Gender Gaps: Back and Here to Stay? Evidence from Skilled Ugandan Workers during COVID-19

Livia Alfonsi* Mary Namubiru† Sara Spaziani‡

May 28, 2023

Abstract

We investigate gender disparities in the effect of COVID-19 on the labor market outcomes of skilled Ugandan workers. Leveraging a high-frequency panel dataset, we find that the lockdowns imposed in Uganda reduced employment by 69% for women and by 45% for men, generating a previously nonexistent gender gap of 20 p.p. Eighteen months after the onset of the pandemic, the gap persisted: while men quickly recovered their pre-pandemic career trajectories, 10% of the previously employed women remained jobless and another 35% remained occasionally employed. Additionally, the lockdowns shifted female workers from wage-employment to self-employment, relocated them into agriculture and other unskilled sectors misaligned with their skill sets, and widened the gender pay gap. Pre-pandemic sorting of women into economic sectors subject to the strongest restrictions and childcare responsibilities induced by schools' prolonged closure only explain up to 65% of the employment gap.

Keywords: Female Employment, Gender Gap, COVID-19, Sub-Saharan Africa, Shecession, Sherecovery

JEL codes: J13, J16, J21, J22, J24, O12

*Department of Agricultural and Resource Economics, Giannini Hall 3310 University of California Berkeley, CA 94720-3310, United States. livia.alfonsi@berkeley.edu.

†BRAC Uganda. Plot 880 Heritage Drive, Kampala, Uganda. namubiruma@gmail.com.

‡Department of Economics, Brown University, 64 Waterman Street, Providence, RI 02906, United States. sara_spaziani@brown.edu. Corresponding author.

1 Introduction

To curb the spread of COVID-19, governments implemented unprecedented measures to restrict economic activity and individual mobility. Early evidence shows that, all over the world, these restrictions disproportionately affected female workers, who lost their jobs at a greater rate than male ones, and female entrepreneurs, whose businesses saw a disproportionate decline in revenues and workforce.[1] While in the Global North these gendered effects have largely dissipated following the easing of the restrictions (Bluedorn et al. 2021; Lee et al. 2021), it is unclear whether the same holds true in the Global South, where low-capacity countries have mostly been unable to provide targeted support to workers and firms in economic distress and the labor market recovery is slowest (ILO 2022b). As the integration of female talent in the labor force is a key determinant of GDP growth (Papageorgiou et al. 2018; Hsieh et al. 2019), evaluating how skilled female workers and entrepreneurs in low-income economies have been affected by COVID-19 is crucial for understanding how productivity will fare in these regions once the pandemic subsides.

To make progress on this question, we investigate gender disparities in the effects of two nationwide lockdowns implemented in Uganda on the labor market outcomes of a sample of 714 young, urban, and highly skilled workers and entrepreneurs who, pre-pandemic, received post-secondary vocational education and were employed in a wide range of manufacturing and services sectors. These workers, representing the top 3% of the country's education distribution and characterized by no gender differences in pre-pandemic employment rate and job security, should not be considered as representative of the Ugandan youth, but rather the expression of the emerging urban working class driving the country's structural transformation.

Relying on a unique high-frequency panel dataset spanning from January 2020 to September 2021, we track these workers' labor market outcomes before, during and after the lockdowns, evaluate gender differences in the early responses to the lockdowns and in recovery patterns, and investigate the root causes of the observed trends.

We find that the first lockdown reduced the employment rate by 53 p.p. (69% over the baseline level) among female workers and by 35 p.p. (45%) among male workers, generating an employment gender gap of 20 p.p. Once the restrictions were lifted, male employment rate was back to its pre-pandemic level in six months. Conversely, as 10% of the previously employed women remained jobless and 35% became occasionally employed, female employment rate remained below its pre-pandemic projection. The employment gender gap, further amplified by the second lockdown that once again disproportionately reduced female employment, persisted eighteen months after the onset of the pandemic. We identify three additional gendered responses. First, the disproportionate job losses experienced by female wage-employees resulted in a more pronounced shift towards self-employment.

[1] Adams-Prassl et al. (2020); Amuedo-Dorantes et al. (2020); Deshpande (2020); Farré et al. (2020); Heggeness (2020); Kristal et al. (2020); Andrew et al. (2021); Casale et al. (2021); Dang et al. (2021); Kikuchi et al. (2021); Landivar et al. (2020); Reichelt et al. (2021); Kugler et al. (2021); Alon et al. (2022); and Casale et al. (2022) find disproportionate effects of the economic restrictions on female workers. Torres et al. (2021); Gulesci et al. (2021); and Alfonsi et al. (2021) focus on entrepreneurs.

Second, the lockdowns displaced women from the sectors in which they received vocational training and relocated them into agriculture and other unskilled sectors. Third, the earnings gender gap widened. The transition of female workers towards sectors in which they cannot leverage their comparative advantage and experience is likely to induce a disproportionate depreciation of their productive skills. This is especially worrisome when considering the monetary and time investment in vocational education made by these workers.

We investigate two possible determinants of these dynamics identified by the literature: female workers' concentration in economic sectors deemed as non-essential and with higher risk of infection (Alon et al. 2020; Couch 2020) and the extraordinary childcare responsibilities generated by schools' closures (Del Boca et al. 2020; Couch 2020; Farré et al. 2020; Hupkau et al. 2020; Andrew et al. 2021; Oreffice et al. 2021; Sevilla et al. 2020; Zamarro et al. 2021; Alon et al. 2022). Pre-pandemic, our female respondents were over-represented in sectors subject to the strongest restrictions. Initial closures in these sectors explain 50% of the employment gender gap during the first lockdown; their contribution gradually declines after the restrictions are lifted, but once again rises to 13% during the second lockdown. Moreover, in periods of schools' closure employment declines with the number of school-age children in the household for women but not for men. Childcare responsibilities contribute between 11% and 24% of the employment gender gap in the later stage of the pandemic, following the prolonged school closure. We estimate that, together, gender differences in employment sectors and childcare responsibilities explain up to 65% of the employment gender gap. Consistent with evidence from high- and low- income countries, a considerable share of the gap remains unexplained (Adams-Prassl et al. 2020; Montenovo et al. 2020; Furman et al. 2021; Kugler et al. 2021).

The gender gap in job losses of 20 p.p. we observe is considerably larger than the 2.5-9 p.p. gap documented in other high- and low- income countries for more representative populations (Stantcheva 2022; Kugler et al. 2021; Alon et al. 2022; Casale et al. 2022). We identify three drivers of such large and persistent effect. First, our young respondents were hit by the pandemic in the earliest, most vulnerable stage of their careers. Several studies consistently find larger job losses (Liang et al. 2022; Montenovo et al. 2020; Kikuchi et al. 2021; Lee et al. 2021; Kugler et al. 2021) and gender differentials (Kristal et al. 2020) among the youth. Second, our respondents were largely employed outside the relatively more sheltered agricultural sector and, given the hands-on nature of their jobs, they were mostly unable to work from home. Third, our respondents could not rely on publicly financed retention schemes, which supported about 50 million jobs across OECD countries (OECD 2020).

We contribute to the literature on the gendered effects of COVID-19 in three ways. First, with a unique dataset we assembled, we provide an otherwise unavailable look at how the pandemic affected the emerging class of skilled urban workers in a low income-country, for which we find large and persistent gendered effects. This finding expands our understanding of the effects of COVID-19 in the Global South. Evidence from Nigeria shows that gender gaps quickly dissipated in settings characterized by the prevalence of agricultural or other non-farm

subsistence activities (Alon et al. 2022). Our results suggest the existence of heterogeneous recovery patterns for different segments of the labor market: even in highly agricultural countries, women employed in manufacturing and services, strongly resembling the workforce of more advanced economies, may never fully recover without targeted support. Consistent with our hypothesis, recent studies report partial recovery and enduring gender gaps in labor market outcomes for the subpopulations of female wage employees across ten low-income countries (Kugler et al. 2021), for female workers in South Africa–a more economically diversified middle-income country (Casale et al. 2022), and for female return migrants previously employed in urban settings in India (Allard et al. 2022). Overall corroborating our view and concerns, the latest estimates from the Global South confirm that female employment is recovering at a slower pace than male employment, contributing to a growing employment gender gap globally (ILO 2022a). Second, we provide new insights on how the effects of the pandemic compare between the Global North, where highly educated women were the least affected (Adams-Prassl et al. 2020, Foucault et al. 2020, Lee et al. 2021), and the Global South, where women from some highly educated groups experienced large and persistent effects. Third, while most studies use single or repeated cross-sections and short panels, we leverage one of the longest panel datasets spanning the COVID-19 pandemic. The panel structure of our data, the extended time span it covers, and the availability of pre-pandemic information allow us to monitor labor market trajectories in and out of employment and across sectors, test the persistence of the initial shock for eighteen months, and isolate the specific effects of COVID-19 containment measures from pre-trends.

The findings of this paper indicate that the labor market trajectories of economically empowered women in low-income countries are highly vulnerable to temporary economic shocks. If not pressingly tackled, the labor market disconnection and sectorial misallocation of skilled female workers induced by the COVID-19 pandemic may result in additional barriers to economic growth. Governments, international organizations, and NGOs should prioritize supporting enterprises in female-dominated sectors and women seeking stable employment. Closing the employment gender gap will additionally require identifying the forces behind its unexplained portion, such as employer discrimination or social norms.

2 Context

Uganda has 78% of the population aged below 30 (International Youth Foundation 2011) and a youth underutilization rate of 68% (ILO 2017). To address the prevailing skills mismatches and workers' underqualification, in 2012 the Ugandan government implemented a decennial strategic plan aimed at reinforcing its vocational education system (EPRC 2021), which proved effective at generating productive human capital (Alfonsi et al. 2020). Currently representing 4% of the youths, post-secondary vocational graduates have above mean employment rates and earnings.[2] This highly skilled group was projected to grow as further educational and labor market

[2]Authors' elaboration of the latest Uganda National Household Survey from 2016/2017.

opportunities emerged with the country's sustained economic growth (EPRC 2021).

The positive economic outlook was, however, undermined by the COVID-19 shock, which contracted the economy to its slowest pace in three decades (World Bank 2021). To curb the spread of the virus, the government implemented one of Africa's strictest sets of nationwide containment measures. It closed schools on March 20, 2020, and non-essential businesses during a first national lockdown implemented between March 30 and May 26, 2020. The government also imposed travel bans for vehicles and a dusk-to-dawn curfew. While most restrictions for economic activity were lifted in June 2020, schools remained closed until February 2021 when, except for pre-primary schools, they gradually reopened.[3] Amid the fear of a second wave of cases, the government imposed a second, milder, lockdown between June 19 and July 31, 2021. Although most businesses were not shut down, travel limits, a stringent curfew, the suspension of public transportation, and the new school closure lasting until January 2022 hindered once again the fragile economic recovery.

3 Data and sample

3.1 The panel dataset

The sample we assembled consists of 714 young and skilled workers who graduated between 2014 and 2019 from five vocational training institutes (VTIs) located in the Central and Eastern regions of Uganda.[4], [5] Given the high technology access and educational attainment of our population, we conducted all surveys by phone. This initial choice allowed us to avoid disruptions in our data collection process once COVID-19 hit and phone interviews became the only tool to collect time-sensitive information. As Figure 1 shows, we interviewed our respondents in January, July and December 2020 and in September 2021. In each survey round, we collected detailed current and retrospective information, and obtained five additional data points for each respondent: the time of the first

[3] Exceptionally, schools reopened in October 2020 for students enrolled in the last year of their education cycle.

[4] Like most Ugandan VTIs, none of these five tracked their graduates' career developments nor kept their updated contacts. We therefore collected and digitized schools' hard copies of registries for multiple cohorts of graduates, obtained contacts for 1,368 alumni, and successfully contacted 52% of them. Our sample is not evidently selected with respect to the eligible population: due to the written nature and manual entry of the records, the digitization process was prone to error; additionally, the progressive implementation of the 2013 mandate of the Uganda Communication Commission to register all SIM-cards exogenously pushed many to change their phone numbers. Figure A.1 shows an example of the digitized material.

[5] This work was implemented in partnership with BRAC Uganda as a spin-off study of the Meet Your Future Project (Alfonsi et al. 2023), a randomized control trial connecting graduating vocational students with successful alumni of their schools to facilitate students' transition into the labor market. The respondents of this study represent the pool of alumni from which we selected 154 young professionals who participated to the project as mentors for the students. To identify successful alumni who could provide quality mentorship to the students, we collected detailed information about their demographics, education, and work experience. Some of the variables we collected to make the selection are also primary outcomes in this study. There is no reason to believe that our respondents manipulated their answers to increase their chances to be selected. First, because the selection was based on merit but also on the goal to recruit mentors for each combination of school and course of study for which we had students, reducing the competition based on personal traits. Second, because the symbolic compensation and travel reimbursement we promised to respondents selected as mentors were likely insufficient to generate misreporting incentives, especially when weighted against the significant time and commitment that mentors put into preparation and actual implementation of the program. Third, because we elicited respondents' broad interest in the project without informing them about the selection criteria. Hence, they were in practice unable to manipulate their score. Additionally, given our effort to find male and female mentors in similar fashion, there is no reason to believe that misreporting incentives differed by gender. Our findings are robust to excluding the respondents who served as mentors in the Meet Your Future Project from the sample.

activity after graduation, different for each respondent potentially coinciding with January 2020, March and May 2020, and May and July 2021.[6] Measuring labor market outcomes before, during, and after the two lockdowns allows us to evaluate both early responses to the lockdowns and the persistence of the effects eighteen months from the onset of the crisis.

3.2 The study population

Our respondents graduated from the National Certificate, a post-secondary education vocational program providing trainees with a nationally accredited skills certificate. They received training in electrical wiring (23%), motor mechanics (19%), food and hospitality (15%), plumbing (12%), tailoring (8%), secretarial and accounting studies (7%), construction (5%), early childhood development (5%), hairdressing (3%), agriculture, welding, carpentry, and machining and fitting (1% or less).

Table 1 reports the respondents' baseline characteristics: they are on average 25 years old, they come from all over the country, 36% are married, and 47% have children. Pre-pandemic, 56% of them were paid employees, 21% owned a business, 13% were without an occupation,[7] and a few were enrolled in educational programs or engaged in causal occupations.

Women represent 41% of the sample. Despite being on average 1.5 years younger than men, they are as likely to be married, and live with more school-age children. Crucially, pre-pandemic female workers are as likely as male ones to be employed and hold quality jobs, as indicated by the absence of gender differences in labor market experience, the employment rates in skilled sectors and in the training sector, the self-employment rate, and the probability to work in, or own, a registered firm. Women are also more likely to have a permanent job and less likely to be engaged in casual occupations. These statistics suggest that our female respondents are among the most economically empowered women in Uganda.

3.3 Representativeness

The uniqueness of our sample clearly emerges when comparing it to the population of young Ugandan adults in the Uganda National Household Survey from 2016/2017 (UNHS). With 15+ completed years of education, our workers

[6] The possibility that our respondents suffered from recollection bias is the main risk from using retrospective information. If true, we could overstate the autocorrelation between outcomes over time (Godlonton et al. 2018), and the existence of a gender gap in our outcomes at the time of measurement may lead us to overestimate the gap in recollected periods. To explain this point, suppose that the employment rate is lower for women than for men at time T, where there is no reporting bias. Then, women would be more likely, due to recollection bias, to say they were not employed in T-1; the opposite would be true for men, and we would overstate the employment gender gap in T-1. There are, however, several reasons why recollection bias is likely limited in our context. First, recollection bias is more pronounced among poor individuals (Das et al. 2012), while our respondents belong to the top tail of the education and income distribution in Uganda. Second, salient events are less subject to recollection bias (Beegle et al. 2012, Das et al. 2012). We structured our questionnaire to clearly identify moments before, during, or after the two nationwide lockdowns, which were disruptive events with tremendous consequences on the lives of our respondents and far beyond. We thus believe that our respondents accurately tracked their labor market outcomes around the lockdowns. Additionally, even if the recollected data points were considered unreliable and dropped from our analysis, all our conclusions would still apply.

[7] In our data we cannot distinguish unemployed and not economically active individuals.

belong to the top 3% of the education distribution for Ugandan youths (Figure A.2). Their employment rate in non-agricultural occupations and earnings are 27 p.p. (56%) and $33 (46%) higher than average respectively (Table 2). In stark contrast with the average Ugandan youth, largely employed in agriculture or unskilled occupations, 85% of the employed respondents were working in skilled, non-agricultural jobs (Table 3).

When comparing our sample to post-secondary VTI graduates from the UNHS, we find smaller differences in socio-economic and labor market characteristics (Table 2) and a high sectorial overlap (Table 3). Although all differences shrink, they remain significant. This positive selection is plausibly driven by the quality of the VTIs from which our workers graduated (which were pre-selected by BRAC Uganda based on their reputation, infrastructure, equipment, and teachers' educational attainment) and by the fact that most of our graduates reside in the country's richest urban areas. Accordingly, our findings extend to other top-notch, young and skilled workers in urban Sub-Saharan Africa.

3.4 Attrition

We successfully interviewed 714 workers in January 2020, 615 in July 2020 (attrition rate: 14%), 561 in December 2020 (21%) and 561 in September 2021 (21%).[8] Table 4 investigates the existence of differential attrition by gender. While we find no evidence of differential probability to reach female and male respondents in the first three survey rounds, female respondents are 6.2 p.p. less likely to be interviewed in the last one. We further investigate this issue by classifying female and male respondents into *Never* and *Ever* Attritors, depending on whether we were able or not to interview them in all the four survey rounds, and comparing their baseline characteristics in Table 5. Reassuringly, female Ever and Never Attritors do not significantly differ by any key baseline characteristics, suggesting that our findings are not driven by compositional changes in the female sample correlated with the COVID-19 shock. Male Ever Attritors do not differ from male Never Attritors on wage and self- employment rates nor earnings. However, male Ever Attritors are less likely to be employed in skilled and training sectors (suggesting they are negatively selected, and our estimated gender gaps are an upper bound), but are also more likely to be employed in a permanent job (pushing in the opposite direction). Combined, these findings suggest that male Ever and Never Attritors are not systematically different. Table A.1, comparing Ever and Never Attritors after pooling men and women, introduces no new determinants of attrition. In Section 4.3 we show that our results remain robust in the balanced panel of Never Attritors, and in 63-100% (depending on the outcome) of the scenarios about attritors' employment we build around the possibility that Ever Attritors are either positively or negatively selected; the results only disappear under implausible assumptions.

[8] Our attrition rates are aligned with the literature: 15% on average across 91 RCTs published in top economics journals (Ghanem et al. 2019) and 18% in studies surveying youth (Bandiera et al. 2020).

4 Results

4.1 Empirical Strategy

We provide evidence of the emergence and persistence of new gender gaps in the labor market by plotting average employment rate, employment rate in the training sector, employment rate in skilled sectors, and monthly earnings over time for men and women. Formally, we test for the existence of gender gaps by estimating the following equation:

$$Y_{i,t} = \alpha_i + \alpha_t + \sum_{y=Firstjob}^{Sept2021} \beta_y Female_i \times 1_{t=y} + \epsilon_{i,t} \quad (1)$$

$Y_{i,t}$ is the outcome measured for respondent i at time t; α_i and α_t are individual and time fixed effects. $Female_i$ is an indicator for female respondents, and $\epsilon_{i,t}$ the error term. Standard errors are robust to heteroskedasticity and clustered at the individual level. The coefficients β_y measure the evolution over time of the gender gap in the outcome variable. They provide a formal test for the absence of gender disparities in the labor market pre-pandemic and for their emergence and persistence during the pandemic. Identification is provided by comparing the outcome between men and women relative to March 2020, our latest pre-pandemic data point, after controlling for time-constant individual characteristics (including those that are unbalanced in Table 1) and common shocks across individuals.

4.2 The Ugandan *shecession*

Figure 2 illustrates the differential impacts of the two lockdowns on male and female employment rates over the course of 2020 and 2021. Panel (a) shows that, prior to the onset of the pandemic, female and male employment levels were nearly identical and constant at around 77%. Consistent with a high fear of infection and the severe restrictions imposed on economic activity, during the first lockdown in May 2020, the employment rate fell by 53 p.p. (69%) for females and 35 p.p. (45%) for males, generating an employment gender gap of 20 p.p. Once the restrictions were lifted, male employment recovered faster than female employment, and by December 2020 it was back to its pre-pandemic level. At that time, female employment was still 8 p.p. (10%) lower than its baseline level. The employment gender gap endured until May 2021, widened to 24 p.p. during the second nationwide lockdown in July 2021, when female workers once again experienced a relatively larger drop in employment, and persisted through September 2021, despite employment levels beginning to recover following the easing of restrictions.

Panels (a) and (b) of Figure 3 decompose the effect on overall employment rate into the effects on wage- and self-employment rates respectively. It emerges that the drop in wage-employment is the main driver of the overall

effect. One plausible reason is the higher level of compliance to government rules among larger and established firms employing wage labor. Moreover, some wage-employed workers gradually responded to the layoffs by setting up their own activity. This seems especially true among women, who suffered the largest drop in wage-employment. Following job losses, most respondents remained without an occupation, as they did not resume education (panel [c]) nor engaged in casual occupations to make ends meet (panel [d]).

Following the easing of the restrictions, the rebound in employment was driven both by previously employed workers who had lost their jobs re-entering the labor market (panel [a] of Figure 4) and by initially non-employed workers progressively finding a job, the first following graduation for 50% of them (panel [b]). While the gradual employment of new cohorts of graduates and of other non-employed was symmetrical by gender,[9] the re-entry of previously employed women remained between 10 and 35 p.p. lower than that of previously employed men throughout the pandemic. Panel (c) reveals that 80% of the men employed pre-pandemic were still employed in two-thirds of the post-lockdown data points, with a 40% employed throughout the post-lockdown period. Conversely, 10% of the previously employed women remained jobless, and another 35% were employed in half or less of the pandemic periods. The differential re-entry patterns of initially employed workers by gender explain the persistence of the employment gender gap for eighteen months.

Additionally, we find that the lockdowns had gendered effects on the employment rate in the training sector, the employment rate in skilled sectors, and earnings. Panel (a) of Figure 5 shows that the share of respondents employed in their training sector, approximately 58% for both genders pre-pandemic, dropped by 25 p.p. (43%) for males and by 45 p.p. (77%) for females during the first lockdown in May 2020. While men were back on their pre-pandemic trajectory by December 2020, female employment rate in the training sector remained 20 p.p. below its baseline level for eighteen months. Panel (b) shows that, conditional on employment, the share of men employed in their training sector remained constant throughout the pandemic. Conversely, the share of women employed in their training sector conditional on employment, equal to that of men pre-pandemic, fell by 22 p.p. (29%) during the first lockdown and never recovered. Panel (c) shows that the share of respondents employed in skilled sectors, equal to 67% for both genders pre-pandemic, dropped by 32 p.p. (48%) for men and by 53 p.p. (79%) for women during the first lockdown, generating a previously non-existent gender gap in skilled employment which persisted for eighteen months after the onset of the pandemic. Panel (d) clarifies that the initial drop in male skilled employment is entirely driven by the drop in employment, as the share of men employed in skilled sectors conditional of employment remained constant over time. Conversely, the share of female respondents employed in skilled sectors conditional on employment, equal to that of men pre-pandemic, dropped by 33 p.p. (38%) during the first lockdown and never rebounded in the following eighteen months. Figure A.4 illustrates that the reduction in skilled employment was driven by female workers pivoting towards agriculture (although

[9]This dynamic is consistent with the positive association between employment and age found for vocational graduates of both genders in the UNHS (panel [a] of Figure A.3).

this effect slowly dissipates) and non-agricultural unskilled occupations, where female employment increased by 2 p.p. and 15 p.p. (200%) respectively. Female employment in agriculture and in other unskilled sectors grew disproportionately following the second lockdown as well. Lastly, panel (e) shows that the initial earnings gender gap widened during the pandemic. During the first lockdown in May 2020, earnings fell in a similar fashion for female and male workers. By December 2020, the gender pay gap had tripled, reaching \$69 from a baseline of \$23, and stabilized afterwards. Panel (f), showing the evolution by gender of earnings conditional on employment, reveals that the men who remained employed saw their earnings decline by \$35 (30%) on average during the first lockdown. Conversely, female average conditional earnings remained constant, plausibly due to the positive selection of the few women who were still employed in May 2020. However, the number of employed women in May 2020 is so small that the standard errors are too large to make any claims on female earnings and the earning gender gap in this period. By December 2020, the gender pay gap in earnings conditional on employment had widened from \$38 to \$78 (+105%). This widening is driven by both higher male and lower female conditional earnings. The former may result from career advancements: for vocational graduates in the UNHS sample each additional year of age is associated to a \$7 increase in monthly earnings (panel [b] of Figure A.3); the \$25 increase we document may be driven by the sample positive selection. Panel (b) of Figure A.3 suggests that female earnings should have grown too in absence of the pandemic. The observed stagnation may originate from the prolonged inactivity during the lockdown or from the shift to unskilled sectors and into self-employment, but we are not powered enough to draw definitive conclusions.

Table 6 reports the β_y coefficients from Equation 1, measuring the evolution of the gender gap for each of our main outcomes. Column (1) confirms that, pre-pandemic, there was no employment gender gap. A 16.6 p.p. gender gap emerged with the first lockdown in May 2020, and grew to 25.5 p.p. in July 2020 despite the easing of the restrictions. By December 2020, the gap had reduced to 8.5 p.p., but it widened again during the second lockdown in July 2021, when it reached 19.4 p.p. Column (2) shows that wage employment contributes 11.8 p.p. (71%) of the new employment gender gap in May 2020 and the total of the gap afterwards. Column (3) shows that self-employment contributes the remaining 4.7 p.p. (29%) of the employment gender gap in May 2020. However, by July 2020 the gender gap in self-employment had disappeared, and later it switched sign as more and more women set up their businesses following job losses or initial non-employment. In September 2021, women were 9.7 p.p. more likely to be self-employed than men. Columns (4) and (5) show the evolution of the gender gap in the employment rate in the training sector, unconditionally and conditional on employment respectively. The former ranges between 13 and 24 p.p. during the pandemic; the latter between 3.6 (insignificant) and 13 p.p. Columns (6) and (7) show the evolution of the gender gap in employment rate in skilled sectors. Unconditionally, the gap in skilled employment ranges between 11 and 24 p.p. during the pandemic; conditional on employment, the gap ranges between 1.7 (insignificant) and 12 p.p. Columns (8) and (9) report the estimates of the earnings gender

gap over time, unconditionally and conditional on gender respectively. Consistent with the graphical evidence, we observe a widening of the gap only in December 2020. The gap in unconditional earnings ranges between \$38 and \$50; conditional on employment, the gap ranges between \$33 and \$49. These findings confirm that the two lockdowns implemented in Uganda had long-lasting gendered consequences on the employment, employment type, sectorial distribution, and earnings of these economically empowered women.

Last, we investigate with t-tests by gender whether the lockdowns had gendered effects on working hours, the need to borrow and to sell assets as a coping strategy, and mental health, and we present suggestive evidence of these effects in Table A.2. Panel (a) shows that, conditional on employment, female wage employees were 24.6 p.p. more likely than male ones to report they reduced working hours in May 2020. In July 2020, women were still 11.3 p.p. more likely than men to report their pre-pandemic businesses were working with reduced hours of operation. Although differences in working hours had dissipated by December 2020, they seemingly reemerged around the second lockdown in July and September 2021, when employed women reported working 0.4 marginally insignificant fewer hours per day than employed men. In panel (b) we investigate our respondents' need to borrow money during the pandemic. We find no gender differences in borrowing initially, but self-employed women were 9.8 p.p. more likely than their male counterparts to borrow money to cope with the second lockdown. Panel (c) shows that men and women were equally likely to sell assets, and panel (d) finds that women were persistently more likely than men to report being anxious because of the pandemic: *fear of infection* and *fear of losing employment* were the main sources of their worsened mental health. This result is in line with Bau et al. (2021), which shows that COVID-19 containment measures induced substantial reductions in female well-being in India.

In sum, tracking the labor market outcomes of a sample of young and skilled Ugandan workers during the COVID-19 pandemic reveals, first, that women suffered from disproportionate job losses. Almost half of the previously employed women failed to stably re-enter employment, driving the persistence of a previously inexistent employment gender gap of 20 p.p. for eighteen months. Second, we find that the disproportionate job losses experienced by female wage-employees resulted in a more pronounced shift towards self-employment. Third, we document a disproportionate displacement of female workers from their training sector towards agriculture and other unskilled sectors in which they can no longer leverage their comparative advantage. Fourth, we observe a widening of the gender pay gap. The sharp and simultaneous decline in female employment during both lockdowns, paired with the strong attachment to the labor market signaled by our female respondents through VTI enrollment, suggest we would almost certainly have not observed these dynamics in the absence of the pandemic. The sectorial misallocation we document may bring to a disproportionate depreciation of women's productive skills accumulated during vocational education. And the endurance of these new gender disparities in the labor market for eighteen months since the onset of the pandemic suggest they will all persist beyond the end of our study period.

4.3 Robustness Tests

We test the stability of our findings in several ways. Figures A.5, A.6, and Table A.3 illustrate the emergence and persistence of gender gaps in the main outcomes in the balanced panel of respondents. Together with the overall similarity of Ever and Never Attritors at baseline documented in Table 5, this evidence indicates that the observed gaps in labor market outcomes are not driven by compositional changes in the sample over time, but rather reflect true labor market dynamics for our workers. Table A.4 reports several bounds to our estimated employment gender gap to investigate its sensitivity to different assumptions about the employment status of attritors, following Horowitz et al. (2006) and Kling et al. (2007). A considerable gender gap in employment emerges even in the unlikely, lower bound scenario in which all the female attritors and none of the male attritors are employed, although it becomes smaller and insignificant over time. We then test the sensitivity of the gender gaps in employment in the training sector and in skilled sectors under a range of assumptions about attritors' employment and sector. Such gaps emerge in 88% and 63% of the scenarios respectively. Once again, the four cases in which the gaps disappear are the most pessimistic scenarios for men and the least pessimistic for women. In these scenarios, all male and female attritors are, respectively, unemployed and employed in the training sector; employed outside the training sector and employed in the training sector or unemployed; employed in an unskilled sector and employed in a skilled sector. The robustness of our findings in most scenarios and the overall similarity between attritors and non-attritors at baseline make us confident that these four cases are the least likely among those considered, and that none of our result is driven by attrition. Then, Figure A.7 shows similar employment patterns for different cohorts of women, indicating that fertility choices happening at fixed distance from graduation do not confound our results. Figure A.8 also shows that the two lockdowns have similar effects on respondents differing by baseline characteristics other than gender, highlighting the gendered nature of these dynamics and pointing towards a broader generalizability of our findings. Last, Figure A.9 shows that our findings are not driven by sector-specific shock, as employment patters remain similar after removing from the sample respondents from one training sector at a time.

4.4 Where is the new and persistent employment gap coming from?

4.4.1 The role of employment sectors

During the first lockdown, the government suspended economic activity in sectors either deemed non-essential or involving close interactions with clients. We test the hypothesis that the pre-pandemic sorting of women in these sectors contributed to the emergence and persistence of the observed employment gender gap.

In panel (a) of Figure 6 we plot the sectors in which our workers were employed pre-pandemic along two dimensions: the share of female workers in each sector and the share of employed workers whose business were closed during the first lockdown in May 2020. The figure shows that economic sectors are highly segregated by gender: sectors such

as tailoring, teaching, hairdressing and secretary employ almost only female workers; sectors like motor-mechanics, plumbing, electrical work and construction remain traditionally male-concentrated sectors. The same level of segregation occurs in the Ugandan labor market overall (columns 2 and 3, Table 3). Consistent with women's pre-pandemic sorting in sectors subject to the strongest restrictions, we observe a strong positive relationship between the share of businesses closed during the first lockdown and the share of female workers in each sector.

Figure A.10 shows that such relationship was still positive in July 2020, despite all restrictions had been lifted. By May 2021 the curve had almost flattened, only to tilt again during the second lockdown in July 2021 even though businesses were not directly prevented from operating. A smaller rebound of labor demand and supply in female-dominated sectors may explain these dynamics. Fear of infection may have pushed customers to postpone the consumption of non-essential services or shift to home production. The lower purchasing power registered among the (mostly) female clients of firms in female-dominated sectors, documented in our study by the lower female earnings as well as in other contexts (Dang et al. 2021, Martinez-Bravo et al. 2021, Hill et al. 2021, Bau et al. 2021) may have further depressed the demand of female products and services. Moreover, women may have decided not to go back to work when presented with the possibility, due to the close interactions with clients in female-dominated sectors paired with their higher fear for the virus.

To rigorously assess the role of employment sectors over time, we reweight the female sample so that the distribution of female workers across sectors that were severely and mildly hit by initial closures matches that of male workers.[10] Since women were over-represented in severely hit sectors, this procedure assigns large weights to women previously employed in mildly affected sectors. Panel (b) of Figure 6 compares actual female and male employment rates with sector-reweighted female employment rate. The latter represents the female employment rate we would observe if, pre-pandemic, women were distributed across severely and mildly hit sectors as men. Sector-reweighted female employment rate is substantially higher than actual female employment rate during the first lockdown, but their distance declines over time. For each pandemic period, Table 7 measures the employment gender gap (Panel [a]) and quantifies the share of the gap explained by employment sectors (Panel [b]), calculated as the ratio of the gap between sector-reweighted and actual female employment rates and the gap between male and female employment rates. We concurrently show that this procedure is practically equivalent to calculating the share of the gender gap explained by different endowments using the standard decomposition proposed by Oaxaca (1973) and Blinder (1973) and the indicator for respondent's pre-pandemic employment in severely hit sectors as explanatory variable. Initial closures in economic sectors explain 50% of the gap during the first lockdown in May 2020. Their contribution gradually declines following the easing of the restrictions, but rises once again during the second lockdown in July 2021, when it reaches 13%.

[10] We reweight the female sample so that the average of Hit Sector$_i$ matches the male sample average. Hit Sector$_i$ is an indicator equal to one for respondents that pre-pandemic were employed (or trained, if non-employed) in a sector in which more than 50% of our respondents' pre-pandemic businesses were closed during the first lockdown: motor-mechanics, food and hospitality, tailoring, hairdressing, teaching, secretary, and retail. Weights are equal to one for men.

Because these economic sectors in Uganda are segregated by gender, there may be other unobserved sectorial characteristics, such as differences in reopening times or in the rebound of labor demand, that account for the residual part of the gap but are inseparable from gender. To test this hypothesis, Figure A.11 shows the average employment rate for male and female workers trained in single-gender or mixed-gender sectors. Men and women have the same average employment regardless of the gender composition of their sector, which is evidence against the existence of unobserved sectorial characteristics explaining the gender gap. The gendered employment dynamics we observe may still be driven by the systematic assignment of women and men to different tasks within sectors. We cannot test this hypothesis directly, but the high degree of specialization of our respondents and the absence of gender disparities in baseline employment quality point against this supposition.

4.4.2 The role of childcare responsibilities

That the availability and cost of childcare affect adult labor supply and business profitability for women is widely documented (Heath 2017; Delecourt et al. 2021; Bjorvatn et al. 2022). We therefore investigate the contribution of childcare responsibilities, magnified by the prolonged schools' closure, to the emergence and persistence of the employment gender gap. We use the number of school-age children in the household as a proxy for a respondent's childcare responsibilities. This measure, following Alon et al. (2022), takes into account that our respondents may live with other young family members, such as siblings, cousins, nieces and nephews, on top of their own children. Additionally, as our sample is relatively young and the suspension of pre-primary schooling throughout the study period was especially salient, we define school-age children as children aged three or more. Using this definition, 42% of the respondents live with school-age children. Panel (a) of Figure 7 shows female and male average employment rates by the number of school-age children in the household in periods in which schools were open (pre-pandemic) and closed (post-pandemic). Female employment declines with the number of school-age children in the household, but only during schools' closure: the presence of one child reduces female employment by 5 p.p.; additional children further reduce it by 5 p.p. Conversely, male employment does not change with the number of school-age children they live with neither when schools are open nor when they are closed. We formally test for these differences by regressing employment on a constant and indicators for zero (omitted category), one, and two or more school-age children in the household separately for men and women. We report the estimated coefficients in Table A.5. Columns (3) and (4) show that, both when schools are open and when they are closed, the differences in employment for men living with and without school-age children are small (0.1—2.8 p.p.) and insignificant. By contrast, columns (9) and (10) show that female employment declines more steeply with the number of school-age children in the household in periods in which schools are closed relative to periods in which they are open. When schools are open, women living with any number of school-age children are 4.9—5.6 insignificant p.p. less likely to be employed than women with none. When schools are closed, relative to women living with no school-age children, women living with one are 5.4 insignificant p.p. less likely to be employed,

and women living with two or more are 9.6 significant (at 5% level) p.p. less likely to be employed. The same patterns emerge in columns (5), (6), (11), and (12), when we use the number of children aged six or more, hence attending primary or secondary schools, as alternative proxy for childcare responsibilities. In columns (1), (2), (7), and (8) we proxy childcare responsibilities with the total number of children in the household to consider the possibility that babysitting services for younger kids became inaccessible during the pandemic. We find that female employment declined with childcare responsibilities in a similar way when schools are open and when they are closed. This pattern corroborates our hypothesis that the prolonged closure of schools is the main driver of the observed dynamics. Additionally, as a given number of children may reflect different household compositions, we plot in Figure A.12 average female and male employment by bins of the ratio of the number of school-age children to the number of adults in the household. Our results remain consistent when incorporating the presence of other adults in the household with whom the respondent may share childcare responsibilities. Overall, this evidence corroborates our finding that schools' closure disproportionately limited women's self-reported ability to work due to the magnified childcare duties it generated (Panel [e] of Table A.2).

To quantify the contribution of childcare responsibilities to the emergence and the persistence of the employment gender gap, we reweight the female sample so that the proportions of respondents with zero, one, and more than one school-age children in the household match those in the male sample. Panel (b) of Figure 7 compares female and male actual employment rates with children-reweighted female employment rate. The latter represents the female employment rate we would observe if women lived with the same number of school-age children as men. The figure shows that children-reweighted female employment rate is similar to actual female employment rate in the early stage of the pandemic but becomes higher over time. Panel (c) of Table 7 calculates the share of the employment gender gap explained by different childcare responsibilities by gender. This share is obtained, first, by dividing the gap between children-reweighted and actual female employment rates by the gap between male and female employment rates, and second, as the share of the gender gap explained by different endowments with a Oaxaca-Blinder decomposition in which we use indicators for living with zero, one and two or more school-age children as explanatory variables. The two methods consistently show that different childcare responsibilities have no explanatory power around the first lockdown, but explain between 11 and 24% of the employment gender gap from December 2020 onwards. These estimates would represent a lower bound for the true contribution of childcare responsibilities if our proxy, the number of school-age children in the household, underestimated true responsibilities for women and overestimated them for men. Overall, this evidence points towards initial job losses being mostly unrelated to schools' closure, which contrarily limited females' employment in the longer run.

Consistent with findings from the US (Hansen et al. 2022) and Kenya (Biscaye et al. 2022), we expect female employment to increase following the reopening of schools in January 2022. However, the fact that the Kenyan labor supply response was partly driven by the fall in agricultural child labor, the small portion of the employment

gap explained by childcare responsibilities in our sample, and the 15-p.p. employment gap among respondents living with zero school-age children shown in panel (a) of Figure 7, together suggest that in our urban context the employment gap will not close following the reopening.

4.4.3 The residual employment gender gap

Despite their extensive contribution, neither employment sectors nor childcare responsibilities manage to fully explain the employment gender gap in any period. We thus turn to investigating their joint contribution. As a first approach, we sum in each period the individual contributions of these two factors, reported in Panels (b) and (c) of Table 7, whenever they are both positive. The sum gives a sensible estimate of the joint contribution of employment sectors and childcare responsibilities so long as these two factors are independent in the female sample. Indeed, if women with fewer school-age children were also mostly employed in mildly hit sectors pre-pandemic, we would overestimate the share of the gap explained by each factor individually and hence, by taking their sum, their joint contribution. Conversely, if women with fewer school-age children were mostly employed in severely hit sector, we would underestimate the share of the gap explained by each factor individually and thus their joint contribution. Figure A.13 illustrates that employment sectors and childcare responsibilities are independent among women: panel (a) shows that the distribution of school-age children in the household is almost identical in the original female sample and in the sample of women reweighted to match men's sectorial distribution; panel (b) that the distribution of respondents in severely and mildly hit sectors is almost identical in the original female sample and in the female sample reweighted to match men's childcare responsibilities. As childcare responsibilities contribute negatively to the employment gender gap in May and July 2020, and as employment sectors contribute negatively to the gap in December 2020 and May 2021, the sum of the independent contributions of childcare responsibilities and employment sectors is only informative in July and September 2021, during and after the second lockdown. Together, childcare responsibilities and employment sectors explain 37% and 21% of the employment gender gap in these periods. Based on this approach, between 50% and 85% of the gap remains unexplained by these two factors.

A second approach to calculating the joint contribution of employment sectors and childcare responsibilities consists in comparing female employment rate to the employment rate of counterfactual female respondents with the most advantageous traits in terms of both employment sectors and childcare responsibilities. Figure 8 shows, together with female and male employment rates, the employment rates of women in mildly hit sectors, reweighted to match men's distribution of school-age children in the household, and of women with no school-age children in the household, reweighted to match men's distribution across severely and mildly hit sectors. By relying on the smaller samples of women employed in mildly hit sectors and women with no school-age children in the household, this approach delivers relatively more imprecise estimates. As a result, in some periods we cannot

reject the hypothesis that the employment rates of these counterfactual women are equal to both female and male employment rates. Despite the relatively lower power of this analysis, the point estimates suggest that an employment gender gap emerged and endured over time even for these highly advantaged counterfactual women. Panel (d) of Table 7 calculates the share of the employment gender gap jointly explained by employment sectors and childcare responsibilities in each period by dividing the difference between the employment rates of children-reweighted women working in mildly hit sectors and women by the employment gender gap (option 1), and by dividing the difference between the employment rates of sector-reweighted women without school-age children and of women by the employment gender gap (option 2). Consistent with the large role played by employment sectors during the lockdowns, the employment rate of children-reweighted women working in mildly hit sector lies above female employment rate in May 2020 (lockdown 1), when 65% of the employment gender gap disappears, and in July 2021 (lockdown 2), when 39% disappears. In the remaining periods, the difference between the counterfactual and original female respondents becomes smaller and negligible. And consistent with the larger contribution of childcare responsibilities in the later pandemic periods, the employment rate of sector-reweighted women living with no school-age children lies above female employment rate in December 2020 and in July and September 2021, when 42%, 52% and 25% of the employment gender gap disappears respectively. In the earlier periods, counterfactual and original women behave similarly. We thus estimate that, in each period, between 35% and 100% of the employment gender gap remains unexplained by employment sectors and childcare responsibilities.

To identify additional contributors to the residual employment gender gap, Figure A.14 investigates the existence of heterogeneities in the gendered effect of the pandemic on employment rate by several baseline characteristics. Regardless of the dimension by which we split the female and male samples, and despite the lower power due to these additional divisions, we keep observing the same employment dynamics. The absence of heterogeneities by own and household asset ownership suggests that the decline in female employment is not driven by women who could not afford childcare or earning less than their partners. Additionally, there is no heterogeneity by fear of COVID-19 infection. Alternative explanations, then, include women complying more with COVID-19 restrictions (Galasso et al. 2020, Oreffice et al. 2021), employers' discrimination in layoffs and hirings, and social norms reducing female attachment to the labor market (Jayachandran 2020). Understanding the residual forces behind the rise and the persistence of the employment gender gap is essential to design effective countermeasures.

5 Conclusions

We analyze the gendered labor market effects of the COVID-19 induced restrictions on a sample of young and skilled Ugandan workers and entrepreneurs employed in a wide range of vocational industries. With a unique high-frequency panel dataset spanning from January 2020 to September 2021, we identify short- and long- term responses to two lockdowns implemented in Uganda. These restrictions disproportionately reduced female employ-

ment, shifted female workers into self-employment and into sectors misaligned with their skill sets, and widened the gender pay gap. While men quickly restored their pre-pandemic labor market trajectories, almost half of the previously employed women found more precarious occupations or became jobless. Together, our findings indicate that hard-earned progress towards women's employment and earnings parity can be set back by temporary shocks. To explain the uneven impact and recovery, we decomposed the employment gender gap to quantify the role of pre-epidemic sorting in severely hit sectors and increased childcare responsibilities due to schools' closure. These factors explain up to 65% of the employment gap; the rest remains unexplained, creating additional barriers to devise effective countermeasures.

Our sample represents a small yet growing share of the Ugandan population. Given the importance of this population for the country's transition into a middle-income economy, the persistence of an employment gap eighteen months from the COVID-19 shock should be of great concern to policymakers. The decline in female skilled employment and the sectorial misallocation induced by the pandemic may slow the country's structural transformation. Given the precarious nature of economic development, Uganda's stakeholders should prioritize policies supporting women seeking to reenter the labor market and provide targeted support for enterprises in sectors with higher female representation.

References

Adams-Prassl, Abi, Teodora Boneva, Marta Golin, and Christopher Rauh (Sept. 2020). "Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys". In: *Journal of Public Economics* 189. ISSN: 0047-2727. DOI: 10.1016/j.jpubeco.2020.104245.

Alfonsi, Livia, Oriana Bandiera, Vittorio Bassi, Robin Burgess, Imran Rasul, Munshi Sulaiman, and Anna Vitali (2020). "Tackling Youth Unemployment: Evidence From a Labor Market Experiment in Uganda". In: *Econometrica* 88.6, pp. 2369–2414. URL: https://EconPapers.repec.org/RePEc:wly:emetrp:v:88:y:2020:i:6:p:2369-2414.

Alfonsi, Livia, Vittorio Bassi, Priya Manwaring, Peter Ngategize, John Oryema, Miri Stryjan, and Anna Vitali (2021). "The impact of COVID-19 on Ugandan firms". In: *IGC Policy Brief* UGA-21049.

Alfonsi, Livia, Mary Namubiru, and Sara Spaziani (2023). *Meet Your Future: Experimental Evidence on the Labor Market Effects of Mentors*. Working Paper.

Allard, Jenna, Maulik Jagnani, Yusuf Neggers, Rohini Pande, Simone Schaner, and Charity Troyer Moore (2022). "Indian Female Migrants Face Greater Barriers to Post-Covid Recovery than Males: Evidence from a Panel Study". In: *medRxiv*. DOI: 10.1101/2022.06.03.22275964. eprint: https://www.medrxiv.org/content/early/2022/06/03/2022.06.03.22275964.full.pdf. URL: https://www.medrxiv.org/content/early/2022/06/03/2022.06.03.22275964.

Alon, Titan, Matthias Doepke, Kristina Manysheva, and Michele Tertilt (2022). *Gendered Impacts of Covid-19 in Developing Countries*. Working Paper.

Alon, Titan, Matthias Doepke, Jane Olmstead-Rumsey, and Michèle Tertilt (Apr. 2020). *The Impact of COVID-19 on Gender Equality*. NBER Working Paper 26947. National Bureau of Economic Research. DOI: 10.3386/w26947.

Amuedo-Dorantes, Catalina, Miriam Marcén, Marina Morales, and Almudena Sevilla (Oct. 2020). *COVID-19 School Closures and Parental Labor Supply in the United States*. IZA Discussion Papers 13827. Institute of Labor Economics (IZA). URL: https://ideas.repec.org/p/iza/izadps/dp13827.html.

Andrew, Alison, Sarah Cattan, Monica Costa Dias, Christine Farquharson, Lucy Kraftman, Sonya Krutikova, Angus Phimister, and Almudena Sevilla (2021). *The gendered division of paid and domestic work under lockdown*. Tech. rep.

Bandiera, Oriana, Niklas Buehren, Robin Burgess, Markus Goldstein, Selim Gulesci, Imran Rasul, and Munshi Sulaiman (Jan. 2020). "Women's Empowerment in Action: Evidence from a Randomized Control Trial in Africa". In: *American Economic Journal: Applied Economics* 12.1, pp. 210–59. DOI: 10.1257/app.20170416. URL: https://www.aeaweb.org/articles?id=10.1257/app.20170416.

Bau, Natalie, Gaurav Khanna, Corinne Low, Manisha Shah, Sreyashi Sharmin, and Alessandra Voena (2021). *Women's Well-Being During a Pandemic and its Containment*. Tech. rep.

Beegle, Kathleen, Calogero Carletto, and Kristen Himelein (2012). "Reliability of recall in agricultural data". In: *Journal of Development Economics* 98.1. Symposium on Measurement and Survey Design, pp. 34–41. ISSN: 0304-3878. DOI: https://doi.org/10.1016/j.jdeveco.2011.09.005. URL: https://www.sciencedirect.com/science/article/pii/S0304387811000939.

Biscaye, Pierre E., Dennis Egger, and Utz J. Pape (2022). *Balancing Work and Childcare: Evidence from COVID-19 Related School Closures in Kenya*. Working Paper.

Bjorvatn, Kjetil, Denise Ferris, Selim Gulesci, Arne Nasgowitz, Vincent Somville, and Lore Vandewalle (2022). *Childcare, Labor Supply and Business Development: Experimental Evidence from Uganda*. Tech. rep.

Blinder, Alan S. (1973). "Wage Discrimination: Reduced Form and Structural Estimates". In: *The Journal of Human Resources* 8.4, pp. 436–455. ISSN: 0022166X. URL: http://www.jstor.org/stable/144855.

Bluedorn, John C., Francesca G. Caselli, Niels-Jakob H. Hansen, Ippei Shibata, and Marina Mendes Tavares (2021). *Gender and Employment in the COVID-19 Recession: Evidence on "She-cessions"*. Tech. rep.

Casale, Daniela and Dorrit Posel (Feb. 2021). "Gender Inequality and the COVID-19 Crisis: Evidence from a Large National Survey during South Africa's Lockdown". In: *Research in Social Stratification and Mobility* 71. ISSN: 0276-5624. DOI: 10.1016/j.rssm.2020.100569.

Casale, Daniela and Debra Shepherd (2022). "The gendered effects of the Covid-19 crisis in South Africa: Evidence from NIDS-CRAM waves 1–5". In: *Development Southern Africa* 0.0, pp. 1–20. DOI: 10.1080/0376835X.2022.2036105. eprint: https://doi.org/10.1080/0376835X.2022.2036105. URL: https://doi.org/10.1080/0376835X.2022.2036105.

Couch, Kenneth A. (2020). *Gender and the COVID-19 labor market downturn.* Tech. rep.

Dang, Hai-Anh H. and Cuong Viet Nguyen (2021). "Gender inequality during the COVID-19 pandemic: Income, expenditure, savings, and job loss". In: *World Development* 140, p. 105296. ISSN: 0305-750X. DOI: https://doi.org/10.1016/j.worlddev.2020.105296. URL: https://www.sciencedirect.com/science/article/pii/S0305750X2030423X.

Das, Jishnu, Jeffrey Hammer, and Carolina Sánchez-Paramo (2012). "The impact of recall periods on reported morbidity and health seeking behavior". In: *Journal of Development Economics* 98.1. Symposium on Measurement and Survey Design, pp. 76–88. ISSN: 0304-3878. DOI: https://doi.org/10.1016/j.jdeveco.2011.07.001. URL: https://www.sciencedirect.com/science/article/pii/S0304387811000708.

Del Boca, Daniela, Noemi Oggero, Paola Profeta, and Mariacristina Rossi (2020). "Women's and men's work, housework and childcare, before and during COVID-19". In: *Review of Economics of the Household* 18.4, pp. 1001–1017. DOI: 10.1007/s11150-020-09502-1. URL: https://doi.org/10.1007/s11150-020-09502-1.

Delecourt, Solène and Anne Fitzpatrick (2021). "Childcare Matters: Female Business Owners and the Baby-Profit Gap". In: *Management Science* 67.7, pp. 4455–4474. DOI: 10.1287/mnsc.2021.3976. eprint: https://doi.org/10.1287/mnsc.2021.3976. URL: https://doi.org/10.1287/mnsc.2021.3976.

Deshpande, Ashwini (2020). "The COVID-19 Pandemic and Gendered Division of Paid and Unpaid Work: Evidence from India". In: *IZA Discussion Paper Series* IZA DP No. 13815.

EPRC (July 2021). *Employment creation potential, labor skills requirements and skill gaps for young people. A Uganda case study*. Tech. rep.

Farré, Lídia, Yarine Fawaz, Libertad González, and Jennifer Graves (July 2020). *How the Covid-19 Lockdown Affected Gender Inequality in Paid and Unpaid Work in Spain*. Working Paper 1188. Barcelona Graduate School of Economics. URL: https://ideas.repec.org/p/bge/wpaper/1188.html.

Foucault, Martial and Vincenzo Galasso (May 2020). *Working After Covid-19: Cross-Country Evidence from Real-Time Survey Data*. Sciences Po publications 9. Sciences Po. URL: https://ideas.repec.org/p/spo/wpmain/infohdl2441-5cmk499mce8lvosvi0jdis0dla.html.

Furman, Jason, Melissa Schettini Kearney, and Wilson Powell (June 2021). *The Role of Childcare Challenges in the US Jobs Market Recovery During the COVID-19 Pandemic*. Working Paper 28934. National Bureau of Economic Research. DOI: 10.3386/w28934. URL: http://www.nber.org/papers/w28934.

Galasso, Vincenzo, Vincent Pons, Paola Profeta, Michael Becher, Sylvain Brouard, and Martial Foucault (June 2020). *Gender Differences in COVID-19 Related Attitudes and Behavior: Evidence from a Panel Survey in Eight OECD Countries*. Working Paper 27359. National Bureau of Economic Research. DOI: 10.3386/w27359. URL: http://www.nber.org/papers/w27359.

Ghanem, Dalia, Sarojini Hirshleifer, and Karen Ortiz-Becerra (Aug. 2019). "Testing for Attrition Bias in Field Experiments". In: 202010.

Godlonton, Susan, Manuel Hernandez, and Mike Murphy (2018). *Do you remember? Measuring anchoring bias in recall data*. Tech. rep. IFPRI.

Gulesci, Selim, Francesco Loiacono, Andreas Madestam, and Miri Stryjan (2021). "COVID-19, SMEs, and workers: Findings from Uganda". In: *IGC Final Report* F-20104-UGA-1.

Hansen, Benjamin, Joseph J Sabia, and Jessamyn Schaller (Jan. 2022). *Schools, Job Flexibility, and Married Women's Labor Supply: Evidence From the COVID-19 Pandemic*. Working Paper 29660. National Bureau of Economic Research. DOI: 10.3386/w29660. URL: http://www.nber.org/papers/w29660.

Heath, Rachel (2017). "Fertility at work: Children and women's labor market outcomes in urban Ghana". In: *Journal of Development Economics* 126.C, pp. 190–214. DOI: 10.1016/j.jdeveco.2016.11. URL: https://ideas.repec.org/a/eee/deveco/v126y2017icp190-214.html.

Heggeness, Misty L. (2020). "Estimating the immediate impact of the COVID-19 shock on parental attachment to the labor market and the double bind of mothers". In: *Review of Economics of the Household* 18.4, pp. 1053–1078. DOI: 10.1007/s11150-020-09514-x. URL: https://doi.org/10.1007/s11150-020-09514-x.

Hill, Robert and Timothy Köhler (2021). "Mind the gap: The distributional effects of South Africa's national lockdown on gender wage inequality". In: *DPRU Working Paper* 202101.

Horowitz, Joel L. and Charles Manski (2006). "Identification and Estimation of Statistical Functionals using Incomplete Data". In: *Journal of Econometrics* 132.2, pp. 445–459. URL: https://EconPapers.repec.org/RePEc:eee:econom:v:132:y:2006:i:2:p:445-459.

Hsieh, Chang-Tai, Erik Hurst, Charles I. Jones, and Peter J. Klenow (2019). "The Allocation of Talent and U.S. Economic Growth". In: *Econometrica* 87.5, pp. 1439–1474. DOI: https://doi.org/10.3982/ECTA11427. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.3982/ECTA11427. URL: https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA11427.

Hupkau, Claudia and Barbara Petrongolo (2020). "Work, Care and Gender during the COVID-19 Crisis". In: *Fiscal Studies* 41.3, pp. 623–651. DOI: 10.1111/1475-5890.12245.

ILO (2017). *Uganda SWTS country brief*. Tech. rep.

– (2022a). *ILO Monitor on the world of work. 9th edition*. Tech. rep.

– (2022b). *World Employment and Social Outlook. Trends 2022*. Tech. rep.

International Youth Foundation (2011). *Navigating Challenges. Charting Hope. A Cross-Sector Situational Analysis on Youth in Uganda*. Tech. rep.

Jayachandran, Seema (June 2020). *Social Norms as a Barrier to Women's Employment in Developing Countries*. Working Paper 27449. National Bureau of Economic Research. DOI: 10.3386/w27449. URL: http://www.nber.org/papers/w27449.

Kikuchi, Shinnosuke, Sagiri Kitao, and Minamo Mikoshiba (2021). "Who suffers from the COVID-19 shocks? Labor market heterogeneity and welfare consequences in Japan". In: *Journal of the Japanese and International Economies* 59, p. 101117. ISSN: 0889-1583. DOI: https://doi.org/10.1016/j.jjie.2020.101117. URL: https://www.sciencedirect.com/science/article/pii/S088915832030054X.

Kling, Jeffrey R., Jeffrey B. Liebman, and Lawrence F. Katz (2007). "Experimental Analysis of Neighborhood Effects". In: *Econometrica* 75.1, pp. 83–119.

Kristal, Tali and Meir Yaish (Aug. 2020). "Does the Coronavirus Pandemic Level the Gender Inequality Curve? (It Doesn't)". In: *Research in Social Stratification and Mobility* 68. ISSN: 0276-5624. DOI: 10.1016/j.rssm.2020.100520.

Kugler, Maurice, David Newhouse, Mariana Viollaz, Daniel Duque, Isis Gaddis, Amparo Palacios-Lopez, and Michael Weber (2021). "How Did the COVID-19 Crisis Affect Different Types of Workers in the Developing World?" In: *IZA Discussion Paper Series* IZA DP No. 14519.

Landivar, Liana Christin, Leah Ruppanner, William J. Scarborough, and Caitlyn Collins (2020). "Early Signs Indicate That COVID-19 Is Exacerbating Gender Inequality in the Labor Force". In: *Socius* 6. PMID: 34192138, p. 2378023120947997. DOI: 10.1177/2378023120947997. eprint: https://doi.org/10.1177/2378023120947997. URL: https://doi.org/10.1177/2378023120947997.

Lee, Sang Yoon (Tim), Minsung Park, and Yongseok Shin (Jan. 2021). *Hit Harder, Recover Slower? Unequal Employment Effects of the Covid-19 Shock*. Working Paper 28354. National Bureau of Economic Research. DOI: 10.3386/w28354. URL: http://www.nber.org/papers/w28354.

Liang, Xiao, Scott Rozelle, and Hongmei Yi (2022). "The impact of COVID-19 on employment and income of vocational graduates in China: Evidence from surveys in January and July 2020". In: *China Economic Review* 75, p. 101832. ISSN: 1043-951X. DOI: https://doi.org/10.1016/j.chieco.2022.101832. URL: https://www.sciencedirect.com/science/article/pii/S1043951X22000906.

Martinez-Bravo, Monica and Carlos Sanz (Nov. 2021). "Inequality and psychological well-being in times of COVID-19: evidence from Spain". In: *SERIEs* 12.4, pp. 489–548. DOI: 10.1007/s13209-021-00255-3. URL: https://doi.org/10.1007%2Fs13209-021-00255-3.

Montenovo, Laura, Xuan Jiang, Felipe Lozano Rojas, Ian M. Schmutte, Kosali I. Simon, Bruce A. Weinberg, and Coady Wing (May 2020). *Determinants of Disparities in Covid-19 Job Losses*. NBER Working Papers 27132. National Bureau of Economic Research, Inc. URL: https://ideas.repec.org/p/nbr/nberwo/27132.html.

Oaxaca, Ronald (1973). "Male-Female Wage Differentials in Urban Labor Markets". In: *International Economic Review* 14.3, pp. 693–709. ISSN: 00206598, 14682354. URL: http://www.jstor.org/stable/2525981.

OECD (2020). *Job retention schemes during the COVID-19 lockdown and beyond*. Tech. rep.

Oreffice, Sonia and Climent Quintana-Domeque (2021). "Gender inequality in COVID-19 times: evidence from UK prolific participants". In: *Journal of Demographic Economics* 87.2, pp. 261–287. DOI: 10.1017/dem.2021.2.

Papageorgiou, Mr. Chris, Mr. Raphael A Espinoza, Jorge Alvarez, and Mr. Jonathan David Ostry (Oct. 2018). *Economic Gains From Gender Inclusion: New Mechanisms, New Evidence*. IMF Staff Discussion Notes 2018/006. International Monetary Fund. URL: https://ideas.repec.org/p/imf/imfsdn/2018-006.html.

Reichelt, Malte, Kinga Makovi, and Anahit Sargsyan (2021). "The impact of COVID-19 on gender inequality in the labor market and gender-role attitudes". In: *European Societies* 23.sup1, S228–S245. DOI: 10.1080/14616696.2020.1823010. eprint: https://doi.org/10.1080/14616696.2020.1823010. URL: https://doi.org/10.1080/14616696.2020.1823010.

Sevilla, Almudena and Sarah Smith (Aug. 2020). "Baby Steps: The Gender Division of Childcare during the COVID-19 Pandemic". In: *Oxford Review of Economic Policy* 36.Supplement 1, S169–S186. ISSN: 0266-903X. DOI: 10.1093/oxrep/graa027.

Stantcheva, Stefanie (Jan. 2022). *Inequalities in the Times of a Pandemic*. Working Paper 29657. National Bureau of Economic Research. DOI: 10.3386/w29657. URL: http://www.nber.org/papers/w29657.

Torres, Jesica, Franklin Maduko, Isis Gaddis, Leonardo Iacovone, and Kathleen Beegle (2021). *The Impact of the COVID-19 Pandemic on Women-Led Businesses*. Tech. rep.

World Bank (2021). *Uganda Economic Update. From Crisis to Green Resilient Growth: Investing in Sustainable Land Management and Climate Smart Agriculture*. Tech. rep.

Zamarro, Gema and Marnía J. Prados (2021). "Gender differences in couples'division of childcare, work and mental health during COVID-19". In: *Review of Economics of the Household* 19.1, pp. 11–40. DOI: 10.1007/s11150-020-09534-7. URL: https://doi.org/10.1007/s11150-020-09534-7.

Acknowledgements

We thank Gaia Dossi, Andrew Foster, Supreet Kaur, Eliana La Ferrara, John Friedman, Selim Gulesci, Jeremy Magruder, Ted Miguel, Jonathan Roth, Elisabeth Sadoulet, Bryce Steinberg, Matthew Suandi, Diego Ubfal, Christopher Walters, seminar participants at the Berkeley Development Lunch and Development Therapy, the Brown University Development Tea, Applied Microeconomics Breakfast and Applied Microeconomics Lunch, the LEAP Alumni conference, the NEUDC conference, and the PacDev conference, and two anonymous referees for very insightful conversations and suggestions. Marco Lovato and Irina Vlasache provided excellent research assistance. We received IRB approval from UC Berkeley. A previous version of this paper circulated under the title "The Gendered Impacts of Covid-19: Evidence from the Ugandan Shecession". All errors are our own.

Funding

This work is supported by the International Development Research Centre via the BRAC-CEGA Learning Collaborative Secretariat; the IZA and the UK Foreign, Commonwealth & Development Office via the IZA/FCDO Gender, Growth and Labour Markets in Low Income Countries Programme (G^2LIC|IZA) [grant agreement GA-5-696]; the Watson Institute for International and Public Affairs at Brown University; the Orlando Bravo Center for Economic Research at Brown University; and the Institute for Research on Labor Economics at UC Berkeley. Our sponsors had no role in the study design, collection, analysis and interpretation of data, in the writing of the report and in the decision to submit the article for publication.

Declaration of Interests

Mary Namubiru was employed at BRAC Uganda and Sara Spaziani was supported by the James M. and Cathleen D. Stone Wealth and Income Inequality Project Fellowship (Spring 2022) and from the Graduate Program in Development Fellowship through the Watson Institute for International and Public Affairs (Fall 2020 and Spring 2021) during the writing of this paper. The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

Main Findings

Figure 1: Project Timeline

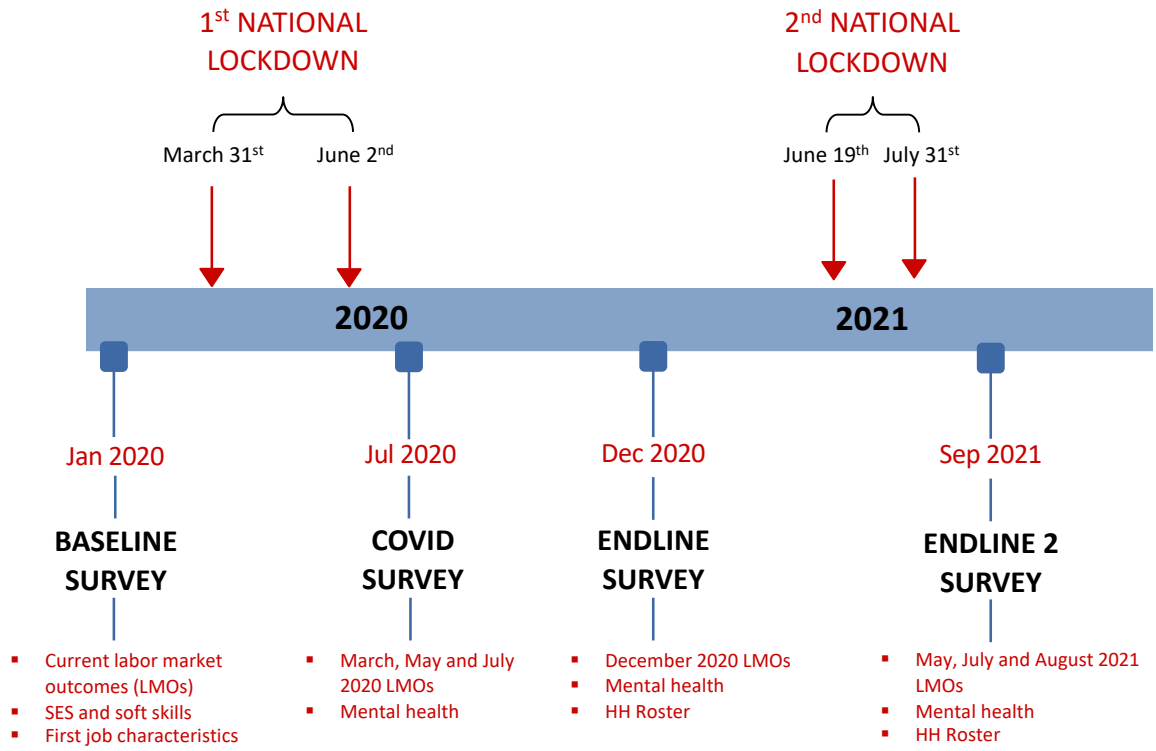


Table 1: Baseline Summary Statistics and Balance Table

	All		***Female***		***Male***		
	Mean	SD	Obs	Mean	Obs	Mean	P-value
Panel A: Socio-economic characteristics							
Female	.41	.49	295	1.00	419	.00	.
Age	25.01	3.22	291	24.11	418	25.63	.00
Married	.36	.48	171	.35	232	.37	.68
Has children	.47	.50	218	.51	338	.44	.13
Number of school-age children in the household	.87	1.26	215	1.22	338	.64	.00
Traditional religious denomination	.75	.43	289	.71	414	.77	.07
Ethnic minority	.44	.50	289	.42	414	.45	.48
House of origin: rural	.51	.50	230	.48	332	.53	.27
Region of origin: central	.37	.48	290	.41	415	.34	.05
Region of origin: eastern	.43	.50	290	.40	415	.45	.21
Region of origin: northern	.12	.32	290	.11	415	.12	.61
Region of origin: western	.08	.27	290	.07	415	.09	.49
Caretaker's years of education	10.17	5.18	190	10.63	272	9.85	.11
Agricultural household of origin	.19	.39	286	.20	411	.18	.60
Household of origin asset index	.00	4.95	291	.02	414	-.02	.91
Panel B: Labor market characteristics							
Years since graduation	3.11	2.19	292	2.86	412	3.29	.01
Years employed since graduation	2.74	2.20	225	2.59	324	2.84	.18
Years in current job	2.33	1.75	164	1.98	258	2.55	.00
Wage employed	.56	.50	282	.53	409	.57	.30
Self employed	.21	.41	282	.23	409	.20	.40
Has permanent job	.79	.41	147	.86	224	.74	.00
Works in or owns registered firm	.46	.50	203	.48	302	.45	.54
Employed in Skilled Sector	.65	.48	282	.64	407	.66	.61
Employed in Skilled Sector | Employed	.85	.36	214	.85	316	.85	.86
Employed in Training Sector	.57	.50	282	.54	407	.58	.27
Employed in Training Sector | Employed	.74	.44	214	.71	316	.75	.33
Earnings (USD)	65.96	71.57	178	52.50	253	75.43	.00
Earnings (USD) | Employed	104.52	63.89	110	84.95	162	117.81	.00
Enrolled in further education	.05	.22	282	.05	409	.05	.80
Engaged in casual occupations	.05	.22	282	.03	409	.07	.05
Other non-employed	.13	.34	282	.16	409	.11	.09

Notes: The table reports summary statistics and tests for gender differences in means for a set of socio-economic and labor market characteristics measured at baseline (January 2020). There are few exceptions: the indicator for whether the respondent has children is measured in July 2020; the indicator for whether the respondent is married is measured in December 2020; the number of school-age children in the household is measured in September 2021. School-age children are children aged three or more. The ethnic minority indicator takes value one for respondents who do not belong to the Muganda or Musoga tribes but to one of 35 other tribes. The traditional religious denominations indicator takes value one for respondents belonging to the Anglican, Muslim, or Catholic faith. The caretaker education level is calculated as the highest educational level among the two main caretakers the respondent had while growing up. The respondent's household of origin is considered as "agricultural" if its main source of income is subsistence or commercial agriculture. Years employed since graduation are equal to years since graduation minus the respondent's longest unemployment spell since graduation. Wage-employed respondents either have a permanent job or are temporary hires, casual workers, or volunteers. Skilled sectors include motor-mechanics, plumbing, hospitality, hairdressing, construction, electrical work, welding, carpentry, teaching, secretary and accounting, machining and fitting, and a residual skilled category ("Other skilled"). Unskilled sectors include agriculture, retail, and a residual category ("Other unskilled"). "Other skilled" includes the following occupations: painting (walls, buildings), sales and marketing, office work for the government, a company, or a NGO, other business work, IT technician, medical doctor, nurse, police and army, photographer, gardener, banking, veterinary, journalist. "Other unskilled" includes: boda boda/taxi driver, street vendor, street food maker, market vendor, gate keeper/guard, factory work, cleaner/housemaid, transport, printing, driver. Casual occupations include: agricultural day labor, (un)loading trucks, transporting goods on bicycle, fetching water, land fencing, slashing someone's compound, and all occupations in which neither principal nor agent had an active working relationship, neither held any contractual obligations toward the other, and the principal requested agent on a need-based basis. "Other non-employed " includes individuals without an occupation. Within this category, we cannot distinguish the unemployed from not economically active individuals.

Table 2: Comparing the Study Sample with Ugandan Youths and Ugandan Young Vocational Graduates

	(1) Mean Young Adults UNHS	(2) Mean VTI Graduates UNHS	(3) Mean Study Sample	(4) Difference (3)-(1)	(5) P-value (3)-(1)	(5) Difference (3)-(2)	(6) P-value (3)-(2)
Full sample							
Female	.410	.410	.413	.000	.999	.000	.998
Age	25.021	25.014	25.008	-.013	.918	-.006	.976
Married	.595	.468	.362	-.229***	.000	-.102***	.003
Completed primary school	.620	1.000	1.000	.380***	.000	-.000	1.000
Completed secondary school	.182	1.000	1.000	.818***	.000	-.000	1.000
Completed vocational training	.051	1.000	1.000	.949***	.000	-.000	1.000
Any work in last 7 days - no Ag	.476	.690	.742	.265***	.000	.052**	.075
Any work in last 7 days - Ag included	.782	.797	.767	-.016	.335	-.030	.251
Monthly earnings (USD) - wage employed	71.174	89.940	104.518	33.377***	.000	14.611**	.024
Female sample							
Age	24.113	24.115	24.113	-.000	1.000	-.001	.997
Married	.671	.561	.351	-.314***	.000	-.204***	.000
Completed primary school	.587	1.000	1.000	.413***	.000	-.000	1.000
Completed secondary school	.142	1.000	1.000	.858***	.000	-.000	1.000
Completed vocational training	.046	1.000	1.000	.954***	.000	-.000	1.000
Any work in last 7 days - no Ag	.328	.617	.745	.415***	.000	.126***	.004
Any work in last 7 days - Ag included	.692	.704	.759	.066**	.013	.054	.204
Monthly earnings (USD) - wage employed	55.318	77.090	84.948	29.532***	.000	7.760	.534
Male sample							
Age	25.632	25.632	25.632	-.000	.999	-.000	.999
Married	.563	.418	.371	-.190***	.000	-.046	.319
Completed primary school	.652	1.000	1.000	.348***	.000	.000	1.000
Completed secondary school	.212	1.000	1.000	.788***	.000	.000	1.000
Completed vocational training	.056	1.000	1.000	.944***	.000	.000	1.000
Any work in last 7 days - no Ag	.585	.746	.741	.155***	.000	-.005	.900
Any work in last 7 days - Ag included	.847	.863	.773	-.075***	.000	-.091***	.005
Monthly earnings (USD) - wage employed	77.622	97.513	117.807	40.185***	.000	20.294***	.008

Notes: The table compares our sample with the population of Ugandan adults aged 18–39 and the subpopulation that completed post-secondary vocational education from the Uganda National Household Survey 2016/2017 (UNHS). The table reports sample means for a set of socio-economic and labor market characteristics, differences in means across the samples, and p-values from the tests that the differences in means are statistically different from zero. The UNHS samples of young adults and VTI graduates are reweighted so that their age and gender distribution matches that of the study sample. The variable "Any work in the last seven days" refers to individuals who worked for pay, run a business, helped out in business or were apprentices in the previous week. In the UNHS, average monthly earnings are available only for wage employed respondents.

Table 3: Sector Relevance and Gender Composition Nationwide

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Young Adults UNHS			VTI Graduates UNHS			Study Sample		
	% All	% Female	% Male	% All	% Female	% Male	% All	% Female	% Male
Food and hospitality	.044	.524	.476	.049	.349	.651	.122	.757	.243
Tailoring	.006	.600	.400	.006	.794	.206	.073	.976	.024
Electrical work	.001	.115	.885	.006	.218	.782	.174	.070	.930
Motor-mechanics	.011	.072	.928	.016	.041	.959	.162	.043	.957
Construction	.037	.004	.996	.035	.016	.984	.051	.103	.897
Plumbing	.001	.000	1.000	.003	.000	1.000	.075	.047	.953
Retail	.137	.441	.559	.133	.637	.363	.077	.545	.455
Secretary and accounting	.006	.408	.592	.011	.591	.409	.037	.905	.095
Teaching (pre-primary and primary)	.024	.470	.530	.171	.495	.505	.085	.898	.102
Hairdressing	.013	.425	.575	.019	.593	.407	.031	.889	.111
Agriculture	.528	.444	.556	.158	.320	.680	.030	.235	.765
Machining and fitting	.006	.034	.966	.012	.000	1.000	.007	.250	.750
Other unskilled	.099	.153	.847	.141	.204	.796	.042	.333	.667
Other skilled	.086	.270	.730	.240	.380	.620	.035	.350	.650

Notes: The table compares our sample (columns [7], [8] and [9]) with the population of Ugandan adults aged 18–39 (columns [1], [2] and [3]) and the subgroup that completed post-secondary vocational education (columns [4], [5] and [6]) from the Uganda National Household Survey 2016/2017 (UNHS). Columns (1), (4) and (7) show the percentage of the considered population employed in each sector of the economy. Columns (2) and (3), (5) and (6), (8) and (9) show the gender composition of the considered population in each sector. The UNHS samples of young adults and VTI graduates are reweighted so that their age and gender distribution matches that of the study sample.

Table 4: Attrition Magnitude and Timing by Gender

		(1)		(2)	T-test
		Female		Male	Difference
Variable	N	Mean/SE	N	Mean/SE	(1)-(2)
Interviewed in Jan 2020	295	0.983	419	0.995	-0.012
		(0.008)		(0.003)	
Interviewed in Jul 2020	295	0.851	419	0.869	-0.018
		(0.021)		(0.017)	
Interviewed in Dec 2020	295	0.776	419	0.792	-0.016
		(0.024)		(0.020)	
Interviewed in Sep 2021	295	0.749	419	0.811	-0.062**
		(0.025)		(0.019)	

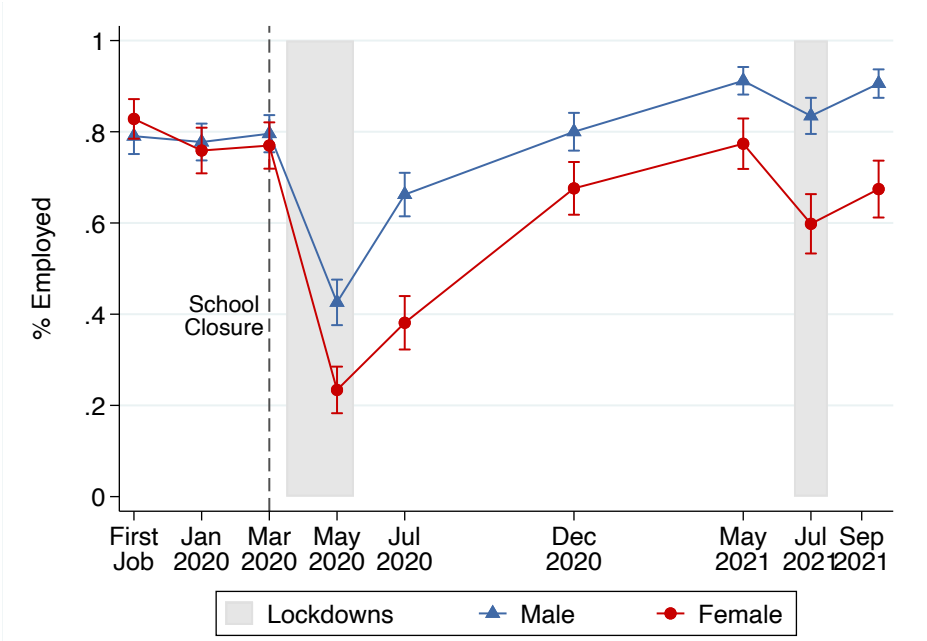
Notes: The table reports summary statistics and tests for gender differences in means for four indicators summarizing the presence of the respondent in each of the four survey rounds.

Table 5: Ever and Never Attritors' Baseline Characteristics by Gender: Summary Statistics and Balance Tests

	Male Sample						Female Sample					
	Ever Attritors		*Never Attritors*				*Ever Attritors*		*Never Attritors*			
	Obs	Mean	Obs	Mean	Diff	p-value	Obs	Mean	Obs	Mean	Diff	p-value
Panel A: Socio-economic characteristics												
Age	135	25.793	283	25.555	.238	.489	118	24.059	173	24.150	-.091	.797
Married	41	.439	191	.356	.083	.331	46	.304	125	.368	-.064	.432
Has children	56	.482	282	.436	.046	.531	46	.543	172	.500	.043	.601
Num. school-age children in household	56	.482	282	.674	-.192	.202	44	1.295	171	1.199	.097	.658
Traditional religious denomination	131	.779	283	.770	.008	.851	116	.664	173	.746	-.082	.139
Ethnic minority	131	.427	283	.459	-.032	.544	116	.345	173	.474	-.129**	.028
House of origin: rural	49	.551	283	.527	.025	.751	57	.421	173	.503	-.082	.283
Region of origin: central	134	.425	281	.299	.126**	.013	119	.420	171	.409	.011	.855
Region of origin: eastern	134	.381	281	.484	-.103**	.046	119	.454	171	.368	.085	.148
Region of origin: northern	134	.090	281	.139	-.049	.127	119	.059	171	.146	-.087**	.012
Region of origin: western	134	.104	281	.078	.026	.398	119	.067	171	.076	-.009	.775
Caretaker's years of education	82	8.915	190	10.253	-1.338*	.064	79	10.595	111	10.658	-.063	.932
Agricultural household of origin	129	.225	282	.160	.065	.129	114	.184	172	.203	-.019	.686
Household of origin assets index	131	.421	283	-.219	.640	.143	118	.151	173	-.063	.213	.700
Panel B: Labor market characteristics												
Years since graduation	129	3.481	283	3.201	.279	.230	119	2.588	173	3.052	-.464	.060*
Years employed since graduation	44	2.989	280	2.820	.169	.611	52	2.367	173	2.654	-.287	.403
Years in current job	81	2.765	177	2.452	.313	.264	59	2.153	105	1.886	.267	.304
Wage employed	131	.580	278	.568	.012	.822	112	.491	170	.559	-.068	.267
Self employed	131	.229	278	.187	.042	.337	112	.259	170	.206	.053	.308
Permanent job	73	.849	151	.682	.167***	.004	53	.887	94	.851	.036	.534
Formal firm	100	.490	202	.431	.059	.333	80	.512	123	.455	.057	.428
Employed in Skilled Sector	131	.649	276	.667	-.018	.725	112	.598	170	.671	-.072	.220
Employed in Skilled Sector | Employed	106	.802	210	.876	-.074*	.100	84	.798	130	.877	-.079	.134
Employed in Training Sector	131	.557	276	.598	-.041	.441	112	.500	170	.571	-.071	.247
Employed in Training Sector | Employed	106	.689	210	.786	-.097*	.070	84	.667	130	.746	-.079	.218
Earnings (USD)	83	81.144	170	72.645	8.499	.419	74	56.491	104	49.653	6.838	0.446
Earnings (USD) | Employed	58	116.120	104	118.747	-2.627	.815	46	90.877	64	80.686	10.190	.314
Enrolled in further education	131	.031	278	.058	-.027	.190	112	.036	170	.065	-.029	.263
Engaged in casual occupations	131	.053	278	.072	-.019	.461	112	.018	170	.041	-.023	.240
Other non-employed	131	.107	278	.115	-.008	.804	112	.196	170	.129	.067	.143

Notes: The table reports summary statistics for a set of baseline socio-economic and labor market characteristics separately for "Ever Attritors", (i.e., respondents successfully interviewed in fewer than four survey rounds) and "Never Attritors", (i.e., respondents successfully interviewed in all the four survey rounds) and tests for differences between these two groups in the samples of male and female respondents. See the notes to Table 1 for details on how the variables are constructed.

Figure 2: The Emergence and Persistence of a Gender Gap in Employment After the Lockdowns

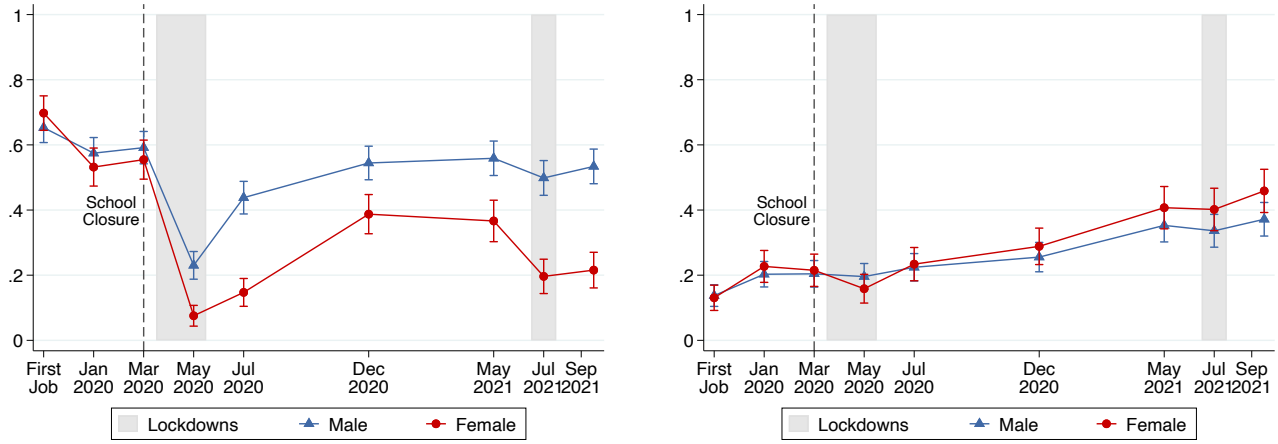


Notes: The figure illustrates the average share of respondents that are employed over time and by gender. At each point in time, a respondent is coded as employed if her main activity is either wage- or self-employment. The first data point refers to the respondents' first activity after completing vocational education. It may coincide with the activity in January 2020 and its start and end date may be different for each respondent. It can be interpreted as the share of individuals who ever worked after completing vocational education. 95% robust confidence intervals are reported.

Figure 3: The Emergence and Persistence of Gender Disparities in Occupation Type After the Lockdowns

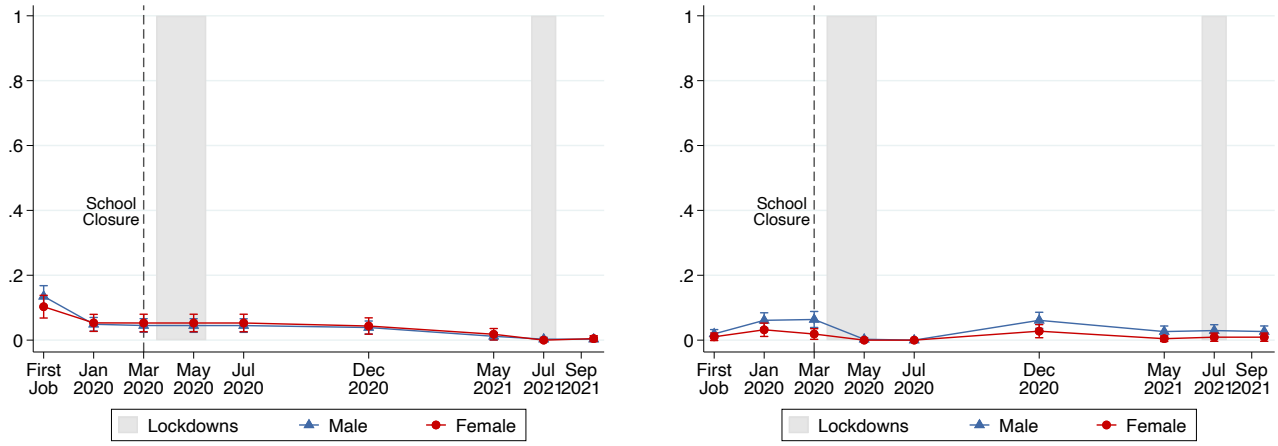
(a) % Wage employed

(b) % Self employed



(c) % Enrolled in further education

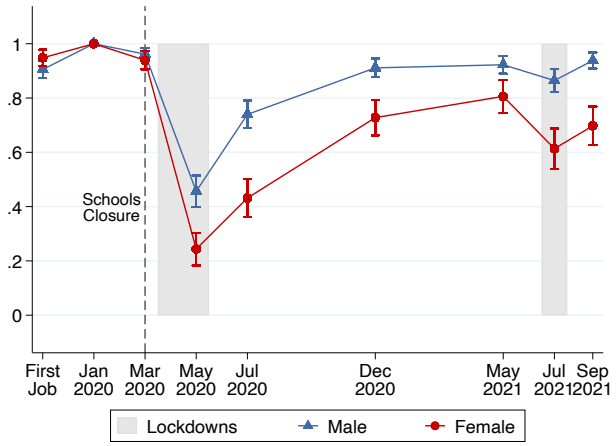
(d) % Engaged in casual occupations



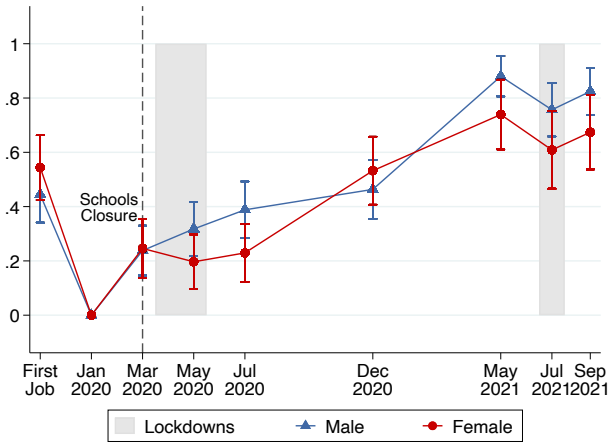
Notes: The figure illustrates the average share of respondents that are wage employed (panel [a]), self-employed (panel [b]), enrolled in educational programs (panel [c]), and engaged in casual occupations (panel [d]) over time and by gender. The first data point refers to the respondents' first activity after completing vocational education. It may coincide with the activity in January 2020 and its start and end date may be different for each respondent. 95% robust confidence intervals are reported.

Figure 4: The Drivers of the Recovery in Employment After the Lockdowns

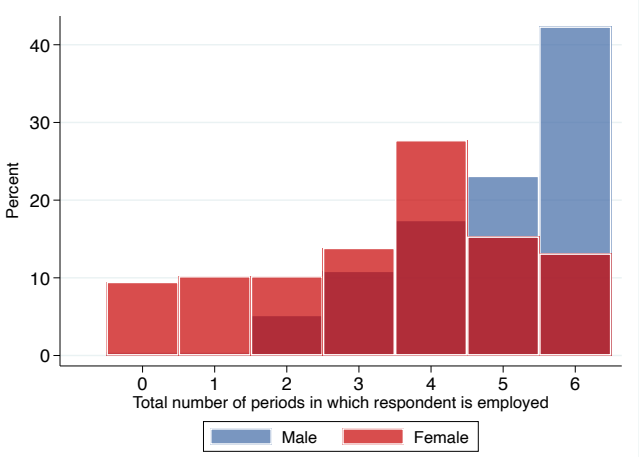
(a) Employed in Jan 2020: % Employed Over Time



(b) Not Employed in Jan 2020: % Employed Over Time



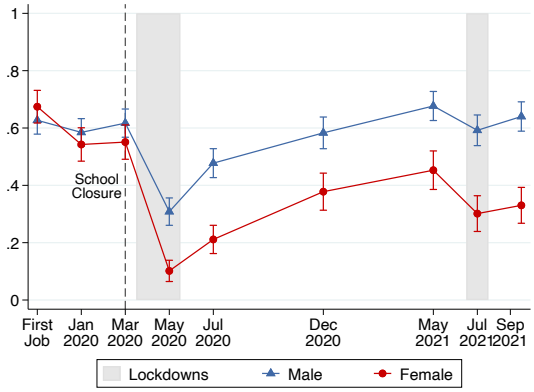
(c) Employment Frequency During the Pandemic Periods



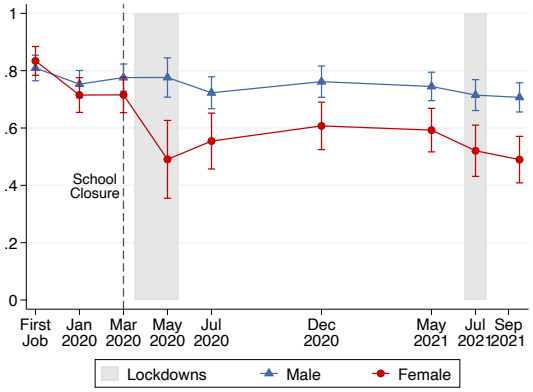
Notes: Panels (a) and (b) illustrate the average employment rate over time and by gender for the 532 respondents who were employed in January 2020 and the 159 respondents who were not employed in January 2020. Employed respondents were either wage- or self-employed. Non-employed respondents were either enrolled in educational programs, or engaged in casual occupations, or without an occupation. The first data point refers to the respondents' first activity after completing vocational education. It may coincide with the activity in January 2020 and its start and end date may be different for each respondent. 95% robust confidence intervals are reported. Panel (c) illustrates the share of female and male respondents employed in zero to six periods between May, July, and December 2020, and May, July, and September 2021. The sample is restricted to Never Attritors that were employed pre-pandemic (January and March 2020).

Figure 5: The Emergence and Persistence of Gender Disparities in Employment Quality After the Lockdowns

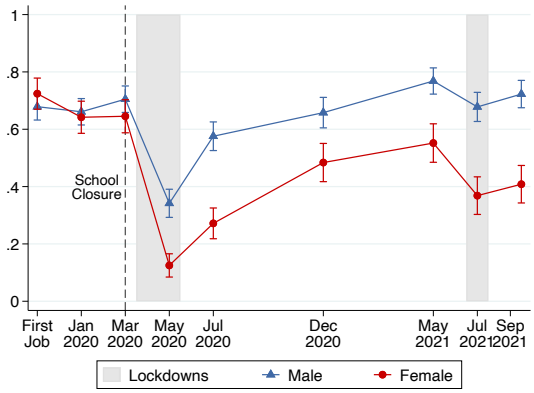
(a) % Employed in Training Sector



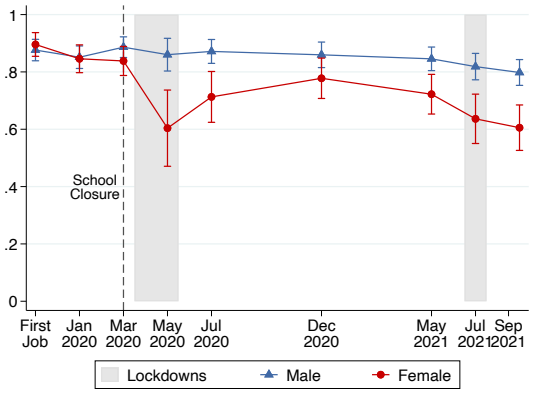
(b) % Employed in Training Sector | Employed



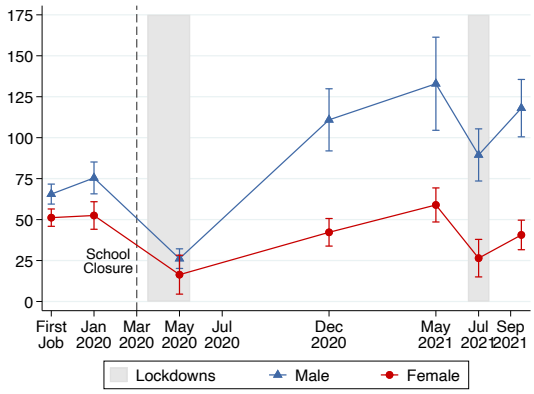
(c) % Employed in Skilled Sector



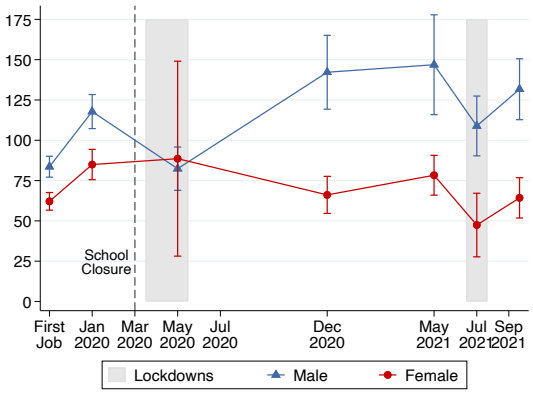
(d) % Employed in Skilled Sector | Employed



(e) Monthly Earnings (USD)



(f) Monthly Earnings (USD) | Employed



Notes: The figure illustrates the average employment rate in the training sector (upper panels) employment rate in skilled sectors (middle panels) and monthly earnings (lower panels) over time and by gender. See the notes to Table 1 for details on how the variables are constructed. In panels (a), (c), and (e), the outcome is set to zero for non-employed respondents, and the average outcome in each point of time is calculated over all respondents found in the corresponding survey round. In panels (b), (d), and (f), the outcome is missing for non-employed respondents, and the average outcome in each point of time is calculated over the employed respondents only. The first data point refers to the respondents' first job after completing vocational education. It may coincide with the job in January 2020 and its start and end date may be different for each respondent. Earnings data were not collected in March and July 2020. In January 2020 and May 2020 respondents placed their earnings in a 15 USD bracket. We use the range midpoint. From December 2020 onwards earnings were asked as a continuous variable. For self-employed workers, the variable measures monthly profits, collected following the same procedure. Results look very similar when we use the range midpoint throughout. 95% robust confidence intervals are reported.

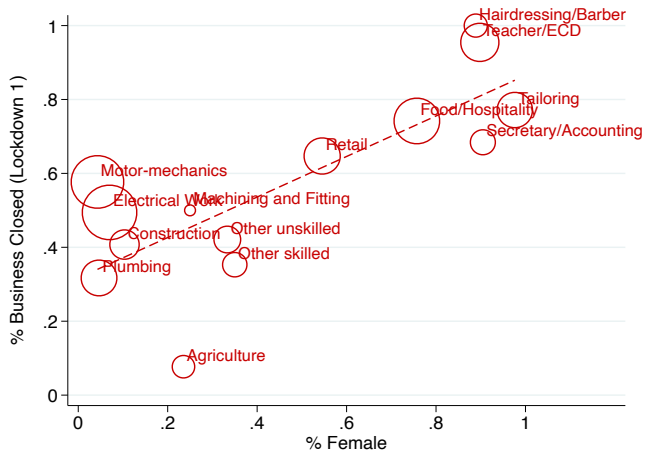
Table 6: The Emergence and Persistence of Gender Disparities in the Labor Market After the Lockdowns

Outcome:	(1) % Employed	(2) % Wage-employed	(3) % Self-employed	(4) Employed in Training Sector	(5) Employed in Training Sector | Employed	(6) Employed in Skilled Sector	(7) Employed in Skilled Sector | Employed	(8) Monthly Earnings (USD)	(9) Monthly Earnings (USD) | Employed
Female × First job	0.069*	0.070	-0.001	0.117***	0.070*	0.107***	0.067**	12.067	8.845
	(0.038)	(0.045)	(0.034)	(0.042)	(0.040)	(0.041)	(0.032)	(7.691)	(12.412)
Female × Jan 2020	0.007	-0.015	0.022	0.017	-0.003	0.031	0.027		
	(0.027)	(0.029)	(0.025)	(0.028)	(0.027)	(0.026)	(0.018)		
Female × May 2020 (Lckdn 1)	-0.166***	-0.118***	-0.047**	-0.137***	-0.070***	-0.156***	-0.073**	15.861	30.554
	(0.049)	(0.046)	(0.023)	(0.043)	(0.027)	(0.044)	(0.034)	(9.983)	(34.543)
Female × Jul 2020	-0.255***	-0.254***	-0.001	-0.202***	-0.036	-0.246***	-0.046**		
	(0.045)	(0.042)	(0.012)	(0.037)	(0.026)	(0.042)	(0.021)		
Female × Dec 2020	-0.085**	-0.129***	0.045	-0.131***	-0.050	-0.113***	-0.017	-47.243***	-49.418***
	(0.042)	(0.044)	(0.033)	(0.038)	(0.035)	(0.042)	(0.033)	(11.806)	(18.944)
Female × May 2021	-0.099**	-0.161***	0.062	-0.155***	-0.096*	-0.155***	-0.074*	-48.785***	-35.564**
	(0.048)	(0.052)	(0.046)	(0.051)	(0.053)	(0.049)	(0.044)	(16.567)	(17.608)
Female × Jul 2021 (Lckdn 2)	-0.194***	-0.270***	0.077	-0.215***	-0.111*	-0.244***	-0.121**	-37.791***	-33.051*
	(0.053)	(0.051)	(0.048)	(0.052)	(0.058)	(0.053)	(0.052)	(11.815)	(17.573)
Female × Sep 2021	-0.188***	-0.285***	0.097**	-0.239***	-0.133**	-0.243***	-0.122**	-50.157***	-35.451**
	(0.051)	(0.052)	(0.048)	(0.051)	(0.056)	(0.051)	(0.051)	(12.054)	(16.076)
Observations	5,615	5,615	5,615	5,391	3,764	5,391	3,764	3,772	2,575
R-squared	0.443	0.534	0.581	0.563	0.699	0.538	0.706	0.414	0.485
Mean Dep. Var. Pre-Shock	0.785	0.576	0.209	0.590	0.751	0.680	0.867	65.96	104.5
sd Dep. Var. Pre-Shock	0.411	0.495	0.407	0.492	0.433	0.467	0.340	71.57	63.89

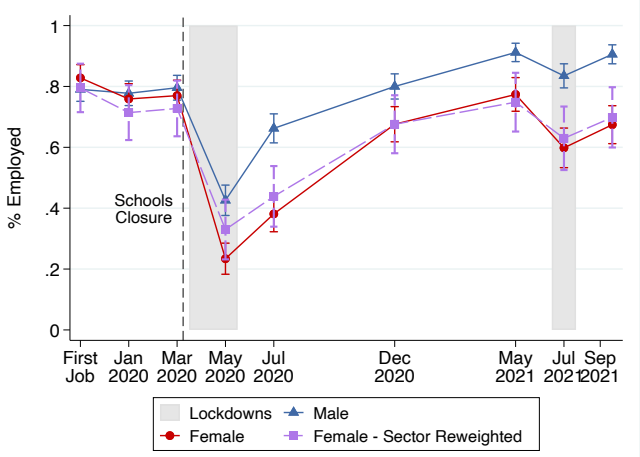
Notes: The table reports the β_y coefficients obtained estimating Equation 1 in the full sample. The dependent variables are an indicator for respondents that are employed (column [1]), wage-employed (column [2]), self-employed (column [3]), employed in their training sector, unconditional (column [4]) and conditional on employment (column [5]), employed in skilled sectors, unconditional (column [6]) and conditional on employment (column [7]), and monthly earnings in USD, unconditional (column [8]) and conditional on employment (column [9]). See the notes to Table 1 and Figure 5 for the details about how the variables were built. The coefficient on $Female \times Mar2020$ is normalized to zero for all outcomes except for monthly earnings, in which case the coefficient on $Female \times Jan2020$ is normalized to zero. The table reports the mean and the standard deviation of the dependent variable measured in March 2020 (columns [1]-[7]) and January 2020 (columns [8]-[9]). Standard errors are robust to heteroskedasticity and clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01.

Figure 6: The Contribution of Pre-pandemic Employment Sectors to the Employment Gender Gap

(a) Female Concentration in Severely Impacted Economic Sectors



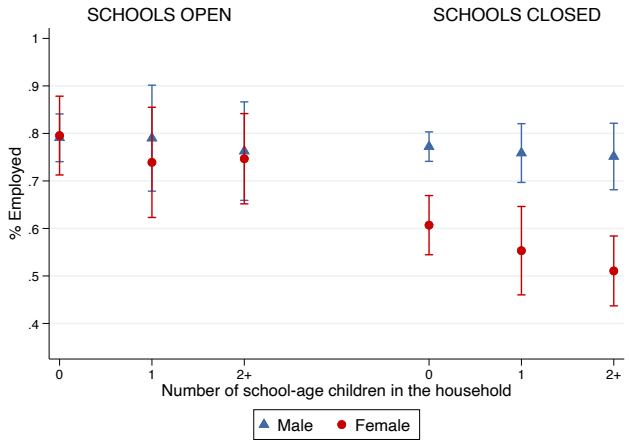
(b) Measuring the Contribution of Employment Sectors



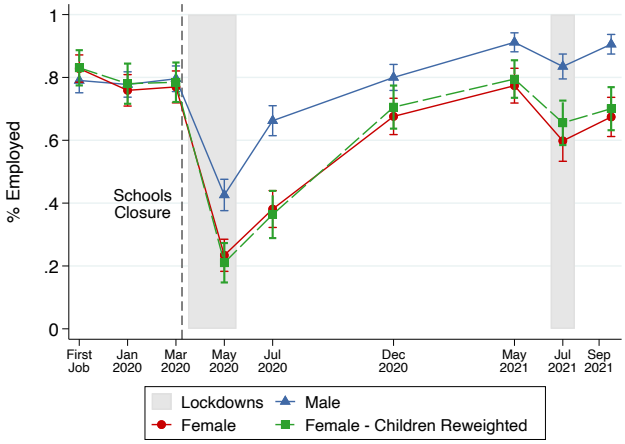
Notes: Panel (a) shows the economic sectors in which our respondents were employed pre-pandemic by the share of female workers hosted before the pandemic and the share of businesses that were closed during the first lockdown in May 2020. Markers are proportional to the number of workers employed in each sector before the pandemic. The slope of the fitted line is 0.55 (standard error: 0.12). See the notes to Table 1 for a detail of the occupations included in "Other Skilled" and "Other Unskilled". Panel (b) illustrates average employment rates over time for male, female, and sector-reweighted female respondents. Sector-reweighted female employment rate is equal to female employment rate when weighting the female sample so that the first moment of $Hit\ Sector_i$, an indicator for whether pre-pandemic the respondent was employed in a severely hit sector, matches that in the male sample. Weights are equal to one for male workers. Severely hit sectors are sectors in which more than 50% of the businesses in which our workers were employed pre-pandemic were closed during the first lockdown in May 2020: motor-mechanics, food and hotel, tailoring, hairdressing, teaching, secretary, and retail. 95% robust confidence intervals are reported.

Figure 7: The Contribution of Childcare Responsibilities to the Employment Gender Gap

(a) Gender Gap in Impact of Schools' Closure on Employment



(b) Measuring the Contribution of Childcare Responsibilities



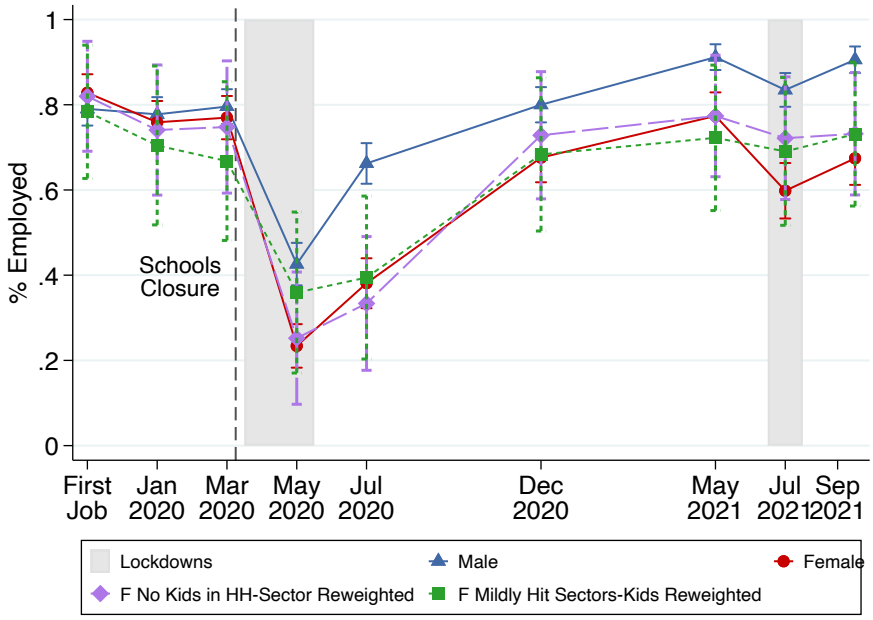
Notes: Panel (a) displays the average employment rate for female and male respondents with zero, one, and two or more school-age children in the household in periods in which schools were open (January and March 2020) and periods in which schools were closed (May, July and December 2020, May, July and September 2021). School-age children are children aged 3 or more. Among women with non-missing information about the number of school-age children in the household, 89 have zero, 47 have one, and 79 have two or more. Among men with non-missing information about the number of school-age children in the household, 229 have zero, 50 have one, and 59 have two or more. Panel (b) illustrates average employment rates over time for male, female, and children-reweighted female respondents. Children-reweighted female employment rate is equal to female employment rate when weighting the female sample so that the proportions of respondent with zero, one, or more than one school-age children in the household match those in the male sample. 95% robust confidence intervals are reported.

Table 7: The Contribution of Sectors and Childcare Responsibilities to the Employment Gender Gap

	May 2020	Jul 2020	Dec 2020	May 2021	Jul 2021	Sep 2021
A: Raw Means and Gap						
Male Employment Rate	.426	.662	.800	.912	.835	.906
Female Employment Rate	.234	.381	.676	.774	.598	.674
Raw Gender Gap: Male − Female	.192	.281	.124	.138	.237	.231
B: Individual Role of Sectors						
Sector Reweighted Female Employment Rate	.330	.439	.676	.748	.630	.698
Sector Reweighted Female − Female	.096	.058	-.000	-.025	.031	.024
Female with Male Sectors (Oaxaca) − Female	.100	.060	-.000	-.027	.033	.025
% Raw Gap due to Sectors	50	21	0	-18	13	10
C: Individual Role of Childcare						
Children Reweighted Female Employment Rate	.210	.364	.706	.795	.655	.701
Children Reweighted Female − Female	-.024	-.017	.030	.021	.057	.026
Female with Male Children (Oaxaca) − Female	-.011	-.004	.028	.023	.051	.026
% Raw Gap due to Childcare	-12	-6	24	15	24	11
D: Joint Role of Sectors and Childcare						
Option 1:						
Children Reweighted Female in Mildly Hit Sectors Empl. Rate	.359	.394	.683	.722	.690	.731
Children Reweighted Female in Mildly Hit Sectors − Female	.125	.013	.008	-.051	.092	.057
% Raw Gap due to Sectors and Childcare	65	5	6	-37	39	25
Option 2:						
Sector Reweighted Female w/o Children Empl. Rate	.252	.334	.728	.774	.722	0.732
Sector Reweighted Female w/o Children − Female	.018	-.047	.053	-.000	.123	.058
% Raw Gap due to Sectors and Childcare	10	-17	42	0	52	25

Notes: The table quantifies the part of the employment gender gap due to pre-pandemic employment sectors and childcare responsibilities in each pandemic time. Panel (A) reports average employment rate by gender and the raw gender gap over time. Panel (B) measures the share of the raw gap due to different sectors of employment. It reports, first, female employment rate when reweighting the female sample so that first moment of $Hit\ Sector_i$ matches that in the male sample. $Hit\ Sector_i$ is an indicator for whether pre-pandemic the respondent was employed in a severely hit sector (i.e., a sector in which more than 50% of the businesses in which our workers were employed pre-pandemic were closed during the first lockdown in May 2020: motor-mechanics, food and hotel, tailoring, hairdressing, teaching, secretary, and retail). Second, the panel reports the part of the gender gap explained by different sectors of employment by gender. We calculate it in two ways: 1. as the difference between sector-reweighted and actual female employment rates; 2. using a Oaxaca-Blinder decomposition with $Hit\ Sector_i$ as explanatory variable, and reporting the part of the gap due to different endowments. Third, the panel reports the share of the gender gap explained by sectors, obtained by dividing the explained part of the gap by the raw gap from Panel (A). Panel (C) measures the share of the raw gap due to different childcare responsibilities. It reports, first, female employment when reweighting the female sample so that the proportions of respondents with zero, one, or more than one school-age children in the household match those in the male sample. Second, the panel reports the portion of the gender gap explained by different childcare responsibilities by gender. We calculate it in two ways: 1. as the difference between children-reweighted and actual female employment rates; 2. using a Oaxaca-Blinder decomposition with indicators for whether the respondent has zero, one, or more than one school-age children in the household as explanatory variables, and reporting the part of the gap due to different endowments. Third, the panel reports the share of the gender gap explained by childcare duties, obtained by dividing the explained part of the gap by the raw gap from Panel (A). Panel (D) measures the part of the raw gap due to different employment sectors and childcare responsibilities jointly, in absolute value and as a share of the raw gender gap. Under option 1, we take the difference between the employment rate of sector-reweighted women with no children and actual female employment rate. Under option 2, we take the difference between the employment rate of children-reweighted women in mildly hit sector ($Hit\ Sector_i = 0$) and actual female employment rate. To obtain the share of the gap explained we divide the part explained by the raw gender gap from panel (A).

Figure 8: The Residual Gender Gap in Employment



The figure illustrates average employment rates over time for male, female, sector-reweighted female respondents with no school-age children, and children-reweighted female respondents that pre-pandemic were working in mildly hit sectors. There are 89 women with no school-age children in the household and non-missing data about employment sector. Sector-reweighted employment rate for women with no children is equal to the employment rate of women with no school-age children when weighting them so that the first moment of $Hit\ Sector_i$, an indicator for whether pre-pandemic the respondent was employed in a severely hit sector, matches that in the male sample. Severely hit sectors are sectors in which more than 50% of the businesses in which our workers were employed pre-pandemic were closed during the first lockdown in May 2020: motor-mechanics, food and hotel, tailoring, hairdressing, teaching, secretary, and retail. There are 32 women in mildly hit sectors and with non-missing data about the number of school-age children in the household. Children-reweighted employment rate for women in mildly hit sector is equal to the employment rate of women with $Hit\ Sector_i$=0 when weighting them so that the proportions of respondents with zero, one, and two or more school-age children in the household matches that in the male sample. School-age children are children aged three or more. Weights are equal to one for men. 95% robust confidence intervals are reported.

Appendix

Figure A.1: Sample Construction - Records Digitization

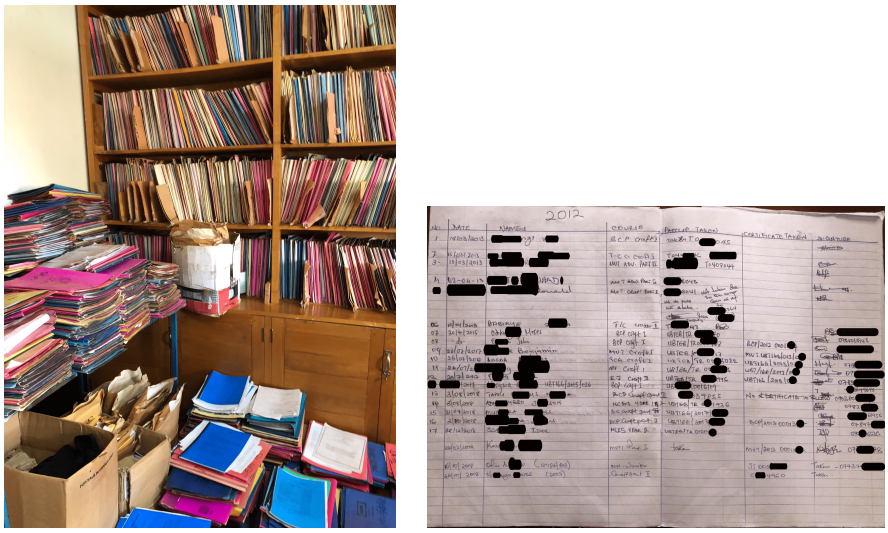
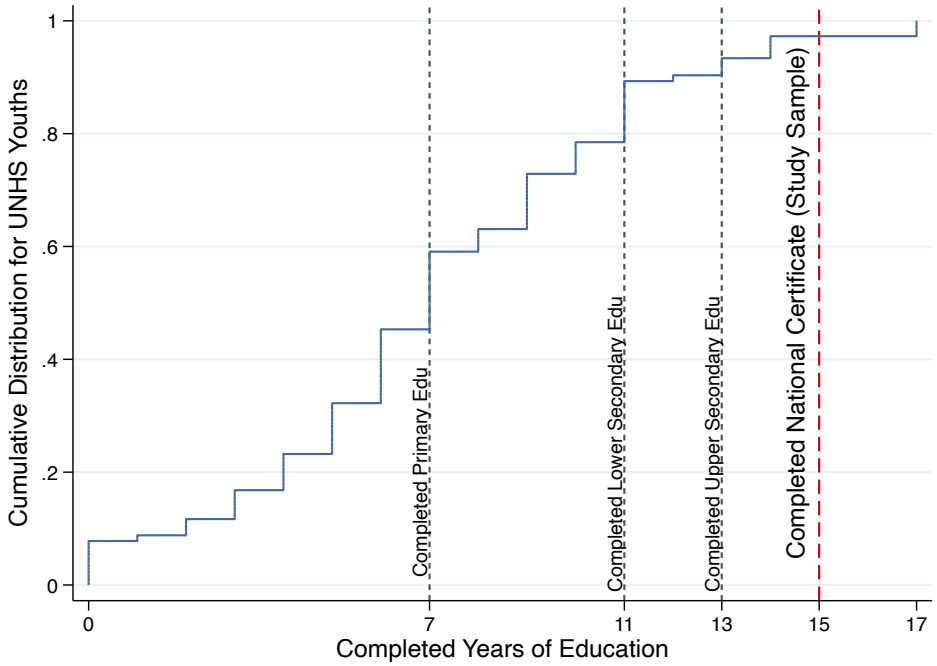


Figure A.2: Educational Attainment of Ugandan Youths from UNHS and Study Sample



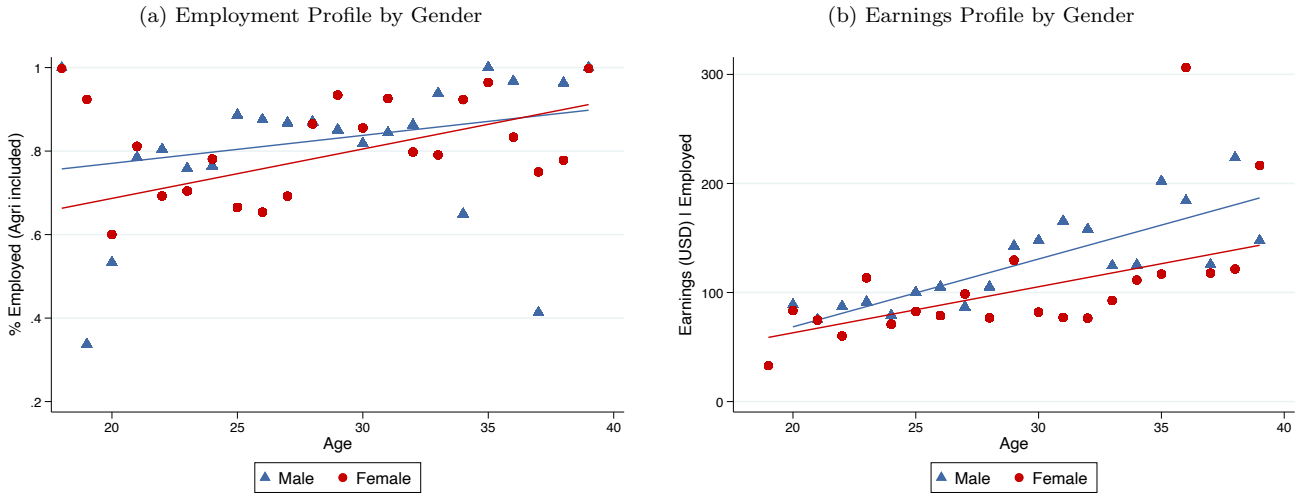
Notes: This figure shows the cumulative distribution function of years of education for the population of Ugandan adults aged 18–39 from the Uganda National Household Survey 2016/2017 (UNHS). The UNHS sample of young adults is reweighted so that its age and gender distribution matches that of the study sample. The four dashed lines indicate the number of years of education corresponding to completing primary education (7), completing lower secondary education (11), completing upper secondary education (13) and completing the National Certificate program at a Vocational Training Institute (15). The latter corresponds to the minimum education level attained by the respondents in our sample.

Table A.1: Ever and Never Attritors' Baseline Characteristics: Summary Statistics and Balance Tests

	Ever Attritors		*Never Attritors*			
	Obs	Mean	Obs	Mean	Diff	p-value
Panel A: Socio-economic characteristics						
Female	258	.473	456	.379	.093**	.016
Age	253	24.984	456	25.022	-.038	.882
Married	87	.368	316	.361	.007	.904
Has children	102	.510	454	.460	.049	.368
Num. school-age children in household	100	.840	453	.872	-.032	.811
Traditional religious denomination	247	.725	456	.761	-.036	.297
Ethnic minority	247	.389	456	.465	-.076*	.050
House of origin: rural	106	.481	456	.518	-.036	.500
Region of origin: central	253	.423	452	.341	.082**	.032
Region of origin: eastern	253	.415	452	.440	-.025	.516
Region of origin: northern	253	.075	452	.142	-.066***	.005
Region of origin: western	253	.087	452	.077	.010	.662
Caretaker's years of education	161	9.739	301	10.402	-.663	.197
Agricultural household of origin	243	.206	454	.176	.030	.349
Household of origin assets index	249	.293	456	-.160	.452	.190
Panel B: Labor market characteristics						
Years since graduation	248	3.052	456	3.145	-.092	.585
Years employed since graduation	96	2.652	453	2.756	-.105	.661
Years in current job	140	2.507	282	2.241	.266	.179
Wage employed	243	.539	448	.565	-.026	.519
Self employed	243	.243	448	.194	.049	.145
Permanent job	126	.865	245	.747	.118***	.004
Formal firm	180	.500	325	.440	.060	.197
Employed in Skilled Sector	243	.626	446	.668	-.043	.266
Employed in Skilled Sector | Employed	190	.800	340	.876	-.076**	.025
Employed in Training Sector	243	.531	446	.587	-.057	.154
Employed in Training Sector | Employed	190	.679	340	.771	-.092**	.025
Earnings (USD)	157	69.524	274	63.918	5.606	.436
Earnings (USD) | Employed	104	104.955	168	104.248	.707	.930
Enrolled in further education	243	.033	448	.060	-.027*	.089
Engaged in casual occupations	243	.037	448	.060	-.023	.161
Other non-employed	243	.148	448	.121	.028	.316

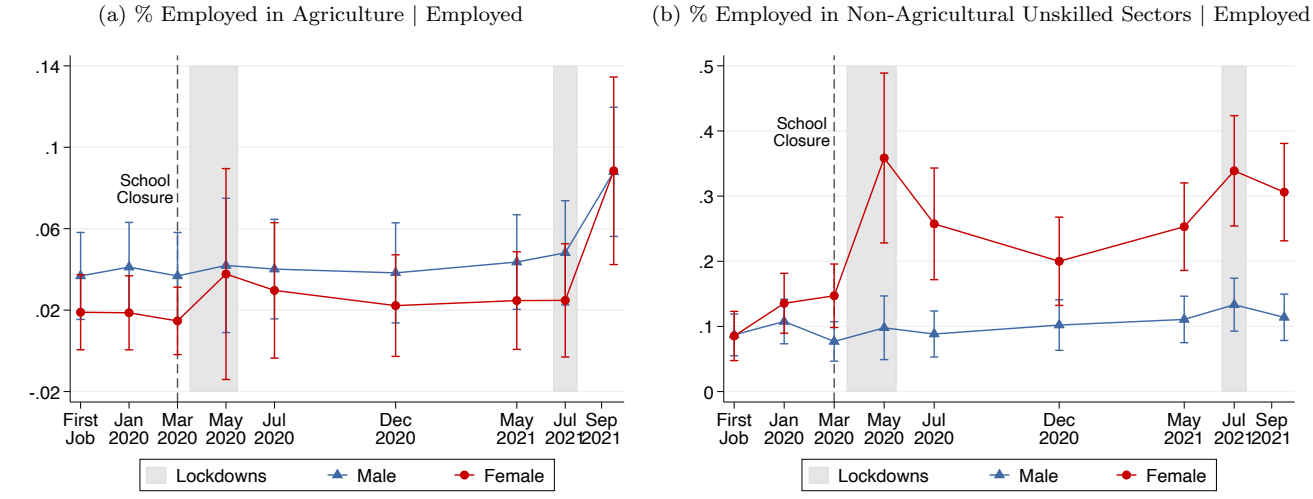
Notes: The table reports summary statistics for a set of baseline socio-economic and labor market characteristics separately for "Ever Attritors", (i.e., respondents successfully interviewed in fewer than four survey rounds) and "Never Attritors", (i.e., respondents successfully interviewed in all the four survey rounds) and tests for differences between these two groups in the full sample of respondents. See the notes to Table 1 for details on how the variables are constructed.

Figure A.3: Vocational Graduates' Careers in the UNHS



Notes: This figure shows average employment rate (panel [a]) and monthly earnings conditional on employment (panel [b]) by age and a fitted line separately for female and male respondents who completed post-secondary vocational education from the Uganda National Household Survey 2016/2017 (UNHS). The UNHS sample is restricted to respondents aged 18–39 and then reweighted so that its age and gender distribution matches that of the study sample. In panel (a), the slopes and standard errors of the fitted lines are 0.014 (0.01) for males and 0.012 (0.01) for females. In panel (b), they are 6.74 (1.28) for males and 2.72 (1.34) for females.

Figure A.4: The Emergence of Gender Disparities in Unskilled Employment After the Lockdowns



Notes: The figure illustrates the average share of respondents employed in agriculture (panel [a]) and in non-agricultural unskilled sectors (panel [b]) conditional on employment over time and by gender. Non-agricultural unskilled sectors include retail, and "Other Unskilled" occupations. For details on this residual category, see the notes to Table 1. The first data point refers to the respondents' first activity after completing vocational education. It may coincide with the activity in January 2020 and its start and end date may be different for each respondent. 95% robust confidence intervals are reported.

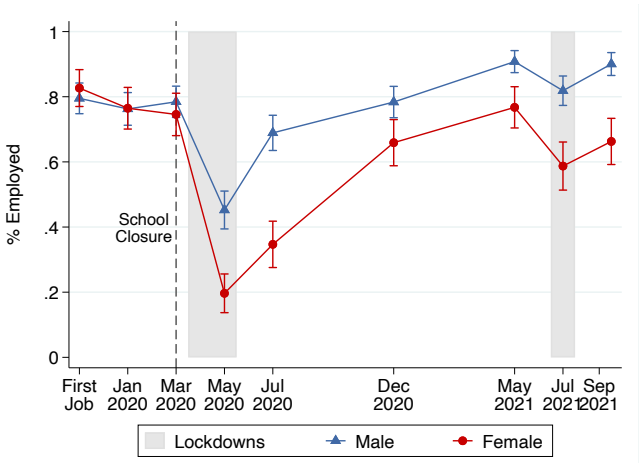
Table A.2: The Effects of the Lockdowns on Hours Worked, Borrowing, Selling Assets, Mental Health, Ability to Work

		Male			Female			T-test	
Time	Outcome	N	Mean	Std. dev.	N	Mean	Std. dev.	Diff F-M	p-value
Panel a. Hours worked									
May 2020	Reduced hours worked | Self-employed	74	.595	.494	42	.595	.497	.001	.995
May 2020	Reduced hours worked | Wage-employed	89	.438	.499	19	.684	.478	.246*	.052
Jul 2020	Business open but reduced hours of operation	264	.492	.501	104	.606	.491	.113*	.050
Dec 2020	Hours worked | Wage-employed	178	9.320	1.728	86	9.047	3.169	-.274	.365
May 2021	Hours worked | Employed	310	9.681	1.993	170	9.753	2.325	.072	.721
Jul 2021	Hours worked | Employed	283	8.830	2.481	131	8.435	2.434	-.395	.130
Sep 2021	Hours worked | Employed	307	9.684	2.073	147	9.320	2.537	-.364	.105
Panel b. Borrowing									
Jul 2020	Since lockdown borrowed money to cover living expenses	309	.184	.388	200	.145	.353	-.039	.247
Jul 2020	ln the next 2 weeks will borrow money to cover living expenses	309	.107	.309	200	.090	.287	-.017	.539
Dec 2020	In the last 4 months borrowed to cover living expenses	326	.261	.440	226	.230	.422	-.031	.413
Jul 2021	Borrowed money to cope with 2^{nd} lockdown | Self-employed	108	.102	.304	80	.200	.403	.098*	.058
Jul 2021	Borrowed money to cope with 2^{nd} lockdown | Wage-employed	189	.095	.294	80	.062	.244	-.033	.382
Panel c. Selling Assets									
Jul 2020	Sold assets as result to COVID-19	376	.152	.359	265	.132	.339	-.020	.488
Jul 2020	ln the next 2 weeks will sell assets to cover living expenses	309	.023	.149	200	.010	.100	-.013	.291
Dec 2020	In the last 4 months sold assets to cover living expenses	332	.123	.329	231	.121	.327	-.002	.935
Jul 2021	Sold assets to cope with 2^{nd} lockdown | Self-employed	108	.019	.135	80	.000	.000	-.019	.223
Jul 2021	Sold assets to cope with 2^{nd} lockdown | Wage-employed	189	.026	.161	80	.013	.112	-.014	.480
Panel d. Mental health									
Jul 2020	Anxious due to COVID-19 oubtreak	364	.764	.425	252	.849	.359	.085***	.009
Dec 2020	Anxious due to COVID-19 oubtreak	326	.653	.477	226	.743	.438	.090**	.025
Sep 2021	Anxious due to COVID-19 oubtreak	339	.732	.444	217	.797	.403	.066*	.078
Panel E. Childcare and ability to work									
Sep 2021	Schools closure affected ability to work via childcare (0-10)	338	.964	2.330	217	2.336	3.163	1.372***	.000

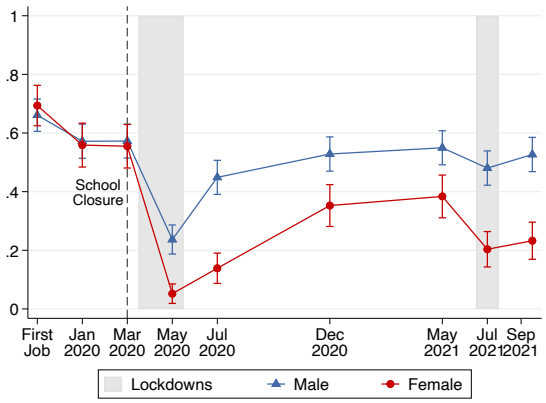
Notes: The table reports summary statistics by gender and tests for gender differences for a set of outcomes.

Figure A.5: Robustness of Gender Gaps in Employment and Occupation Type in the Balanced Panel

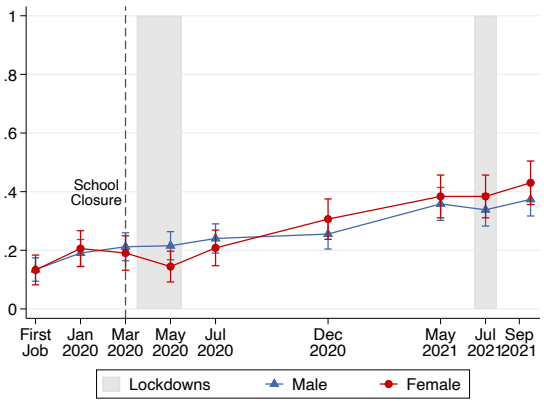
(a) % Employed



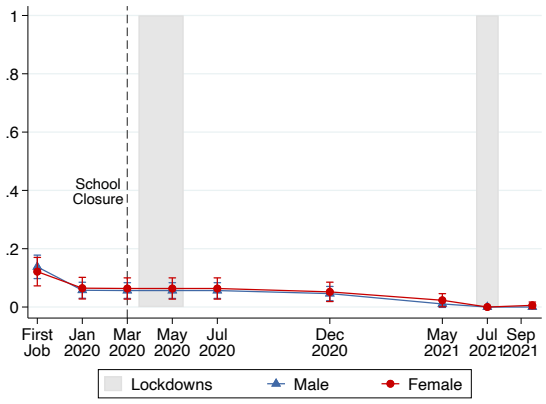
(b) % Wage employed



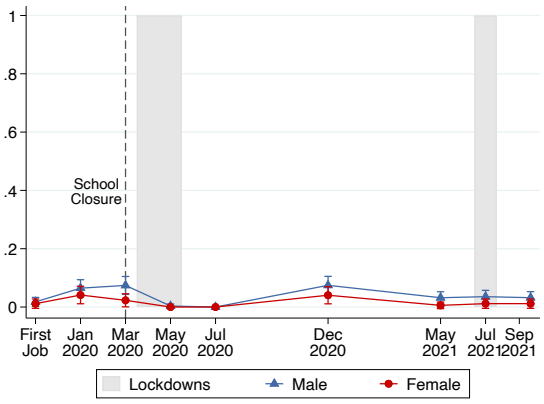
(c) % Self employed



(d) % Enrolled in further education

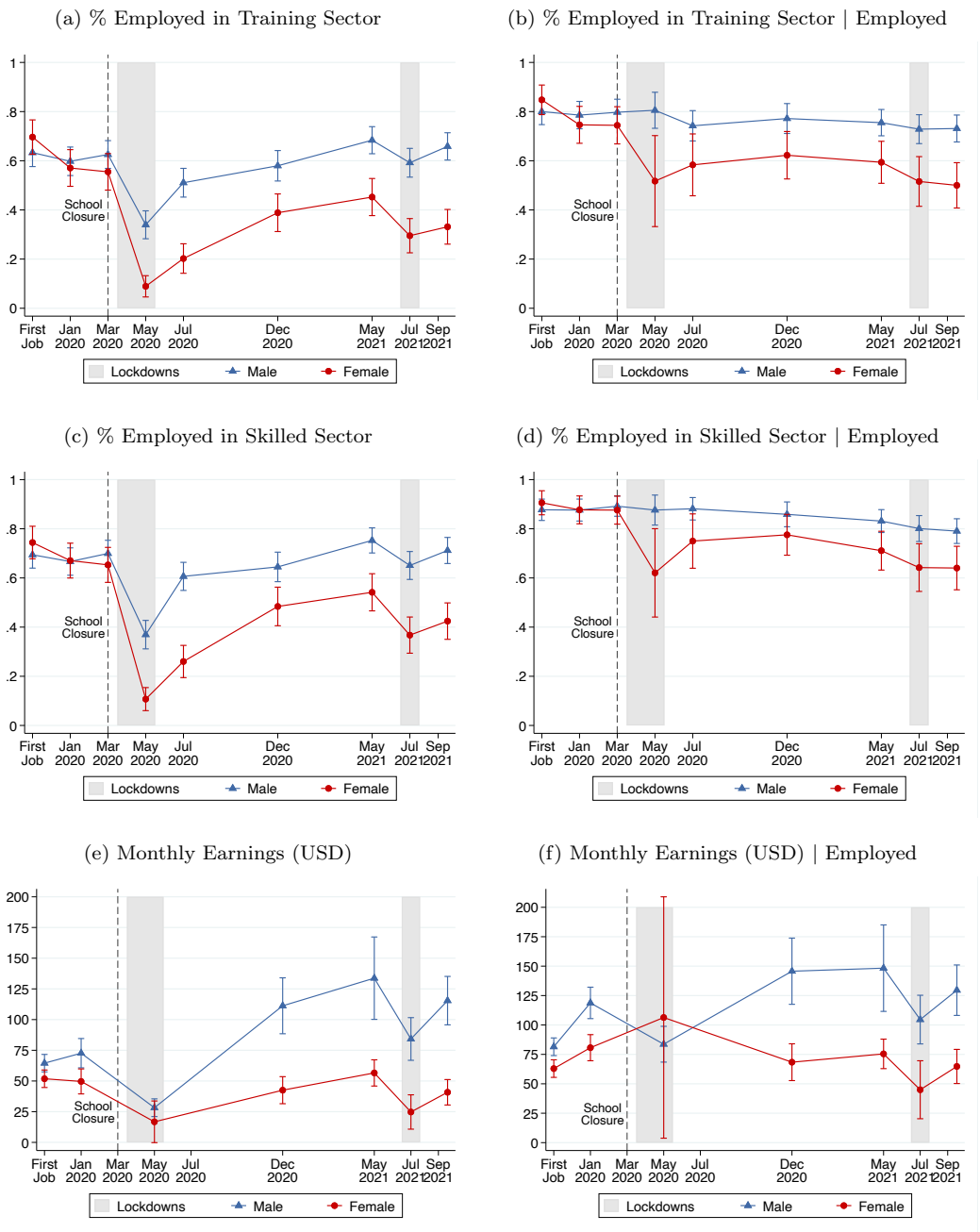


(e) % Engaged in casual occupations



Notes: The figure illustrates the average share of respondents that are employed (panel [a]), wage-employed (panel [b]), self-employed (panel [c]), enrolled in educational programs (panel [d]), and engaged in casual occupations (panel [e]) over time and by gender in the balanced panel of respondents. This sample includes the 456 respondents we successfully interviewed in all the four survey rounds. See the notes to Table 1 for details on how the variables are constructed. 95% robust confidence intervals are reported.

Figure A.6: Robustness of Gender Gaps in Employment Quality in the Balanced Panel



Notes: The figure illustrates the average employment rate in the training sector, unconditional (panel [a]) and conditional on employment (panel [b]), employment rate in skilled sectors, unconditional (panel [c]) and conditional on employment (panel [d]), and monthly earnings, unconditional (pannel [e]) and conditional on employment (panel [f]), over time and by gender in the balanced panel of respondents. This sample includes the 456 respondents we successfully interviewed in all the four survey rounds. See the notes to Table 1 for details on how the variables are constructed. 95% robust confidence intervals are reported.

Table A.3: Robustnes of Gender Gaps in Employment and Employment Quality in the Balanced Panel

Outcome:	(1) % Employed	(2) % Wage-employed	(3) % Self-employed	(4) Employed in Training Sector	(5) Employed in Training Sector | Employed	(6) Employed in Skilled Sector	(7) Employed in Skilled Sector | Employed	(8) Monthly Earnings (USD)	(9) Monthly Earnings (USD) | Employed
Female × First job	0.070	0.050	0.020	0.133***	0.081*	0.096**	0.052	9.822	5.758
	(0.045)	(0.054)	(0.040)	(0.051)	(0.047)	(0.048)	(0.038)	(9.373)	(16.137)
Female × Jan 2020	0.037	0.006	0.031	0.045	0.012	0.048*	0.024		
	(0.030)	(0.034)	(0.028)	(0.031)	(0.032)	(0.029)	(0.021)		
Female × May 2020 (Lckdn 1)	-0.217***	-0.167***	-0.050*	-0.169***	-0.091**	-0.210***	-0.105**	11.384	45.275
	(0.058)	(0.054)	(0.027)	(0.051)	(0.036)	(0.052)	(0.052)	(12.793)	(49.406)
Female × Jul 2020	-0.303***	-0.293***	-0.011	-0.236***	-0.038	-0.298***	-0.046*		
	(0.053)	(0.049)	(0.015)	(0.044)	(0.035)	(0.050)	(0.028)		
Female × Dec 2020	-0.086*	-0.159***	0.072**	-0.116**	-0.049	-0.109**	-0.028	-48.123***	-53.703**
	(0.048)	(0.048)	(0.037)	(0.045)	(0.043)	(0.048)	(0.041)	(13.930)	(23.827)
Female × May 2021	-0.102*	-0.150**	0.048	-0.158***	-0.107*	-0.168***	-0.090*	-55.557***	-44.208**
	(0.055)	(0.058)	(0.052)	(0.058)	(0.059)	(0.055)	(0.050)	(18.397)	(19.978)
Female × Jul 2021 (Lckdn 2)	-0.191***	-0.260***	0.069	-0.220***	-0.129**	-0.239***	-0.123**	-37.785***	-36.582*
	(0.061)	(0.059)	(0.054)	(0.059)	(0.064)	(0.060)	(0.058)	(13.424)	(20.995)
Female × Sep 2021	-0.197***	-0.277***	0.080	-0.259***	-0.155**	-0.241***	-0.111**	-51.030***	-37.452*
	(0.059)	(0.059)	(0.054)	(0.058)	(0.063)	(0.058)	(0.056)	(13.523)	(19.081)
Observations	4,087	4,087	4,087	3,975	2,787	3,975	2,787	2,795	1,913
R-squared	0.431	0.528	0.556	0.543	0.663	0.520	0.682	0.396	0.472
Mean Dep. Var. Pre-Shock	0.770	0.566	0.204	0.599	0.778	0.682	0.886	63.92	104.2
sd Dep. Var. Pre-Shock	0.421	0.496	0.403	0.491	0.416	0.466	0.318	71.35	63.98

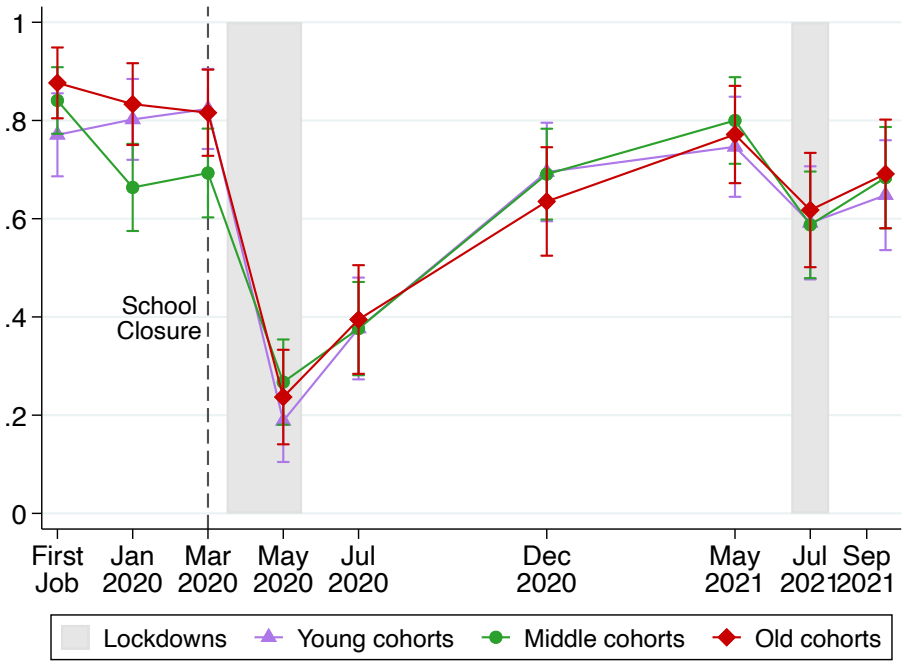
Notes: The table reports the β_y coefficients obtained estimating Equation 1 in the balanced panel of respondents. This sample includes the 456 respondents we successfully interviewed in all the four survey rounds. The dependent variables are an indicator for respondents that are employed (column [1]), wage-employed (column [2]), self-employed (column [3]), employed in their training sector, unconditional (column [4]) and conditional on employment (column [5]), employed in skilled sectors, unconditional (column [6]) and conditional on employment (column [7]), and monthly earnings in USD, unconditional (column [8]) and conditional on employment (column [9]). See the notes to Table 1 and Figure 5 for the details about how the variables were built. The coefficient on $Female \times Mar2020$ is normalized to zero for all outcomes except for monthly earnings, in which case the coefficient on $Female \times Jan2020$ is normalized to zero. The table reports the mean and the standard deviation of the dependent variable measured in March 2020 (columns [1]-[7]) and January 2020 (columns [8]-[9]). Standard errors are robust to heteroskedasticity and clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01.

Table A.4: Gender Gaps Under Different Assumptions on Attritors' Employment Status and Sector

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
	Employed			**Employed in Training Sector** | **Employed**								**Employed in Skilled Sector** | **Employed**							
Female × First Job	.149***	-.030	.069*	.068*	.101**	.094**	.127***	.095**	.034	.067	.036	.067**	.100***	.086***	.119***	.086***	.026	.059	.026
	(.037)	(.038)	(.036)	(.040)	(.041)	(.040)	(.041)	(.040)	(.041)	(.041)	(.040)	(.032)	(.036)	(.032)	(.036)	(.032)	(.034)	(.038)	(.034)
Female × Jan 20	.067**	-.067**	.008	-.013	.044	.028	.085**	.038	-.059*	-.002	-.050	.028	.085***	.056***	.113***	.055***	-.032	.025	-.033
	(.030)	(.030)	(.026)	(.028)	(.032)	(.029)	(.033)	(.028)	(.031)	(.035)	(.030)	(.019)	(.028)	(.020)	(.028)	(.019)	(.025)	(.032)	(.024)
Female × May 20 (Lckdn 1)	-.147***	-.150***	-.135***	-.036	-.121***	-.059**	-.144***	-.093***	-.006	-.092***	-.040	-.042	-.127***	-.057**	-.142***	-.088***	-.004	-.089***	-.036
	(.045)	(.045)	(.044)	(.029)	(.029)	(.029)	(.029)	(.026)	(.029)	(.030)	(.027)	(.027)	(.034)	(.026)	(.033)	(.033)	(.028)	(.034)	(.034)
Female × Jul 20	-.227***	-.232***	-.209***	-.022	-.061**	-.028	-.067***	-.042	-.019	-.058**	-.033	-.037*	-.076***	-.038*	-.076***	-.047**	-.028	-.067***	-.037*
	(.041)	(.041)	(.040)	(.027)	(.026)	(.027)	(.025)	(.026)	(.027)	(.025)	(.026)	(.020)	(.023)	(.020)	(.023)	(.020)	(.021)	(.024)	(.022)
Female × Dec 20	-.124***	-.043	-.074**	-.020	-.125***	-.032	-.137***	-.062*	.026	-.079*	-.004	.006	-.099***	.001	-.104***	-.022	.059*	-.046	.036
	(.040)	(.039)	(.036)	(.033)	(.039)	(.034)	(.039)	(.035)	(.036)	(.041)	(.038)	(.029)	(.038)	(.029)	(.038)	(.032)	(.034)	(.042)	(.037)
Female × May 21	-.224***	.013	-.068*	.008	-.184***	-.015	-.207***	-.119**	.074	-.118**	-.030	.002	-.190***	-.015	-.207***	-.091**	.073*	-.119**	-.003
	(.045)	(.044)	(.039)	(.049)	(.050)	(.047)	(.048)	(.052)	(.049)	(.050)	(.053)	(.038)	(.046)	(.037)	(.044)	(.042)	(.042)	(.049)	(.047)
Female × Jul 21 (Lckdn 2)	-.298***	-.051	-.129***	.028	-.210***	-.002	-.240***	-.141**	.095*	-.143***	-.044	-.007	-.245***	-.029	-.266***	-.142***	.068	-.170***	-.046
	(.046)	(.048)	(.043)	(.051)	(.052)	(.049)	(.050)	(.056)	(.051)	(.051)	(.057)	(.043)	(.049)	(.041)	(.047)	(.050)	(.046)	(.052)	(.054)
Female × Sep 21	-.301***	-.051	-.123***	-.006	-.211***	-.028	-.233***	-.155***	.056	-.149***	-.071	-.024	-.230***	-.040	-.245***	-.137***	.044	-.161***	-.053
	(.046)	(.046)	(.041)	(.051)	(.050)	(.049)	(.049)	(.054)	(.050)	(.049)	(.055)	(.043)	(.048)	(.042)	(.046)	(.049)	(.046)	(.050)	(.053)
Observations	6,426	6,426	6,418	4,140	4,140	4,575	4,575	4,199	4,575	4,575	4,199	4,140	4,140	4,575	4,575	4,199	4,575	4,575	4,199
R-squared	.448	.409	.420	.654	.697	.603	.660	.647	.644	.665	.673	.667	.705	.626	.681	.665	.646	.660	.667
Male Attritors	Empl	Non-Empl	F empl + .1 sd	Non-Empl	Non-Empl	Right Sector	Right Sector	Right Sector	Wrong Sector	Wrong Sector	Wrong Sector	Non-Empl	Non-Empl	Right Sector	Right Sector	Right Sector	Wrong Sector	Wrong Sector	Wrong Sector
Female Attritors	Non-Empl	Empl	M empl - .1 sd	Right Sector	Wrong Sector	Right Sector	Wrong Sector	Non-Empl	Right Sector	Wrong Sector	Non-Empl	Right Sector	Wrong Sector	Right Sector	Wrong Sector	Non-Empl	Right Sector	Wrong Sector	Non-Empl

Notes: The table reports the β_y coefficients obtained estimating Equation 1 when making different assumptions about the employment status and sectors of attritors, following Horowitz et al. (2006) and Kling et al. (2007). The dependent variables are an indicator for employed respondents (columns [1]-[3]), an indicator for respondents employed in their training sector conditional on employment (columns [4]-[11]), and an indicator for respondents employed in skilled sectors conditional on employment (columns [12]-[19]). See the notes to Table 1 for the details about how the variables were built. In columns (1) and (2), we set the outcome variables of attritors to one if we assume they are employed (*Empl*) and to zero if we assume they are non-employed (*Non-empl*). In column (3), we assume that the employment rate of male attritors is 0.1 standard deviations above female mean employment rate, and that the employment rate of female attritors is 0.1 standard deviations below male mean employment rate. In columns (4)-(11), we set the outcome variable of attritors to one if we assume they are employed in their training sector (*Right Sector*), to zero if we assume they are employed outside of their training sector (*Wrong Sector*), and to missing if we assume they are non-employed. In columns (12)-(19), we set the outcome variable of attritors to one if we assume they are employed in skilled sectors (*Right Sector*), to zero if we assume they are employed in unskilled sectors (*Wrong Sector*), and to missing if we assume they are non-employed. We do not report the gender gaps in employment in the training sector and in skilled sectors when both female and male attritors are non-employed because this scenario is equivalent to the original scenario in which attritors' outcomes are missing.

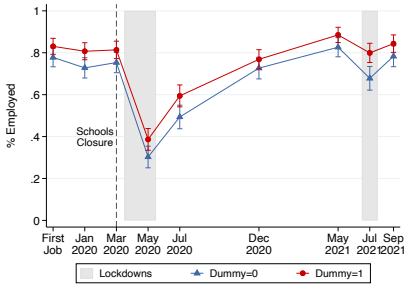
Figure A.7: The Evolution of Female Employment Rate for Different Cohorts of Vocational Graduates



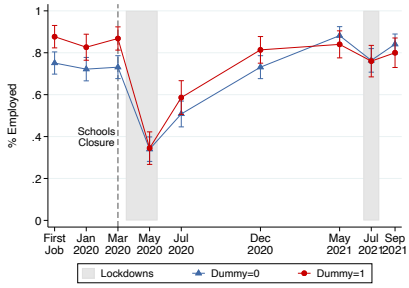
Notes: The figure illustrates average employment rates for female respondents of different cohorts (i.e., who completed vocational graduation in different years) over time. Young, middle, and old cohorts refer to female respondents who graduated in 2019+, 2017-2018, and 2016- respectively. The young cohort includes 98 respondents. The middle cohort includes 113 respondents. The old cohort includes 81 respondents. 95% robust confidence intervals are reported.

Figure A.8: Heterogeneities in Effect of Lockdowns on Employment by Socio-Demographics

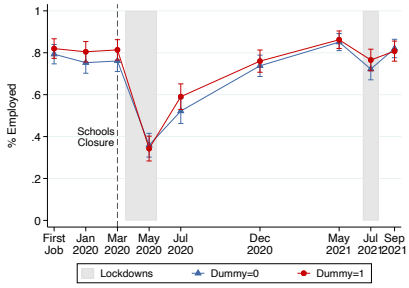
(a) Age above median



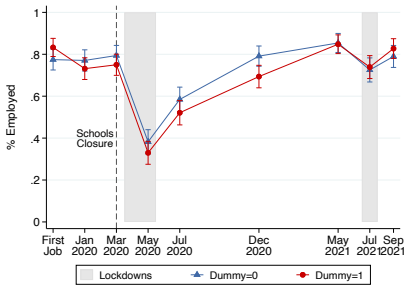
(b) Married



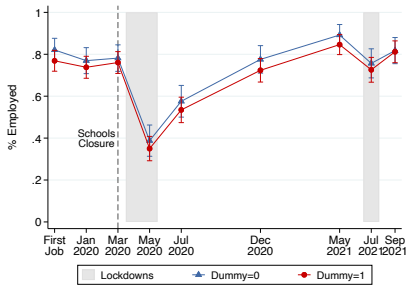
(c) Has children



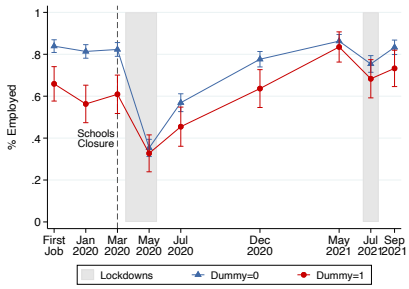
(d) Household of origin is rural



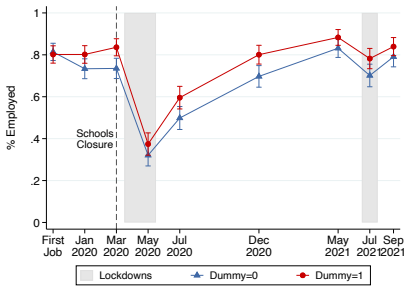
(e) Caretaker education above median



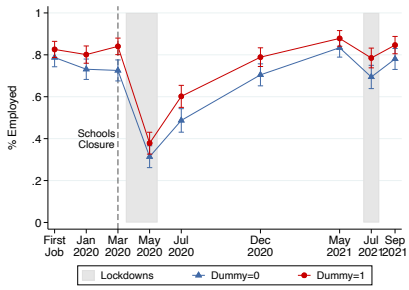
(f) Household of origin's main income source: agriculture



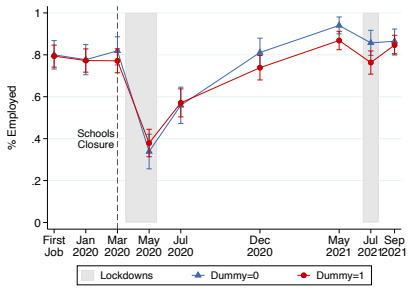
(g) Household of origin's assets index above median



(h) Own assets index above median



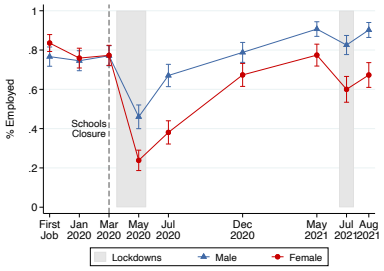
(i) Worried about COVID-19 infection above median



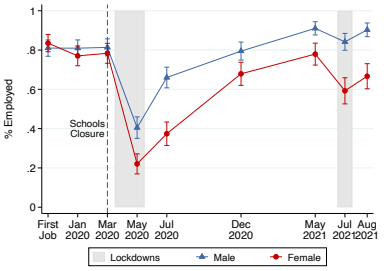
Notes: The figure illustrates average employment rates over time for respondents aged below and above the sample median; single and married; with and without children; from rural and urban households; with caretaker educated below and above the sample median; from agricultural and non-agricultural households; with own and household's asset indexes above and below the sample medians; anxious about covid above and below median. At each point in time, a respondent is coded as employed if her main activity is either wage-employment or self-employment. The first data point refers to the respondents' first job after completing vocational education. It may coincide with the job in January 2020 and its start and end date may be different for each respondent. 95% robust confidence intervals are reported.

Figure A.9: Gendered Effect of Lockdowns on Employment, Leaving Out one Training Sector at a Time

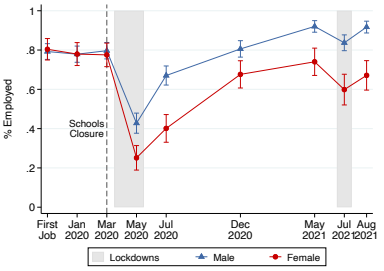
(a) Leaving out motor-mechanics



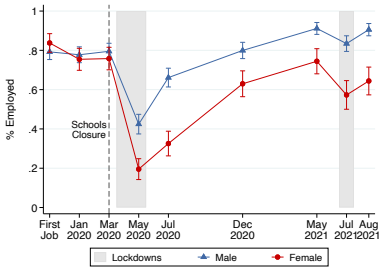
(b) Leaving out plumbing



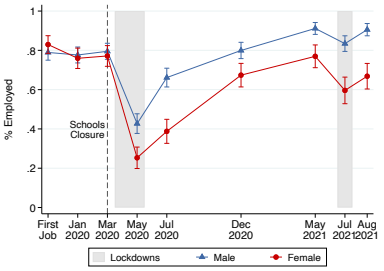
(c) Leaving out food and hospitality



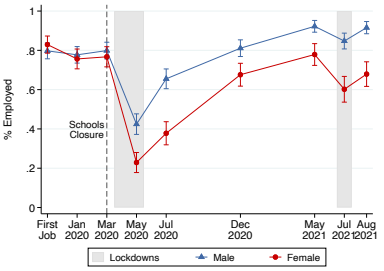
(d) Leaving out tailoring



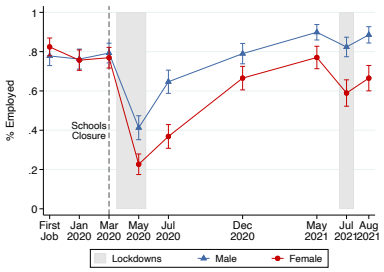
(e) Leaving out hairdressing



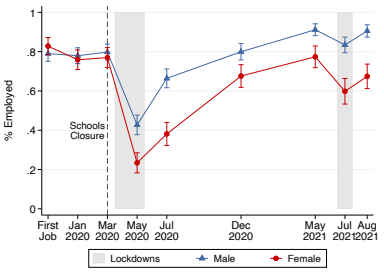
(f) Leaving out construction



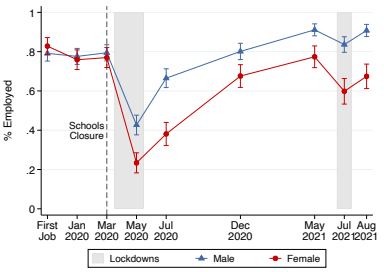
(g) Leaving out electrical work



(h) Leaving out welding

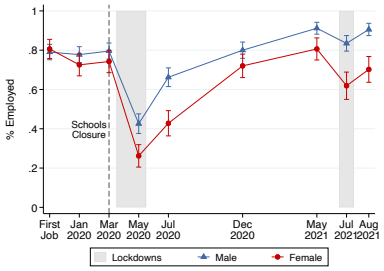


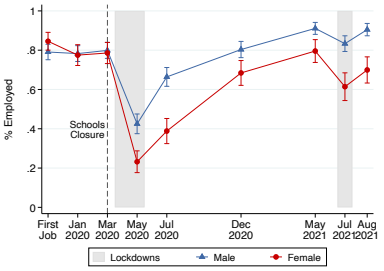
(i) Leaving out carpentry



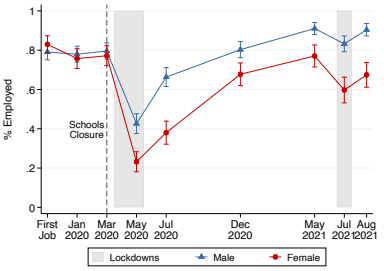
(k) Leaving out secretary and accounting

(j) Leaving out teaching





(l) Leaving out agriculture



(m) Leaving out machining and fitting

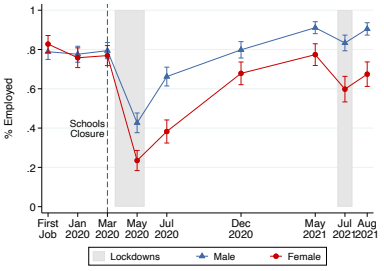
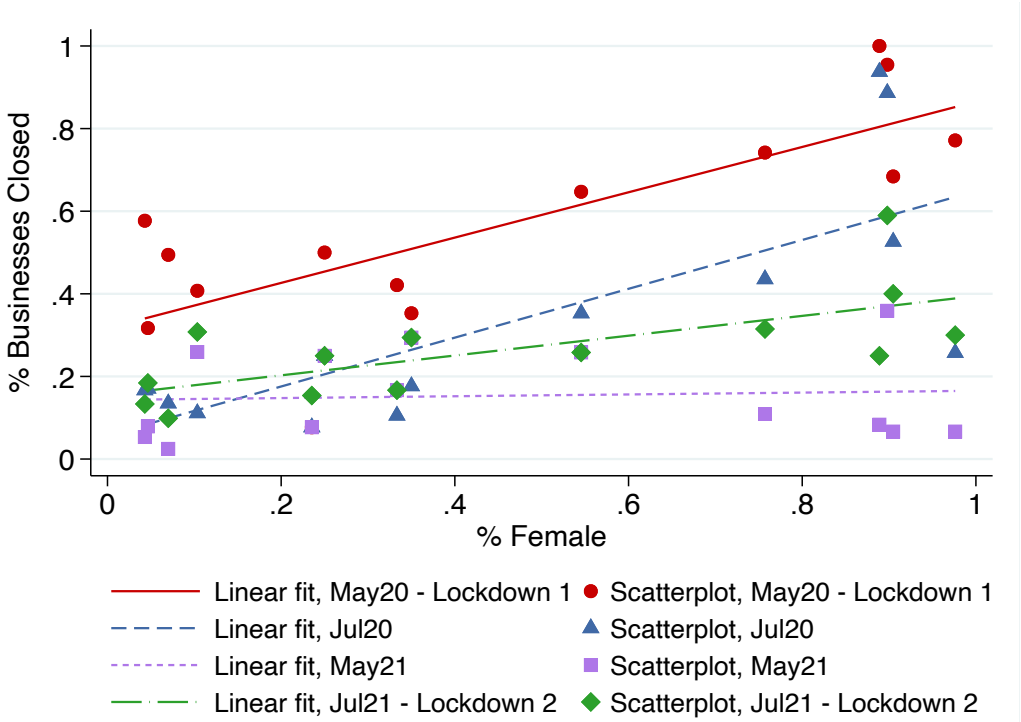
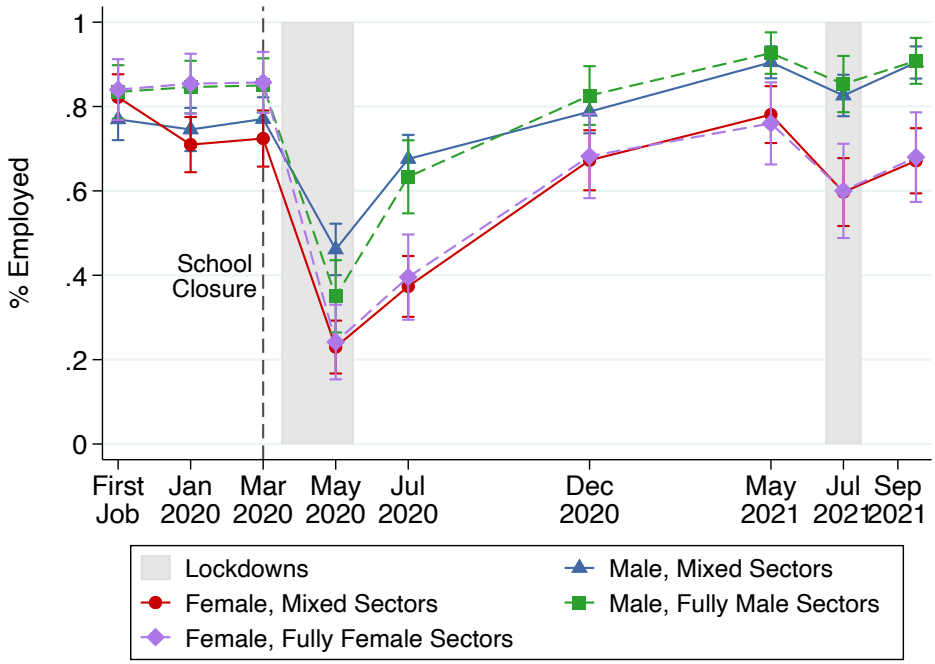


Figure A.10: Female Concentration in Severely Impacted Economic Sectors Over Time



Notes: The figure displays the economic sectors in which our workers were employed pre-pandemic by the share of female workers hosted before the pandemic and the share of businesses that were closed in May 2020, July 2020, May 2021, and July 2021. A linear fit was added for each period. In May 2021 and July 2021, the share of business closed is approximated by the share of non-employed respondents. This measure has been validated by comparing the share of business closed and the share of non-employed workers in previous periods, when both variables are available. The slope and standard errors (in parenthesis) of the fitted lines are: 0.55 (0.12) in May 2020; 0.59 (0.19) in July 2020; 0.02 (0.09) in May 2021; and 0.24 (0.09) in July 2021.

Figure A.11: The Emergence and Persistence of a Gender Gap in Employment for Respondents in Mixed and Single-Gender Sectors



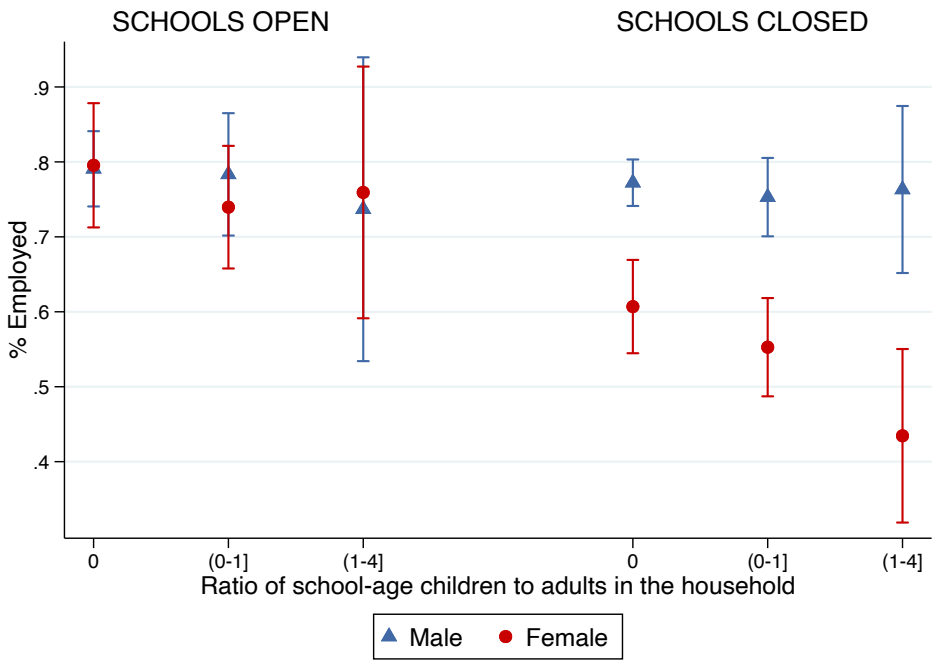
Notes: The figure illustrates average employment rates separately for male and female respondents who received training in mixed- or single-gender sectors over time. Single-gender sectors are sectors in which more than 95% of the trainees have the same gender, as measured in our sample. Using this definition, motor-mechanics, welding and carpentry are fully-male sectors; tailoring ad teaching are fully-female sectors. Mixed sectors include plumbing, food service and hospitality, hairdressing, construction, electrical work, secretary and accounting, agriculture, and machining and fitting. There are 194 women and 285 men in mixed-gender sectors and 101 women and 134 men in single-gender sectors. At each point in time, a respondent is coded as employed if her main activity is either wage- or self-employment. The first data point refers to the respondents' first job after completing vocational education. It may coincide with the job in January 2020 and its start and end date may be different for each respondent. 95% robust confidence intervals are reported.

Table A.5: Gender Gap in Impact of School Closure on Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			Male Sample						**Female Sample**			
Outcome: % Employed	Schools: Open	Schools: Closed	Schools: Open	Schools: Closed	Schools: Open	Schools: Closed	Schools: Open	Schools: Closed	Schools: Open	Schools: Closed	Schools: Open	Schools: Closed
Num children in hh = 1	0.113**	0.065**					-0.191**	-0.113*				
	(0.054)	(0.031)					(0.080)	(0.059)				
Num children in hh = 2+	0.026	-0.010					-0.109*	-0.141***				
	(0.049)	(0.032)					(0.056)	(0.047)				
Num children above 3yo in hh = 1			-0.001	-0.014					-0.056	-0.054		
			(0.061)	(0.034)					(0.071)	(0.056)		
Num children above 3yo in hh = 2+			-0.028	-0.021					-0.049	-0.096**		
			(0.058)	(0.038)					(0.063)	(0.048)		
Num children above 6yo in hh = 1					-0.046	0.003					0.007	-0.039
					(0.067)	(0.040)					(0.067)	(0.056)
Num children above 6yo in hh = 2+					-0.108	-0.091*					-0.045	-0.107**
					(0.076)	(0.050)					(0.072)	(0.052)
Observations	337	339	336	338	336	338	214	218	211	215	211	215
R-squared	0.010	0.011	0.001	0.001	0.008	0.014	0.030	0.039	0.004	0.019	0.002	0.019

Notes: The table illustrates the estimated coefficients of a regression of employment on a constant and indicators for zero (omitted category), one, and two or more children in the household. The equation is estimated for male and female respondents separately. Standard errors are robust to heteroskedasticity. * p<0.1, ** p<0.05, *** p<0.01.

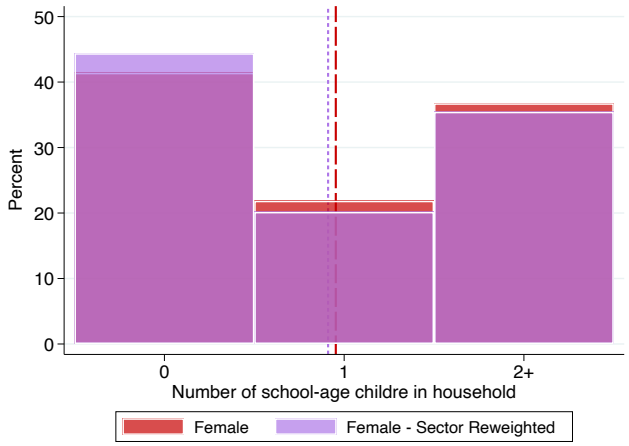
Figure A.12: Gender Gap in Impact of School Closure on Employment and Household Childcare Support



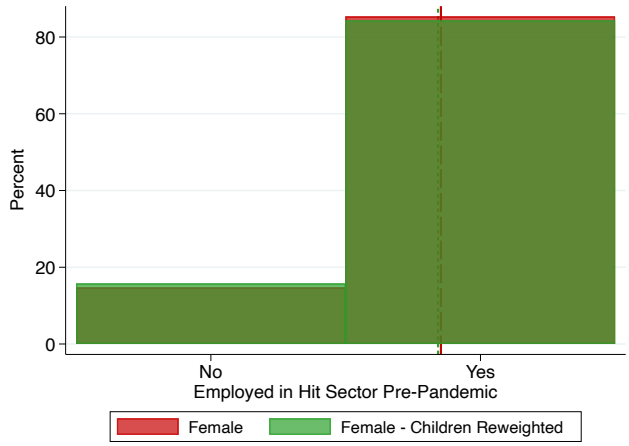
Notes: The figure displays the average employment rate for female and male respondents with different ratios of school-age children to adults in the households in periods in which schools were open (January and March 2020) and periods in which schools were closed (May, July and December 2020, May, July and September 2021). The higher the ratio, the heavier are childcare responsibilities. Respondents with a ratio equal to zero have no school-age children in the household. Respondents with a ratio between zero and one have more adults than school-age children in the household. Respondent with a ratio greater than one have multiple school-age children per adult in the household. There are 89 female and 229 male respondents with a ratio equal to zero; 98 female and 90 male respondents with a ratio between zero and one; and 28 female and 19 male respondents with a ratio greater than one. School-age children are children aged 3 or more. 95% robust confidence intervals are reported.

Figure A.13: Orthogonality of Employment Sectors and Childcare Responsibilities for Women

(a) Distribution of Children in Real and Reweighted Samples



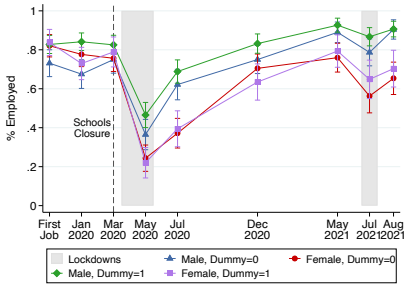
(b) Distribution of Hit Sector in Real and Reweighted Samples



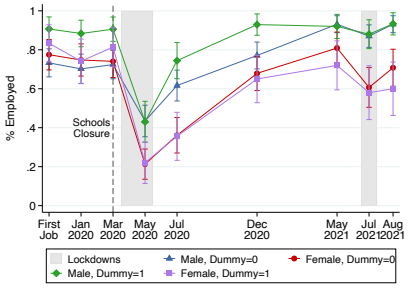
Panel (a) illustrates the distribution of the number of school-age children in the household in the original female sample and in the female sample when reweighted so that that the first moment of $Hit\ Sector_i$, an indicator for whether pre-pandemic the respondent was employed in a severely hit sector, matches that in the male sample. Weights are equal to one for male workers. School-age children are children aged three or more. Severely hit sectors are sectors in which more than 50% of the businesses in which our workers were employed pre-pandemic were closed during the first lockdown in May 2020: motor-mechanics, food and hotel, tailoring, hairdressing, teaching, secretary, and retail. The dashed and the dotted lines indicate the average number of school-age children in the original female sample and in the reweighted female sample respectively. Panel (b) illustrates the distribution of $Hit\ Sector_i$ in the original female sample and in the female sample when reweighted so that the proportions of respondent with zero, one, and two or more school-age children in the household in the female sample match those in the male sample. The dashed and the dotted lines indicate the average of $Hit\ Sector_i$ in the original female sample and in the reweighted female sample respectively.

Figure A.14: Heterogeneities in Gendered Effect of Lockdowns on Employment by Socio-Economic Characteristics

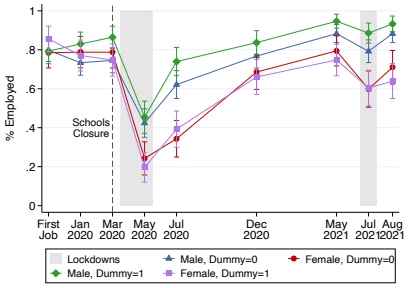
(a) Age above median



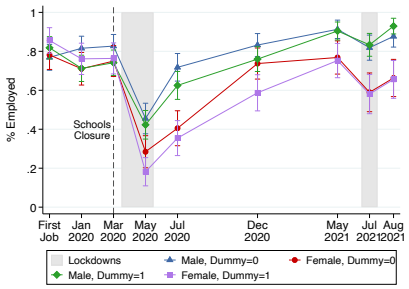
(b) Married



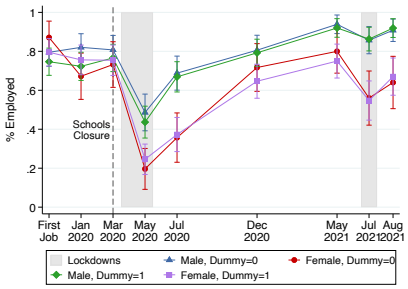
(c) Has children



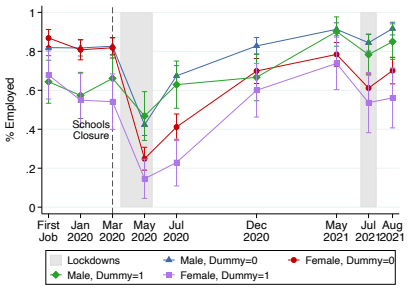
(d) Household of origin is rural



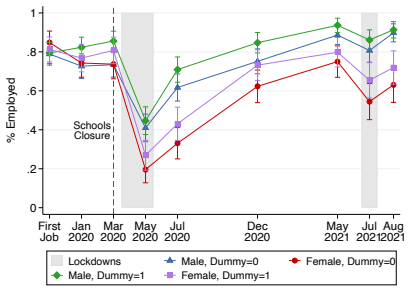
(e) Caretaker education above median



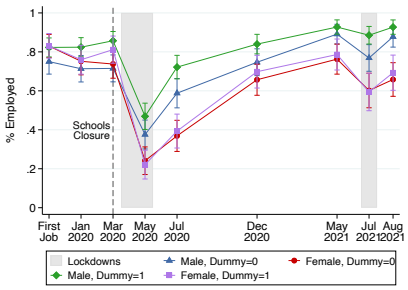
(f) Household of origin's main income source: agriculture



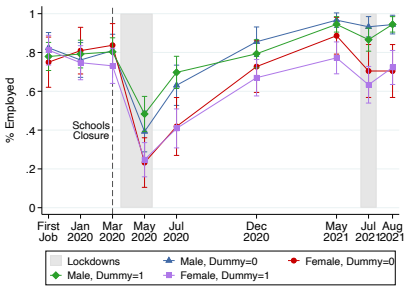
(g) Household of origin assets index above median



(h) Own assets index above median



(i) Worried about COVID-19 infection above median



Notes: The figure illustrates average employment rates over time for respondents with different gender and: aged below and above the sample median; single and married; with and without children; from rural and urban households; with caretaker educated below and above the sample median; from agricultural and non-agricultural households; with own and household's asset indexes above and below the sample medians; anxious about covid above and below median. At each point in time, a respondent is coded as employed if her main activity is either wage- or self-employment. 95% robust confidence intervals are reported.