during the year following the program roll-out. While the count of trainees enrolled in these four quarters increased by an average of 13.6 candidates - a 43 percent increase over the pre-period control mean of approximately 18 candidates per quarter - intensive block area enrollment increased by an additional 12.8 candidates per quarter, effectively doubling the increase for the post period, and more than doubling the pre-period control mean.

Table 2: Impact of Mission20 on DDU-GKY Take-up and Job Placement

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(3) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * Post	12.813 (3.896)***	8.222 (3.190)**	0.048 (0.040)	6.276 (2.108)***	0.099 (0.044)**
Post	13.621 (1.608)***	4.846 (1.207)***	-0.094 (0.028)***	0.553 (0.859)	-0.169 (0.027)***
Control Mean	17.950	15.080	0.830	10.700	0.590
Control SD	16.170	14.190	0.190	10.550	0.230
<i>N</i>	2520	2520	2393	2520	2393
<b><i>Female Youth</i></b>					
Intensive Block * Post	9.511 (2.549)***	7.012 (1.955)***	0.063 (0.052)	5.278 (1.473)***	0.088 (0.060)
Post	6.815 (0.987)***	3.147 (0.746)***	-0.053 (0.032)	1.115 (0.616)*	-0.145 (0.035)***
Control Mean	8.770	7.370	0.830	5.600	0.640
Control SD	10.250	8.690	0.240	6.860	0.300
<i>N</i>	2520	2520	2215	2520	2215
<b><i>Male Youth</i></b>					
Intensive Block * Post	3.302 (2.060)	1.211 (1.986)	0.060 (0.048)	0.998 (1.024)	0.035 (0.055)
Post	6.804 (1.001)***	1.697 (0.789)**	-0.186 (0.033)***	-0.563 (0.447)	-0.199 (0.035)***
Control Mean	9.170	7.710	0.830	5.090	0.550
Control SD	8.720	7.960	0.220	5.720	0.280
<i>N</i>	2520	2520	2264	2520	2264

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. Block fixed effects and block trends are included. All outcomes are measured at the block-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation.

Enrollment increases are encouraging, but the aim of Mission 20 was to link youth to jobs. Columns 2 through 5 in the same panel show that Mission 20 similarly increased these outcomes: 8.2 additional candidates per quarter continued from classroom training to on-the-job training (OJT), and 6.3 additional youth proceeded to be placed in a job for three months or more. Importantly, the *proportion* of trainees that were successfully placed in jobs increased by 9.9 percentage points over the control mean of 59 percent. In non-Mission 20 areas, the proportion that continued to on-the-job-training (OJT) and jobs *declined* by 9.4 and 16.9 percentage points, large decreases that suggest the uptick in youth enrollment evidenced in column 1 was not focused on well-matched candidates. In

other words, Mission 20 intensive blocks not only increased the number of youth in jobs but also increased placement rates by 17 percent over the control mean (.43 standard deviation units).

The middle and bottom panels of Table 2 examine results separately for female and male trainees. The results highlight that the vast majority - more than 75% - of the increases from the Mission 20 program derive from increased *female* involvement. While the proportion of youth completing OJT and placed in jobs is not statistically significant for either gender, the counts for female enrollment, OJT completion, and placements are all statistically significant and practically large, doubling the pre-period control mean for women and amounting to 5 additional female placements for each quarter. In contrast, Mission 20 did not significantly increase male enrollments, OJT completion, or job placements.

Overall, Table 2 provides strong evidence in support of our hypothesis that bureaucrat-led recruitment via the Mission 20 program increases youth enrollment in vocational training and subsequent job placement and that this effect is particularly strong for young women. The impacts of Mission 20 are both statistically and substantively significant, and they are driven by improvements in women's outcomes, suggesting the program itself was quite successful at addressing young women's labor market inactivity.

We additionally consider whether the implementation of the Mission 20 program in only some blocks led to a crowding out of private training center recruitment in those blocks and, subsequently, a greater intensity of private training center recruitment in non-intensive blocks. Such interference would imply that control blocks also changed relative to the pre-Mission 20 period in response to changes in training center behavior. While this is plausible, our evidence and qualitative understanding of program roll-out do not support these concerns. First, we estimate the impact of the Mission 20 program for

only one year after program implementation. The DDU-GKY program has substantial requirements around training center infrastructure (the standard operating procedures are encoded in a manual over 500 pages long). It is difficult to relocate training centers in such a period of time. Second, training centers do not have incentives to relocate, given that they are still exclusively responsible for the provision of training. Having training centers near trainees' home villages improves enrollment, and so, the Mission 20 program acts largely to reduce the costs borne by training centers in recruitment. Finally, we empirically evaluate spillover effects and find no evidence in support of interference. Appendix Figure A2.1 shows that control blocks did not see an increase in enrollment in general or for women following Mission 20.

## **5 Unbundling Mission 20: The Role of Embeddedness, Information, and Legitimization**

The Mission 20 program is a bundle of different levels and forms of state involvement in the training recruitment process. We have hypothesized that positive effects may occur via at least three channels: an embeddedness channel, an information channel, and a legitimization channel. We leverage the close connection between the level of bureaucrat involvement and different mechanisms to disentangle our observed effects. Village-level recruiters are embedded within the communities they recruit from, but they lack more than basic information about program options and opportunities. Block-level recruiters have less information about local communities but have the capacity, largely through recruitment fairs, to centralize and diversify information about training and job opportunities. State involvement in any way has the potential to legitimize the DDU-GKY program in the eyes of parents and interested youth, though we expect block-level involvement to serve as a stronger legitimizing authority.

To what extent are the observed positive effects driven by the embeddedness of village-level bureaucrats? We address this question through a randomized experiment within intensive blocks of two districts, where we randomized the training and incentives provided to village-level bureaucrats. We find little evidence of an embeddedness effect (i.e., an effect driven by the training and deployment of village-level bureaucrats). We validate the robustness of this finding using a village-level difference-in-differences comparison, leveraging the fact that not all villages in intensive blocks had the SHG structures that enabled the deployment of village-level bureaucrats. We additionally evaluate the observational implications of an information effect and find support for the importance of the block bureaucracy’s role in centralizing and diversifying information. We are not, however, able to rule out a simultaneous state legitimization effect.

## 5.1 The Embeddedness Effect: An Experimental Evaluation

A central tenet of the Mission 20 program is the idea that village-level bureaucrats will have better information about potential youth from their more embedded relationships with communities, enabling improved recruitment targeting. To estimate the impact of the involvement of village-level bureaucrats on youth training and employment outcomes, separate from the impact of the involvement of block-level bureaucrats, we partnered with the state ministry responsible for the implementation to embed a randomized experiment into the Mission 20 program. As the Mission 20 program rolled out, our research team worked with government officials in all intensive blocks of two neighboring districts (Ganjam and Nayagarh)<sup>12</sup> to randomize at the GP-level the provision of training and

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<sup>12</sup>Ganjam and Nayagarh are two of Odisha’s most populous districts, making up just over 10% of the state’s population.

financial incentives to village-level bureaucrats.<sup>13</sup> We randomized all 253 rural Gram Panchayats (GPs) in intensive blocks into two treatment arms:

1. **Treatment (168 GPs):** In treatment GPs, village-level bureaucrats received the previously described one-day training at block offices on the DDU-GKY program. Our research team oversaw all of these trainings and ensured treatment compliance. In half of these treated GPs, village-level bureaucrats received an additional 2-hour training on migration prospects for trained youth, based on the experience of previously trained youth from Odisha. We pool treatment arms as we see no difference in outcomes, but we present the fully specified analysis in Appendix Table A4.4. Village-level bureaucrats were also provided a flyer that contained information on program eligibility, underscored its ties to the government, its emphasis on placement in formal sector jobs, and encouraged youth to attend a recruitment fair.<sup>14</sup> Finally, financial incentives were only paid out for this initial study year in treated GPs.<sup>15</sup>

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<sup>13</sup>In Appendix Table A4.2, we show that bureaucrats in the experimental sample were similar to those across the state.

<sup>14</sup>In the half of treated GPs that received additional training, the flyer also included information about potential wages and living costs in popular placement locations.

<sup>15</sup>The research team placed a research assistant in all block offices to oversee the disbursement of funds. Very limited trainee recruitment by control village bureaucrats was observed in control GPs, and in such instances, village-level bureaucrats in control GPs were informed they were not eligible for incentives until the second year of program implementation. While this may raise ethical concerns about the withholding of payment to some bureaucrats, we found that payments disbursed in non-experimental block offices (without research team support) were more than a year delayed. Our role in these blocks expedited payments in treated GPs rather than slowed them in control GPs.



2. **Control (85 GPs):** In control GPs, village-level bureaucrats did not receive training or information about DDU-GKY, and they did not receive financial incentives for trainee recruitment. Instead, trainees are assumed to be mostly recruited via training center recruiters. However, because control GPs are in intensive blocks, it is also possible that block-level bureaucrats leveraged their networks with other elites, such as local elected officials, to bring youth to recruitment fairs. Qualitative evidence suggests that this occurred in some instances but that information about the DDU-GKY program and financial incentives for recruitment was not given to local bureaucrats.

Randomization was stratified at the GP level on previous GP-level female enrollment in DDU-GKY<sup>16</sup> and whether the GP’s SHGs were formed after 2016 (i.e., after the end of the World Bank program). Within each stratum, we formed triplets of GPs by matching on population demographics (population size and gender/caste composition) and history with DDU-GKY (gender/caste numbers of recruits, numbers of training agencies, and the total number of youth trained and placed). Within each triplet, GPs were randomly assigned to each of the treatment arms (two to treatment, one to control). Appendix Table A4.3 confirms that randomization was balanced.

Using the same data and outcomes as in the statewide analysis, our primary specification is:

$$y_{gq} = \beta_1 \text{Treatment}_g \times \text{Post}_q + \beta_3 \text{Post}_q + \gamma_{GP} + \epsilon_{gp}, \quad (2)$$

where  $y_{gq}$  is a vector of outcomes in Gram Panchayat ( $g$ ) and quarter  $q$ .  $\text{Treatment}_g$  indicates GP-level treatment assignment and  $\text{Post}_q$  indicates quarters post-Mission 20

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<sup>16</sup>The three categories include (1) GPs where no women had ever enrolled in DDU-GKY, (2) GPs where only one woman had ever enrolled in DDU-GKY, and (3) GPs where more than one woman had ever enrolled in DDU-GKY.

roll-out. Our key estimand is  $\beta_1$ , which identifies the impact of the randomized treatment in intensive blocks. We include Gram Panchayat fixed effects to absorb unobserved heterogeneity at the locality level. Analogous to the block-level regressions, the sample includes observations for one-year pre and post-Mission 20 program roll-out. Standard errors are clustered at the GP level, the level of randomization. In the 168 treated GPs, 79% of village-level bureaucrats attended their assigned training, though all received financial incentives for recruitment.  $\beta_1$  is, therefore, akin to an intent-to-treat impact. Our results are robust to instrumenting treatment assignment with whether a village-level bureaucrat attended training (see Appendix Table A3.1).

Table 3 reports the impact of the randomized training and incentivization of village-level bureaucrats on enrollment and job placement outcomes. The results in all panels show that treatment did not improve training or placement outcomes for young men or women and may even have worsened these outcomes, though only the number of youth that completed on-the-job training is statistically significant at the 5% level across youth. Female results are particularly worse, where conditional job placement rates dropped substantially.

Table 3: Impact of Randomized Local Recruiters on DDU-GKY Take-up and Job Placement

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(3) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Treatment * Post	-0.303 (0.252)	-0.273 (0.140)*	-0.100 (0.070)	-0.170 (0.108)	-0.124 (0.089)
Post	0.656 (0.202)***	0.100 (0.107)	-0.292 (0.059)***	-0.050 (0.084)	-0.272 (0.079)***
Control Mean	0.760	0.520	0.780	0.360	0.550
Control SD	1.530	1.080	0.370	0.850	0.450
<i>N</i>	2024	2024	804	2024	804
<i>Female Youth</i>					
Treatment * Post	-0.165 (0.150)	-0.139 (0.099)	-0.091 (0.182)	-0.063 (0.075)	-0.295 (0.208)
Post	0.426 (0.130)***	0.191 (0.082)**	-0.180 (0.163)	0.056 (0.061)	-0.081 (0.188)
Control Mean	0.250	0.180	0.760	0.140	0.580
Control SD	0.760	0.620	0.420	0.530	0.460
<i>N</i>	2024	2024	395	2024	395
<i>Male Youth</i>					
Treatment * Post	-0.139 (0.175)	-0.134 (0.094)	-0.051 (0.100)	-0.107 (0.072)	-0.040 (0.123)
Post	0.229 (0.134)*	-0.091 (0.068)	-0.340 (0.084)***	-0.106 (0.054)**	-0.334 (0.109)***
Control Mean	0.510	0.340	0.750	0.220	0.510
Control SD	1.310	0.920	0.400	0.700	0.460
<i>N</i>	2024	2024	592	2024	592

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the GP level (unit of randomization). GP fixed effects are included. All outcomes are measured at the GP-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation.

To validate this, we leverage the fact that only 86% of GPs within intensive blocks across the state had village-level bureaucrats available to recruit for Mission 20. Using difference-in-differences, we compare GPs *within* intensive blocks that did and did not have village-level bureaucrats (akin to comparing the white triangle within the intensive blocks in Figure 3 with the grey triangles in the intensive blocks). Causal identification hinges on the parallel trends assumption, which requires that the GPs with village-level bureaucrats have parallel trends in training outcomes prior to program roll-out. We test this assumption in Appendix Table A2.3 and show general support for parallel trends.

Table 4 reports the impact of being in a GP with a village-level recruiter separate from the impact of being in an intensive block. The key variables of interest are whether a GP was located in an intensive block (Intensive Block) and whether a GP had a village-level bureaucrat to support recruitment, which was only possible for GPs in intensive blocks (GP with Village-level Bureaucrat). In other words, since all GPs with village-level bureaucrats were in intensive blocks, the total effect within GPs with village-level bureaucrats is the combination of the coefficients on Intensive Block  $\times$  Post and GP with Village-level Bureaucrat  $\times$  Post, and the coefficient on GP with Village-level Bureaucrat  $\times$  Post can be interpreted as the marginal effect of having village-level bureaucrats in intensive blocks.

Table 4: All Odisha Impact of Local Recruitment Program on Pipeline Outcomes

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(3) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * Post	0.420 (0.148)***	0.427 (0.110)***	0.081 (0.046)*	0.382 (0.075)***	0.121 (0.053)**
GP with Frontline Worker * Post	0.059 (0.100)	-0.181 (0.085)**	-0.023 (0.037)	-0.201 (0.063)***	-0.018 (0.040)
Post	0.640 (0.070)***	0.228 (0.053)***	-0.120 (0.025)***	0.026 (0.038)	-0.148 (0.026)***
Control Mean	0.840	0.710	0.840	0.500	0.600
Control SD	1.800	1.580	0.320	1.230	0.430
<i>N</i>	56032	56032	20239	56032	20239
<b><i>Female Youth</i></b>					
Intensive Block * Post	0.334 (0.103)***	0.305 (0.076)***	0.041 (0.073)	0.262 (0.057)***	0.115 (0.072)
GP with Frontline Worker * Post	0.038 (0.066)	-0.050 (0.053)	0.013 (0.059)	-0.079 (0.043)*	-0.041 (0.052)
Post	0.320 (0.043)***	0.148 (0.033)***	-0.043 (0.035)	0.052 (0.027)*	-0.094 (0.040)**
Control Mean	0.410	0.350	0.840	0.260	0.640
Control SD	1.220	1.070	0.330	0.870	0.440
<i>N</i>	56032	56032	12290	56032	12290
<b><i>Male Youth</i></b>					
Intensive Block * Post	0.086 (0.074)	0.122 (0.063)*	0.098 (0.066)	0.120 (0.035)***	0.118 (0.077)
GP with Frontline Worker * Post	0.022 (0.056)	-0.131 (0.048)***	-0.002 (0.051)	-0.121 (0.029)***	-0.009 (0.062)
Post	0.320 (0.043)***	0.080 (0.035)**	-0.175 (0.038)***	-0.026 (0.019)	-0.172 (0.035)***
Control Mean	0.430	0.360	0.840	0.240	0.560
Control SD	1.090	0.970	0.340	0.730	0.460
<i>N</i>	56032	56032	12928	56032	12928

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. GP fixed effects and block trends are included. All outcomes are measured at the GP-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation.

Table 4 replicates our earlier results that block-level bureaucrats increase enrollments and placements, particularly for women, while also replicating the experimental results that GPs with village-level bureaucrats perform no better than GPs in intensive blocks without village-level bureaucrats. In line with the RCT results, if anything, the presence of village-level bureaucrats *lowers* the number of trainees progressing through on-the-job training and being placed in jobs for at least three months. We additionally show

in Appendix Table A5.3 that village-level recruiters did not change the composition of trainees aside from a marginally higher likelihood of recruiting women from Scheduled Tribes.

Why could the largely female village-level bureaucrats not stimulate greater take-up of vocational training and jobs? To answer this question, we conducted 91 focus groups with village-level bureaucrats involved in Mission 20 recruitment and a short phone survey with 623 randomly selected village-level bureaucrats. The results from both data collection efforts suggested that many village-level bureaucrats did not have sufficient confidence about training and jobs nor sufficient status within their communities to persuade youth and their families to join training, undermining an “embeddedness” effect.

Many village-level bureaucrats reported that they found trainee recruitment challenging. In our phone survey, we found that only 48% of village-level bureaucrats reported successfully recruiting youth to training. The main reason reported for unsuccessful recruitment, at 60%, was that villagers were unwilling to *allow* youth to join. In other words, providing village-level bureaucrats with information about training and the returns to employment was insufficient in equipping them to convince households that they should send their children to join training. The challenge of convincing households was particularly acute when recruiting young women; household members were often reticent to permit young women to enter jobs and demanded stronger assurances of women’s protection while away at training and work, which village-level bureaucrats, themselves having never lived outside their community, were ill-equipped to provide.

The inability to convince family members to let youth join training may also stem from village-level recruiters’ relatively low social status. The vast majority of these village-level bureaucrats were young (average age of 34) women from historically marginalized caste groups. Ultimately, this suggests the potential limits to the capacity of em-

bedded bureaucrats to translate their informational power into improved outcomes when they are bound by restrictive norms and inhabit low-status positions in the communities they serve.

## 5.2 The Information Effect: Observable Implications

Mission 20 successfully doubled training and job placement rates for women across Odisha, yet we demonstrate through two identification strategies that this was not due to the involvement of village-level bureaucrats in direct recruitment. This suggests that the success of the program was likely driven by the involvement of block-level bureaucrats. What did block-level bureaucrats do that was so effective at recruiting young women to training and job opportunities? While we are unable to definitively answer this question, we examine several outcomes that point to the importance of an information effect, whereby block-level bureaucrats diversified the information available to young women, enabling them to select into training and employment in normatively acceptable trades. If women are constrained to a limited number of socially acceptable jobs and block-level bureaucrats provide a more diverse portfolio of trades/jobs for women to select from, then we should see women joining more training agencies but no change in the composition of trades that women select into. Table 5 evaluates this observable implication, using the same empirical approach found in regression specification 1, to explore the number of training agencies and trades trainees enrolled.

Table 5: All Odisha Impact of Mission 20 on Nature of Enrollment

<i>Female Youth</i>	(1) Number of Agencies	(2) Number of Trades	(3) Prop. in Same Gender- Dominated Trades	(4) Salary (Average)
Intensive Block * Post	0.995 (0.383)***	0.417 (0.293)	0.012 (0.057)	-443.823 (313.257)
Post	1.636 (0.190)***	1.134 (0.150)***	0.048 (0.035)	566.214 (183.303)***
Control Mean	2.710	2.440	0.560	9392.270
Control SD	2.120	1.760	0.360	1644.700
<i>N</i>	2520	2520	2215	2215
<i>Male Youth</i>				
Intensive Block * Post	1.039 (0.371)***	1.007 (0.361)***	-0.054 (0.056)	-178.971 (254.681)
Post	1.529 (0.186)***	1.373 (0.185)***	0.127 (0.035)***	534.669 (166.815)***
Control Mean	3.310	3.440	0.550	9899.080
Control SD	2.110	2.060	0.330	1497.820
<i>N</i>	2520	2520	2264	2264

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. Block fixed effects and block trends are included. All outcomes are measured at the block-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation.

Column 1 shows the Mission 20 program increased the number of training agencies joined by both women and men (around a 35% increase above the pre-Mission 20 control mean). However, Mission 20 only induced men to enroll in significantly more trades and did not significantly affect trade selection by women. This aligns with expectations if women are more restricted than men in their job choices. Column 3 suggests that we see no shift for either men or women away from traditionally gender-dominated trades (those for which more than two-thirds of trainees were of that gender prior to Mission 20). Rather than enrolling in new trades, women’s enrollment concentrated in female-dominated fields. Furthermore, column 4 demonstrates that average salaries for women were 5% lower in Mission 20 blocks relative to average salaries in control blocks before the introduction of Mission 20, though this result is noisy and statistically indistinguishable from zero. This may suggest that women were willing to accept lower compensation



to join trades deemed acceptable, even in the presence of more information. Ultimately, these results support an interpretation that block-level bureaucratic involvement in vocational training recruitment, likely through recruitment fairs, increased women’s and men’s information, which disproportionately increased women’s take-up given a smaller set of normatively acceptable job options.

### 5.3 The Legitimization Effect: Observable Implications

Given the presence of highly restrictive gender norms and constrained female mobility, an alternative mechanism underlying our main results may be the signal provided by the perception of state endorsement of the vocational training program. Parents may have been more likely to allow their daughters to join the program because they believed it to be more legitimate and trustworthy and felt they could hold the state accountable for safety and other concerns. If the legitimization effect were to explain our results, we would expect stronger impacts of Mission 20 in communities with less experience with vocational training and, therefore, more uncertain expectations over women’s experiences in such programs.

We evaluate this hypothesis by comparing the GP-level impact of Mission 20 on youth enrollment in the statewide sample based on training enrollment prior to the launch of Mission 20 (see Table 6). We observe Mission 20 is *not* more effective in areas without prior enrollment and is, in fact, *more* effective for male take-up in these areas. We see similar, though smaller, results in places with no prior female enrollment. Since our results suggest lack of prior experience with training is not associated with higher treatment effects on enrollment, the legitimacy channel is unlikely to explain our core results.

Table 6: Impact of Mission20 on DDU-GKY Take-up and Job Placement by Pre-Mission 20 Enrollment

	(1)		(2)	
	Count Male Youth Enrolled		Count Female Youth Enrolled	
Intensive Block * Post	0.054 (0.092)	0.084 (0.091)	0.364 (0.113)***	0.331 (0.117)***
Intensive Block * Post * No Pre-Mission 20 Male Enrollment	0.179 (0.060)***		-0.026 (0.056)	
Intensive Block * Post * No Pre-Mission 20 Female Enrollment		0.050 (0.048)		0.086 (0.058)
Post	0.320 (0.043)***	0.320 (0.043)***	0.320 (0.043)***	0.320 (0.043)***
Control Mean - No Pre-Mission 20 Enrollment	0.430	0.430	0.410	0.410
Control SD - No Pre-Mission 20 Enrollment	1.090	1.090	1.220	1.220
<i>N</i>	56032	56032	56032	56032

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. GP fixed effects and block trends are included. All outcomes are measured at the GP-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation. Indicators for any prior take-up are measured at the GP level and are equal to 1 if the GP had any male/female takeup prior to Mission 20.

## 6 Conclusion

Women’s low labor force participation in India presents one of the most important economic growth and equity challenges of the century and bears immense consequences for the global economy. Existing work has identified the role of restrictive gender norms in women’s economic exclusion, shaping both women’s options and opportunities. Rather than resolve information asymmetries and equalize access, markets often perpetuate identity-based inequalities. As a result, efficient growth often stands at odds with inclusive growth.

In this paper, we show that bureaucracies can effectively intervene in markets to promote inclusive labor market access and equalize opportunity. We argue that, unlike market institutions, state institutions have the incentives and opportunities to reduce identity-based market frictions and can do so by enabling greater representativeness and embeddedness of market-linkage agents (bureaucrats), centralizing information, and le-

gitimizing market institutions. We directly compare state-led versus market-led recruitment of women into the labor force by studying the recruitment of youth into one of India's largest vocational training programs and leveraging an innovation introduced by the state of Odisha that took recruitment into vocational training out of the exclusive domain of privately-contracted training agencies and into the purview of already-posted bureaucrats. We show that state-led recruitment doubled women's enrollment in vocational training and their subsequent placement in work but had no impact on men's training take-up and labor market outcomes, highlighting the unique capacity of the state to reduce identity-based market frictions.

Why did state-led recruitment improve market access for women? We leverage the two-tiered nature of bureaucrat involvement in training recruitment to parse out whether the equity-enhancing role of the state was driven by the greater embeddedness of village-level bureaucrats in their communities or by the more centralized provision of diverse information by higher-level block bureaucrats. Contrary to the literature and our own expectations, we find, using both a randomized experiment and difference-in-differences comparison, that the involvement of village-level bureaucrats in training recruitment had no effect on young women's (or men's) outcomes. Qualitative and survey evidence suggest that it is precisely because of village-level bureaucrats' embeddedness that they cannot successfully persuade youth to join training as the bureaucrats lack social influence and are bound by the restrictive norms that constrain women in the first place. Instead, we provide support in line with the observable implications of an information centralization effect of the state: while bureaucratic involvement in recruitment increased women's enrollment overall and the number of training centers they enrolled in, it had no impact on their selection into trades. We suggest that this supports the argument that women are constrained in their labor market choices to take jobs deemed socially acceptable. The state is able to solve the market frictions that result from

normative constraints linked to information access by expanding women’s opportunities and enabling them to select into socially acceptable positions.

Taken together, our findings highlight the crucial role that the state can play in improving equity without loss of efficiency. Contrary to programs that found it difficult for private sector employers to increase family support for women’s work (Dean and Jayachandran 2019), or women’s retention in jobs (McKelway 2020), the state may play an important role in shaping support for women’s economic activities (Field et al. 2021). Most promisingly, active labor market programs *can* successfully close gender gaps that emerge early in careers, even in the face of steep normative constraints to young women’s economic engagement. Our findings also contribute to the growing literature on the role of the bureaucracy in service delivery and make progress on the hard problem of identifying the causal effects of bureaucracies (Pepinsky, Pierskalla and Sacks 2017). Finally, we nuance arguments about the efficacy of embedded bureaucrats, highlighting the limits to their capacities to implement state policies and showing that normative environments can constrain the beneficial impacts of greater descriptive representation and embeddedness among street-level bureaucrats (Hassan and O’Mealia 2020).

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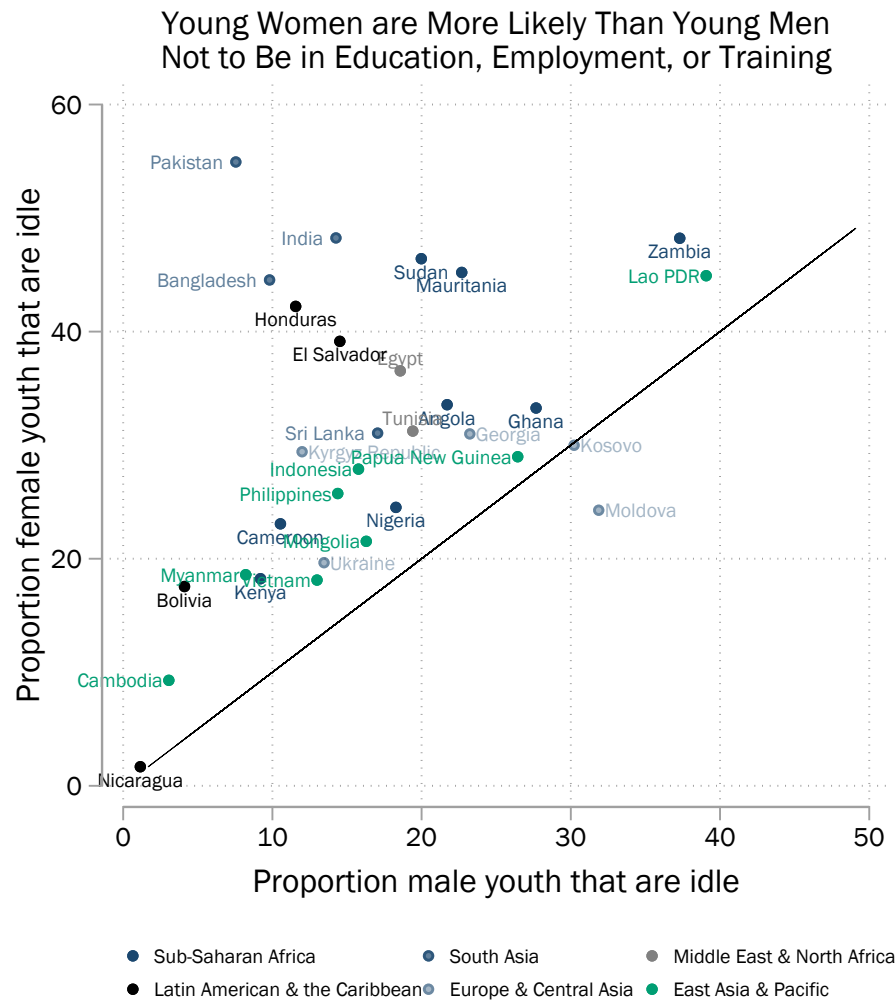
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## Online Appendix:

# Bureaucracy and Inclusion: State-led recruitment and women's employment in India

A1	Women's Labor Supply and Demand . . . . .	2
A2	Validating Assumptions in Statewide Analysis . . . . .	7
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A6	Ethical Considerations . . . . .	22

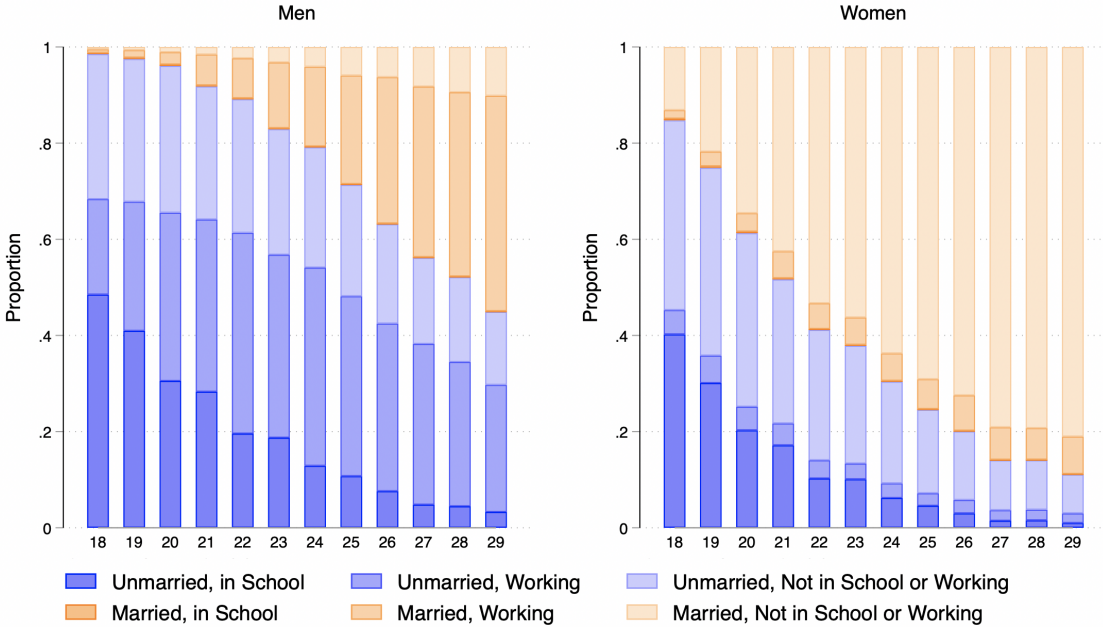
# A1 Women's Labor Supply and Demand



Source: World Development Indicators, most recent year with data available over 2010 - 2020. Excludes small island nations.

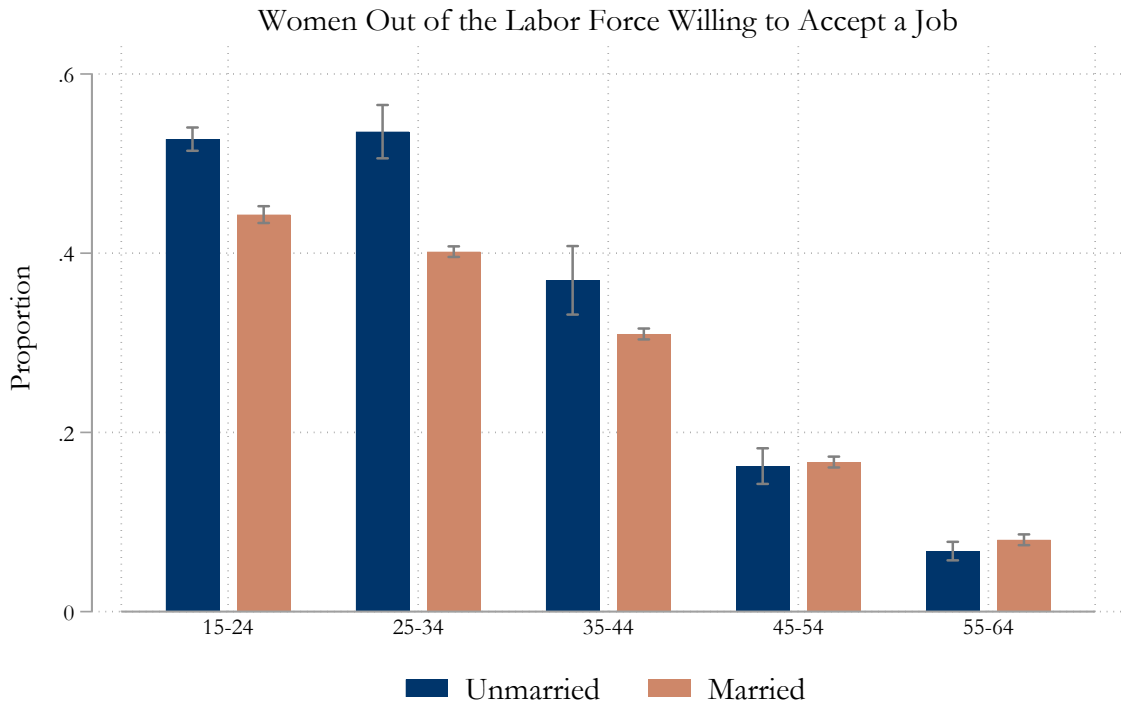
Figure A1.1: “Idle” Youth Around the World

Figure A1.2: A large share of unmarried young men and women are neither in school nor working



Source: SECC

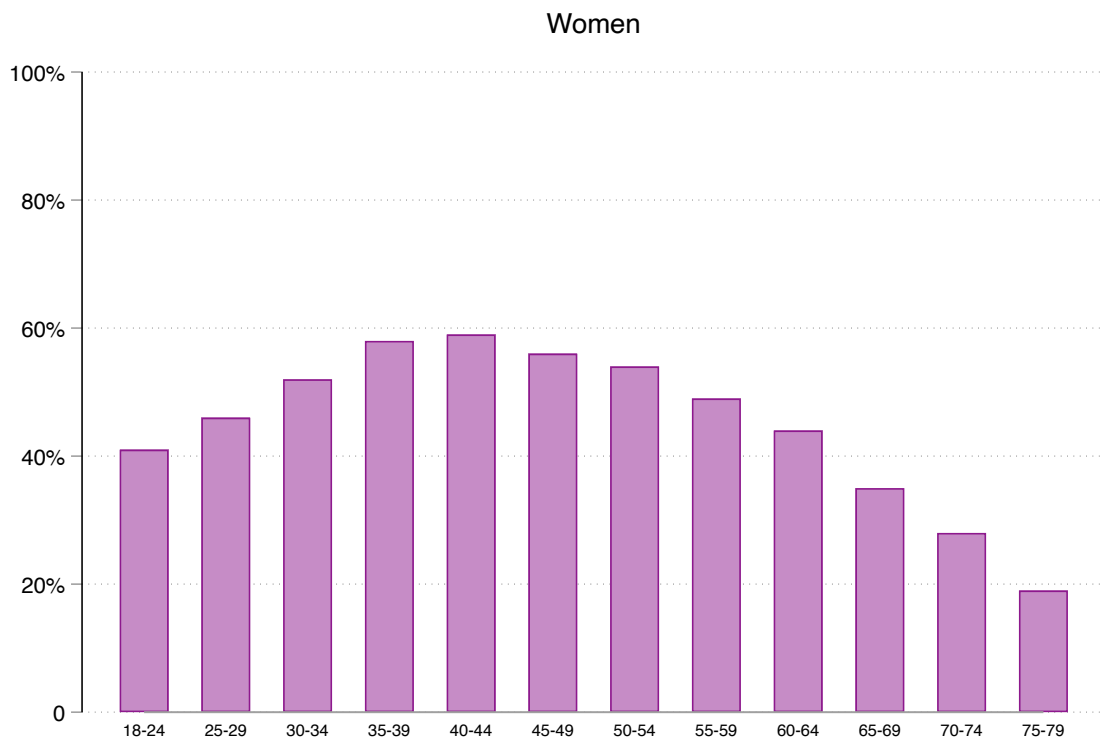
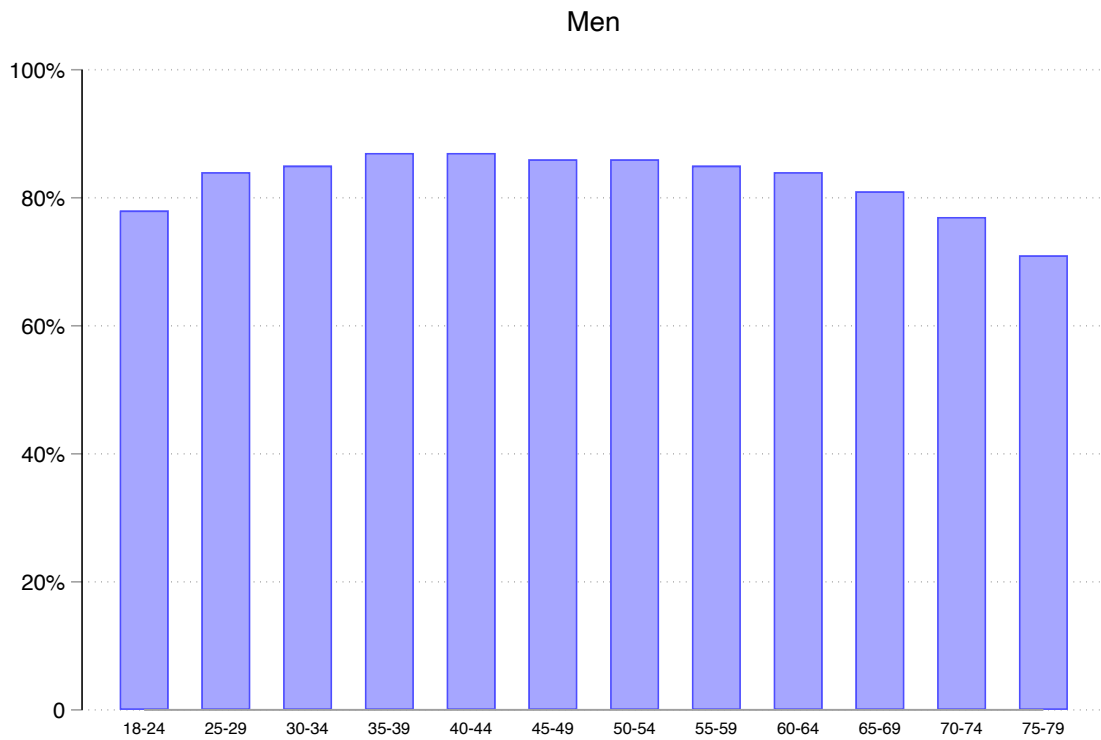
Figure A1.3: Yet young, out of labor force women are willing to take a job if made available



Source: NSS 2011-12 data for women between the ages of 15 and 70 not currently attending an educational institution. n = 92,459.



Figure A1.4: Employment is particularly low for young women





## A2 Validating Assumptions in Statewide Analysis

Table A2.1: Intensive and Non-intensive Block Balance

Variable	(1)		(2)		T-test
	Non-intensive blocks N	Mean/SE	Intensive blocks N	Mean/SE	Difference (1)-(2)
Ln Total Population	207	11.510 (0.027)	107	11.584 (0.040)	-0.074
Average Household Size	207	4.276 (0.020)	107	4.378 (0.030)	-0.102
Population Sex Ratio	207	1.008 (0.003)	107	1.001 (0.004)	0.007
Proportion Population SC	207	0.168 (0.005)	107	0.169 (0.007)	-0.002
Proportion Population ST	207	0.307 (0.018)	107	0.330 (0.028)	-0.023
Proportion Male Population Literate	207	0.341 (0.004)	107	0.330 (0.006)	0.011
Proportion Female Population Literate	207	0.256 (0.005)	107	0.245 (0.007)	0.011
Proportion Male Population Employed	207	0.286 (0.001)	107	0.280 (0.002)	0.006
Proportion Female Population Employed	207	0.161 (0.005)	107	0.170 (0.008)	-0.009
Number Secondary Schools	207	6.261 (0.468)	107	5.252 (0.426)	1.009
Proportion Villages with Black-topped Roads	207	0.638 (0.013)	107	0.561 (0.022)	0.077
Ln Geographic Area (in Hectares)	207	10.309 (0.032)	107	10.518 (0.041)	-0.210
Count Enrolled	208	71.784 (3.415)	107	97.346 (6.675)	-25.562
Count Completed OJT	208	60.313 (3.002)	107	82.383 (6.025)	-22.071
Prop. Completed OJT	207	0.828 (0.008)	107	0.833 (0.011)	-0.004
Count Placed	208	42.793 (2.230)	107	59.290 (4.597)	-16.496
Prop. Placed	207	0.588 (0.010)	107	0.593 (0.014)	-0.004

*Notes:* Column [1] reports non-intensive block means. Column [2] reports intensive block means. Block fixed effects included. Training data from one year prior to Mission 20 roll-out. The value displayed for t-tests are the differences in the means across the groups. Standard errors are robust. The covariate variable `i.location_nid` is included in all estimation regressions. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent critical level.

Table A2.2: Quarterwise Pre-Trends Analysis for All Odisha Impact of Local Recruitment Program (No Time Trend)

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(4) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * 3 qtrs pre.	0.365 (3.017)	0.293 (2.697)	-0.030 (0.025)	-0.441 (2.152)	-0.044 (0.037)
Intensive Block * 2 qtrs pre.	0.776 (2.618)	0.030 (2.325)	-0.051 (0.029)*	-0.281 (1.713)	-0.068 (0.040)*
Intensive Block * 1 qtr pre.	3.218 (3.068)	1.671 (2.667)	-0.017 (0.034)	-0.786 (1.894)	-0.045 (0.041)
4 qtrs pre	-4.337 (1.229)***	-4.274 (1.081)***	-0.051 (0.018)***	-3.115 (0.920)***	-0.054 (0.024)**
3 qtrs pre.	-1.365 (1.558)	-0.274 (1.348)	0.041 (0.017)**	-0.942 (0.982)	0.001 (0.023)
2 qtrs pre.	-2.524 (1.274)**	-0.582 (1.136)	0.064 (0.018)***	-1.971 (0.830)**	-0.006 (0.025)
1 qtr pre.	-3.452 (1.217)***	-2.615 (1.057)**	-0.016 (0.021)	-1.813 (0.852)**	-0.030 (0.025)
<i>N</i>	1575	1575	1543	1575	1543
<i>Female Youth</i>					
Intensive Block * 3 qtrs pre.	0.762 (2.093)	0.468 (1.827)	0.025 (0.045)	0.005 (1.476)	0.027 (0.050)
Intensive Block * 2 qtrs pre.	1.369 (1.810)	0.742 (1.558)	0.019 (0.041)	0.562 (1.256)	0.005 (0.045)
Intensive Block * 1 qtr pre.	1.570 (1.956)	0.405 (1.655)	0.008 (0.041)	-0.620 (1.320)	-0.021 (0.046)
4 qtrs pre	-2.659 (0.733)***	-2.442 (0.627)***	-0.003 (0.027)	-2.197 (0.548)***	-0.038 (0.029)
3 qtrs pre.	-0.668 (1.053)	-0.365 (0.865)	-0.027 (0.026)	-0.500 (0.643)	-0.029 (0.027)
2 qtrs pre.	-3.154 (0.830)***	-1.957 (0.735)***	-0.071 (0.022)***	-2.216 (0.580)***	-0.074 (0.026)***
1 qtr pre.	-0.832 (0.880)	-0.601 (0.775)	0.033 (0.027)	-0.053 (0.640)	0.067 (0.030)**
<i>N</i>	1575	1575	1534	1575	1512
<i>Male Youth</i>					
Intensive Block * 3 qtrs pre.	-0.401 (1.638)	-0.175 (1.491)	-0.024 (0.045)	-0.446 (1.145)	-0.026 (0.050)
Intensive Block * 2 qtrs pre.	-0.602 (1.606)	-0.716 (1.471)	-0.019 (0.041)	-0.848 (1.006)	-0.005 (0.045)
Intensive Block * 1 qtr pre.	1.639 (1.945)	1.262 (1.753)	-0.008 (0.041)	-0.170 (1.010)	0.021 (0.046)
4 qtrs pre	-1.673 (0.736)**	-1.832 (0.640)***	0.003 (0.027)	-0.913 (0.529)*	0.038 (0.029)
3 qtrs pre.	-0.692 (0.778)	0.091 (0.710)	0.027 (0.026)	-0.442 (0.521)	0.029 (0.027)
2 qtrs pre.	0.639 (0.794)	1.380 (0.729)*	0.071 (0.022)***	0.250 (0.507)	0.074 (0.026)***
1 qtr pre.	-2.611 (0.620)***	-2.010 (0.532)***	-0.033 (0.027)	-1.755 (0.431)***	-0.067 (0.030)**
<i>N</i>	1575	1575	1534	1575	1512

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. Block fixed effects are included. All outcomes are measured at the block-quarter level using ORMAS MIS data. Pre-quarters are the four quarters prior to the start of Mission 20.

Figure A2.1: Control blocks do not see an increase in enrollment after Mission 20

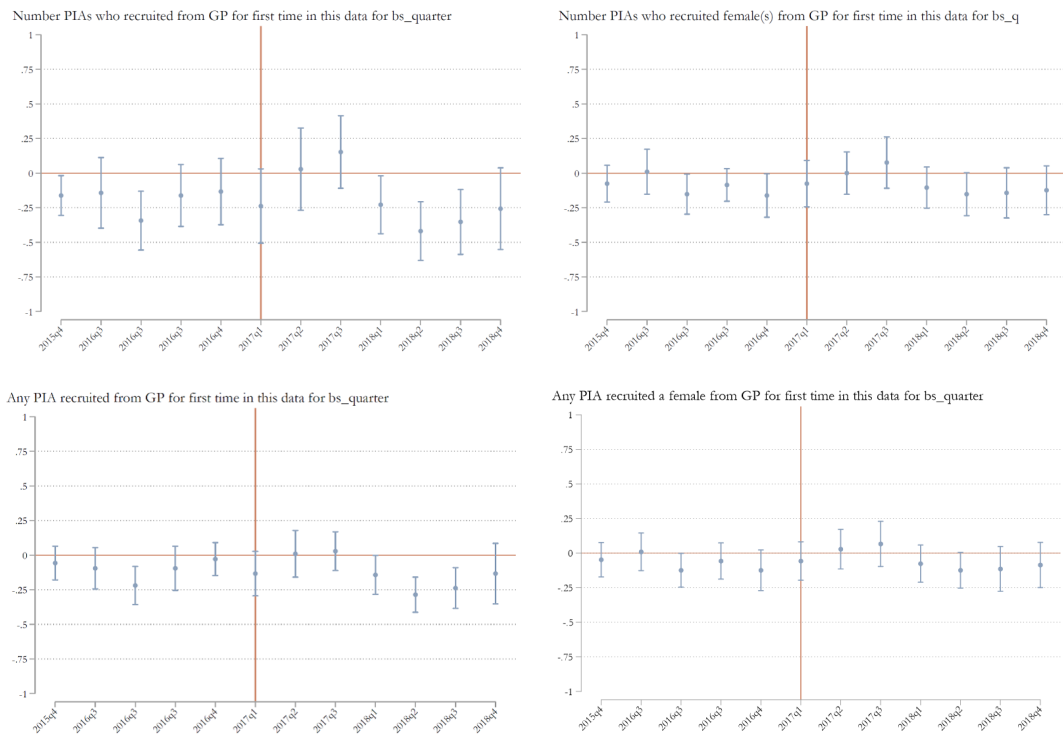


Table A2.3: Quarterwise Pre-Trends Analysis for All Odisha Impact of Local Recruitment Program at the GP-Level

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(4) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * 1 qtr pre.	0.191 (0.263)	0.086 (0.227)	0.093 (0.196)	0.060 (0.201)	0.018 (0.235)
Intensive Block * 2 qtrs pre.	0.114 (0.196)	0.029 (0.169)	0.099 (0.142)	0.065 (0.146)	0.083 (0.176)
Intensive Block * 3 qtrs pre.	0.031 (0.126)	-0.009 (0.107)	0.043 (0.090)	-0.015 (0.093)	0.007 (0.113)
GP with SHG Cadre Member * 1 qtr pre-Mission 20	-0.101 (0.132)	-0.110 (0.111)	-0.028 (0.068)	-0.171 (0.091)*	-0.010 (0.082)
GP with SHG Cadre Member * 2 qtrs pre-Mission 20	-0.138 (0.125)	-0.120 (0.110)	-0.058 (0.058)	-0.134 (0.089)	-0.047 (0.075)
GP with SHG Cadre Member * 3 qtrs pre-Mission 20	-0.032 (0.120)	-0.017 (0.107)	-0.017 (0.055)	-0.015 (0.087)	-0.009 (0.072)
GP with SHG Cadre Member * 4 qtrs pre-Mission 20	-0.054 (0.105)	-0.072 (0.093)	0.010 (0.056)	-0.069 (0.079)	0.002 (0.068)
1 qtr pre.	-1.351 (0.660)**	-1.514 (0.703)**	-0.280 (0.262)	-0.258 (0.538)	0.091 (0.328)
2 qtrs pre.	-1.010 (0.494)**	-1.070 (0.527)**	-0.158 (0.196)	-0.222 (0.403)	0.063 (0.246)
3 qtrs pre.	-0.658 (0.329)**	-0.708 (0.351)**	-0.098 (0.130)	-0.131 (0.268)	0.057 (0.164)
4 qtrs pre	-0.501 (0.161)***	-0.549 (0.173)***	-0.105 (0.063)*	-0.190 (0.132)	-0.001 (0.079)
<i>N</i>	35020	35020	12998	35020	12998

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the GP level. GP fixed effects and block trends are included. All outcomes are measured at the block-quarter level using ORMAS MIS data. Pre-quarters are the four quarters prior to the start of Mission 20.

## A3 Robustness of Statewide Analysis

Table A3.1: Impact of Mission20 on DDU-GKY Take-up and Job Placement: IV Results

<i>All Youth</i>	Count Enrolled (1)	Count Completed OJT (2)	Prop. Completed OJT (3)	Count Placed (4)	Prop. Placed (5)
$\beta_1$ : Training + Info * Post (Instrumented)	-0.457 (0.358)	-0.411 (0.202)**	-0.167 (0.086)*	-0.257 (0.155)	-0.196 (0.104)*
Control Mean (Pre-Intervention)	0.760	0.520	0.780	0.360	0.550
Control SD (Pre-Intervention)	1.530	1.080	0.370	0.850	0.450
<i>N</i>	2024	2024	779	2024	779
<i>Female Youth</i>					
$\beta_1$ : Training + Info * Post (Instrumented)	-0.248 (0.212)	-0.210 (0.141)	-0.326 (0.174)*	-0.095 (0.107)	-0.505 (0.225)**
Control Mean (Pre-Intervention)	0.250	0.180	0.720	0.140	0.550
Control SD (Pre-Intervention)	0.760	0.620	0.390	0.530	0.430
<i>N</i>	2024	2024	324	2024	324
<i>Male Youth</i>					
$\beta_1$ : Training + Info * Post (Instrumented)	-0.209 (0.248)	-0.201 (0.134)	-0.103 (0.095)	-0.161 (0.103)	-0.070 (0.128)
Control Mean (Pre-Intervention)	0.510	0.340	0.770	0.220	0.530
Control SD (Pre-Intervention)	1.310	0.920	0.370	0.700	0.440
<i>N</i>	2024	2024	547	2024	547

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. GP fixed effects are included. Standard errors are clustered at the GP, the unit of randomization. Post is an indicator the period is after program initiation. All outcomes are measured at the GP-quarter level using ORMAS MIS data. Coefficient is the second stage from two-stage least squared estimated, with the proportion of potential GP-level training recruiters instrumented by GP-level treatment status. Randomization round one areas only. Four quarters pre and post-rollout included.

Table A3.2: Impact of Mission20 on DDU-GKY Take-up and Job Placement - Synthetic Difference-in-Differences

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(4) Count Placed
Intensive Block X Post	3.374 (1.728)*	0.445 (1.414)	0.095 (0.980)
Control Mean	17.950	15.080	10.700
Control SD	16.170	14.190	10.550
<i>N</i>	2520	2520	2520
<i>Female Youth</i>			
Intensive Block X Post	2.158 (1.032)**	1.002 (0.863)	0.095 (0.620)
Control Mean	8.770	7.370	5.600
Control SD	10.250	8.690	6.860
<i>N</i>	2520	2520	2520
<i>Male Youth</i>			
Intensive Block X Post	1.053 (1.086)	-0.988 (0.995)	-0.490 (0.502)
Control Mean	9.170	7.710	5.090
Control SD	8.720	7.960	5.720
<i>N</i>	2520	2520	2520

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Block fixed effects (district clustered standard errors) are reported. Post is an indicator the period is after program initiation. All outcomes are measured at the block-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-rollout.



Table A3.3: Impact of Mission20 on DDU-GKY Take-up and Job Placement (No Time Trend)

<i>All Youth</i>	(1) Count Enrolled	(2) Count Completed OJT	(3) Prop. Completed OJT	(4) Count Placed	(5) Prop. Placed
Intensive Block * Post	3.957 (2.254)*	0.595 (1.567)	0.010 (0.023)	-0.006 (1.217)	-0.006 (0.020)
Post	0.962 (0.883)	-4.431 (0.663)***	-0.300 (0.013)***	-5.160 (0.519)***	-0.301 (0.013)***
Control Mean	17.950	15.080	0.830	10.700	0.590
Control SD	16.170	14.190	0.190	10.550	0.230
N	2520	2520	2393	2520	2393
<i>Female Youth</i>					
Intensive Block * Post	2.216 (1.178)*	0.940 (0.928)	-0.000 (0.026)	0.270 (0.755)	-0.006 (0.029)
Post	1.212 (0.497)**	-1.244 (0.401)***	-0.262 (0.017)***	-1.894 (0.328)***	-0.282 (0.018)***
Control Mean	8.770	7.370	0.830	5.600	0.640
Control SD	10.250	8.690	0.240	6.860	0.300
N	2520	2520	2215	2520	2215
<i>Male Youth</i>					
Intensive Block * Post	1.735 (1.423)	-0.349 (0.871)	-0.010 (0.028)	-0.278 (0.592)	-0.016 (0.025)
Post	-0.249 (0.551)	-3.186 (0.379)***	-0.306 (0.017)***	-3.264 (0.276)***	-0.324 (0.016)***
Control Mean	9.170	7.710	0.830	5.090	0.550
Control SD	8.720	7.960	0.220	5.720	0.280
N	2520	2520	2264	2520	2264

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Standard errors are clustered at the block level. Block fixed effects are included. All outcomes are measured at the block-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. Post is an indicator the period is after program initiation.



# A4 Validating Assumptions in Randomized Experiment

Table A4.1: Balance Across RCT and non-RCT Blocks

Variable	(1)		(2)		T-test Difference (1)-(2)
	Non-RCT blocks N	Mean/SE	RCT blocks N	Mean/SE	
Ln Total Population	95	11.568 (0.044)	13	11.707 (0.057)	-0.139
Average Household Size	95	4.359 (0.032)	13	4.546 (0.069)	-0.187
Population Sex Ratio	95	0.998 (0.004)	13	1.020 (0.011)	-0.022
Proportion Population SC	95	0.166 (0.008)	13	0.190 (0.013)	-0.023
Proportion Population ST	95	0.365 (0.029)	13	0.050 (0.020)	0.315
Proportion Male Population Literate	95	0.328 (0.007)	13	0.351 (0.008)	-0.024
Proportion Female Population Literate	95	0.244 (0.008)	13	0.252 (0.009)	-0.007
Proportion Male Population Employed	95	0.279 (0.002)	13	0.283 (0.003)	-0.004
Proportion Female Population Employed	95	0.173 (0.008)	13	0.149 (0.014)	0.024
Number Secondary Schools	95	5.189 (0.468)	13	5.923 (0.820)	-0.734
Proportion Villages with Black-topped Roads	95	0.561 (0.024)	13	0.589 (0.059)	-0.028
Count Enrolled	95	98.653 (7.292)	13	84.154 (13.935)	14.499
Count Completed OJT	95	84.505 (6.661)	13	63.308 (8.950)	21.198
Prop. Completed OJT	95	0.839 (0.011)	13	0.774 (0.033)	0.066
Count Placed	95	60.779 (5.092)	13	45.538 (6.641)	15.240
Prop. Placed	95	0.596 (0.014)	13	0.555 (0.044)	0.042

Notes: Column [1] reports non-intensive block means. Column [2] reports intensive block means. Block fixed effects included. Training data from one year prior to Mission 20 roll-out. The value displayed for t-tests are the differences in the means across the groups. Standard errors are robust. The covariate variable `i.location_nid` is included in all estimation regressions. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent critical level.

Table A4.2: Frontline Worker Characteristics by RCT Study Locations

Variable	(1) Non-RCT blocks		(2) RCT study blocks		T-test Difference (1)-(2)
	N	Mean/SE	N	Mean/SE	
Female	11971	0.910 (0.003)	1355	0.956 (0.006)	-0.046***
Married	11971	0.871 (0.003)	1355	0.877 (0.009)	-0.006
Average age (2016)	11968	33.728 (0.071)	1355	31.841 (0.204)	1.886***
8th education or lower	11971	0.071 (0.002)	1355	0.119 (0.009)	-0.048***
9th/10th education	11971	0.542 (0.005)	1355	0.587 (0.013)	-0.044***
11th/12th education	11971	0.221 (0.004)	1355	0.170 (0.010)	0.052***
Higher education	11971	0.165 (0.003)	1355	0.125 (0.009)	0.040***
Other Backward Caste	11971	0.517 (0.005)	1355	0.683 (0.013)	-0.166***
Scheduled Caste	11971	0.180 (0.004)	1355	0.100 (0.008)	0.080***
Scheduled Tribe	11971	0.142 (0.003)	1355	0.040 (0.005)	0.102***
SHG Member	11971	0.627 (0.004)	1355	0.645 (0.013)	-0.018
Village Organization Member	11971	0.382 (0.004)	1355	0.675 (0.013)	-0.293***
GP Organization Member	11971	0.516 (0.005)	1355	0.788 (0.011)	-0.272***
Master Trainer	11971	0.049 (0.002)	1355	0.117 (0.009)	-0.068***
Year joined SHG	7506	2008.805 (0.044)	874	2009.648 (0.129)	-0.843***
Years of experience	11971	2.511 (0.017)	1355	2.258 (0.047)	0.254***

Notes: Column [1] reports means for all state cadre workers. Column [2] reports means for RCT study blocks in Ganjam and Nayagarh districts. The value displayed for t-tests are the differences in the means across the groups. Standard errors are robust. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent critical level.

Table A4.3: Randomization Balance: GP-Level Outcomes

Variable	(1)	(2)	(3)	T-test			F-test
	Control Mean/SE	Training Only Mean/SE	Training + Migration Info. Mean/SE	Difference			for joint orthogonality
				(1)-(2)	(1)-(3)	(2)-(3)	
Ln Population	8.264 (0.147)	8.261 (0.150)	8.226 (0.178)	0.002	0.038	0.036	0.027
Average Household Size	4.377 (0.086)	4.404 (0.065)	4.350 (0.084)	-0.028	0.027	0.054	0.127
Population Sex Ratio	0.941 (0.021)	0.953 (0.018)	0.917 (0.024)	-0.011	0.024	0.036	0.699
Proportion Population SC	0.196 (0.018)	0.163 (0.011)	0.161 (0.011)	0.033*	0.035*	0.002	1.804
Proportion Population ST	0.049 (0.014)	0.051 (0.013)	0.064 (0.017)	-0.002	-0.015	-0.012	0.229
Proportion Population Literate	0.610 (0.014)	0.607 (0.014)	0.606 (0.016)	0.003	0.005	0.001	0.069
Proportion Population Employed	0.083 (0.008)	0.076 (0.007)	0.078 (0.008)	0.007	0.005	-0.002	0.176
Number Secondary Schools	1.376 (0.145)	1.476 (0.122)	1.500 (0.156)	-0.100	-0.124	-0.024	0.282
Number Black-topped Roads	4.494 (0.354)	4.440 (0.354)	3.940 (0.273)	0.054	0.554	0.500	1.153
Ln GP Area	6.624 (0.149)	6.663 (0.141)	6.627 (0.157)	-0.038	-0.002	0.036	0.075
Trainees enrolled (count)	3.059 (0.325)	3.905 (0.524)	4.262 (0.567)	-0.846	-1.203*	-0.357	2.111
Proportion Completed Batch	0.791 (0.044)	0.777 (0.045)	0.817 (0.042)	0.014	-0.026	-0.040	0.117
Proportion Completed Training	0.605 (0.047)	0.624 (0.047)	0.676 (0.044)	-0.018	-0.071	-0.053	0.601
Proportion Placed	0.421 (0.046)	0.438 (0.043)	0.515 (0.041)	-0.017	-0.094	-0.077	1.221
N	85	84	84				

All data refers to data for one year prior to Mission20 roll-out at the Gram Panchayat (GP) level. Column [1] reports control group sample sizes followed by means, with standard deviations in parentheses. Columns [2] and [3] report each of the treatment group sample sizes, means, and standard deviations. Randomization strata dummies included in regressions; standard errors are robust. Variables with missing values set to 0.

Table A4.4: Impact of Local Recruitment Program on Pipeline Outcomes

<i>All Youth</i>	Count Enrolled (1)	Count Completed OJT (2)	Prop. Completed OJT (3)	Count Placed (4)	Prop. Placed (5)
$\beta_1$ : Training Only*Post	-0.564 (0.244)**	-0.386 (0.155)**	-0.105 (0.070)	-0.179 (0.111)	-0.099 (0.084)
$\beta_2$ : Training + Migration Info.*Post	-0.043 (0.299)	-0.160 (0.156)	-0.096 (0.065)	-0.161 (0.128)	-0.145 (0.080)*
Post	0.656 (0.189)***	0.100 (0.100)	-0.292 (0.049)***	-0.050 (0.079)	-0.272 (0.066)***
$\beta_1 = \beta_2$ (p-value)	0.062*	0.180	0.890	0.889	0.502
$\beta_1 + \beta_2 = 0$ (p-value)	0.197	0.038**	0.090*	0.094*	0.102
Control Mean (Pre-Intervention)	0.760	0.520	0.780	0.360	0.550
Control SD (Pre-Intervention)	1.530	1.080	0.370	0.850	0.450
<i>N</i>	2024	2024	779	2024	779
<i>Female Outcomes</i>					
$\beta_1$ : Training Only*Post	-0.230 (0.153)	-0.197 (0.102)*	-0.307 (0.131)**	-0.080 (0.075)	-0.381 (0.149)**
$\beta_2$ : Training + Migration Info.*Post	-0.099 (0.161)	-0.081 (0.108)	-0.172 (0.123)	-0.047 (0.087)	-0.316 (0.143)**
Post	0.426 (0.121)***	0.191 (0.077)**	-0.114 (0.106)	0.056 (0.057)	-0.047 (0.125)
$\beta_1 = \beta_2$ (p-value)	0.352	0.253	0.176	0.691	0.541
$\beta_1 + \beta_2 = 0$ (p-value)	0.241	0.132	0.043**	0.367	0.012**
Control Mean (Pre-Intervention)	0.250	0.180	0.720	0.140	0.550
Control SD (Pre-Intervention)	0.760	0.620	0.390	0.530	0.430
<i>N</i>	2024	2024	324	2024	324
<i>Male Outcomes</i>					
$\beta_1$ : Training Only*Post	-0.334 (0.159)**	-0.189 (0.107)*	-0.043 (0.088)	-0.099 (0.076)	0.024 (0.106)
$\beta_2$ : Training + Migration Info.*Post	0.056 (0.222)	-0.078 (0.106)	-0.030 (0.076)	-0.114 (0.086)	-0.063 (0.105)
Post	0.229 (0.126)*	-0.091 (0.064)	-0.339 (0.058)***	-0.106 (0.050)**	-0.328 (0.086)***
$\beta_1 = \beta_2$ (p-value)	0.061*	0.363	0.877	0.869	0.304
$\beta_1 + \beta_2 = 0$ (p-value)	0.395	0.129	0.612	0.114	0.841
Control Mean (Pre-Intervention)	0.510	0.340	0.770	0.220	0.530
Control SD (Pre-Intervention)	1.310	0.920	0.370	0.700	0.440
<i>N</i>	2024	2024	547	2024	547

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. are included. Standard errors are clustered at the GP, the unit of randomization. Post is an indicator the period is after program initiation. All outcomes are measured at the GP-quarter level using ORMAS MIS data. Randomization round one areas only. Four quarters pre and post-rollout included.

## A5 Assessing Mechanisms

Table A5.1: Frontline Worker Characteristics (All Odisha)

	Mean	St Dev.	Obs.
Female	0.915	0.279	13,326
Married	0.872	0.334	13,326
Average age (2016)	33.536	7.779	13,323
8th education or lower	0.076	0.265	13,326
9th/10th education	0.547	0.498	13,326
11th/12th education	0.216	0.412	13,326
Higher education	0.161	0.367	13,326
Other Backward Caste	0.534	0.499	13,326
Scheduled Caste	0.172	0.377	13,326
Scheduled Tribe	0.131	0.338	13,326
SHG Member	0.629	0.483	13,326
Village Organization Member	0.411	0.492	13,326
GP Organization Member	0.544	0.498	13,326
Master Trainer	0.056	0.229	13,326
Year joined SHG	2008.893	3.814	8,380
Years of experience	2.486	1.828	13,326

**Note:** Data source: Publicly available data on frontline worker characteristics as of 2017.

Table A5.2: All Odisha Impact of Local Recruitment Program on Pipeline Outcomes

Proportion of Trainees (Conditional on any Take-up)								
	Social Group			Education			Age	
	(1) Scheduled Caste	(2) Scheduled Tribe	(3) Other Backward Castes	(4) Below 10th	(5) 10th Pass and Above	(6) 12th Pass and Above	(7) <20 Yrs	(8) ≥ 20 Yrs
Intensive Block * Post	0.019 (0.020)	-0.030 (0.023)	0.030 (0.016)*	0.003 (0.020)	0.006 (0.021)	-0.001 (0.015)	0.022 (0.024)	-0.007 (0.024)
Post	0.003 (0.013)	0.015 (0.016)	-0.006 (0.010)	0.000 (0.012)	0.010 (0.014)	-0.004 (0.012)	-0.011 (0.016)	-0.050 (0.016)***
Control Mean	0.250	0.320	0.180	0.150	0.560	0.110	0.440	0.560
Control SD	0.140	0.260	0.110	0.100	0.120	0.100	0.110	0.110
<i>N</i>	628	628	628	628	628	628	628	628
Proportion of Female Trainees (Conditional on any Female Take-up)								
Intensive Block * Post	0.004 (0.030)	-0.011 (0.038)	0.020 (0.023)	0.009 (0.033)	-0.014 (0.030)	-0.020 (0.018)	0.006 (0.034)	0.028 (0.039)
Post	-0.020 (0.027)	-0.020 (0.030)	0.019 (0.020)	0.002 (0.031)	0.027 (0.021)	0.025 (0.012)**	-0.050 (0.025)*	-0.036 (0.028)
Control Mean	0.290	0.380	0.170	0.200	0.500	0.080	0.500	0.500
Control SD	0.200	0.300	0.150	0.170	0.160	0.110	0.160	0.160
<i>N</i>	623	623	623	623	623	623	623	623
Proportion of Male Trainees (Conditional on any Male Take-up)								
Intensive Block * Post	0.044 (0.026)*	-0.028 (0.032)	0.020 (0.020)	-0.006 (0.028)	0.018 (0.031)	-0.002 (0.027)	0.039 (0.031)	-0.034 (0.024)
Post	0.010 (0.019)	0.033 (0.023)	-0.011 (0.017)	0.000 (0.020)	-0.002 (0.025)	-0.012 (0.030)	0.013 (0.032)	-0.058 (0.027)**
Control Mean	0.230	0.280	0.180	0.100	0.600	0.140	0.390	0.610
Control SD	0.150	0.260	0.130	0.090	0.150	0.130	0.150	0.150
<i>N</i>	628	628	628	628	628	628	628	628

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. Block fixed effects (block clustered standard errors) are reported. Post is an indicator the period is after program initiation. All outcomes are measured at the block-year level using ORMAS MIS data and control for one year pre-rollout and one year post-roll-out.



Table A5.3: All Odisha Impact of Local Recruitment Program on Pipeline Outcomes

	Proportion of Trainees (Conditional on any Take-up)							
	Social Group			Education			Age	
	(1) Scheduled Caste	(2) Scheduled Tribe	(3) Other Backward Castes	(4) Below 10th	(5) 10th Pass and Above	(6) 12th Pass and Above	(7) < 20 Yrs	(8) ≥ 20 Yrs
Intensive Block X Post	0.019 (0.035)	-0.035 (0.039)	0.013 (0.030)	0.009 (0.029)	-0.037 (0.038)	-0.039 (0.033)	0.029 (0.039)	-0.044 (0.041)
GP with Village-level Bureaucrat X Post	0.025 (0.030)	0.026 (0.032)	-0.017 (0.023)	0.027 (0.026)	-0.017 (0.029)	-0.014 (0.028)	0.000 (0.037)	-0.003 (0.037)
Post	-0.052 (0.020)***	0.005 (0.017)	0.040 (0.017)**	0.007 (0.015)	-0.029 (0.021)	-0.056 (0.018)***	0.049 (0.021)**	0.116 (0.022)***
Control Mean	0.260	0.270	0.190	0.130	0.560	0.130	0.420	0.580
Control SD	0.380	0.400	0.340	0.290	0.420	0.300	0.420	0.420
<i>N</i>	20239	20239	20239	20239	20239	20239	20239	20239
	Proportion of Female Trainees (Conditional on any Female Take-up)							
Intensive Block X Post	0.025 (0.056)	-0.081 (0.050)	0.066 (0.052)	0.013 (0.051)	-0.095 (0.061)	-0.027 (0.044)	0.017 (0.062)	-0.015 (0.060)
GP with Village-level Bureaucrat X Post	0.002 (0.046)	0.072 (0.043)*	-0.059 (0.043)	0.028 (0.048)	0.014 (0.050)	-0.016 (0.034)	0.001 (0.053)	-0.009 (0.053)
Post	-0.036 (0.031)	0.020 (0.027)	0.020 (0.025)	0.009 (0.024)	-0.066 (0.035)*	-0.068 (0.025)***	0.044 (0.036)	0.122 (0.036)***
Control Mean	0.290	0.330	0.190	0.180	0.510	0.090	0.480	0.520
Control SD	0.420	0.440	0.350	0.340	0.440	0.270	0.430	0.430
<i>N</i>	12290	12290	12290	12290	12290	12290	12290	12290
	Proportion of Male Trainees (Conditional on any Male Take-up)							
Intensive Block X Post	0.031 (0.059)	0.024 (0.062)	-0.085 (0.052)	-0.020 (0.049)	0.023 (0.058)	-0.024 (0.051)	0.033 (0.060)	-0.060 (0.063)
GP with Village-level Bureaucrat X Post	0.046 (0.051)	-0.025 (0.053)	0.039 (0.043)	0.020 (0.039)	-0.022 (0.049)	-0.018 (0.047)	0.009 (0.050)	-0.002 (0.050)
Post	-0.050 (0.031)	-0.024 (0.026)	0.071 (0.030)**	0.024 (0.023)	-0.004 (0.033)	-0.049 (0.029)*	0.037 (0.034)	0.090 (0.035)***
Control Mean	0.230	0.230	0.190	0.100	0.610	0.150	0.380	0.620
Control SD	0.390	0.390	0.350	0.280	0.440	0.330	0.440	0.440
<i>N</i>	12928	12928	12928	12928	12928	12928	12928	12928

**Note:** \*\*\*, \*\*, \* indicates significance at the 1%, 5%, and 10% level respectively. GP fixed effects (block clustered standard errors) are reported. Post is an indicator the period is after program initiation. All outcomes are measured at the block-quarter level using ORMAS MIS data and control for one year (four quarters) pre-rollout and one year (four quarters) post-roll-out. We additionally control for block trends.

## A6 Ethical Considerations

The research and experiment were approved by Institutional Review Boards in the U.S. and in India. The study was deemed to have no more than minimal risks.

For the experiment, consent was obtained from all village-level bureaucrat recruiters immediately on their arrival for recruiter training. A member of the research team provided each recruiter with a consent form which they read, acknowledged, and signed in their native language. Participants were also given the ability ask questions of the research team. The consent script read:

Hello. I work for [XXXX], a research institute based in India, and [XXXX] University in the USA. They are not related to any NGO or government organization.

We are conducting a research study about youth's skilling opportunities aimed to improve training and placement outcomes for youth. We would like to interview/include you as part of the study.

Your participation in this activity/interview is completely voluntary and you have the option to opt out. There are no reasonably foreseeable risks to participating in this activity/interview. However, you may refuse to participate or discontinue participation at any time, with no penalty or loss of benefits to which you are otherwise entitled.

Your details and responses will be stored securely in the offices of [XXXX] and with researchers based at [XXXX] and affiliated institutions, and will never be shared with anyone else.

We realize your time is valuable, and we and ORMAS and would be very grateful if you chose to participate in this activity/interview.

Do you have any questions about our discussion and the study?

Do you agree to participate in the study?

Similar consent language was used when conducting interviews with local recruiters.

Recruiters (and the youth they recruited) were not provided with additional compensation for their participation in the research. They were paid financial incentives as per the program's rules and by the Odisha state government. Recruiters in control localities were informed that they would not be compensated during this period and were not asked to recruit. Since our research team worked directly with the local government responsible for delivering these incentives, we ensured that all financial payments were paid on time. Our analysis of compensation in non-study districts suggests that typically, payments were delayed more than 12 months, suggesting that our study sped up incentives for treatment locality recruiters, as opposed to slowing down incentives for control locality recruiters.

As our outcomes are measured using administrative data provided by the state of Odisha, we did not directly engage youth or trainees as part of the study. We followed best practices and IRB-approved protocols for data storage.