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The Effects of Childcare on Women and Children

EVIDENCE FROM A RANDOMIZED EVALUATION IN BURKINA FASO

Kehinde F. Ajayi · Aziz Dao · Estelle Koussoubé

ABSTRACT

We study whether providing affordable childcare improves women's economic empowerment and child development, using data from a sample of 1,990 women participating in a public works program in Burkina Faso. Out of 36 urban work sites, 18 were randomly selected to receive community-based childcare centers. One in four women offered the centers use them, tripling childcare center usage for children aged 0 to 6. Women's employment and financial outcomes improve. Additionally, child development scores increase. However, we find no significant effects on women's decision-making autonomy, gender attitudes, or intrahousehold dynamics, suggesting the importance of considering multiple dimensions of childcare impacts.

KEYWORDS
gender, labor, welfare, childcare, early childhood development

JEL CODES
J16, J13, I38, O15

WORKING PAPER 628 · NOVEMBER 2022

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Kehinde F. Ajayi, Aziz Dao, and Estelle Koussoubé. 2022. "The Effects of Childcare on Women and Children: Evidence from a Randomized Evaluation in Burkina Faso." CGD Working Paper 628. Washington, DC: Center for Global Development. https://www.cgdev.org/publication/effects-childcare-women-and-children-evidence- randomized-evaluation-burkina-faso

This paper is a product of the World Bank Africa Gender Innovation Lab, Office of the Chief Economist, Africa Region. We thank David Evans, Markus Goldstein, Rachael Pierotti, Christophe Rockmore, colleagues from the Africa Gender Innovation Lab, and seminar participants from the Center for Global Development and the Center for the Study of African Economies 2022 Conference for thoughtful comments. We are grateful to Rebekka Grun, Gilberte Kedote, Florence Kantiono, Roland Berehoudougou, Marie Bernadette Kabre, L'Institut de Formation et de Spécialisation des Personnels de la Petite Enfance (IFSPPE), and the PTR-HIMO team for their collaboration on this project. This work was funded by the Early Learning Partnership and the Umbrella Facility for Gender Equality multi-donor trust funds. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and do not necessarily represent the views of the World Bank, its Executive Directors, or the governments of the countries they represent. This study was registered on the AEA RCT Registry (AEARCTR-0006811). The Institutional Review Boards at the Health Media Lab, Washington DC and Comité d'Ethique Institutionnel pour la Recherche en Sciences de la Santé (CEIRES), Burkina Faso approved this project.

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1 Introduction

Across the world, women are more likely than men to be children's primary caregivers and there is increasing awareness that these childcare responsibilities limit women's economic opportunities (World Bank, 2012; Delecourt and Fitzpatrick, 2021). At the same time, there is broad consensus that investing in early childhood development has the potential to reduce poverty and improve key socio-economic life outcomes (e.g,. Garces, Thomas and Currie, 2002; Gertler et al., 2014; Heckman and Karapakula, 2019; Devercelli and Beaton-Day, 2020). Experts also agree that children need a nurturing environment to thrive (World Health Organization, United Nations Children's Fund and World Bank Group, 2018). Policymakers and researchers have often considered the objectives of supporting women's employment and enhancing child development in isolation, instead of fully recognizing their interdependence. In principle, providing affordable childcare could address both of these issues by increasing women's economic empowerment and stimulating early childhood development. Yet, there are potential trade-offs that emerge. Childcare is often delivered without an explicit focus on early childhood education (ECE), thus positive impacts on child development are not guaranteed. In contrast, ECE interventions are often prohibitively expensive or time-intensive for caregivers and may therefore impede women's ability to pursue economic activities (Mateo Diaz and Rodriguez-Chamussy, 2016). Understanding how to simultaneously achieve these two objectives remains an understudied issue.

This paper analyzes a community-based model of integrating childcare centers into an urban public works program designed to support youth employment in Burkina Faso. We evaluate the impacts of this accessible childcare provision on women's employment and other empowerment outcomes as well as on child development. We use a randomized control trial to estimate the causal effects of childcare, analyzing data from a sample of 1,990 women participating in the six-month long public works program and their eligible children. The program's implementation team identified 36 urban public works sites with the potential to host a childcare center. We then randomly selected 18 sites to receive the community-based childcare centers and the remaining 18 sites had no additional childcare provision. With this sample size, the study is powered to detect reasonable effect sizes (Section 3 provides detailed discussion). We conducted a baseline survey in the early stages of childcare implementation and a follow up survey 14 months later. The

public works project focused on enrolling participants from economically and socially disadvantaged backgrounds, so the childcare intervention could potentially promote equitable childcare access by benefiting disadvantaged children and their families.

We find that 25% of eligible women take up the opportunity to use the childcare centers. This translates to tripling the use of any childcare centers for children aged 0 to 6 over our evaluation period. These effects are persistent and extend beyond use during the public works program, with higher rates of childcare usage over the past 24 hours during the follow up survey 14 months later, which suggests that initial exposure to the childcare centers generates lasting demand. For women, we find improved employment outcomes, which are most robust for women with children aged 0 to 2 and concentrated in increases in salaried work. Additionally, we find positive effects on self-reported psychological well-being (although, this result is less robust to attrition correction) and financial resilience and savings. However, we find no significant changes in women's participation in decision-making, their gender attitudes, nor the intrahousehold division of childcare and household tasks. For children, we find improved development scores, driven by improvements in gross and fine motor skills. We do not find any improvements, nor deterioration, in children's language skills. Our estimates likely constitute a lower bound for the effects of providing access to childcare centers, as the COVID-19 pandemic reduced households' exposure to the intervention.[1]

Our work makes three contributions to the existing literature. First, we present rigorous evidence on the effects of a community-based childcare model in a developing economy. Although substantial evidence demonstrates that childcare responsibilities limit women's earnings, how to deliver accessible care for young children while ensuring that they receive sufficient stimulation remains an open question. We estimate the impacts of an innovative model of providing affordable access to childcare by trained providers.[2] Several studies have found null or negative impacts of

[1] In addition to disrupting operation of the childcare centers, the pandemic also reduced employment opportunities. Analyses from the first round of a nationally representative High Frequency Phone Survey (HFPS) of households conducted in June 2020 by the Burkina Faso National Institute of Statistics and Demography with technical and financial assistance of the World Bank found that around 10% of respondents who used to work before the COVID-19 outbreak were not working at the time of the survey, and that the COVID-19 related economic slowdown has translated in a reduction of income for most employees, non-farm business owners as well as farmers (Nkengne et al., 2020).

[2] Similar mobile childcare interventions exist in other countries, notably the Mobile Creches NGO in India has been operating mobile childcare centers alongside construction sites in urban areas for the past 50 years, but the best existing quantitative evidence on effects of access to these facilities comes from a comparison of children who attended childcare centers for less than a month to those who attended for a full six months, in the same public works site (Creches, 2012). Without an explicitly-designed comparison group, it is difficult to know whether differences in observed outcomes truly reflect the causal effects of access to childcare centers or partly result from preexisting

center-based care on children's development outcomes in other developing economies (for example, Rosero and Oosterbeek (2011) in Ecuador; Bernal et al. (2019) in Colombia; and Blimpo et al. (Forthcoming) in Gambia). Other studies find significant positive effects (Martinez, Naudeau and Pereira (2017) in Mozambique; Hojman and López Bóo (2019) in Nicaragua; Dean and Jayachandran (2020) in India; Attanasio et al. (2022) in Brazil; and Bjorvatn et al. (2022) in Uganda). The range in effects largely depends on the quality of available alternatives and researchers generally find more positive effects for children from underprivileged households.

Second, we simultaneously evaluate impacts on women's empowerment. Although still thin, there is a growing literature documenting the impacts of childcare access on women's employment outcomes in low and middle-income countries (Du and Dong (2013) in China, Martínez A. and Perticará (2017) in Chile, Martinez, Naudeau and Pereira (2017) in Mozambique, Hojman and López Bóo (2019) in Nicaragua, Clark et al. (2019) in Kenya, Halim, Johnson and Perova (forthcoming) in Indonesia, Attanasio et al. (2022) in Brazil, and Bjorvatn et al. (2022) in Uganda).[3] Nevertheless, there is limited evidence of the effects of childcare interventions on women's autonomy and psychological well-being, and only few studies examine both child development and women empowerment outcomes at the same time (Evans, Jakiela and Knauer, 2021). In related work, Clark et al. (2019) evaluate the effects of subsidized childcare in Kenya. They similarly find significant positive effects on women's employment but no change in women's participation in household decisions, except for increased involvement in decisions on children's healthcare. We build on their study by further extending our focus to include child-level outcomes. To the best of our knowledge, this paper is the first to simultaneously evaluate impacts on women's employment, broader empowerment, and children's development. The paper also reports the impacts of childcare provision on the time use of other caregivers, expanding the understanding of the effects of childcare provision in low income countries. This is important as it addresses a key question for policymakers, namely can childcare provision benefit both children and other caregivers, women specifically. In this paper, we demonstrate the multidimensional effects of this community-based childcare model and highlight the limitations of childcare provision in enhancing women's decision-making agency and transforming intrahousehold gender dynamics.

differences in the types of families who took up the opportunity to use these services versus those that did not.

[3]Earlier studies have found mixed effects of public preschool and kindergarten on women's employment in the United States, including Gelbach (2002); Cascio (2009); Fitzpatrick (2010, 2012).

Finally, our setting allows us to separately examine two channels through which childcare provision can impact women's empowerment – i) directly, by training and employing women to provide childcare services; and ii) indirectly, by relaxing labor constraints for women who are able to use the centers to care for their children at a subsidized cost while they pursue economic opportunities elsewhere. Existing work typically focuses on effects through this second channel without incorporating impacts through the first channel. We find in our context that both mechanisms appear to be relevant. Employment effects are strongest for women who work in the childcare centers. However, significant positive results remain when we exclude these women from our analysis sample. Our analysis therefore indicates the importance of accounting for both direct and indirect employment effects when considering the potential impacts of an intervention to provide childcare.

2 Context and Intervention

2.1 Childcare Context

Burkina Faso has three types of early childhood development centers: (i) public preschools; (ii) private facilities mostly concentrated in urban areas; and (iii) community-based facilities funded by the community with technical support from the government and/or development partners (World Bank, 2014). Early childhood education centers for children 0 to 3 years old are rare and concentrated in large urban areas, where they are delivered by private actors. Preschool facilities for children 3 to 5 years old also remain mostly concentrated in urban areas and delivered by private actors. In 2020, 71% of preschool facilities were private facilities. Community-based facilities represented around 17% of these facilities, and public facilities around 12%. Enrollment in preschool facilities for children 3 to 5 years, although still low, has seen a large increase since 2012. In 2020, 5.6% of children 3 to 5 years of age were enrolled in preschool facilities compared to 3.5% of children in this age range in 2012 (Ministère de l'Education Nationale, 2020).

Since 2007, Burkina Faso has adopted a strategy for integrated early childhood development across the Education, Health, Nutrition, Social Protection, Child Protection, Water, Sanitation and Hygiene sectors, followed in 2012 by a national program of development of basic education, including preschool education, and a national parental education program in 2013. Although these regulations and frameworks have allowed some coordination of activities and service delivery across

sectors, a lot remains to be done especially in terms of funding mobilisation. For instance, in 2013, only 0.6% of public expenditures was allocated for preschool education (Ministères en charge de l'éducation et de la Formation, 2017).

2.2 Youth Employment Context

In 2018, an estimated 37% of young women and 22% of young men aged 16 to 35 in Burkina Faso were not in school or employed outside the home (authors' calculations using the Harmonized Survey on Households Living Standard 2018/19 data). Additionally, 33% of young women and 38% of young men who were working were still living in poverty as defined by earning less than USD 1.90 a day (International Labour Organization, 2020). Against this backdrop, the government of Burkina Faso through its Youth Employment and Skills Project (PEJDC) recruited 10,255 young women (85%) and men (15%) in 49 communes to implement labor-intensive public works ("PTR-HIMO", in French) in all regions of the country from mid-July 2019. The eligibility conditions were: i) being a Burkina Faso citizen; ii) out of school or never enrolled in school; iii) not a former beneficiary of the project; and iv) aged 16 to 35. PTR-HIMO participants were selected through a call for applications for the public work scheme in each commune by the government. The public work included the construction of bridges and rural roads, the maintenance of urban roads and administrative spaces, and reforestation. The number of desired workers in each site varied depending on the size of the site and the type of work, with a minimum requirement of 30% women at each site. Sites were defined as a *commune* (municipality) for smaller urban centers or an *arrondissement* (neighborhood) in the two largest cities, Ouagadougou and Bobo-Dioulasso. Two rounds of selection procedures were followed: i) registration of interested applicants; and ii) participation in a public lottery – all applicants drew a piece of paper from a box containing papers with either yes or no, where drawing yes implied being selected to participate to the program and no implied not being selected.

Selected participants ("brigadiers") for the project began their public works assignment in July 2019. They worked from 8am to 2pm Monday to Saturday and received 37,000 FCFA a month (approximately 63 USD at the time of the study, roughly the minimum wage in Burkina Faso), for six months of project participation between July 2019 to February 2020, including a one month

break in August.[4]

2.3 Childcare Intervention

The childcare intervention was designed to address the constraint that childcare responsibilities impose on women's time. Prior to the intervention, female public works participants typically organized themselves by identifying some among them to look after their children while the others were conducting the public works. The PEJDC project team developed the "mobile creches" as an innovative childcare intervention to formalize childcare responsibilities by establishing a quality source of childcare that would allow women to focus on productive activities. This development process involved close collaboration with the Ministry of National Education and the Ministry of Women. The intervention was introduced as a pilot in Manga, one of the communes of a preceding World Bank-financed public works project.

The mobile creches childcare intervention was integrated in the public works component of the PEJDC to follow participants as they move from work site to work site. The intervention includes: (i) availability during PTR-HIMO working hours of full coverage tents or existing safe spaces that offer an environment designed specifically for children aged 0 to 6 years, with added protection from the sun, dust, inclement weather and potential accidents; (ii) two nutritious meals per day;[5] (iii) low-cost toys and learning materials; and (iv) information for parents on childcare and nutrition based on contents from Burkina's national program of parental education. The maximum capacity for each childcare center was 50 children. Satellite creches were also introduced close to the public works site to allow breastfeeding infants to remain close to their mothers.

Each childcare center was operated by 7 to 10 public works participants who received a 3-day training to become "brigadieres assistantes maternelles" (BAMs) and would then attend to children in the centers. Interested participants at each public works site were asked to volunteer. Volunteers were screened based on a set of selection criteria, after which 10 volunteers from each site were selected to receive a 3-day training before starting to operate the childcare centers. BAMs received the same compensation as other brigadiers and worked the same schedule of hours but at the childcare centers instead of working in the labor-intensive public works assigned to their peers.

[4]The average exchange rate in 2019 was around 1 US dollar for 586 West African CFA franc (XOF).

[5]At least one care provider per creche was trained to cook balanced meals relying mainly on locally grown and seasonal foods, based on the established meal calendar.

BAMs continued to receive the same 37,000 FCFA monthly wage for each month they worked at the childcare centers after the public works ended. Centers were supported by supervision visits from government education and social workers. Parents were asked to provide a nominal contribution of approximately USD 6 per month for snacks, although this was on a voluntary basis and payment was not enforced.

During the public works, the childcare centers officially operated during the same hours as the public works, i.e., 8am to 2pm. In practice, the centers were open as early as 6am to welcome the children.

2.4 Theoretical Framework

In the remainder of this section, we briefly outline the theory of change underlying the potential effects of childcare on our key outcomes of interest: women's employment, women's decision-making autonomy and gender attitudes, and child development.

Effects of childcare on women's employment. Childcare centers could potentially affect women's employment through two main channels. First, by directly creating employment for women who are hired as childcare center attendants. Second, by relaxing labor constraints for women who are not directly employed by the centers but are able to use the centers to care for their children at a subsidized cost while they pursue earning opportunities.

Standard economic models predict that subsidized childcare provision would impact labor supply decisions through this second channel by lowering women's reservation wages (Connelly, 1992). For women initially working less than the hours of childcare provided, we would expect an increase in hours worked and earnings. For women already working more than the hours of childcare provided, the childcare centers could provide an income subsidy and may decrease incentives to work. Given that the public works program focused on recruiting unemployed youth, we assume that most women in this population were initially underemployed. The main impacts of access to childcare centers would therefore be to allow women to increase the amount of time they spend on economic activities. We also anticipate increased productivity (or quality of time spent on income-generating activities) because women would be able to focus on income-generating work, while children are in the childcare centers. Finally, we anticipate that women would have improved psychological

well-being due to reduced stress about multitasking while caring for children and more mental bandwidth. Thus, we predict increases in time spent on income generating activities and increased earnings as primary outcomes. In addition, we anticipate improvements in self-reported well-being and financial resilience as secondary outcomes due to improvements in women's employment and earnings.

Effects of childcare on women's decision-making autonomy, gender attitudes, and intrahousehold dynamics. Our anticipated effects on these dimensions of women's empowerment are theoretically ambiguous. Under a collective model of household decision-making, affordable childcare could increase women's employment and relative earnings, thereby increasing women's intrahousehold bargaining power and empowerment (Hiller and Touré, 2021). Alternatively, the theory of gender deviance neutralization predicts that women may feel compelled to perform stereotypical gender roles within the home in order to neutralize the act of ceding some of their childcare responsibilities to a childcare center (Atkinson and Boles, 1984; Greenstein, 2000). Thus, any potential improvements in women's empowerment resulting from increases in bargaining power might be offset by women engaging in behaviors to emphasize their traditional female roles and conform to prevailing gender norms. The overall effect of childcare on women's decision-making autonomy, gender attitudes, and intrahousehold dynamics in this context is therefore an empirical question.[6]

Effects of childcare on child development. We hypothesize that children of public works participants in sites with the childcare intervention will spend more time in childcare centers. The resulting impact on child development depends on the relative quality of the alternative childcare options. Given that caregivers in these community-based childcare centers are trained and supervised, we anticipate that there could be improved early childhood development for enrolled children due to increased stimulation by trained childcare providers and increased access to age-appropriate toys and learning materials. Conversely, if children would instead have stayed at home with an engaged caregiver, then it is possible that receiving individualized attention at home would be more beneficial than the care received in a group setting.

[6] In contrast to predominant American expectations on maternal practice, anthropological research on motherhood ideals among urban Asante market traders in neighboring Ghana (Clark, 1999) and an ongoing complementary qualitative study with a sample of urban mothers in Burkina Faso suggest that parenting norms in this context emphasize meeting children's resource needs, rather than necessitating mothers spend time with them.

3 Methodology

3.1 Research Design

Our impact evaluation focuses on 36 urban public works sites in 17 communes of the PEJDC intervention area in 9 regions of Burkina Faso (Boucle du Mouhoun, Centre, Centre-East, Centre-North, Centre-West, Centre-South, Hauts Bassins, North, Plateau Central). The 36 sites were selected based on their potential to support a childcare center. The number of participants at each site ranged from 100 to 500 and the proportion of women ranged from to 58 to 96%.

We used a computer program to randomly assign the 36 urban public works sites in the research sample into a treatment group (18 sites) with implementation of community-based childcare centers and a control group (18 sites) with no childcare centers. To increase the similarity of the 2 groups, the randomization was stratified across 10 blocks based on the geographical location and number of brigadiers assigned to each site. The sites were defined by *communes* (municipalities) in smaller urban areas and by *arrondissements* (neighborhoods) in the two larger cities of Ouagadougou and Bobo-Dioulasso. Figure 1 illustrates the spatial distribution of our study sites.

3.2 Sampling

Our sample comes from the register of public works participants in the 36 study sites. We began with a screening survey to restrict our sampling frame to women who were primary caregivers for a child aged 0 to 6 (because the centers were open to children below the age of 7). Among participants meeting these eligibility criteria, we randomly selected 2,160 individuals. In each of the 36 sites, the size of the sample was proportional to the number of eligible participants in that site. The study sample therefore included 2,160 households, with data collected on the 2,160 female public works participants, their spouses or partners if co-residing, and any children aged 0-6 in their care, for a total of up to 4,320 individual interviews and a minimum of 2,160 child assessments (Figure 2 presents our sampling strategy).[7]

[7]With this sample of 36 sites (18 per treatment group), an average of 60 participants per site, power of 0.8, significance level of 0.05, and an estimated intracluster correlation of 0.1, the study was designed to detect a minimum effect of 0.2 standard deviations.

3.3 Data

In December 2019, we conducted a baseline survey of female respondents, any cohabiting partners, and children aged 0 to 6, through face-to-face interviews. The baseline questionnaire asked women participants about their household composition, demographic background, economic activities of the respondent and any co-resident partner, consumption, dwelling and assets, knowledge and practices on child health and nutrition, input into productive decisions of the respondent and any co-resident partner, freedom of movement, acceptance towards domestic violence, sharing of housework, happiness, mental health,[8] and time use. We directly interviewed the woman and cohabiting partner. We also asked about the primary caregiver for each child for each hour over the past 24 hours. We measured child development using the Development Milestone Checklist (DMC III), which was adapted and validated in Burkina Faso for children aged 0 to 8 (Prado et al., 2014). The DMC III includes questions on gross motor, fine motor, and language skills. Due to the time demands of administering the DMC, we randomly selected one child aged 0 to 2 and one child aged 3 to 5 from each household to include in the sample, instead of administering it to all children in each household.[9] The baseline sample includes 2,150 households and 3,126 children. The baseline survey occurred approximately one month after the first childcare centers opened, we therefore control for baseline outcomes in our econometric specifications.

In February 2021, we conducted an endline survey by phone, due to COVID-19 social distancing requirements. We interviewed each female respondent about herself, her partner, and her children. We were able to contact 1,990 respondents from our baseline sample (a 92.6% tracking rate). We have some differential attrition by treatment status with a slightly higher attrition rate in the treatment group (8.6%) compared to the control group (6.4%). We address this in our analysis. Figure 3 indicates the timeline of implementation and data collection activities. All 18 sites that were randomized to receive a childcare center ended up opening a childcare center, so we have perfect compliance with assignment to open a childcare center.

[8] We measure depressive symptoms using the Center for Epidemiological Studies Depression Scale Revised Short Form (CESD-R-10) (Miller, Anton and Townson, 2008; Radloff, 1977). The CESD, a screening test for depression and depressive disorder, is one of the most used instrument to measure depression in ECD studies in low and middle income countries (Evans et al., 2022).

[9] We selected children up to age 5, even though children up to age 6 could attend the childcare centers, so that we could ensure that these children would still be eligible to attend the childcare centers at the time of the follow up survey. At baseline, two children were selected regardless of the age categories; i.e. two children aged 3 to 5 could be selected if there were no children aged 0 to 2. At endline, we collected data on children sampled at baseline, for only one randomly selected child in each age category.

Our study period was interrupted by the onset of the COVID-19 pandemic. The childcare centers began operating in November 2019 and were intended to run continuously for a year, but instead closed in March 2020 due to COVID-19. They reopened in October 2020, with the support of the Burkina Faso Ministry of Women and Ministry of Education, the *mairies* (municipal governments), and the World Bank, which each provided funding, in-kind resources, or technical assistance to operate the childcare centers after the closing of the PEJDC project in February 2020. Participating households therefore had a maximum of eight months of potential exposure to the childcare centers (four months before the COVID-19 closure and then four months following the reopening and before our follow-up phone survey). Importantly, the second phase of operation occurred after program participants had completed their public works assignment, which ended in February 2020. This timing allows us to observe usage of the childcare centers and impacts on economic outcomes in a period during which program participants were no longer guaranteed employment through the public works program. Additionally, the childcare centers operated mainly from 8am to 2pm to coincide with the public works schedule during the first phase of operation, but they were optionally open to parents for a full workday of care when they reopened in October 2020.

3.4 Empirical Strategy

We use the following analysis of covariance (ANCOVA) specification to estimate Intent to Treat (ITT) effects:

$$Y_{ist} = \alpha + \beta Treatment_s + \gamma Y_{ist-1} + \mathbf{X'}_{is} + \mathbf{W'}_s + \varepsilon_{ist} \tag{1}$$

where Y_{ist} is the outcome for individual i from public works site s at time t. $Treatment_s$ is an indicator for whether site s was one in which a childcare center was established under the project. Y_{ist-1} is the baseline value of the outcome measure for individual i. $\mathbf{X'}_{is}$ is a vector of control variables. Household-level controls include household size, number of children aged 6 or under, number of children aged 7 to 15, number of economically active household members, head is female, head is ethnically Mossi, head age, head is in a monogamous marriage (to capture differences in

intra-household dynamics and related differences in women's and children's welfare outcomes)[10], head is not formally educated, head is working. Brigadiere controls include age and indicators for being in a monogamous marriage and not formally educated. Child-level controls include age, indicators for being female, having a biological mother in the household, and being the child of the household head. $\mathbf{W'}_s$ is a vector of binary variables representing the stratification bin from which site s is drawn. Finally, ε_{is} is an idiosyncratic error, assumed to be independent across sites but allowed to be correlated within a site (i.e., we cluster standard errors at the public work site level). To account for outliers, we winsorize continuous variables at the 99th percentile.

We also estimate effects of the treatment-on-the-treated (TOT) for key outcomes.

$$Y_{ist} = \alpha + \beta \widehat{Childcare}_s + \gamma Y_{ist-1} + \mathbf{X'}_{is} + \mathbf{W'}_s + \varepsilon_{ist} \tag{2}$$

where we use a two-stage least squares procedure, with a child ever having used a childcare center as the treatment indicator in the first stage.

To address the possibility of spurious results due to multiple hypothesis testing, and to maximize the power of our statistical tests, we combine outcome measures covering similar domains into a summary index (Kling, Liebman and Katz, 2007). We focus on five domains– women's employment, women's decision-making and gender attitudes, women's psychological well-being, women's financial resilience and savings, and children's development. For each index, we normalize each outcome measure relative to the control group mean and standard deviation. We convert the sign of individual measures where necessary so that higher scores indicate improved outcomes and then calculate an equally weighted average of the normalized components of each domain. For observations with missing values for a given indicator, we take the mean of the other variables in that domain. For observations missing data on all measures in a given domain, we set the summary index to missing. As an alternative way to deal with missing observations when constructing the summary indices, we also excluded observations with any missing values for individual indicators from our analysis.

In addition to our main specifications, we conduct two sets of robustness checks. First, to address differential attrition between the treatment and control groups, we estimate Lee bounds

[10]See for instance Akresh, Chen and Moore (2016); Barr et al. (2019); Rossi (2018).

(Lee, 2002). Second, to account for the small number of clusters in each of our treatment groups, we estimate alternative p-values using randomization inference (Athey and Imbens, 2017).

We estimate separate effects for our full sample and for the subsample of households with a child aged 0 to 2 as well as estimating separate child-level effects for children within this age-range to examine whether childcare centers have differential impacts for women with young children.[11]

4 Results

4.1 Baseline characteristics

Table 1 presents balance on baseline women's and household characteristics for the full sample. Women in our sample are aged 31 on average and two thirds are in a monogamous marriage. Approximately 46% of respondents have no formal education. In comparison, 64.5% of women in Burkina Faso and 48.7% of women living in urban areas have no formal education according to the latest Harmonized Survey on Household Living Conditions, conducted in 2018/2019. Thus, education levels in our urban sample are similar to those for women in the urban population in general. Almost 98% of women report having worked for at least one hour in the last 30 days, which is consistent with respondents' participation in the public work activities. On average, women in our sample worked 33 hours per week in the last month. Time use data reveal that in the last 24 hours, women in our sample spent on average of 6.7 hours caring for their children, 2.5 hours on domestic chores and 3.4 hours doing paid work. Women in the control group spent more time working per week (37 hours for women in the control group, compared to 28 hours on average for women in the treatment group, $p<0.05$), and more time on domestic chores (2.6 hours in the control group, compared to 2.4 hours in the treatment group, $p<0.05$).

Women earn an average monthly total income of approximately 19,000 FCFA at baseline. This is lower than the 37,000 FCFA monthly payment from the public works, which reflects program implementation challenges. Public works programs aim to provide temporary employment opportunities for the the most vulnerable, but by the time of the baseline survey (four months into the program) public works participants were yet to receive their allowances because of persistent payment delays during the study period.

[11] We do not have enough statistical power to detect heterogeneous treatment effects by age of the youngest child. We therefore present these results as suggestive evidence.

Table 2 presents balance on baseline child-level characteristics for the full sample. About 49% of the children in our sample are female, 94% are living with their biological mothers and 86% are the children of the heads of households. On average, children are 3 years old, with children in the control group being slightly older than children in the treatment group (2.97 years old vs 3.02, $p<0.05$). The average child development score in our sample is 85 points out of a total of 152 points, with an average gross motor score of 36 points (ranging from a minimum of 0 to a maximum of 52), an average fine motor score of 20 points (ranging from a minimum of 0 to a maximum of 54), and an average language score of 29 points (ranging from a minimum of 0 to a maximum of 46).

Although our tracked sample, used in the analysis, mainly appears to be balanced on baseline characteristics, we find statistically significant differences at the 5% level in 4 of the 22 baseline household characteristics and 5 of the 18 baseline child characteristics we test, including some key employment and time use variables.[12] To create a scale-free measure of overlap in the distribution of covariates in the two treatment groups, we estimate normalized differences following Imbens and Rubin (2015). The only variable with a normalized difference above their suggested cutoff of 0.25 standard deviations is total hours worked per week, with a normalized difference of 0.27. Given that the public work sites were randomly assigned to receive a childcare center, we view these differences as resulting from chance. We address this imbalance by using an ANCOVA model as our preferred specification in our regression analysis.

4.2 Use of childcare centers

At baseline, only a very small proportion of households (2%) reported having any child in the household attend a childcare center in the last 24 hours (Table 1). At the follow-up survey, 24% of respondents reported having at least one child attend a childcare center in the last 12 months (12% of respondents in the control group versus 37% of respondents in the treatment group). Asked about the types of childcare centers attended, 12% of respondents reported having at least one child attend a mobile childcare center (less than 1% of respondents in the control group versus 25% of respondents in the treatment group).

[12] We also test for balance in the subsample of households with children 0-2 years old and for children 0-2 years old, using the same baseline variables. Appendix Tables A1 and A2 present baseline balance for the sample of households with a child aged 0 to 2 and for children within this age-range. We find similar baseline differences.

Table 3 shows the effects of being assigned to receive a childcare center on the use of childcare for the full sample and for the subsample of households with children under two years of age. Participants in the treatment group are 11.7 percentage points more likely to have a child in the household who attended a childcare center in the past 24 hours compared to a control group rate of 6 percent. This translates to a tripling in current use of childcare centers at the time of the follow up survey, 14 months after the baseline. We see similar effects when we look at the likelihood of any childcare center use over the evaluation period. Participants in the treatment group are 24 percentage points more likely to have had at least one child attend a mobile creche in the past 12 months. These results demonstrate persistent increases in childcare center take up that extend beyond use during the public works program, suggesting that initial exposure to the childcare centers generated lasting demand once the centers reopened following the 8-month COVID-19 related closures.

4.3 Effects on summary measures

Table 4 and Figure 4 present treatment effects on our summary measures of outcomes for the full sample and for the subsample of households with children under two years of age. The first row of Column 1 indicates a positive and significant impact on our summary employment measure.[13] The ITT estimates show an increase in our women's employment measure of 0.08 SD and for the full sample and 0.09 SD for the subsample of respondents in households with children under two years of age respectively. We also see significant and relatively larger positive impacts of being assigned to receive a childcare center on our summary measures of women's psychological well-being (column 3),[14] women's financial resilience and savings (column 4),[15] and on child development (column 5),[16] with an increase of 0.175 SD. However, our results indicate no significant impacts on women's involvement in decision-making or gender attitudes (column 2).[17] None of the estimated effects for the subsample of women with children under age 2 are significantly different from the results we find for the full sample, suggesting that childcare had broadly similar impacts for all women in the sample at an aggregate level. However, we do not have enough statistical power to definitively rule

[13] Aggregate index of the employment outcomes listed in Tables 5, 6 and 7.
[14] Aggregate index of outcomes listed in Table 11.
[15] Aggregate index of outcomes listed in Table 12.
[16] Aggregate index of outcomes listed in Table 13.
[17] Aggregate index of outcomes listed in Tables 8 and 9.

out the possibility of there being heterogeneous effects.

The subsequent rows in each panel of Table 4 present results from our robustness checks. The Lee bounds on the employment index remain significantly positive and the p-values from randomization inference indicate significant positive effects at the 10% level for households with children under age 2, but not for the full sample. The Lee lower bound estimates of mental health impacts are statistically insignificant and the randomization inference p-values also rise above the 10 percent level. Both the estimated positive impacts on women's financial outcomes and child development scores persist across all robustness checks, with the exception of a randomization inference p-value of 0.12 for women's financial outcomes in the full sample. Altogether, these results provide strong evidence that the childcare intervention had positive impacts on child development, along with indications of positive effects on women's employment, and insignificant impacts on women's decision-making autonomy and gender attitudes. We find similar results in our alternative approach which excludes observations with any missing data for outcomes included in our summary indices (these results are reported in Appendix Table A7).

4.4 Effects on specific outcomes

In the remaining sections, we discuss effects on specific outcomes. The estimated magnitudes of impacts on individual outcomes are more straightforward to interpret and provide additional insights on the impacts of childcare provision, with the caveat that we do not correct these individual estimates for multiple hypothesis testing. We therefore view these results as offering a suggestive indication of patterns and take our effects on summary measures as our preferred estimates of aggregate impacts.

Women's employment. Tables 5, 6 and 7 present the results on women's employment at follow-up for the full sample and the subsample of households with children under two years of age. While we do not find any statically significant impact on the likelihood of working in our full sample, Table 5 shows a statistically significant impact at the 5% level of the assignment to receive a childcare center on income from salaried work. Moreover, women caring for children under two years of age spend more time in salaried employment (significant at the 10% level) and have a larger increase in income from salaried work. We do not find any significant impacts on other types

of employment, i.e., agricultural employment and self-employment in non-agricultural activities.[18] To further examine impacts on employment outcomes, we plot the distribution of the women's employment index and the distribution of salaried income for each treatment group in Figures 5 and 6. These figures clearly indicate a rightward shift in the distribution of women's employment outcomes.

Women's decision-making autonomy, gender attitudes, and intrahousehold dynamics. We do not find any statistically significant impact of the intervention on women's decision-making in the household, sharing of domestic work, freedom of movement, or gender attitudes (Table 8). For women caring for children under two years of age, there is a marginally significant increase in the likelihood that the respondent's partner sometimes takes care of children (Table 9). However, we find no significant changes in time use, with the exception of a 20 percent increase in time spent doing paid work over the past 24 hours, compared to a control group mean of 3.4 hours (Table 10).

Women's psychological well-being. Turning to women's psychological well-being, we find a small beneficial impact of the intervention, reducing the likelihood of experiencing depression and self-reported unhappiness (significant at the 5% level) for the full sample (Table 11). We find similar effects for women in households with children under two years of age. These results are consistent with work from Bossuroy et al. (2022), finding that a multi-faceted poverty alleviation program in Niger (neighboring Burkina Faso) improved mental health by 0.13 to 0.23 standard deviations, particularly when it included a psychosocial component.

Women's financial outcomes. We use an OLS specification to estimate impacts on financial outcomes since we only collected this information in the endline survey. Almost 59% of women in the control group had saved any money during the past 12 months and 40% were able to pay FCFA 20,000 (approximately USD 34) in the case of an emergency (Table 12). We find a 13% percent increase in women's likelihood of having saved in the last 12 months (significant at the 5% level) and a 25% increase in women's reported capacity to mobilize financial resources in an emergency.

[18] We collected data on extensive margin labor market participation for all non-agricultural non-salaried activity. However, due to a mistake in the skip patterns in the programmed version of the survey questionnaire, we only collected information on hours worked in the last month and total monthly income for non-agricultural activity in a household enterprise, therefore excluding non-agricultural self-employment income from non-household enterprises. Thus, while our results in column 1 of Table 7 are unaffected, results in columns 2, 3, and 4 unfortunately exclude self-employment activities and could therefore understate any treatment effects.

Child development. Table 13 reports the results on children development outcomes. We find that the intervention led to an improvement in both gross and fine motor scores for children in our full sample and in the sample of children under two years of age. However, we do not find any impact of the intervention on children's language scores, although the coefficients are all positive. Altogether, this indicates that the childcare centers stimulated the development of children's motor skills without compromising language development.

4.5 Robustness checks

Table A3 presents results from robustness checks to address differential attrition as well as adjusted p-values from randomization inference and wild bootstrap clustered standard errors to address the small number of cluster (public work sites) in the sample. The strongest results are the increase in women's time in hours doing paid work during the last 24 hours and total monthly income for women with children aged 0 to 2, as well as improvements in child development outcomes for the full sample and for children aged 0 to 2. The remaining results survive the Lee bounds but lose significance with the corrections for the small number of clusters.

4.6 Analysis of mechanisms

Turning to understanding the potential mechanisms, we find no increases in partners' involvement in childcare and negative but statistically insignificant effects on the duration of time for which the mother was the primary caregiver for a child over the past 24 hours (Table 14). Our ITT estimates indicate an average increase of approximately 20 additional minutes in a childcare center over the past 24 hours and a decrease of 15 minutes spent by mothers as primary caregivers. These averages likely mask substantial heterogeneity, with some heavier childcare users in the sample. Altogether, our results suggest that the main mechanism behind the positive employment impacts we find could be improvements in the quality of time spent on economic activities and reductions in childcare-related distractions.

Our sample size limits our ability to precisely decompose the employment effects into those coming from the direct employment of childcare center attendants (BAMs) and indirect employment resulting from relaxation of labor supply constraints for women who use the childcare centers but work elsewhere. As suggestive evidence on this, we estimated an additional set of results excluding

the 69 BAMs (7% of the treatment group). We present these results in the Appendix (Tables A8 and A9). The magnitudes of our estimates are smaller but the effects on our summary outcome measures remain statistically significant. Appendix Figure A1 indicates that monthly incomes for the BAMs were higher than for other public works participants in treatment sites, peaking in the range of 30000, which is close to the 37000 CFA monthly payment for BAMs working in the childcare centers. Figure A2 similarly indicates a rightward shift in the employment index. Finally, Figures A3 and A4 indicate that the income distribution and employment index in the treatment group substantially converge towards those of the control group once we remove the BAMs from our analysis sample, suggesting that the direct employment channel was important in this context, albeit not the only mechanism at work.

5 Discussion

There are certain limitations of the research design worth noting. First, we cannot measure the effects of access to childcare on the decision to participate in the public works program because the childcare intervention was introduced several months after participants had already been recruited and commenced their work assignments. Second, the World Bank project team provided increased monitoring and safeguards to the public works program in sites with childcare centers, so we cannot perfectly isolate the effects of access to childcare from the effects of the additional accompanying measures provided to treatment sites. Third, public works participants in both the treatment and control sites received parental education training from social workers, which could have improved their ability to stimulate their children and could reduce the differences in early childhood development outcomes observed across the two groups. Finally, the COVID-19 pandemic reduced childcare exposure to eight months, instead of one year as planned. There is evidence from nationally representative data collected at the early stages of the COVID-19 pandemic in Burkina Faso that the pandemic has reduced economic opportunities, which may limit the employment and earning effects of the intervention. Our observed impacts are therefore suggestive of potentially larger impacts of sustained childcare provision in a more favorable economic climate. Conversely, follow-up child assessments were conducted by phone (not direct observation) due to social distancing protocols, so there is some potential for bias from self-reports. Altogether, these results provide strong indication

of a promising model of childcare provision, with scope for future work to offer further validation.

The monthly cost of operating the childcare centers was USD 16.6 per child if used at the full capacity of 50 children per center. This is lower than our estimated treatment on the treated (TOT) effect on monthly earnings, with increases of FCFA 13,253.96 (approximately USD 23) for the full sample and FCFA 14,447.78 (approximately USD 25) for the sample of women with a child under the age of two. In practice, the childcare centers typically operated below maximum capacity and had 33 children on average, so the operating costs per child were higher (at USD 25.2). Nonetheless, the intervention potentially had broader impacts beyond the monetary benefits of income increases if the training provided to the childcare center attendants generated positive development outcomes for other children in their communities. Although operating costs are comparable to the earnings increases observed for program participants within our treated sample, these are higher than costs in other settings. For example, Martínez A. and Perticará (2017) report that community-based preschools in Mozambique cost USD 3.09 per child per month and increased child development scores by 0.33SD (implying they were three times as cost effective as the Burkina Faso childcare intervention, which had an estimated child development TOT effect of 0.88SD with a cost of USD 25.2 per child). The key differences are higher provider to child ratios, with the Mozambique preschools and other community-based models typically having a ratio of 1:15, instead of 1:5 ratio of the mobile childcare centers. Relatedly, the Burkina Faso childcare centers catered to children aged 0 to 6 whereas the Mozambique preschools and other similar models typically focus on children aged 3 to 5. Almost 60% of women in our sample had at least one child aged between 0 to 2. Given that the take-up rates and treatment effects for children in this age group were similar to those for the older age-group, the added costs of caring for younger children appear to be driving the decreased cost-effectiveness. Thus, the program's expansive scope of serving the youngest children (typically excluded from childcare programs) comes with the trade-off of increasing costs, which is an important factor to consider in the prioritization of program objectives.[19]

[19]This cost-effectiveness comparison comes with the caveat that attendance at the mobile childcare centers was irregular for many children. We unfortunately cannot link individual attendance records to survey data for children to adjust our cost-effectiveness estimates.

6 Conclusion

This study provides new evidence on the impacts of childcare centers on women's economic empowerment and children's development in a low-income setting. We demonstrate the potential for a community-based intervention to improve both women's and children's well-being. Although the childcare centers were envisioned to operate for a full year, the intervention exposure was reduced to eight months due to the onset of the COVID-19 pandemic. Nonetheless, we find strong indications of positive impacts on women's employment (both through direct employment of childcare providers as well as through an indirect channel of relaxing constraints on women's time). Furthermore, we find positive effects on women's financial outcomes and improvements in child development. Despite these positive impacts, we find no increases in decision-making autonomy and gender attitudes, or changes in the intrahousehold division of childcare. While it is possible that impacts on women's agency accrue over time and might be visible in a longer run follow up, these intermediate results suggest the potential value of a complementary gender-transformative intervention to address intrahousehold dynamics and social norms, in order to fully enhance the multiple dimensions of women's empowerment.

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Figures and Tables

Figure 1: Impact Evaluation Map

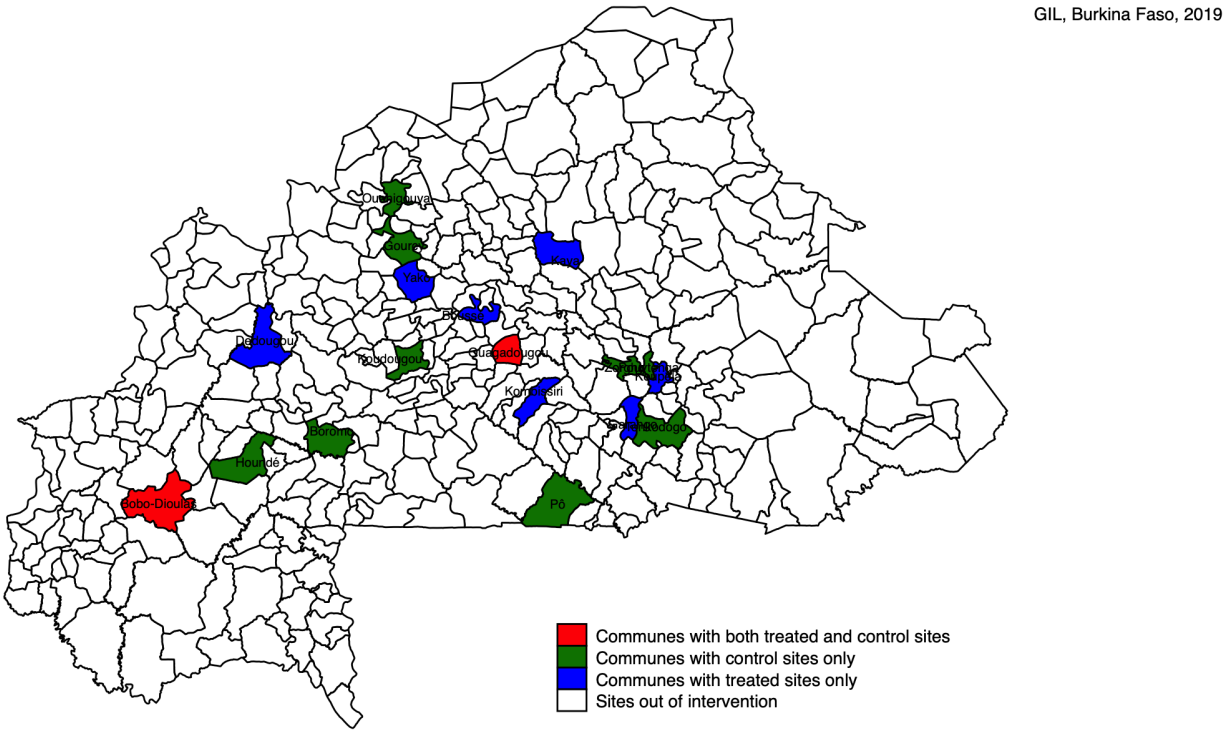


Figure 2: Sample Selection

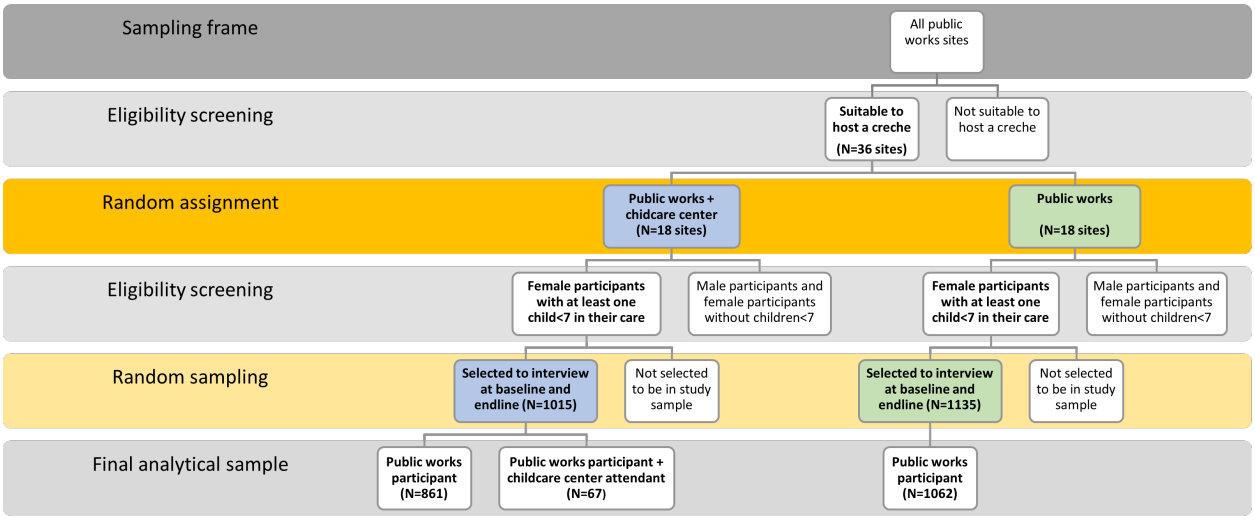


Figure 3: Study Timeline

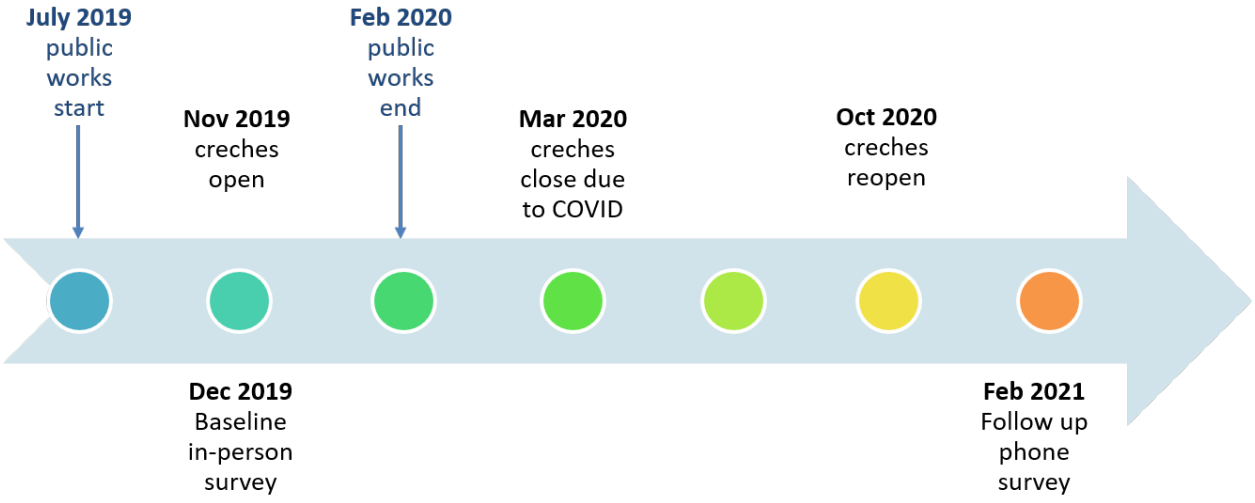


Figure 4: Summary outcomes

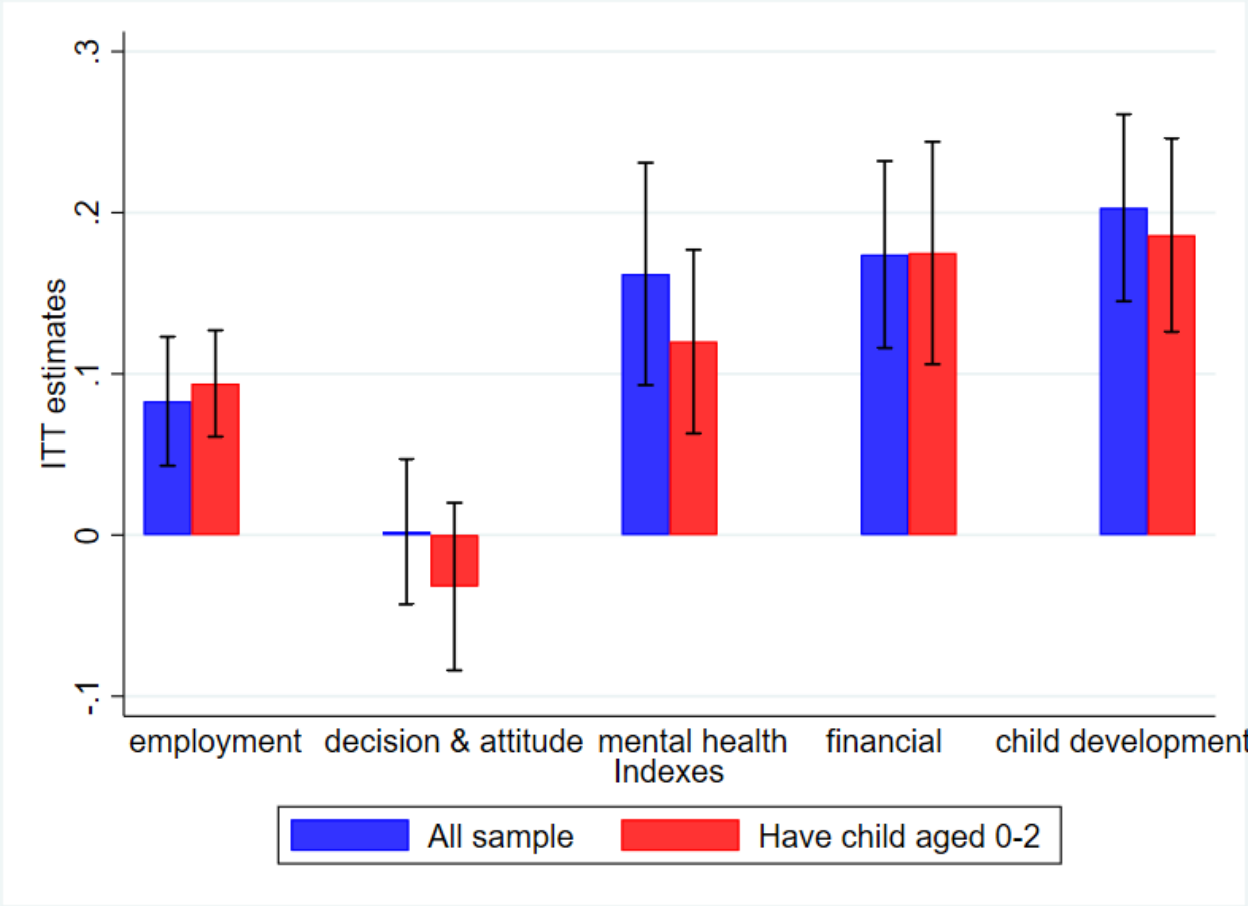


Figure 5: Employment index distribution by treatment site

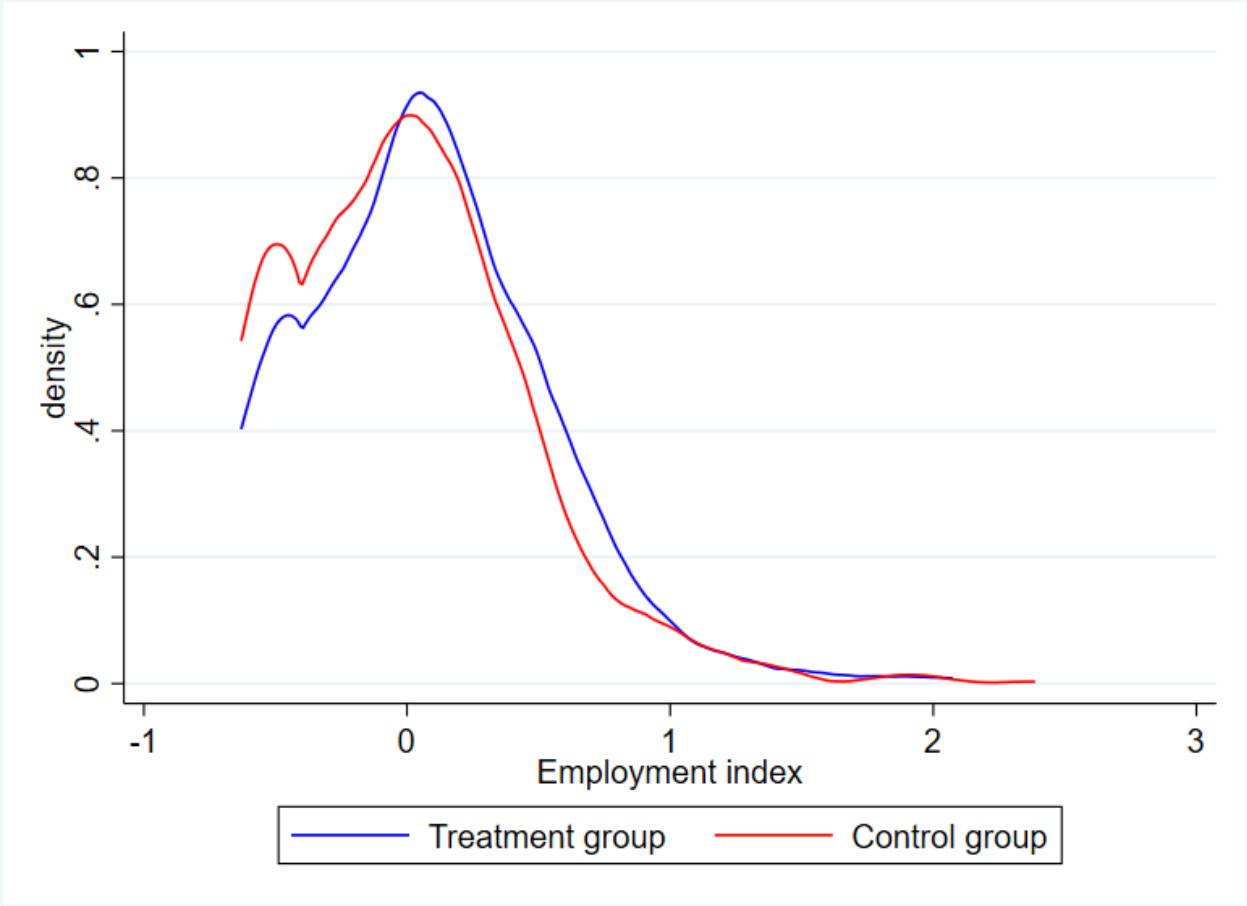


Figure 6: Total monthly income distribution by treatment site

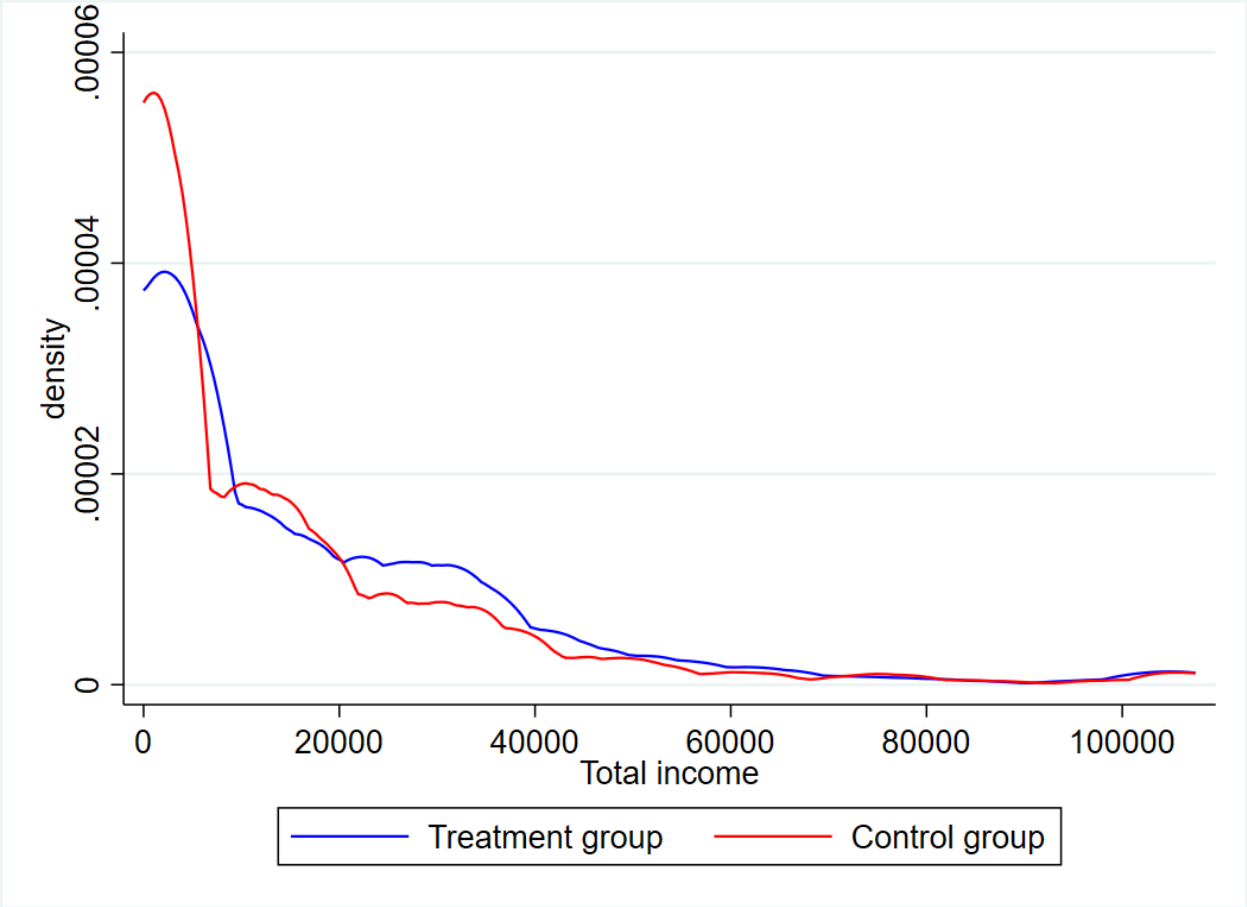


Table 1: Baseline Balance Household level (Full sample)

Variable	(1) Treatment N/[Clusters]	Mean/SE	(2) Control N/[Clusters]	Mean/SE	(3) Total N/[Clusters]	Mean/SE	T-test Difference (1)-(2)
Household level							
Household size	928	6.015	1062	6.085	1990	6.052	-0.070
	[18]	(0.219)	[18]	(0.171)	[36]	(0.135)	
Number of children aged 6 or less	928	1.547	1062	1.603	1990	1.577	-0.055
	[18]	(0.063)	[18]	(0.045)	[36]	(0.038)	
Number of children aged 7 to 15 in the hh	928	1.561	1062	1.612	1990	1.588	-0.051
	[18]	(0.076)	[18]	(0.074)	[36]	(0.053)	
Number of economically active members in the hh	928	1.787	1062	1.881	1990	1.837	-0.095
	[18]	(0.093)	[18]	(0.081)	[36]	(0.062)	
Household head is a female	919	0.104	1055	0.088	1974	0.096	0.016**
	[18]	(0.013)	[18]	(0.013)	[36]	(0.009)	
Household head age	919	40.260	1055	40.462	1974	40.368	-0.202
	[18]	(0.522)	[18]	(0.374)	[36]	(0.313)	
Household head is a mossi	916	0.693	1053	0.741	1969	0.719	-0.048
	[18]	(0.085)	[18]	(0.072)	[36]	(0.054)	
Household head is in monogamous marriage	918	0.702	1054	0.683	1972	0.692	0.018
	[18]	(0.033)	[18]	(0.034)	[36]	(0.024)	
Household head is non educated	919	0.456	1055	0.430	1974	0.442	0.026
	[18]	(0.034)	[18]	(0.031)	[36]	(0.022)	
Household head is working	919	0.768	1054	0.787	1973	0.778	-0.018
	[18]	(0.024)	[18]	(0.027)	[36]	(0.018)	
Age of brigadiere	928	30.764	1062	30.981	1990	30.880	-0.217
	[18]	(0.305)	[18]	(0.367)	[36]	(0.242)	
Brigadiere is in monogamous marriage	928	0.683	1062	0.668	1990	0.675	0.016
	[18]	(0.033)	[18]	(0.032)	[36]	(0.023)	
Brigadiere is non educated	928	0.444	1062	0.478	1990	0.462	-0.034
	[18]	(0.030)	[18]	(0.033)	[36]	(0.023)	
Brigadiere total monthly income	928	16559.433	1062	21178.503	1990	19024.484	-4619.070
	[18]	(2495.596)	[18]	(4513.668)	[36]	(2754.983)	
Brigadiere total work duration in hours per week	928	27.683	1062	37.314	1990	32.822	-9.631**
	[18]	(3.545)	[18]	(5.207)	[36]	(3.580)	
Brigadiere has worked for 1 h last 30 days	928	0.985	1062	0.972	1990	0.978	0.013*
	[18]	(0.005)	[18]	(0.010)	[36]	(0.006)	
Brigadiere has worked for 1 h last 6 months	928	0.996	1062	0.991	1990	0.993	0.005
	[18]	(0.002)	[18]	(0.005)	[36]	(0.003)	
Time in hours taking care of children during last 24h	928	5.760	1062	6.045	1990	5.912	-0.285
	[18]	(0.365)	[18]	(0.198)	[36]	(0.195)	
Time in hours cooking/washing/housework during last 24h	928	2.417	1062	2.598	1990	2.513	-0.181**
	[18]	(0.123)	[18]	(0.097)	[36]	(0.079)	
Time in hours spent at school during last 24h	928	0.049	1062	0.050	1990	0.050	-0.001
	[18]	(0.023)	[18]	(0.019)	[36]	(0.015)	
Time in hours doing a paid job during last 24h	928	3.504	1062	3.420	1990	3.459	0.084
	[18]	(0.238)	[18]	(0.401)	[36]	(0.239)	
Household had any children in a creche in the past 24 hours	928	0.028	1062	0.016	1990	0.022	0.012
	[18]	(0.008)	[18]	(0.004)	[36]	(0.004)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at variable commune. Fixed effects using variable id_sample are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 2: Baseline Balance Child level (Full sample)

Variable	(1) Treatment N/[Clusters]	(1) Treatment Mean/SE	(2) Control N/[Clusters]	(2) Control Mean/SE	(3) Total N/[Clusters]	(3) Total Mean/SE	T-test Difference (1)-(2)
Child level							
Child is female	1436	0.485	1702	0.497	3138	0.492	-0.012
	[18]	(0.014)	[18]	(0.009)	[36]	(0.008)	
Child age	1436	2.969	1702	3.069	3138	3.023	-0.100**
	[18]	(0.043)	[18]	(0.051)	[36]	(0.034)	
Biological mother is in the household	1432	0.929	1698	0.945	3130	0.938	-0.015*
	[18]	(0.010)	[18]	(0.007)	[36]	(0.006)	
Child is the household head son/daughter	1434	0.849	1699	0.868	3133	0.860	-0.019
	[18]	(0.031)	[18]	(0.009)	[36]	(0.015)	
Child (age=6) goes to school	131	0.985	155	0.994	286	0.990	-0.009
	[18]	(0.010)	[18]	(0.006)	[36]	(0.006)	
Gross motor score	1003	35.952	1132	36.348	2135	36.162	-0.396
	[18]	(0.563)	[18]	(0.432)	[36]	(0.349)	
Fine motor score	1003	19.921	1132	19.765	2135	19.838	0.156
	[18]	(0.463)	[18]	(0.306)	[36]	(0.266)	
Language score	1003	29.303	1132	28.799	2135	29.036	0.504
	[18]	(0.806)	[18]	(0.339)	[36]	(0.411)	
Total child development score	1003	85.176	1132	84.913	2135	85.037	0.264
	[18]	(1.740)	[18]	(0.933)	[36]	(0.940)	
The duration in hours where mother keeps the child	1432	3.154	1698	3.336	3130	3.252	-0.182
	[18]	(0.154)	[18]	(0.174)	[36]	(0.118)	
The duration in hours where father keeps the child	1432	0.225	1698	0.234	3130	0.230	-0.009
	[18]	(0.024)	[18]	(0.018)	[36]	(0.014)	
The duration in hours where sister keeps the child	1432	0.114	1698	0.173	3130	0.146	-0.058***
	[18]	(0.015)	[18]	(0.024)	[36]	(0.017)	
The duration in hours where brother keeps the child	1432	0.044	1698	0.053	3130	0.049	-0.009
	[18]	(0.011)	[18]	(0.014)	[36]	(0.009)	
The duration in hours where another familly member keeps the child	1432	0.800	1698	0.882	3130	0.844	-0.082
	[18]	(0.089)	[18]	(0.068)	[36]	(0.054)	
The duration in hours where non familly member keeps the child	1432	0.214	1698	0.145	3130	0.176	0.069*
	[18]	(0.044)	[18]	(0.022)	[36]	(0.025)	
The duration in hours of the child in the caring center	1432	0.048	1698	0.025	3130	0.036	0.023*
	[18]	(0.014)	[18]	(0.006)	[36]	(0.008)	
The duration in hours of the child with no care	1432	14.017	1698	13.607	3130	13.795	0.410
	[18]	(0.480)	[18]	(0.437)	[36]	(0.321)	
Child used a creche in the past 24 hours	1432	0.018	1698	0.010	3130	0.014	0.008
	[18]	(0.006)	[18]	(0.003)	[36]	(0.003)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at variable commune. Fixed effects using variable id_sample are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 3: Effects on the use of childcare centers

	(1) Household had any children in a creche in the past 24 hours	(2) At least one child attended a creche in the past 12 months	(3) At least one child attended a public works creche in the past 12 months	(4) Maximum number of months any child in the household attended any creche
Full sample				
ITT estimate	0.119***	0.241***	0.235***	0.720***
	(0.026)	(0.026)	(0.027)	(0.145)
Observations	1961	1965	1965	1965
R^2	0.051	0.127	0.181	0.081
Control mean	0.100	0.120	0.003	0.571
Have child aged 0-2				
ITT estimate	0.112***	0.268***	0.253***	0.756***
	(0.028)	(0.037)	(0.033)	(0.170)
Observations	1124	1126	1126	1126
R^2	0.053	0.155	0.202	0.086
Control mean	0.094	0.091	0.003	0.472

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 4: Effects on summary outcome measures (indices)

	(1) Women's employment	(2) Women's decision-making	(3) Women's mental health	(4) Women's finance	(5) Child development
Full sample					
ITT estimate	0.083**	0.002	0.162**	0.174***	0.203***
	(0.040)	(0.045)	(0.069)	(0.058)	(0.058)
Lee lower bound ITT	0.069*	-0.026	0.123*	0.153**	0.190***
	(0.040)	(0.046)	(0.068)	(0.057)	(0.057)
Lee upper bound ITT	0.116***	0.024	0.202***	0.201***	0.222***
	(0.036)	(0.043)	(0.068)	(0.056)	(0.055)
Rand. inference pvalues	0.180	0.920	0.200	0.120	0.020
TOT estimate	0.351**	0.007	0.686**	0.742***	0.882***
	(0.168)	(0.190)	(0.281)	(0.258)	(0.282)
Observations	1967	1967	1957	1967	1618
R^2	0.081	0.108	0.117	0.083	0.608
Control mean	-0.000	-0.008	-0.000	-0.000	0.000
Have child aged 0-2					
ITT estimate	0.094***	-0.032	0.120**	0.175**	0.186***
	(0.033)	(0.052)	(0.057)	(0.069)	(0.060)
Lee lower bound ITT	0.074**	-0.063	0.075	0.151**	0.166**
	(0.033)	(0.053)	(0.056)	(0.068)	(0.061)
Lee upper bound ITT	0.130***	-0.004	0.166***	0.207***	0.220***
	(0.031)	(0.048)	(0.058)	(0.067)	(0.059)
Rand. inference pvalues	0.100	0.660	0.180	0.080	0.020
TOT estimate	0.367***	-0.129	0.472**	0.692**	0.701***
	(0.130)	(0.195)	(0.221)	(0.273)	(0.230)
Observations	1127	1127	1121	1127	717
R^2	0.074	0.118	0.120	0.096	0.601
Control mean	-0.000	-0.006	-0.000	-0.001	-0.000

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10. Each cell represents one estimate of the mean effect for a family of outcomes. Intent to Treat (ITT) effects estimated using the ANCOVA specification in equation 1 and TOT effects estimated using the specification in equation 2. Employment index in column 1: An indicator for working at least 1 hour on activity in the last 30 days, number of hours spent on activity in the past 30 days, total monthly income and IHS of total monthly income for salaried, agricultural, and non-agricultural activities, and time in hours doing paid work in the past 24 hours (outcomes in Tables 5, 6, 7, and column 4 of Table 10). Empowerment index in column 2: input into household decisions (on own income, household savings, major household purchases, childbearing, and children's education) autonomy over household decisions, (-) prevented by husband or household member from visiting relatives or working outside the home, (-) believes that a husband is justified to beats his wife if she burns food or neglects children, partner contributes to food preparation, housekeeping, laundry, and childcare (outcomes in Table 8, 9, and columns 1 and 2 of Table 10). Mental health index in column 3: (outcomes in Table 11). Finance index in column 4: saved money during the past 12 months, saved money in a formal institution, saved money in an informal institution, able to pay 20,000 FCFA in case of an emergency (outcomes in Table 12). Child development index in column 5: gross motor score, fine motor score, and language score (outcomes in Table 13).

Table 5: Effects on women's salaried activity outcomes

	(1) Brigadiere has done salaried work 1h last 30 days	(2) Brigadiere salaried work duration in hours per month	(3) Brigadiere total monthly salary income	(4) Brigadiere total monthly salary income (ihs)
Full sample				
ITT estimate	0.005	11.613	2993.193**	1.102**
	(0.057)	(9.091)	(1167.416)	(0.494)
Observations	1966	1967	1967	1967
R^2	0.106	0.221	0.212	0.139
Control mean	0.329	91.317	6494.465	3.480
Have child aged 0-2				
ITT estimate	0.031	17.549*	3267.278***	1.343***
	(0.062)	(9.386)	(1093.277)	(0.489)
Observations	1126	1127	1127	1127
R^2	0.096	0.237	0.219	0.139
Control mean	0.328	96.645	6452.145	3.460

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 6: Effects on women's agricultural activity outcomes

	(1) Brigadiere has worked on agr act 1h last 30 days	(2) Brigadiere agr act work duration in hours per month	(3) Brigadiere total monthly agr act income	(4) Brigadiere total monthly agr act income (ihs)
Full sample				
ITT estimate	-0.023	9.165	106.979	0.266
	(0.044)	(7.298)	(321.352)	(0.194)
Observations	1966	1967	1967	1967
R^2	0.106	0.367	0.433	0.144
Control mean	0.260	77.202	2581.367	1.201
Have child aged 0-2				
ITT estimate	-0.036	8.954	59.204	0.228
	(0.045)	(8.056)	(292.838)	(0.178)
Observations	1126	1127	1127	1127
R^2	0.134	0.349	0.433	0.143
Control mean	0.272	79.889	2733.261	1.282

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 7: Effects on women's non-agricultural activity outcomes

	(1) Brigadiere has worked on non-agr act 1h last 30 days	(2) Brigadiere non-agr act work duration in hours per month	(3) Brigadiere total monthly non-agr act income	(4) Brigadiere total monthly non-agr act income (ihs)
Full sample				
ITT estimate	0.065	0.681	721.356	-0.005
	(0.052)	(8.951)	(927.379)	(0.564)
Observations	1966	1967	1967	1967
R^2	0.060	0.189	0.331	0.123
Control mean	0.548	36.259	3230.932	2.244
Have child aged 0-2				
ITT estimate	0.062	0.564	875.980	0.050
	(0.047)	(8.637)	(797.004)	(0.496)
Observations	1126	1127	1127	1127
R^2	0.083	0.156	0.262	0.129
Control mean	0.543	34.192	2919.580	2.130

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 8: Effects on women's other empowerment outcomes

	(1) Index of brigadieres voice on decision making in the household (total)	(2) Index of brigadieres voice on decision making in the household (average)	(3) Index of brigadieres own decision making in the household (total)	(4) Index of brigadieres own decision making in the household (average)	(5) Husband or household member restrict wife visiting or working in last 6 months	(6) Justified that a husband beats his wife if she burns food or neglects children	(7) Work division and husband participation in work index (total)
Full sample							
ITT estimate	-0.209	-0.048	-0.075	-0.023	0.000	-0.005	0.004
	(0.185)	(0.037)	(0.344)	(0.070)	(0.013)	(0.045)	(0.222)
Observations	1967	1943	1967	1954	1967	1967	1967
R^2	0.123	0.141	0.083	0.090	0.027	0.034	0.170
Control mean	4.439	0.908	3.290	0.675	0.083	0.214	4.313
Have child aged 0-2							
ITT estimate	-0.300	-0.060	-0.144	-0.031	0.012	-0.002	-0.060
	(0.187)	(0.038)	(0.356)	(0.073)	(0.016)	(0.044)	(0.220)
Observations	1127	1117	1127	1120	1127	1127	1127
R^2	0.186	0.201	0.108	0.110	0.044	0.062	0.146
Control mean	4.427	0.901	3.274	0.668	0.087	0.222	4.361

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 9: Effects on intra-household dynamics

	(1) Brigadiere takes care of children alone	(2) Brigadiere often takes care of children	(3) Brigadiere takes care of children as well as her partner	(4) Brigadieres partner often takes care of children
Full sample				
ITT estimate	-0.031	-0.035	0.063	-0.001
	(0.048)	(0.060)	(0.041)	(0.026)
Observations	1788	1788	1788	1788
R^2	0.088	0.055	0.072	0.092
Control mean	0.307	0.505	0.153	0.034
Have child aged 0-2				
ITT estimate	-0.055	-0.020	0.077*	-0.003
	(0.043)	(0.058)	(0.038)	(0.027)
Observations	1035	1035	1035	1035
R^2	0.100	0.079	0.102	0.093
Control mean	0.325	0.495	0.145	0.034

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 10: Effects on women's time use

	(1) Taking care of children	(2) Cooking/washing/ housework	(3) At school	(4) Doing paid work
Full sample				
ITT estimate	-0.280	-0.130	0.018	0.613***
	(0.396)	(0.148)	(0.100)	(0.200)
Observations	1961	1964	1963	1963
R^2	0.249	0.184	0.527	0.135
Control mean	4.800	2.810	0.402	3.461
Have child aged 0-2				
ITT estimate	-0.069	-0.006	0.044	0.650**
	(0.387)	(0.153)	(0.094)	(0.253)
Observations	1122	1125	1124	1124
R^2	0.266	0.170	0.581	0.125
Control mean	4.765	2.723	0.418	3.266

Notes: Each column reports the number of hours spent on a given activity in the last 24 hours. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 11: Effects on women's psychological well-being

	(1) Depression score	(2) Depressed (score>10)	(3) Unhappiness
Full sample			
ITT estimate	-0.631	-0.075*	-0.143**
	(0.476)	(0.040)	(0.056)
Observations	1957	1957	1957
R^2	0.114	0.089	0.077
Control mean	10.920	0.604	2.315
Have child aged 0-2			
ITT estimate	-0.350	-0.054	-0.127**
	(0.412)	(0.035)	(0.055)
Observations	1121	1121	1121
R^2	0.111	0.087	0.102
Control mean	10.701	0.592	2.288

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 12: Effects on women's financial outcomes

	(1) Saved money during past 12 months	(2) Saved money via formal institution	(3) Saved money via informal institution	(4) Could pay 20000 CFA in case of urgent matter
Full sample				
ITT estimate	0.081**	0.079*	0.070*	0.108***
	(0.038)	(0.042)	(0.040)	(0.033)
Observations	1963	1967	1967	1967
R^2	0.060	0.074	0.041	0.052
Control mean	0.588	0.317	0.405	0.404
Have child aged 0-2				
ITT estimate	0.079*	0.088*	0.071	0.100***
	(0.044)	(0.045)	(0.047)	(0.033)
Observations	1124	1127	1127	1127
R^2	0.072	0.093	0.057	0.043
Control mean	0.583	0.306	0.412	0.387

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 13: Effects on child development

	(1) Gross motor score	(2) Fine motor score	(3) Language score	(4) Total child development score
Full sample				
ITT estimate	1.545***	2.748***	0.160	4.391***
	(0.498)	(0.640)	(0.528)	(1.343)
Observations	1618	1618	1618	1618
R^2	0.481	0.325	0.561	0.636
Control mean	43.524	20.689	34.816	99.029
Max score	52	54	46	152
Have child aged 0-2				
ITT estimate	1.939***	1.318**	0.832	3.895***
	(0.496)	(0.499)	(0.714)	(1.312)
Observations	717	717	717	717
R^2	0.534	0.257	0.538	0.636
Control mean	39.139	16.959	26.584	82.682
Max score	52	41	46	139

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table 14: Effects on main primary caregivers (duration in hours where)

	(1) mother cares for the child	(2) father cares for the child	(3) sister cares for the child	(4) brother cares for the child	(5) child in childcare center	(6) child with no care
Full sample						
ITT estimate	-0.258	-0.072	-0.050*	-0.022	0.352***	0.710
	(0.886)	(0.186)	(0.029)	(0.017)	(0.121)	(0.982)
Observations	2968	2968	2968	2968	2968	2968
R^2	0.107	0.248	0.546	0.524	0.326	0.161
Control mean	15.982	1.570	0.242	0.158	0.407	1.615
Have child aged 0-2						
ITT estimate	-0.204	-0.185	-0.034	0.006	0.398***	0.884
	(0.887)	(0.198)	(0.033)	(0.020)	(0.079)	(1.081)
Observations	1206	1206	1206	1206	1206	1206
R^2	0.101	0.232	0.488	0.483	0.317	0.184
Control mean	17.032	1.602	0.256	0.148	0.184	1.254

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Appendix

In the figures and tables that follow, we provide additional results with baseline balance tests for the subsample of households with children aged 0 to 2, robustness checks, and tests of heterogeneity.

Table A1: Baseline Balance Household level (Have a child aged 0-2)

	(1) Treatment		(2) Control		(3) Total		T-test Difference
Variable	N/[Clusters]	Mean/SE	N/[Clusters]	Mean/SE	N/[Clusters]	Mean/SE	(1)-(2)
Household level							
Household size	538	6.314	599	6.314	1137	6.314	0.000
	[18]	(0.302)	[18]	(0.211)	[36]	(0.178)	
Number of children aged 6 or less	538	1.784	599	1.828	1137	1.807	-0.044
	[18]	(0.089)	[18]	(0.054)	[36]	(0.050)	
Number of children aged 7 to 15 in the hh	538	1.496	599	1.516	1137	1.507	-0.020
	[18]	(0.102)	[18]	(0.102)	[36]	(0.071)	
Number of economically active members in the hh	538	1.877	599	1.907	1137	1.893	-0.029
	[18]	(0.106)	[18]	(0.085)	[36]	(0.067)	
DV =1 if household head is a female	534	0.092	598	0.075	1132	0.083	0.017
	[18]	(0.013)	[18]	(0.015)	[36]	(0.009)	
Household head age	534	39.234	598	39.403	1132	39.323	-0.169
	[18]	(0.518)	[18]	(0.429)	[36]	(0.330)	
DV=1 if the household head is a mossi	532	0.709	596	0.735	1128	0.723	-0.026
	[18]	(0.094)	[18]	(0.074)	[36]	(0.058)	
DV=1 if hh head is in monogamous marriage	534	0.697	597	0.675	1131	0.685	0.022
	[18]	(0.038)	[18]	(0.043)	[36]	(0.029)	
DV=1 if the household head is non educated	534	0.446	598	0.421	1132	0.433	0.024
	[18]	(0.038)	[18]	(0.031)	[36]	(0.024)	
DV=1 if household head is working	534	0.794	597	0.774	1131	0.783	0.020
	[18]	(0.021)	[18]	(0.030)	[36]	(0.018)	
Age of brigadiere	538	29.322	599	29.728	1137	29.536	-0.406
	[18]	(0.353)	[18]	(0.309)	[36]	(0.234)	
Brigadiere is in monogamous marriage	538	0.675	599	0.664	1137	0.669	0.010
	[18]	(0.035)	[18]	(0.044)	[36]	(0.028)	
Brigadiere is non educated	538	0.387	599	0.464	1137	0.427	-0.077**
	[18]	(0.029)	[18]	(0.035)	[36]	(0.024)	
Brigadiere total monthly income	538	17381.325	599	19767.549	1137	18638.448	-2386.224
	[18]	(3120.340)	[18]	(4465.018)	[36]	(2781.537)	
Brigadiere total work duration in hours per week	538	27.965	599	36.081	1137	32.241	-8.115**
	[18]	(4.068)	[18]	(4.927)	[36]	(3.510)	
Brigadiere has worked for 1 h last 30 days	538	0.980	599	0.970	1137	0.974	0.010
	[18]	(0.008)	[18]	(0.013)	[36]	(0.008)	
Brigadiere has worked for 1 h last 6 months	538	0.993	599	0.987	1137	0.989	0.006
	[18]	(0.004)	[18]	(0.007)	[36]	(0.004)	
Time in hours taking care of children during last 24h	538	6.505	599	6.824	1137	6.673	-0.319
	[18]	(0.457)	[18]	(0.194)	[36]	(0.230)	
Time in hours taking for cooking/washing/housework during last 24h	538	2.426	599	2.649	1137	2.543	-0.222**
	[18]	(0.110)	[18]	(0.093)	[36]	(0.077)	
Time in hours spending at school during last 24h	538	0.082	599	0.038	1137	0.059	0.043
	[18]	(0.039)	[18]	(0.023)	[36]	(0.022)	
Time in hours doing a paid job during last 24h	538	3.413	599	3.329	1137	3.369	0.083
	[18]	(0.251)	[18]	(0.389)	[36]	(0.235)	
Household had any children in a creche in the past 24 hours	538	0.022	599	0.008	1137	0.015	0.014*
	[18]	(0.009)	[18]	(0.003)	[36]	(0.004)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at variable commune. Fixed effects using variable id_sample are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table A2: Baseline Balance Child level (Is a child aged 0-2)

Variable	(1) Treatment N/[Clusters]	(1) Treatment Mean/SE	(2) Control N/[Clusters]	(2) Control Mean/SE	(3) Total N/[Clusters]	(3) Total Mean/SE	T-test Difference (1)-(2)
Child level							
Child is female	587	0.491	653	0.487	1240	0.489	0.004
	[18]	(0.014)	[18]	(0.013)	[36]	(0.009)	
Child age	587	1.136	653	1.240	1240	1.191	-0.104***
	[18]	(0.044)	[18]	(0.046)	[36]	(0.031)	
Biological mother is in the household	584	0.971	650	0.972	1234	0.972	-0.001
	[18]	(0.008)	[18]	(0.009)	[36]	(0.006)	
Child is the household head son/daughter	586	0.860	651	0.877	1237	0.869	-0.017
	[18]	(0.030)	[18]	(0.010)	[36]	(0.015)	
Gross motor score	493	23.968	544	24.449	1037	24.220	-0.481
	[18]	(0.639)	[18]	(0.667)	[36]	(0.448)	
Fine motor score	493	14.422	544	14.645	1037	14.539	-0.223*
	[18]	(0.412)	[18]	(0.335)	[36]	(0.256)	
Language score	493	14.389	544	14.550	1037	14.473	-0.160
	[18]	(0.573)	[18]	(0.517)	[36]	(0.376)	
Total child development score	493	52.779	544	53.643	1037	53.232	-0.864
	[18]	(1.581)	[18]	(1.463)	[36]	(1.044)	
The duration in hours where mother keeps the child	584	4.125	650	4.274	1234	4.204	-0.149
	[18]	(0.217)	[18]	(0.229)	[36]	(0.157)	
The duration in hours where father keeps the child	584	0.189	650	0.182	1234	0.185	0.007
	[18]	(0.038)	[18]	(0.032)	[36]	(0.024)	
The duration in hours where sister keeps the child	584	0.100	650	0.161	1234	0.132	-0.062**
	[18]	(0.021)	[18]	(0.031)	[36]	(0.021)	
The duration in hours where brother keeps the child	584	0.037	650	0.048	1234	0.043	-0.011
	[18]	(0.011)	[18]	(0.014)	[36]	(0.009)	
The duration in hours where another familly member keeps the child	584	0.659	650	0.695	1234	0.678	-0.037
	[18]	(0.067)	[18]	(0.057)	[36]	(0.043)	
The duration in hours where non familly member keeps the child	584	0.146	650	0.112	1234	0.128	0.034
	[18]	(0.034)	[18]	(0.027)	[36]	(0.021)	
The duration in hours of the child in the caring center	584	0.033	650	0.000	1234	0.015	0.033***
	[18]	(0.013)	[18]	(0.000)	[36]	(0.006)	
The duration in hours of the child with no care	584	12.682	650	12.402	1234	12.534	0.280
	[18]	(0.492)	[18]	(0.506)	[36]	(0.350)	
Child used a creche in the past 24 hours	584	0.012	650	0.000	1234	0.006	0.012***
	[18]	(0.005)	[18]	(0.000)	[36]	(0.002)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at variable commune. Fixed effects using variable id_sample are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table A3: Robustness checks for primary outcome indicators

	(1) Brigadier has worked for 1 h last 30 days	(2) Brigadier total work duration in hours per month	(3) Brigadiere time in hours doing paid work during last 24h	(4) Brigadier total monthly income	(5) Brigadier total monthly income (ihs)	(6) Total child development score
Full sample						
ITT estimate	-0.023	19.591	0.550***	3531.518	0.698*	4.302***
	(0.038)	(14.645)	(0.198)	(2176.089)	(0.405)	(1.350)
Lee lower bound ITT	-0.038	15.026	0.475**	3265.859	0.575	3.963***
	(0.037)	(14.910)	(0.197)	(2211.038)	(0.398)	(1.331)
Lee upper bound ITT	-0.017	31.031**	0.768***	5482.407**	0.849**	4.690***
	(0.038)	(13.437)	(0.197)	(2040.422)	(0.400)	(1.293)
TOT estimate	-0.097	82.841	2.332***	14963.922*	2.964*	18.706***
	(0.159)	(62.977)	(0.885)	(8637.942)	(1.682)	(6.479)
Observations	1966	1967	1963	1967	1967	1618
R^2	0.082	0.100	0.068	0.051	0.070	0.633
Control mean	0.723	206.864	3.461	12936.754	5.856	99.029
Rand. inference pvalues	0.580	0.380	0.200	0.180	0.340	0.020
Have child aged 0-2						
ITT estimate	0.009	24.535*	0.671**	3285.891*	1.022**	3.895***
	(0.040)	(12.802)	(0.252)	(1856.626)	(0.404)	(1.312)
Lee lower bound ITT	-0.013	19.382	0.575**	2981.112	0.881**	3.366**
	(0.038)	(12.681)	(0.256)	(1849.512)	(0.395)	(1.331)
Lee upper bound ITT	0.019	36.492***	0.913***	5564.845***	1.201***	4.609***
	(0.039)	(11.927)	(0.259)	(1554.561)	(0.403)	(1.313)
TOT estimate	0.035	96.029*	2.644**	12886.256**	4.007***	14.619***
	(0.153)	(51.218)	(1.054)	(6493.315)	(1.552)	(4.956)
Observations	1126	1127	1124	1127	1127	717
R^2	0.088	0.102	0.086	0.048	0.062	0.636
Control mean	0.706	212.704	3.266	13012.128	5.728	82.682
Rand. inference pvalues	0.940	0.360	0.060	0.180	0.060	0.040

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.Each cell represents one estimate of the mean effect for a family of outcomes. Intent to Treat (ITT) effects estimated using the ANCOVA specification in equation 1 and TOT effects estimated using the specification in equation 2.

Table A4: Joint test of orthogonality

	Prob > F	Joint test at 5% level
Household level		
Full sample	0.0039	Rejected
Have child 0-2	0.0000	Rejected
Child level		
Full sample	0.0008	Rejected
His child 0-2	0.0000	Rejected

Table A5: Depression score variables

Score	Variables
Depression	She was bothered by details of daily life more than usual She had trouble concentrating on what you were doing She felt sad She felt that everything she did took all her energy She felt nervous, tense or worried She had trouble sleeping peacefully She felt alone She was so tired that she couldn't do anything She was confident in the future She was happy

Table A6: Composition of summary indices

Index	Variables
Employment	Brigadiere has done a salary work for 1h last 30 days Brigadiere has worked 1h on non-agr act last 30 days Brigadiere has worked 1h on agr act last 30 days Brigadier total monthly salary income win at 99% Brigadier total monthly non agricole activity income win at 99% Brigadier total monthly agr activity income win at 99% Brigadier total working hours in a month on agr act win at 99% Brigadier total working hours in a month on non agr act win at 99% Brigadier total working hours in a month on salary act win at 99% Time in hours doing a paid job during last 24h win at 99% IHS of Brigadier total monthly salary income win at 99% IHS Brigadier total monthly non agricole activity income win at 99% ihs IHS Brigadier total monthly agr activ income win at 99%
Decision and attitude	Index of brigadiere's voice on decision making in the household (total) Index of brigadiere's voice on decision making in the household (average) Index of brigadiere's own decision making in the household (total) Index of brigadiere's own decision making in the household (average) (Reverse) Husband or a household member restrict wife to visit or to work, last 6 months (Reverse) Justified that a husband beats his wife if she burns food or neglects children (Reverse) Brigadiere takes care of children alone (Reverse) Brigadiere often takes care of children Brigadiere takes care of children as well as her partner Brigadiere's partner takes often care of children Work division and husband participation to work index (total) (Reverse) Time in hours taking care of children during last 24h win at 99% (Reverse) Time in hours taking for cooking/washing/housework during last 24h win at 99%
Mental health	(Reverse) Unhappiness (Reverse) Depression score (Reverse) DV=1 if depressed (score>10)
Financial	Brigadiere has saved money during past 12 months DV=1 if brigadiere has saved money via formal institution Brigadiere has saved money via informal institution Brigadiere could pay 20000 FC in case of urgent mater
Child development	Gross motor score win at 99% Fine motor score win at 99% Language score win at 99%

Table A7: Effects on summary outcome measures (excluding missing observations)

	(1) Women's employment	(2) Women's decision-making	(3) Women's mental health	(4) Women's finance	(5) Child development
Full sample					
ITT estimate	0.084**	-0.014	0.162**	0.175***	0.175***
	(0.040)	(0.047)	(0.069)	(0.058)	(0.052)
Lee lower bound ITT	0.069*	-0.040	0.123*	0.156**	0.162***
	(0.040)	(0.048)	(0.068)	(0.058)	(0.051)
Lee upper bound ITT	0.117***	0.009	0.202***	0.202***	0.190***
	(0.036)	(0.045)	(0.068)	(0.056)	(0.049)
Rand. inference pvalues	0.180	0.800	0.200	0.120	0.020
TOT estimate	0.354**	-0.061	0.687**	0.743***	0.759***
	(0.168)	(0.196)	(0.282)	(0.256)	(0.251)
Observations	1963	1785	1957	1963	1618
R^2	0.080	0.116	0.117	0.083	0.620
Control mean	0.001	0.017	0.000	-0.001	-0.098

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A8: Effects on the use of childcare centers (excluding BAM)

	(1) Household had any children in a creche in the past 24 hours	(2) At least one child attended a creche in the past 12 months	(3) At least one child attended public works creche in the past 12 months	(4) Number of months child attended public works creche(average at hh level)
Full sample				
ITT estimate	0.119***	0.241***	0.235***	0.530***
	(0.026)	(0.026)	(0.027)	(0.095)
Observations	1961	1965	1965	1965
R^2	0.051	0.127	0.181	0.103
Control mean	0.100	0.120	0.003	0.344
Full sample without BAM				
ITT estimate	0.096***	0.205***	0.204***	0.391***
	(0.027)	(0.022)	(0.023)	(0.084)
Observations	1894	1898	1898	1898
R^2	0.040	0.100	0.153	0.079
Control mean	0.100	0.120	0.003	0.344

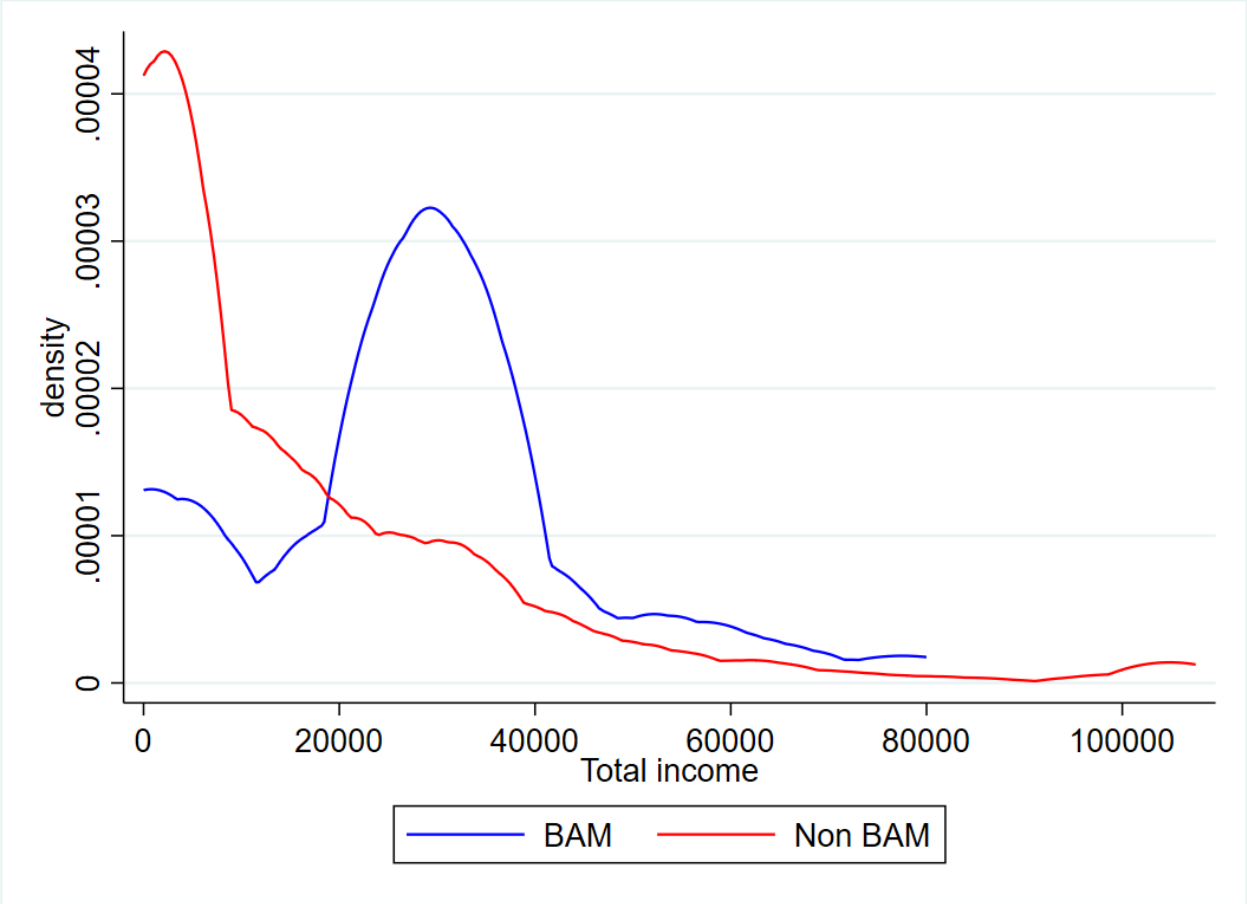
Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Table A9: Effect on summary outcome measures (excluding BAM)

	(1) Women's employment	(2) Women's decision-making	(3) Women's mental health	(4) Women's finance	(5) Child development
Full sample					
ITT estimate	0.083**	0.002	0.162**	0.174***	0.203***
	(0.040)	(0.045)	(0.069)	(0.058)	(0.058)
Observations	1967	1967	1957	1967	1618
R^2	0.081	0.108	0.117	0.083	0.608
Control mean	-0.000	-0.008	-0.000	-0.000	0.000
Full sample without BAM					
ITT estimate	0.068*	0.004	0.153**	0.164***	0.196***
	(0.040)	(0.045)	(0.069)	(0.057)	(0.058)
Observations	1900	1900	1890	1900	1557
R^2	0.085	0.112	0.112	0.080	0.605
Control mean	-0.000	-0.008	-0.000	-0.000	0.000

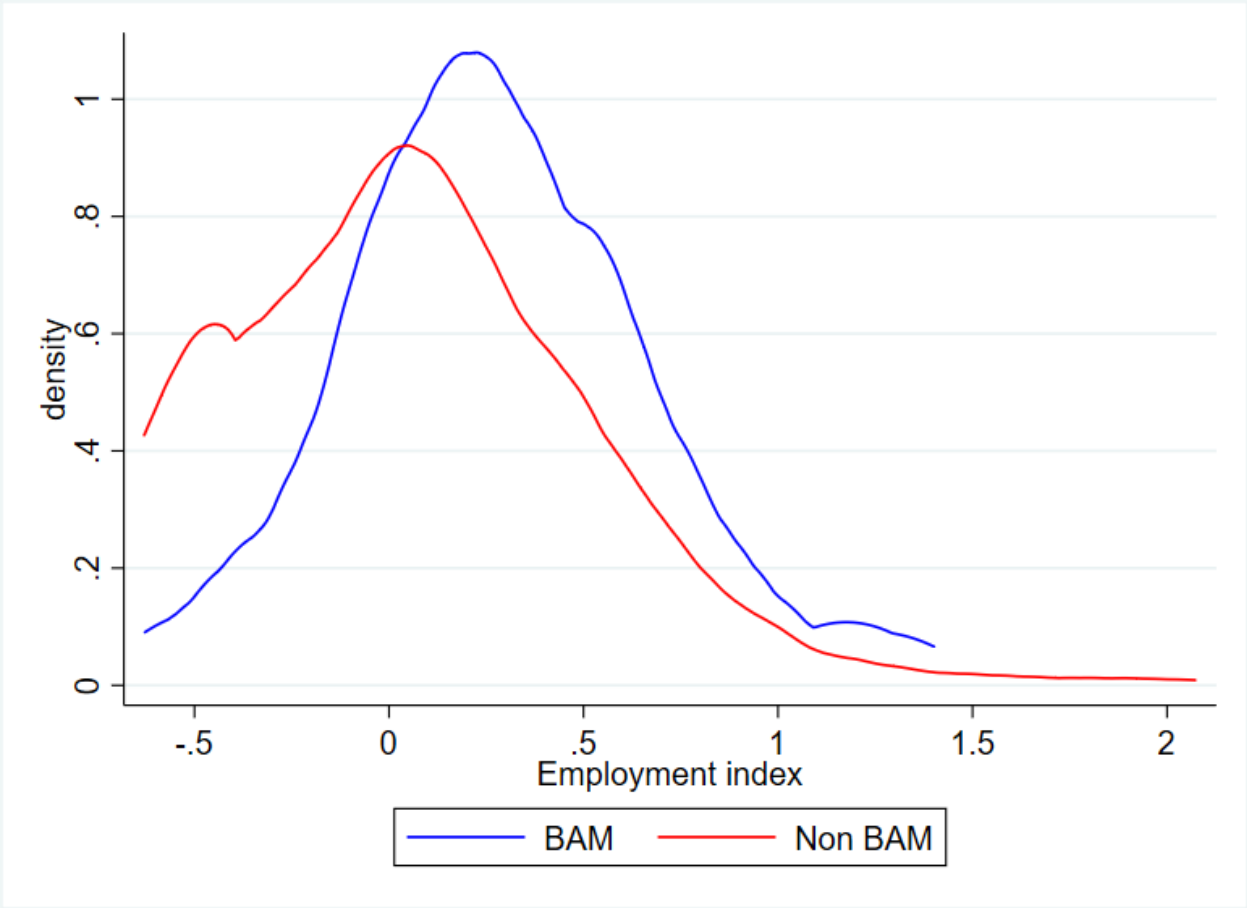
Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.10.

Figure A1: Total monthly income distribution in treated sites



Notes: This figure displays the distribution of monthly income for public works participants in the 18 treatment sites, distinguishing participants who worked as childcare center attendants (BAM) from those who did not work as childcare center attendants (non-BAM).

Figure A2: Employment index distribution in treated sites



Notes: This figure displays the distribution of employment index for public works participants in the 18 treatment sites, distinguishing participants who worked as childcare center attendants (BAM) from those who did not work as childcare center attendants (non-BAM).

Figure A3: Total monthly income distribution by treatment site (without BAM)

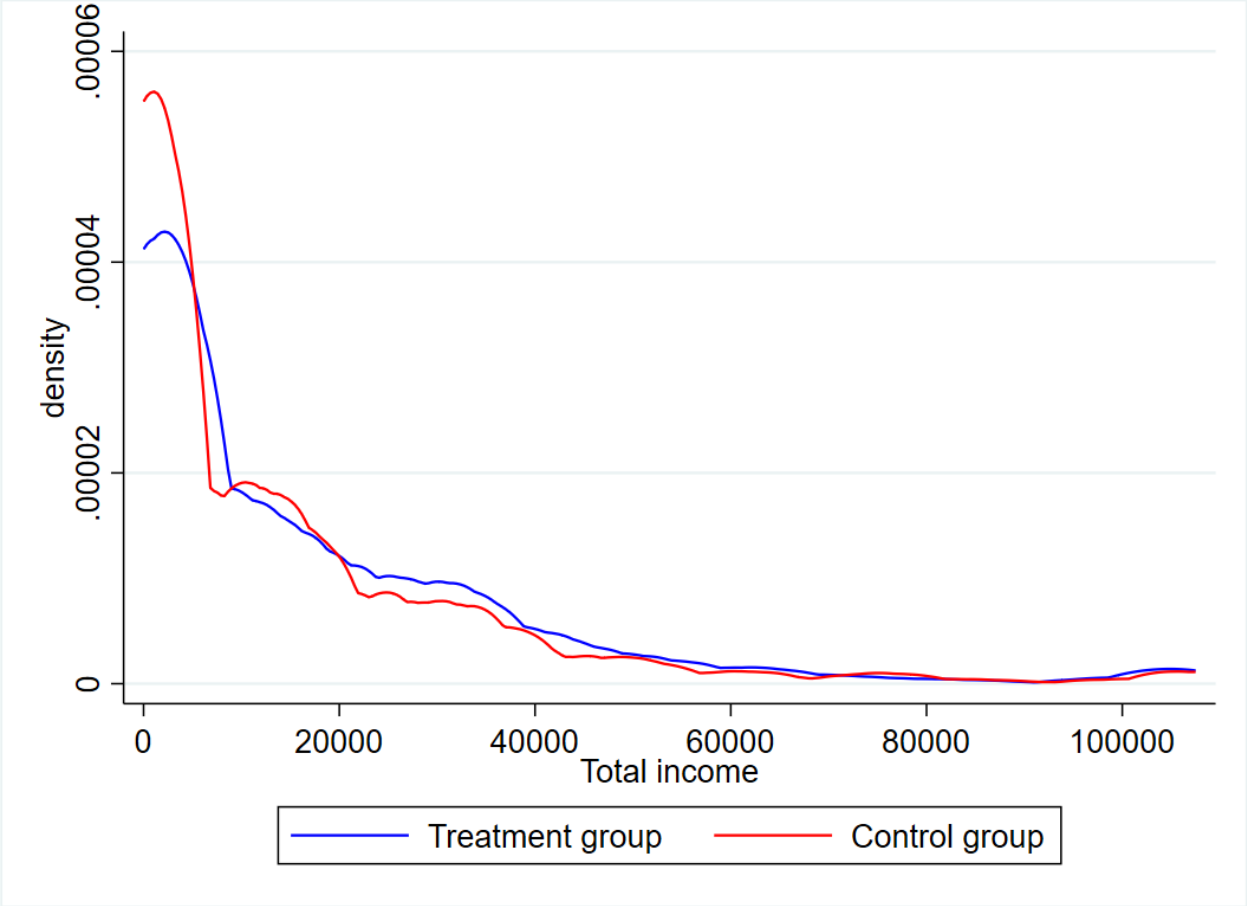


Figure A4: Employment index distribution by treatment site (without BAM)