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

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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 permanently jobless, and another 35% remained occasionally employed. Additionally, the lockdowns permanently shifted female workers to sectors misaligned with their skill sets, relocated them into agriculture and other unskilled sectors, 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 57% of the employment gap.

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

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

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1 Introduction

To curb the spread of COVID-19, governments implemented unprecedented measures to restrict economic activity and individual mobility. Evidence from the early stage of the pandemic shows that, all over the world, these restrictions disproportionately affected female paid 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. 2020; 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 for workers and firms in economic distress. 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 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 two lockdowns, evaluate gender differences in the early responses to the lockdowns and recovery patterns, and investigate the root causes of the observed trends.

We find strong evidence that women were disproportionately affected by COVID-19 and experienced a slower and incomplete recovery. 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 permanently jobless and 35% became occasionally employed, female employment remained below its pre-pandemic projections. 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. Along the intensive margin, the lockdowns permanently

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[1] Adams-Prassl et al. (2020); Amuedo-Dorantes et al. (2020); Deshpande (2020); Farré et al. (2020); Kristal et al. (2020); Andrew et al. (2021); Casale et al. (2021); Caselli 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.

displaced women from the sectors in which they received vocational training; relocated them into agriculture and other unskilled sectors; and widened the earnings gender gap. This sectorial misallocation is likely to induce a disproportionate depreciation of female workers' productive skills from not working in the sector in which they would be most able to effectively leverage their expertise and experience. 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 school closures (Del Boca et al. 2020; Farré et al. 2020; Hupkau et al. 2020; Andrew et al. 2021; Oreffice et al. 2021; Sevilla et al. 2020; Couch 2020; Alon et al. 2022). Pre-pandemic, our female respondents were over-represented in the economic sectors which were subject to the strongest restrictions. Initial closures in these sectors explain 52% of the employment gender gap during the first lockdown, but their share gradually declines to 13% after the restrictions are lifted. 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 explain only 5% of the employment gender gap in the early stage of the pandemic and about 20% in the late stages, following the prolonged school closure. Still, consistent with evidence from both 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 than our sample (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 respondents were hit by the pandemic in the earliest, most vulnerable stage of their careers. Several studies consistently find larger job losses (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 the OECD (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. The rising literature on the effects of COVID-19 in the Global South is mixed: evidence from Nigeria shows that gender gaps quickly dissipated in settings characterized by the prevalence of agricultural or other non-farm subsistence activities; evidence from South Africa points towards such gaps having endured in more economically diversified middle-income countries (Casale et al. 2022). Our findings suggest that, 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. 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 young women in low-income countries are highly vulnerable to temporary economic shocks. If not pressingly tackled, the labor market disconnection and sectorial misallocation of young and 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 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 under-utilization 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 to be 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 segment of the population was projected to grow as further educational and labor market 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 18, 2020, and non-essential businesses during a first national lockdown implemented between March 31 and June 2, 2020. The government also imposed travel bans for vehicles and a dusk-to-dawn curfew. While most restrictions

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

for economic activity were lifted in June 2020, schools remained closed until February 10, 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 (which lasted until January 2022) hindered once again the fragile economic recovery.

3   Data and sample

3.1   The panel dataset

Our sample consists of 714 graduates of five vocational training institutes (VTIs) located in the Central and Eastern regions of Uganda. Like most Ugandan VTIs, none of these five tracked their graduates' career developments nor kept their updated contact information. We therefore collected and digitized schools' hard copies of registries (Figure A.1) containing contacts for the cohorts of alumni graduating in 2014-19.[4]

Given the high technology access and educational attainment of our population, we conducted all surveys by phone. Once COVID-19 hit and phone interviews became the only tool to collect time-sensitive information, we avoided disruptions in our data collection process. As Figure A.2 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, allowing us to measure labor market outcomes before, during, and after the two lockdowns. The data is unique for providing an otherwise unavailable look at how skilled workers in low-income countries fared throughout the pandemic. With it we can evaluate both early responses to the two 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 two-years 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,

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

[4]This work is a spin-off study of the Meet Your Future Project (Alfonsi et al. 2022), a RCT aimed at easing vocational students' entrance in the labor market, to which selected respondents participated as mentors. For both projects we partnered with BRAC Uganda.

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	0.41	0.49	295	1.00	419	0.00	.
Age	25.01	3.22	291	24.11	418	25.63	0.00
Married	0.36	0.48	171	0.35	232	0.37	0.68
Has children	0.47	0.50	218	0.51	338	0.44	0.13
Number of school-age children in the household	0.87	1.26	215	1.22	338	0.64	0.00
Traditional religious denomination	0.75	0.43	289	0.71	414	0.77	0.07
Ethnic minority	0.44	0.50	289	0.42	414	0.45	0.48
House of origin: rural	0.51	0.50	230	0.48	332	0.53	0.27
Region of origin: central	0.37	0.48	290	0.41	415	0.34	0.05
Region of origin: eastern	0.43	0.50	290	0.40	415	0.45	0.21
Region of origin: northern	0.12	0.32	290	0.11	415	0.12	0.61
Region of origin: western	0.08	0.27	290	0.07	415	0.09	0.49
Caretaker's years of education	10.17	5.18	190	10.63	272	9.85	0.11
Agricultural household of origin	0.19	0.39	286	0.20	411	0.18	0.60
Household of origin asset index	0.00	4.95	291	0.02	414	-0.02	0.91
Panel B: Labor market characteristics							
Years in labor market	2.74	2.20	225	2.59	324	2.84	0.18
Wage employed	0.56	0.50	282	0.53	409	0.57	0.30
Self employed	0.21	0.41	282	0.23	409	0.20	0.40
Has permanent job	0.79	0.41	147	0.86	224	0.74	0.00
Works in or owns registered firm	0.46	0.50	203	0.48	302	0.45	0.54
Employed in Skilled Sector | Employed	0.85	0.36	214	0.85	316	0.85	0.86
Employed in Sector of Training | Employed	0.74	0.44	214	0.71	316	0.75	0.33
Earnings (USD) | Employed	104.52	63.89	110	84.95	162	117.81	0.00
Enrolled in further education	0.05	0.22	282	0.05	409	0.05	0.80
Engaged in casual occupations	0.05	0.22	282	0.03	409	0.07	0.05
Other non-employed	0.13	0.34	282	0.16	409	0.11	0.09

Notes: The table reports summary statistics and tests gender differences for a set of socio-economic and labor market characteristics measured at baseline, in 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 variable for 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. Only work experience accumulated post vocational training counts towards the years active in the labor market. Skilled sectors include motor-mechanics, plumbing, hospitality, hairdressing, construction, electrical work, welding, carpentry, teaching, secretary and accounting, machining and fitting, and a residual category. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a. We classified as casual the following occupations: 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.

21% owned a business, 13% were without an occupation,[5] 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 to hold secure and 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 significantly more likely to have a permanent job and less likely to be engaged in precarious casual occupations. These statistics suggest that our female respondents are among the most economically empowered women in the country.

3.3 Representativeness

The uniqueness of our sample clearly emerges when comparing it to the population of young Ugandan adults in the UNHS. With 15+ completed years of education, our workers belong to the top 3% of the education distribution for Ugandan youths (Figure B.1). Their employment rate in non-agricultural occupations and earnings are 27 p.p. (56%) and $33 (47%) higher than average respectively (Table B.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 B.1).

When we compare our sample to post-secondary VTI graduates from the UNHS, we find smaller differences in socio-economic and labor market characteristics (Table B.2) and a much higher sectorial overlap (Table B.1). Although all differences shrink, they remain significant. This additional layer of 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 and equipment, and teachers' educational attainment) and by the fact that most of our graduates live and work in the two richest urban areas of the country. Accordingly, our findings may extend to other top-notch, young, skilled, and urban workers in 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%).[6] We classify respondents into *Ever* and *Never* Attritors, depending on whether we ever failed to interview them, and compare their baseline characteristics in Table C.1. Ever Attritors are 9.3 p.p. more likely to be female. This difference is driven by female workers being 6.2 p.p. less likely to be interviewed just in the last survey round (Table C.2). Table C.1 further compares the baseline

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[5]With our data we cannot distinguish the unemployed from not economically active individuals.

[6]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).

characteristics of Ever and Never Attritors within the male and female samples. Female Ever and Never Attritors do not significantly differ by any key baseline characteristics. Male Ever Attritors do not differ on wage and self-employment rates nor earnings, 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). To tackle any potential concern related to attrition, in Section 5 we show that our results remain robust in the balanced sample of respondents as well as in 63–100% (depending on the outcome) of the scenarios about attritors' employment we built following Horowitz et al. (2006) and Kling et al. (2007).

4 Empirical Strategy

We provide evidence of the emergence and persistence of the gender gap in employment, and, conditional on employment, in employment in the sector of training, employment in skilled sector, and earnings, by plotting these outcomes over time separately for female and male workers. Formally, we test for the existence of gender gaps by estimating the following equation:

$$Y_{i,t} = \alpha_i + \alpha_t + \sum_{y=Firstjob}^{Sept2021} \beta_y Female_i \times 1_{t=y} + \epsilon_{i,t} \tag{1}$$
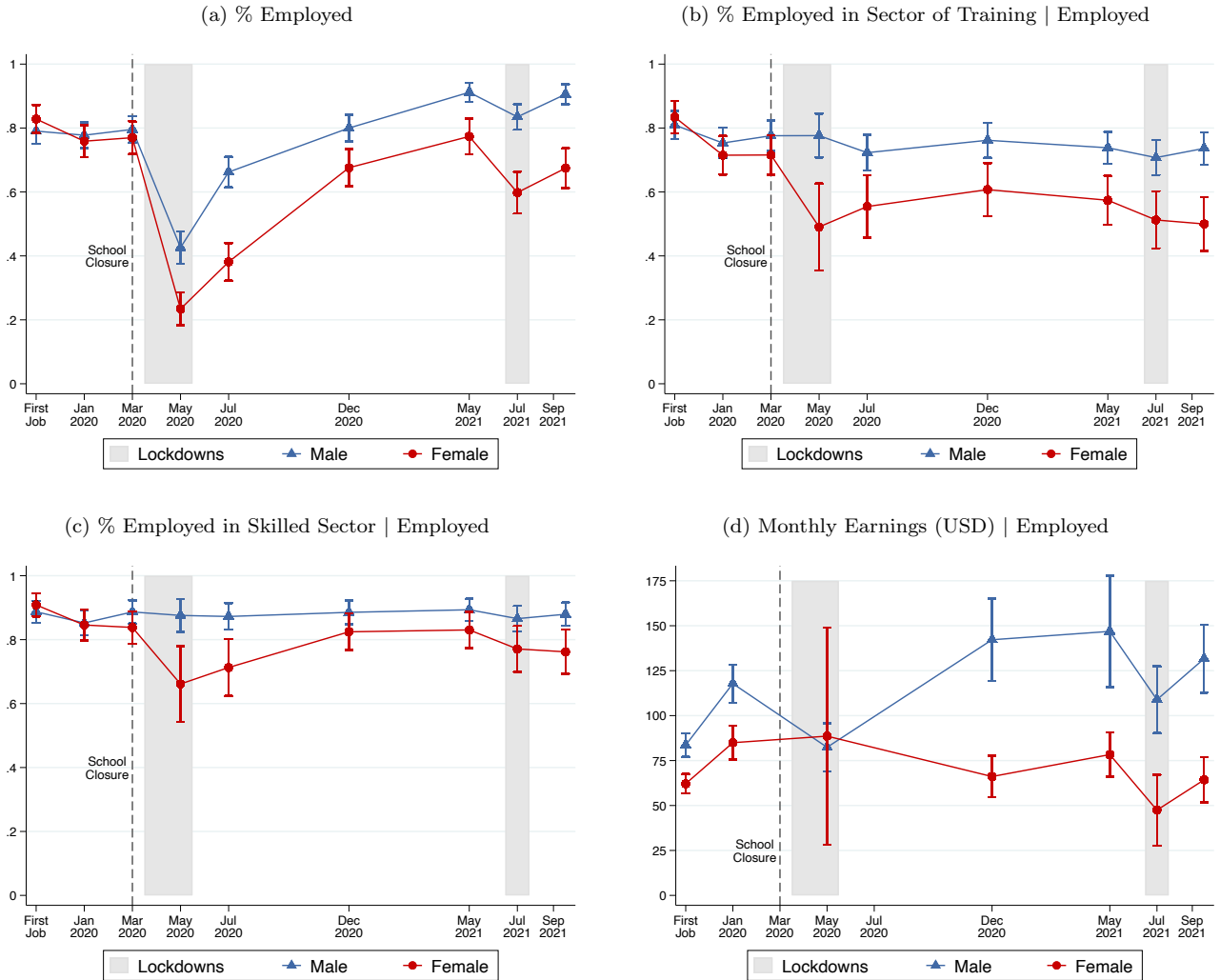
$Y_{i,t}$ is the outcome measured for respondent i at time t; α_i and α_t are individual and time fixed effects. $Female_i$ is an indicator for female respondents, and $\epsilon_{i,t}$ the error term. Standard errors are robust to heteroskedasticity and clustered at the individual level. The coefficients β_y measure the evolution over time of the gender gap in the outcome variable. Identification is provided by comparing the outcome between male and female respondents relative to March 2020, our latest pre-pandemic data point, after controlling for time-constant individual characteristics and common shocks across individuals.

5 Results

5.1 The Ugandan *shecession*

Figure 1 illustrates the impacts of the two lockdowns by gender in our sample. Panel (a) shows the average share of employed female and male workers over time. 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 employment 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,

Figure 1: The Emergence and Persistence of Gender Disparities After the Lockdowns

(a) % Employed

(b) % Employed in Sector of Training | Employed

(c) % Employed in Skilled Sector | Employed

(d) Monthly Earnings (USD) | Employed

Notes: The figure illustrates average employment rates (panel [a]), employment rates in the sector of training conditional on employment (panel [b]), employment rates in skilled sectors conditional on employment (panel [c]), and monthly earnings conditional on employment (panel [d]), 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. In panels (b), (c), and (d), the outcome is missing for non-employed respondents, and the average outcome in each point of time is calculated over all the employed respondents. 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. The data point referring to the first job in panel (a) can be interpreted as the share of individuals who ever worked after completing vocational education. 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. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a. 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.

male employment recovered faster than female employment, and by December 2020 was back to its pre-pandemic level. At that time, female employment was still 8 p.p. (11%) lower than its baseline level. The employment gender gap endured until May 2020, widened to 24 p.p. during the second nationwide lockdown, as 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.

Figure D.1 shows that the recovery following the first lockdown was driven by both previously employed workers re-entering the labor market and initially non-employed workers finding a job (the first one following graduation for 57% of them). While the entry of new cohorts and other non-employed was symmetrical by gender,[7] the re-entry of previously employed women remained 10-30 p.p. lower than that of men throughout the pandemic. Figure 2 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 periods we observe. Conversely, 10% of the previously employed women remained permanently jobless, and another 35% reported being employed in half, when not less, of the pandemic periods, driving the persistence of the gender gap for eighteen months.

Figure D.3 decomposes the effect on overall employment rate into the effects on wage- (panel [a]) and self-employment (panel [b]), and reveals 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, our respondents did not resume education (panel [c]) nor engaged in low-skill and precarious casual occupations to make ends meet (panel [d]).

Along the intensive margin, the first lockdown disproportionately displaced female workers from their sector of training (Figure 1b) and from skilled sectors (Figure 1c). Before the pandemic, the conditional employment rates in the sector of training and in skilled sectors were identical across genders. During the first lockdown, the former fell by 22 p.p. (31%) and the latter fell by 33 p.p. (39%) only for women and remained depressed for eighteen months. Figure D.4 illustrates that the reduction in skilled employment was driven by female workers pivoting towards agriculture (although this effect slowly dissipates) and non-agricultural unskilled occupations, where female employment increased by 2 p.p. and 15 p.p. (200%) respectively. The shift towards sectors in which women cannot leverage their comparative advantage may bring to a disproportionate depreciation of their productive skills accumulated during vocational education.

Lastly, Figure 1d shows that the already existing gender gap in earnings conditional on employment widened during the pandemic. During the first lockdown the few workers active in the labor market had similar average

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[7]This dynamic is consistent with the positive association between employment and age found for both genders in the UNHS sample of post-secondary vocational graduates (panel [a] of Figure D.2).

Figure 2: Employment Frequency During the COVID-19 Pandemic (May 2020-Sep 2021)
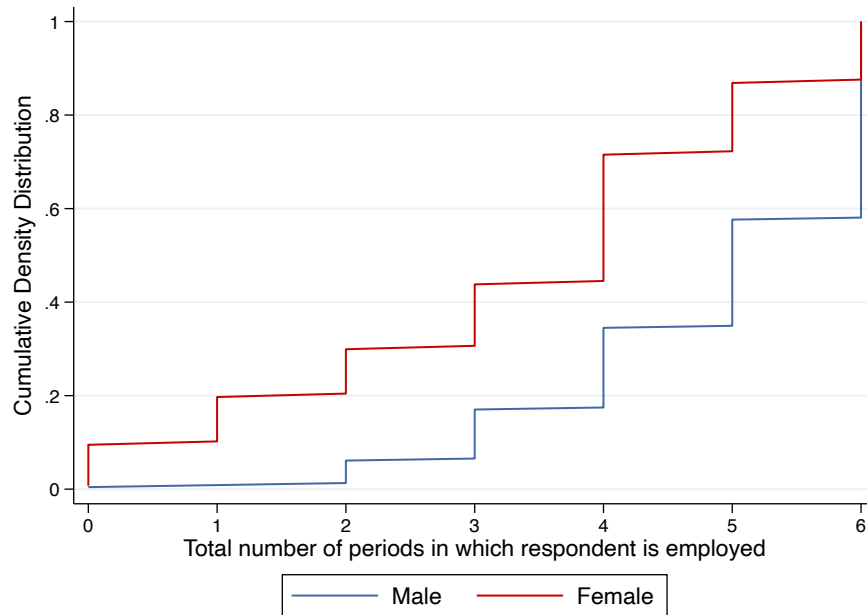
Notes: The figure illustrates the cumulative density function of the total number of periods in which respondents who were employed pre-pandemic (January and March 2020) reported being employed during the pandemic periods: May, July, and December 2020, and May, July, and September 2021. The sample is restricted to Never Attritors.

earnings (suggesting that the few women still employed were positively selected), but the standard errors are too large to make any claims on the earnings gender gap. By December 2020, the earnings gap had widened to $76 (+130% over a baseline of $33) and remained stable in the following months. Such widening is driven by both higher earnings among men and lower earnings among women. 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 (Figure D.2b); the $25 increase we document may be driven by the sample positive selection. Figure D.2b also suggests female earnings should have grown too in absence of the pandemic. The observed stagnation may originate from the prolonged inactivity during the lockdown, the shift to a different sector from that of training, the shift to agriculture and other unskilled sectors, and the shift out of wage-employment into self-employment, but we are not powered enough to draw definitive conclusions.

Table 2 reports the β_y coefficients from Equation 1 estimated in the full sample and the balanced panel of Never Attritors. In both samples, the coefficients are systematically negative and mostly significant from the first lockdown on (except for earnings, where in May 2020 the sample of employed women is too positively selected and the negative effect emerges in December 2020), providing additional robust evidence that the economic crisis caused by COVID-19 had long-lasting gendered consequences on the employment, sectorial distribution, and earnings of these economically empowered women.

Table 2: The Emergence and Persistence of Gender Disparities After the Lockdowns

VARIABLES	(1) % Employed	(2) % Employed	(3) % Employed in Sector of Training | Employed	(4) % Employed in Sector of Training | Employed	(5) % Employed in Skilled Sector | Employed	(6) % Employed in Skilled Sector | Employed	(7) Earnings (USD) | Employed	(8) Earnings (USD) | Employed
Female × First job	0.069*	0.070	0.070*	0.081*	0.057*	0.058	8.845	5.758
	(0.038)	(0.045)	(0.040)	(0.047)	(0.031)	(0.038)	(12.412)	(16.137)
Female × Jan 2020	0.007	0.037	-0.003	0.012	0.023	0.019		
	(0.027)	(0.030)	(0.027)	(0.032)	(0.018)	(0.021)		
Female × May 2020 (Lockdown 1)	-0.166***	-0.217***	-0.070***	-0.091**	-0.031	-0.050	30.554	45.275
	(0.049)	(0.058)	(0.027)	(0.036)	(0.041)	(0.061)	(34.543)	(49.406)
Female × Jul 2020	-0.255***	-0.303***	-0.036	-0.038	-0.061***	-0.065**		
	(0.045)	(0.053)	(0.026)	(0.035)	(0.023)	(0.031)		
Female × Dec 2020	-0.085**	-0.086*	-0.050	-0.049	0.009	-0.021	-49.418***	-53.703**
	(0.042)	(0.048)	(0.035)	(0.043)	(0.033)	(0.038)	(18.944)	(23.827)
Female × May 2020	-0.099**	-0.102*	-0.096*	-0.107*	-0.061	-0.085*	-35.564**	-44.208**
	(0.048)	(0.055)	(0.053)	(0.059)	(0.045)	(0.050)	(17.608)	(19.978)
Female × Jul 2021 (Lockdown 2)	-0.194***	-0.191***	-0.111*	-0.129**	-0.096*	-0.109*	-33.051*	-36.582*
	(0.053)	(0.061)	(0.058)	(0.064)	(0.053)	(0.058)	(17.573)	(20.995)
Female × Sep 2021	-0.188***	-0.197***	-0.133**	-0.155**	-0.138***	-0.123**	-35.451**	-37.452*
	(0.051)	(0.059)	(0.056)	(0.063)	(0.052)	(0.057)	(16.076)	(19.081)
Observations	5,615	4,087	3,764	2,787	3,988	2,899	2,575	1,913
R-squared	0.443	0.431	0.699	0.663	0.651	0.642	0.485	0.472
Sample	Full	Balanced Panel	Full	Balanced Panel	Full	Balanced Panel	Full	Balanced Panel
Mean Dep. Var. Pre-Shock	0.785	0.770	0.751	0.778	0.867	0.886	104.5	104.2
Std. Dev. Dep. Var. Pre-Shock	0.411	0.421	0.433	0.416	0.340	0.318	63.89	63.98

Notes: The table reports the β_y coefficients obtained estimating Equation 1 in the full sample (columns [1], [3], [5], [7]) and in the balanced panel of 458 Never Attritors (columns [2], [4], [6], [8]) The dependent variables are the share of employed respondents (columns [1] and [2]), the share of respondents employed in their sector of training conditional on employment (columns [3] and [4]), the share of respondents employed in skilled sectors conditional on employment (columns [5] and [6]), and monthly earnings conditional on employment (columns [7] and [8]). At each point in time, a respondent is coded as employed if her main activity is either wage- or self-employment. In columns (3)-(8), the outcome is missing for non-employed respondents, and the average outcome in each point of time is calculated over all the employed respondents. The first time indicator 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. 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. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a. 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 interval midpoint throughout. 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]-[6]) and January 2020 (columns [7]-[8]). Standard errors are robust to heteroskedasticity and clustered at the individual level. * p<0.1, ** p<0.05, *** p<0.01.

Last, Table D.1 shows no gender differences in working hours and in the probability to sell assets as a coping strategy; however, self-employed women report making use of borrowing to face the second lockdown significantly more than self-employed men. Women are also more likely than men to report being anxious because of the pandemic: *fear of infection* and *fear of losing employment* are the two main sources of their worsened mental health.

5.2 Robustness Tests

We test the stability of these findings in several ways. Figure E.1 illustrates the unconditional version of employment in the training sector, employment in a skilled sector, and earnings. Figure E.2 shows that our findings are not driven by any sector-specific shock as employment patters remain similar when we remove from the sample

respondents from one training sector at a time. Figure E.3 shows that the two lockdowns have similar effects on respondents differing by a set of baseline characteristics other than gender. The absence of heterogeneities highlights the gendered nature of these dynamics and points towards a broader generalizability of our findings. Figure E.4 shows similar employment patterns for different cohorts of women, indicating that fertility choices happening at fixed distance from graduation do not confound our results. The sharp and simultaneous decline in female labor force participation during both lockdowns, paired with the strong attachment to wage employment or entrepreneurship signaled by our female respondents through VTI enrollment, suggest we would almost certainly have not observed these dynamics in the absence of the pandemic. Table C.3 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 employment gender gap 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. Tables C.4 and C.5 test the sensitivity of the gender gaps in the training sector and in skilled sectors under a range of assumptions about attritors' employment status and sector. The gaps emerge in 88% and 63% of the scenarios respectively. The four cases in which the gaps disappear are the most pessimistic scenarios for men and the least pessimistic ones for women: 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 findings from the remaining scenarios and the overall similarity between Ever and Never attritors at baseline make us confident that these four cases are the least likely among all those considered, and that none of our result is driven by attrition.

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

5.3.1 The role of sectors of employment

During the first lockdown, the government suspended economic activity in all sectors either deemed non-essential or that involved 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 Figure 3a we plot the sectors in which our workers were employed pre-pandemic along two dimensions: (i) the share of female workers in each sector and (ii) the share of employed workers whose business were closed during the first lockdown. 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. This is not only true in our sample, but in the Ugandan labor market as well (columns 2 and 3, Table B.1). Consistent with women's pre-pandemic sorting in the 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 D.5 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), may have further depressed the demand of female products and services. Moreover, female workers may have decided not to go back to work when presented with the possibility, due to the higher frequency of close interactions with clients in female-dominated sectors paired with their overall higher fear for the virus.

To rigorously assess the role of economic 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.[8] Since women were over-represented in severely hit sectors, this procedure assigns large weights to those women that pre-pandemic were employed in mildly affected economic sectors. Figure 3c compares actual female and male employment rates with sector-reweighted female employment rate. The latter represents the female employment we would observe if pre-pandemic women were distributed across severely and mildly hit sectors as men. Average employment rate for sector-reweighted female workers is substantially higher than actual female employment rate during the first lockdown. The distance between them declines over time but remains positive throughout. Table D.2 quantifies the portion of the employment gender gap explained by economic sectors, calculated as the ratio of the gap between sector-reweighted female employment and female employment and the gap between male and female employment. Initial closures in economic sectors explain 52% of the gap during the first lockdown, 20% during the second lockdown, and 13% in the period between the two lockdown and in September of 2021. Table D.2 shows that this procedure is almost equivalent to calculating the portion of the gender gap explained by different endowments using the standard decomposition proposed by Oaxaca 1973 and Blinder 1973 and the distribution of workers in severely and mildly hit sectors as explanatory variable.

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 E.5 shows average employment for male and female workers trained in single-gender or mixed-gender sectors. Male and female workers

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[8]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.

have the same average employment regardless of sector, which is evidence against the existence of unobserved sectorial characteristics explaining the gender gap.

### 5.3.2 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 closure of schools, to the emergence and persistence of the employment gender gap. 43% of our respondents live with school-age children.[9] As our sample is relatively young, the suspension of pre-primary schooling throughout the study period was especially salient. Figure 3b shows that female and male average employment rates changed differentially with 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. This evidence suggests that the closure of schools has limited women's ability to work due to the magnified childcare duties it generated. Our findings remain consistent in Figure E.6, where we plot 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 (the larger the ratio, the larger the childcare responsibilities of our respondent). By incorporating the presence of other adults in the household with whom the respondent may share childcare responsibilities, this alternative measure accounts for the fact that a given number of children may reflect different household compositions. These findings are consistent with the concerns expressed by our female respondents, who declare that childcare responsibilities have interfered with their ability to work more than men (shown in Table D.1).

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. Figure 3d compares female and male actual employment rates with children-reweighted female employment rate. The latter represents the female employment we would observe if women lived with the same number of school-age children as men. The figure shows that children-reweighted female employment is similar to actual female employment in the early stage of the pandemic but becomes higher as time progresses. Table D.3 shows that different childcare responsibilities explain only 5% of the employment gender gap during the first lockdown and around 20% from December 2020 onwards. This evidence points towards initial job losses being mostly unrelated to schools' closure, which contrarily limited

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[9]In Uganda it is common for children to live with the mother but not with the father. We follow Alon et al. 2022 and use the number of children in the household as a proxy for a respondent's childcare responsibilities.

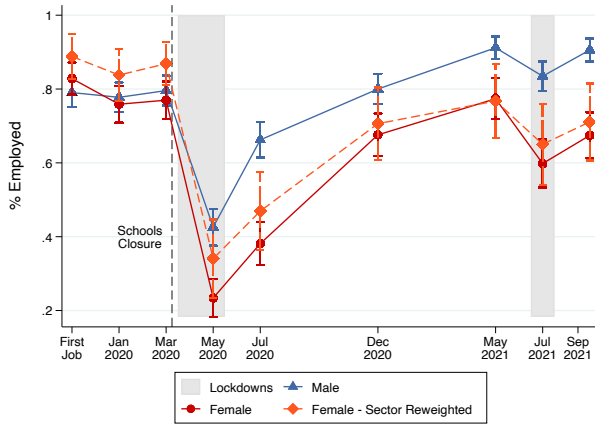## Figure 3: The Role of Sectors of Employment and Childcare Responsibilities

(a) Female Concentration in Severely Impacted Economic Sectors
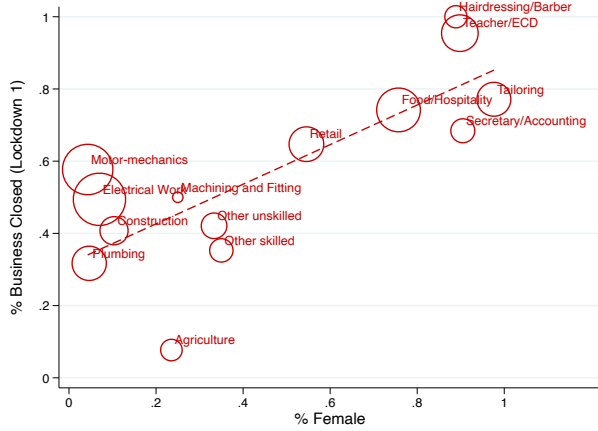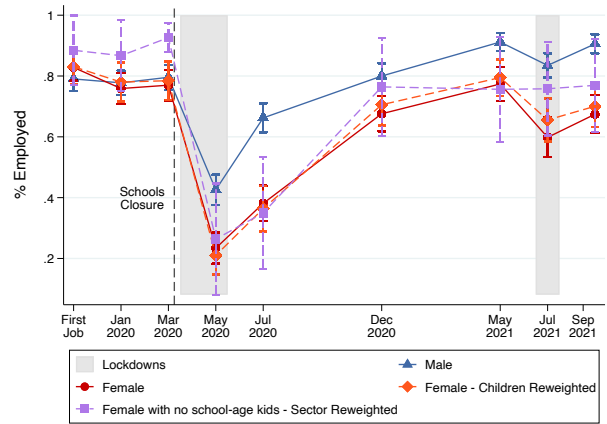

(b) Gender Gap in Impact of Schools' Closure on Employment
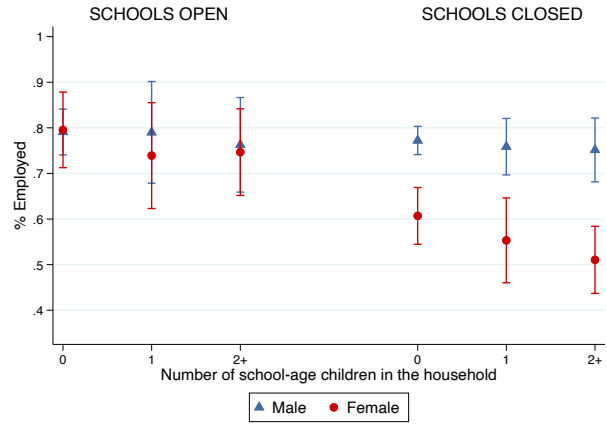
(c) The Contribution of Sectors of Employment to the Employment Gender Gap

(d) The Contribution of Sectors of Employment to the Employment Gender Gap

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 in May 2020, during the first lockdown. 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). "Other unskilled" includes the following occupations: boda boda/taxi driver, street vendor, street food maker, market vendor, gate keeper/guard, factory work, cleaner/househmaid, transport, printing, driver. "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. Panel (b) 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. 95% robust confidence intervals are reported. Panel (c) 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 (i.e., 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), matches that in the male sample. Weights are equal to one for male workers. 95% robust confidence intervals are reported. Panel (d) illustrates average employment rates over time for male, female, children-reweighted female, and sector-reweighted female respondents with no school-age children. 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. 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 $Hit\ Sector_i$ matches that in the sample of men with no children. Weights are equal to one for male workers. 95% robust confidence intervals are reported.

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females' employment in the longer run.

Consistent with findings from Casale et al. (2022) in South Africa, Hansen et al. (2022) in the US and Biscaye et al. (2022) in Kenya, we expect women's time spent on childcare duties to decline and employment to increase following the recent reopening of schools in January 2022. However, the fact that part of the Kenyan labor supply response to reopening was driven by the fall in agricultural child labor (Biscaye et al. 2022), coupled with the small portion of the employment gap explained by childcare responsibilities and the 15-p.p. gap among respondents with no school-age children (Figure 3b), suggest that in our urban context the employment gap will not close following the reopening.

5.3.3 The residual gender gap

Economic sectors and childcare responsibilities explain up to 57% of the employment gender gap in the early stage of the pandemic and 33% in the later phase. Consistent with the existence of a residual employment gender gap, unexplained by these two factors alone, Figure 3d shows that the sector-reweighted employment rate of female workers with no school-age children remains persistently below male employment, although we are not powered enough to reject the equality of these estimates.

To identify additional contributors to the residual gender gap, Figure D.6 investigates the existence of heterogeneities in the effects of the pandemic by a set of baseline characteristics. 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 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.

6 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 the course of the pandemic, we identify short- and long- term responses to two lockdowns implemented in Uganda. These restrictions disproportionately reduced female employment, shifted female workers into sectors misaligned with their skill sets, and widened the gender pay gap. While men quickly went back to their pre-pandemic labor market trajectories, women found more precarious occupations or became permanently jobless. To explain the uneven impacts 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 prolonged schools' closure. These factors explain up to 57% of the employment gap, part of which remains unexplained. Together, our findings indicate that hard-earned progress towards women's employment and earnings parity can be set back by temporary shocks.

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 onset of the pandemic 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 and provide targeted support for enterprises in economic sectors with higher female representation.

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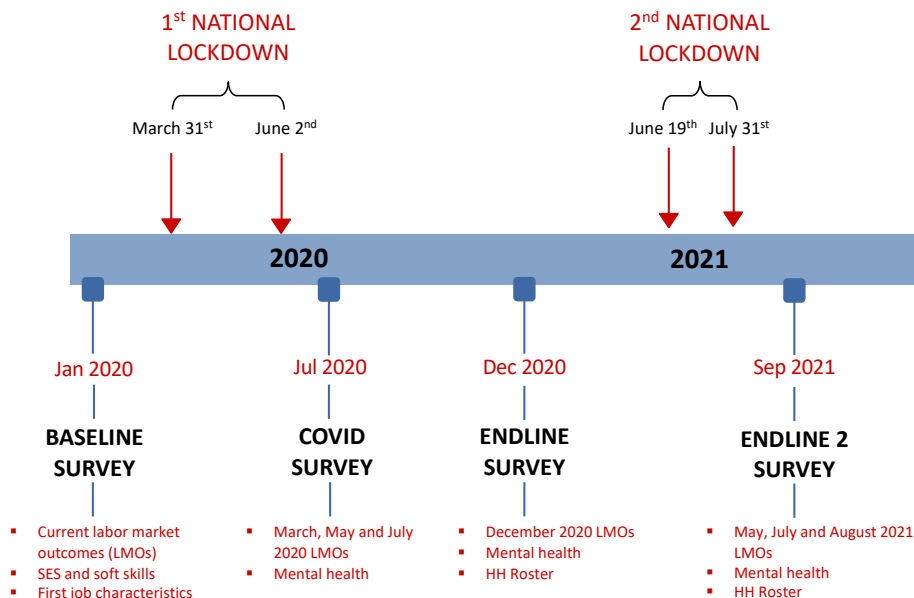
Appendix

Appendix A. The Data Collection

Figure A.1: Sample Construction - Records Digitization
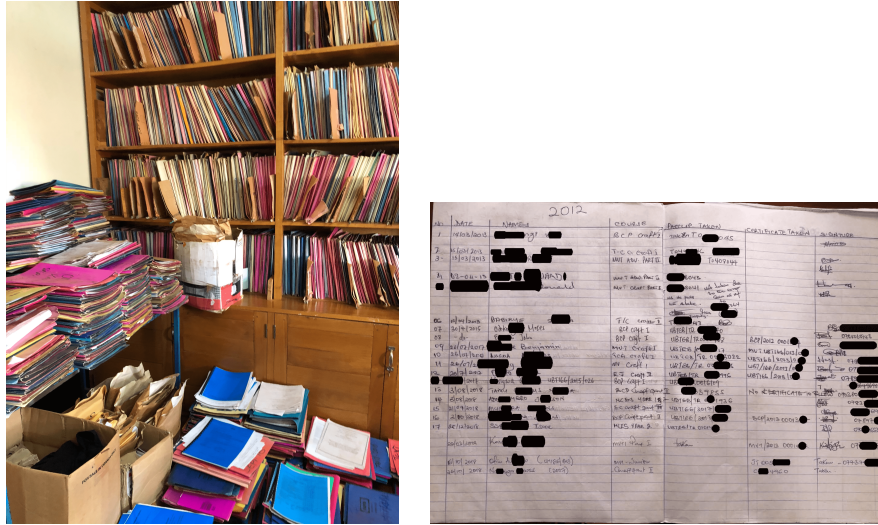
Notes: Of the 1,368 alumni for whom we found a registry entry, we successfully contacted 714 (51%). Our sample is not evidently selected with respect to the eligible population. Due to the written nature and manual entry of the records, the digitization process was prone to error. Additionally, the quality of the contact information collected by the VTIs is generally poor and outdated. One plausibly exogenous explanation is the 2013 mandate of the Uganda Communications Commission to register all SIM-cards, which was progressively implemented in the following years and pushed many to change their phone numbers. In this context, we consider our tracking rate a success.

Figure A.2: Project Timeline

Appendix B. Representativeness

Figure B.1: Educational Attainment of Ugandan Youths from UNHS and Study Sample
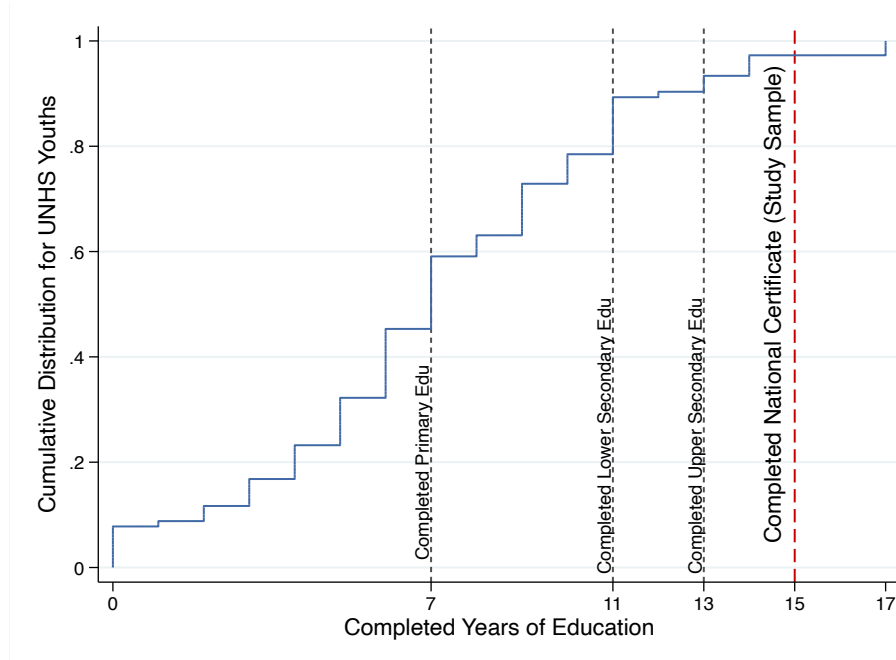
Notes: This figure shows the cumulative distribution function of years of education for the population of Ugandan adults aged 18–39 from the Uganda National Household Survey 2016/2017 (UNHS). The UNHS samples of young adults is reweighted so that its age and gender distribution matches that of the study 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 B.1: 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	0.044	0.524	0.476	0.049	0.349	0.651	0.122	0.757	0.243
Tailoring	0.006	0.600	0.400	0.006	0.794	0.206	0.073	0.976	0.024
Electrical work	0.001	0.115	0.885	0.006	0.218	0.782	0.174	0.070	0.930
Motor-mechanics	0.011	0.072	0.928	0.016	0.041	0.959	0.162	0.043	0.957
Construction	0.037	0.004	0.996	0.035	0.016	0.984	0.051	0.103	0.897
Plumbing	0.001	0.000	1.000	0.003	0.000	1.000	0.075	0.047	0.953
Retail	0.137	0.441	0.559	0.133	0.637	0.363	0.077	0.545	0.455
Secretary and accounting	0.006	0.408	0.592	0.011	0.591	0.409	0.037	0.905	0.095
Teaching (pre-primary and primary)	0.024	0.470	0.530	0.171	0.495	0.505	0.085	0.898	0.102
Hairdressing	0.013	0.425	0.575	0.019	0.593	0.407	0.031	0.889	0.111
Agriculture	0.528	0.444	0.556	0.158	0.320	0.680	0.030	0.235	0.765
Machining and fitting	0.006	0.034	0.966	0.012	0.000	1.000	0.007	0.250	0.750
Other unskilled	0.099	0.153	0.847	0.141	0.204	0.796	0.042	0.333	0.667
Other skilled	0.086	0.270	0.730	0.240	0.380	0.620	0.035	0.350	0.650

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 B.2: Socio-economic and Labor Market Characteristics

	(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	0.410	0.410	0.413	0.000	0.999	0.000	0.998
Age	25.021	25.014	25.008	-0.013	0.918	-0.006	0.976
Married	0.595	0.468	0.362	-0.229***	0.000	-0.102***	0.003
Completed primary school	0.620	1.000	1.000	0.380***	0.000	-0.000	1.000
Completed secondary school	0.182	1.000	1.000	0.818***	0.000	-0.000	1.000
Completed vocational training	0.051	1.000	1.000	0.949***	0.000	-0.000	1.000
Any work in last 7 days - no Ag	0.476	0.690	0.742	0.265***	0.000	0.052**	0.075
Any work in last 7 days - Ag included	0.782	0.797	0.767	-0.016	0.335	-0.030	0.251
Monthly earnings (USD) - wage employed	71.174	89.940	104.518	33.377***	0.000	14.611**	0.024
Female sample							
Age	24.113	24.115	24.113	-0.000	1.000	-0.001	0.997
Married	0.671	0.561	0.351	-0.314***	0.000	-0.204***	0.000
Completed primary school	0.587	1.000	1.000	0.413***	0.000	-0.000	1.000
Completed secondary school	0.142	1.000	1.000	0.858***	0.000	-0.000	1.000
Completed vocational training	0.046	1.000	1.000	0.954***	0.000	-0.000	1.000
Any work in last 7 days - no Ag	0.328	0.617	0.745	0.415***	0.000	0.126***	0.004
Any work in last 7 days - Ag included	0.692	0.704	0.759	0.066**	0.013	0.054	0.204
Monthly earnings (USD) - wage employed	55.318	77.090	84.948	29.532***	0.000	7.760	0.534
Male sample							
Age	25.632	25.632	25.632	-0.000	0.999	-0.000	0.999
Married	0.563	0.418	0.371	-0.190***	0.000	-0.046	0.319
Completed primary school	0.652	1.000	1.000	0.348***	0.000	0.000	1.000
Completed secondary school	0.212	1.000	1.000	0.788***	0.000	0.000	1.000
Completed vocational training	0.056	1.000	1.000	0.944***	0.000	0.000	1.000
Any work in last 7 days - no Ag	0.585	0.746	0.741	0.155***	0.000	-0.005	0.900
Any work in last 7 days - Ag included	0.847	0.863	0.773	-0.075***	0.000	-0.091***	0.005
Monthly earnings (USD) - wage employed	77.622	97.513	117.807	40.185***	0.000	20.294***	0.008

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 for the test that the differences 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, ran a business, helped out in business or were apprentices in the previous week. Average monthly earnings are available only for wage employed respondents.

Appendix C. Attrition

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

	Full Sample								Male Sample								Female Sample							
	Ever Attritors			Never Attritors					Ever Attritors			Never Attritors					Ever Attritors			Never Attritors				
	Obs	Mean	sd	Obs	Mean	sd	Diff	p-value	Obs	Mean	sd	Obs	Mean	sd	Diff	p-value	Obs	Mean	sd	Obs	Mean	sd	Diff	p-value
Panel A: Socio-economic characteristics																								
Female	258	0.473	0.500	456	0.379	0.486	0.093**	0.016	136	0.000	0.000	283	0.000	0.000	0.000	-	122	1.000	0.000	173	1.000	0.000	0.000	-
Age	253	24.984	3.268	456	25.022	3.198	-0.038	0.882	135	25.793	3.301	283	25.555	3.254	0.238	0.489	118	24.059	2.985	173	24.150	2.910	-0.091	0.797
Married	87	0.368	0.485	316	0.361	0.481	0.007	0.904	41	0.439	0.502	191	0.356	0.480	0.083	0.331	46	0.304	0.465	125	0.368	0.484	-0.064	0.432
Has Children	102	0.510	0.502	454	0.460	0.499	0.049	0.368	56	0.482	0.504	282	0.436	0.497	0.046	0.531	46	0.543	0.504	172	0.500	0.501	0.043	0.601
Number of school-age children in the household	100	0.840	1.195	453	0.872	1.278	-0.032	0.811	56	0.482	0.991	282	0.674	1.199	-0.192	0.202	44	1.295	1.286	171	1.199	1.340	0.097	0.658
Traditional religious denomination	247	0.725	0.448	456	0.761	0.427	-0.036	0.297	131	0.779	0.417	283	0.770	0.421	0.008	0.851	116	0.664	0.474	173	0.746	0.437	-0.082	0.139
Ethnic minority	247	0.389	0.488	456	0.465	0.499	-0.076*	0.050	131	0.427	0.497	283	0.459	0.499	-0.032	0.544	116	0.345	0.477	173	0.474	0.501	-0.129**	0.028
House of origin: rural	106	0.481	0.502	456	0.518	0.500	-0.036	0.500	49	0.551	0.503	283	0.527	0.500	0.025	0.751	57	0.421	0.498	173	0.503	0.501	-0.082	0.283
Region of origin: central	253	0.423	0.495	452	0.341	0.474	0.082**	0.032	134	0.425	0.496	281	0.299	0.459	0.126**	0.013	119	0.420	0.496	171	0.409	0.493	0.011	0.855
Region of origin: eastern	253	0.415	0.494	452	0.440	0.497	-0.025	0.516	134	0.381	0.487	281	0.484	0.501	-0.103**	0.046	119	0.454	0.500	171	0.368	0.484	0.085	0.148
Region of origin: northern	253	0.075	0.264	452	0.142	0.349	-0.066***	0.005	134	0.090	0.287	281	0.139	0.346	-0.049	0.127	119	0.059	0.236	171	0.146	0.354	-0.087**	0.012
Region of origin: western	253	0.087	0.282	452	0.077	0.268	0.010	0.662	134	0.104	0.307	281	0.078	0.269	0.026	0.398	119	0.067	0.251	171	0.076	0.266	-0.009	0.775
Caretaker's years of education	161	9.739	5.338	301	10.402	5.085	-0.663	0.197	82	8.915	5.578	190	10.253	5.123	-1.338*	0.064	79	10.595	4.968	111	10.658	5.034	-0.063	0.932
Agricultural household of origin	243	0.206	0.405	454	0.176	0.381	0.030	0.349	129	0.225	0.419	282	0.160	0.367	0.065	0.129	114	0.184	0.389	172	0.203	0.404	-0.019	0.686
Household of origin assets index	249	0.293	3.578	456	-0.160	5.553	0.452	0.190	131	0.421	3.217	283	-0.219	5.598	0.640	0.143	118	0.151	3.950	173	-0.063	5.495	0.213	0.700
Panel B: Labor market characteristics																								
Years in labor market	96	2.652	2.103	453	2.756	2.227	-0.105	0.661	44	2.989	2.035	280	2.820	2.194	0.169	0.611	52	2.367	2.138	173	2.654	2.282	-0.287	0.403
Wage employed	243	0.539	0.499	448	0.565	0.496	-0.026	0.519	131	0.580	0.495	278	0.568	0.496	0.012	0.822	112	0.491	0.502	170	0.559	0.498	-0.068	0.267
Self employed	243	0.243	0.430	448	0.194	0.396	0.049	0.145	131	0.229	0.422	278	0.187	0.391	0.042	0.337	112	0.259	0.440	170	0.206	0.406	0.053	0.308
Permanent job	126	0.865	0.343	245	0.747	0.436	0.118***	0.004	73	0.849	0.360	151	0.682	0.467	0.167***	0.004	53	0.887	0.320	94	0.851	0.358	0.036	0.534
Formal firm	180	0.500	0.501	325	0.440	0.497	0.060	0.197	100	0.490	0.502	202	0.431	0.496	0.059	0.333	80	0.512	0.503	123	0.455	0.500	0.057	0.428
Employed in Skilled Sector | Employed	190	0.800	0.401	340	0.876	0.330	-0.076**	0.025	106	0.802	0.400	210	0.876	0.330	-0.074	0.100	84	0.798	0.404	130	0.877	0.330	-0.079	0.134
Employed in Sector of Training | Employed	190	0.679	0.468	340	0.771	0.421	-0.092**	0.025	106	0.689	0.465	210	0.786	0.411	-0.097*	0.070	84	0.667	0.474	130	0.746	0.437	-0.079	0.218
Earnings (USD) | Employed	104	104.955	64.056	168	104.248	63.982	0.707	0.930	58	116.120	67.813	104	118.747	69.478	-2.627	0.815	46	90.877	56.600	64	80.686	45.258	10.190	0.314
Enrolled in further education	243	0.033	0.179	448	0.060	0.238	-0.027*	0.089	131	0.031	0.173	278	0.058	0.233	-0.027	0.190	112	0.036	0.186	170	0.065	0.247	-0.029	0.263
Engaged in casual occupations	243	0.037	0.189	448	0.060	0.238	-0.023	0.161	131	0.053	0.226	278	0.072	0.259	-0.019	0.461	112	0.018	0.133	170	0.041	0.199	-0.023	0.240
Other non-employed	243	0.148	0.356	448	0.121	0.326	0.028	0.316	131	0.107	0.310	278	0.115	0.320	-0.008	0.804	112	0.196	0.399	170	0.129	0.337	0.067	0.143
Panel C: Worker's Sector of Training																								
Motor-mechanics	258	0.198	0.399	456	0.182	0.386	0.016	0.610	136	0.360	0.482	283	0.283	0.451	0.078	0.116	122	0.016	0.128	173	0.017	0.131	-0.001	0.950
Plumbing	258	0.097	0.296	456	0.134	0.341	-0.037	0.131	136	0.154	0.363	283	0.187	0.391	-0.033	0.397	122	0.033	0.179	173	0.046	0.211	-0.013	0.555
Food and Hospitality	258	0.186	0.390	456	0.129	0.336	0.057*	0.050	136	0.066	0.250	283	0.039	0.194	0.027	0.261	122	0.320	0.468	173	0.277	0.449	0.042	0.439
Tailoring	258	0.085	0.260	456	0.081	0.273	0.004	0.848	136	0.000	0.000	283	0.004	0.059	-0.004	0.318	122	0.180	0.386	173	0.208	0.407	-0.028	0.552
Hairdressing	258	0.043	0.202	456	0.026	0.160	0.016	0.266	136	0.007	0.086	283	0.004	0.059	0.004	0.640	122	0.082	0.275	173	0.064	0.245	0.018	0.555
Construction	258	0.039	0.193	456	0.064	0.244	-0.025	0.135	136	0.059	0.236	283	0.095	0.294	-0.037	0.172	122	0.016	0.128	173	0.012	0.107	0.005	0.733
Electrical work	258	0.221	0.416	456	0.228	0.420	-0.007	0.826	136	0.346	0.477	283	0.336	0.473	0.010	0.842	122	0.082	0.275	173	0.052	0.223	0.030	0.321
Welding	258	0.000	0.000	456	0.002	0.047	-0.002	0.318	136	0.000	0.000	283	0.004	0.059	-0.004	0.318	122	0.000	0.000	173	0.000	0.000	0.000	-
Carpentry	258	0.000	0.000	456	0.007	0.081	-0.007*	0.083	136	0.000	0.000	283	0.011	0.103	-0.011*	0.083	122	0.000	0.000	173	0.000	0.000	0.000	-
Teaching	258	0.054	0.227	456	0.053	0.224	0.002	0.926	136	0.000	0.000	283	0.000	0.000	0.000	-	122	0.115	0.320	173	0.139	0.347	-0.024	0.541
Secretarial studies	258	0.070	0.255	456	0.072	0.259	-0.003	0.897	136	0.007	0.086	283	0.011	0.103	-0.003	0.734	122	0.139	0.348	173	0.173	0.378	-0.034	0.426
Agriculture	258	0.004	0.062	456	0.015	0.123	-0.011*	0.099	136	0.000	0.000	283	0.018	0.132	-0.018**	0.025	122	0.008	0.091	173	0.012	0.107	-0.003	0.771
Machining and fitting	258	0.004	0.062	456	0.007	0.081	-0.003	0.618	136	0.000	0.000	283	0.011	0.103	-0.007	0.083	122	0.000	0.000	173	0.008	0.091	0.008	0.318

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 found in all the four survey rounds) and tests for differences between these two groups in the full, male and female samples. The indicator for whether the respondent has children is measured in July 2020 and the variable for number of school-age children in the household is measured in September 2021. 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. Only work experience accumulated post vocational training counts towards the years active in the labor market. Skilled sectors include motor-mechanics, plumbing, hospitality, hairdressing, construction, electrical work, welding, carpentry, teaching, secretary and accounting, machining and fitting, and a residual category. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a. We classified as casual the following occupations: 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 C.2: Attrition Magnitude and Timing by Gender

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

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 C.3: The Gender Gap in Employment Under Different Assumptions on Attritors' Behavior

VARIABLES	(1) % Employed	(2) % Employed	(3) % Employed	(4) % Employed
Female × First job	0.149*** (0.037)	-0.030 (0.038)	0.080** (0.036)	0.069* (0.036)
Female × Jan 2020	0.067** (0.030)	-0.067** (0.030)	0.016 (0.026)	0.008 (0.026)
Female × May 2020 (Lockdown 1)	-0.147*** (0.045)	-0.150*** (0.045)	-0.137*** (0.044)	-0.135*** (0.044)
Female × Jul 2020	-0.227*** (0.041)	-0.232*** (0.041)	-0.210*** (0.040)	-0.209*** (0.040)
Female × Dec 2020	-0.124*** (0.040)	-0.043 (0.039)	-0.079** (0.036)	-0.074** (0.036)
Female × May 2021	-0.224*** (0.045)	0.013 (0.044)	-0.075* (0.039)	-0.068* (0.039)
Female × Jul 2021 (Lockdown 2)	-0.298*** (0.046)	-0.051 (0.048)	-0.141*** (0.043)	-0.129*** (0.043)
Female × Sep 2021	-0.301*** (0.046)	-0.051 (0.046)	-0.132*** (0.041)	-0.123*** (0.041)
Observations	6,426	6,426	6,418	6,418
R-squared	0.448	0.409	0.423	0.420
Scenario	Extreme High	Extreme Low	0.25 Std. Dev. Diff	0.1 Std. Dev. Diff

Notes: The table reports the β_y coefficients obtained estimating Equation 1 in four scenarios about the behavior of attritors, following Horowitz et al. (2006) and Kling et al. (2007). In the *Extreme High* scenario, we assume all female attritors are non-employed and all male attritors are employed. This scenario provides an upper bound for the gender gap in employment. In the *Extreme Low* scenario, we assume all female attritors are employed and all male attritors are non-employed. This scenario provides a lower bound for the gender gap in employment. In the *0.25 Std. Dev. Difference* scenario, we assume that employment for female (male) attritors is 0.25 standard deviations below (above) the average employment of male (female) non-attritors. In the *0.1 Std. Dev. Difference* scenario, we assume that employment for female (male) attritors is 0.1 standard deviations below (above) the average employment of male (female) non-attritors.

Table C.4: The Gender Gap in Conditional Employment in Sector of Training Under Different Assumptions on Attritors' Behavior

VARIABLES	(1) % Employed in Sector of Training | Employed	(2) % Employed in Sector of Training | Employed	(3) % Employed in Sector of Training | Employed	(4) % Employed in Sector of Training | Employed	(5) % Employed in Sector of Training | Employed	(6) % Employed in Sector of Training | Employed	(7) % Employed in Sector of Training | Employed	(8) % Employed in Sector of Training | Employed
Female × First job	0.068*	0.101**	0.094**	0.127***	0.095**	0.034	0.067	0.036
	(0.040)	(0.041)	(0.040)	(0.041)	(0.040)	(0.041)	(0.041)	(0.040)
Female × Jan 2020	-0.013	0.044	0.028	0.085**	0.038	-0.059*	-0.002	-0.050
	(0.028)	(0.032)	(0.029)	(0.033)	(0.028)	(0.031)	(0.035)	(0.030)
Female × May 2020 (Lockdown 1)	-0.036	-0.121***	-0.059**	-0.144***	-0.093***	-0.006	-0.092***	-0.040
	(0.029)	(0.029)	(0.029)	(0.029)	(0.026)	(0.029)	(0.030)	(0.027)
Female × Jul 2020	-0.022	-0.061**	-0.028	-0.067***	-0.042	-0.019	-0.058**	-0.033
	(0.027)	(0.026)	(0.027)	(0.025)	(0.026)	(0.027)	(0.025)	(0.026)
Female × Dec 2020	-0.020	-0.125***	-0.032	-0.137***	-0.062*	0.026	-0.079*	-0.004
	(0.033)	(0.039)	(0.034)	(0.039)	(0.035)	(0.036)	(0.041)	(0.038)
Female × May 2021	0.008	-0.184***	-0.015	-0.207***	-0.119**	0.074	-0.118**	-0.030
	(0.049)	(0.050)	(0.047)	(0.048)	(0.052)	(0.049)	(0.050)	(0.053)
Female × Jul 2021 (Lockdown 2)	0.028	-0.210***	-0.002	-0.240***	-0.141**	0.095*	-0.143***	-0.044
	(0.051)	(0.052)	(0.049)	(0.050)	(0.056)	(0.051)	(0.051)	(0.057)
Female × Sep 2021	-0.006	-0.211***	-0.028	-0.233***	-0.155***	0.056	-0.149***	-0.071
	(0.051)	(0.050)	(0.049)	(0.049)	(0.054)	(0.050)	(0.049)	(0.055)
Observations	4,140	4,140	4,575	4,575	4,199	4,575	4,575	4,199
R-squared	0.654	0.697	0.603	0.660	0.647	0.644	0.665	0.673
Male Attritors	Non-employed	Non-employed	Right Sector	Right Sector	Right Sector	Wrong Sector	Wrong Sector	Wrong Sector
Female Attritors	Right Sector	Wrong Sector	Right Sector	Wrong Sector	Non-employed	Right Sector	Wrong Sector	Non-employed

Notes: The table reports the β_y coefficients obtained estimating Equation 1 in eight scenarios about the behavior of attritors, following Horowitz et al. (2006) and Kling et al. (2007). The dependent variable is employment in the sector of training conditional on being employment. When attritors are assumed to be *Non-employed*, their outcome is set to missing. When they are assumed to be working in the *Right Sector*, which in this case is the sector of training, their outcome is set to one. When they are assumed to be working in the *Wrong Sector*, which in this case is a sector different from the one of training, their outcome is set to zero. The scenario in which both female and male attritors are non-employed is not reported as it is equivalent to the original scenario in which attritors' outcomes are missing.

Table C.5: The Gender Gap in Conditional Employment in Skilled Sector Under Different Assumptions on Attritors' Behavior

VARIABLES	(1) % Employed in Skilled Sector | Employed	(2) % Employed in Skilled Sector | Employed	(3) % Employed in Skilled Sector | Employed	(4) % Employed in Skilled Sector | Employed	(5) % Employed in Skilled Sector | Employed	(6) % Employed in Skilled Sector | Employed	(7) % Employed in Skilled Sector | Employed	(8) % Employed in Skilled Sector | Employed
Female × First job	0.067**	0.100***	0.086***	0.119***	0.086***	0.026	0.059	0.026
	(0.032)	(0.036)	(0.032)	(0.036)	(0.032)	(0.034)	(0.038)	(0.034)
Female × Jan 2020	0.028	0.085***	0.056***	0.113***	0.055***	-0.032	0.025	-0.033
	(0.019)	(0.028)	(0.020)	(0.028)	(0.019)	(0.025)	(0.032)	(0.024)
Female × May 2020 (Lockdown 1)	-0.042	-0.127***	-0.057**	-0.142***	-0.088***	-0.004	-0.089***	-0.036
	(0.027)	(0.034)	(0.026)	(0.033)	(0.033)	(0.028)	(0.034)	(0.034)
Female × Jul 2020	-0.037*	-0.076***	-0.038*	-0.076***	-0.047**	-0.028	-0.067***	-0.037*
	(0.020)	(0.023)	(0.020)	(0.023)	(0.020)	(0.021)	(0.024)	(0.022)
Female × Dec 2020	0.006	-0.099***	0.001	-0.104***	-0.022	0.059*	-0.046	0.036
	(0.029)	(0.038)	(0.029)	(0.038)	(0.032)	(0.034)	(0.042)	(0.037)
Female × May 2021	0.002	-0.190***	-0.015	-0.207***	-0.091**	0.073*	-0.119**	-0.003
	(0.038)	(0.046)	(0.037)	(0.044)	(0.042)	(0.042)	(0.049)	(0.047)
Female × Jul 2021 (Lockdown 2)	-0.007	-0.245***	-0.029	-0.266***	-0.142***	0.068	-0.170***	-0.046
	(0.043)	(0.049)	(0.041)	(0.047)	(0.050)	(0.046)	(0.052)	(0.054)
Female × Sep 2021	-0.024	-0.230***	-0.040	-0.245***	-0.137***	0.044	-0.161***	-0.053
	(0.043)	(0.048)	(0.042)	(0.046)	(0.049)	(0.046)	(0.050)	(0.053)
Observations	4,140	4,140	4,575	4,575	4,199	4,575	4,575	4,199
R-squared	0.667	0.705	0.626	0.681	0.665	0.646	0.660	0.667
Male Attritors	Non-employed	Non-employed	Right Sector	Right Sector	Right Sector	Wrong Sector	Wrong Sector	Wrong Sector
Female Attritors	Right Sector	Wrong Sector	Right Sector	Wrong Sector	Non-employed	Right Sector	Wrong Sector	Non-employed

Notes: The table reports the β_y coefficients obtained estimating Equation 1 in eight scenarios about the behavior of attritors, following Horowitz et al. (2006) and Kling et al. (2007). The dependent variable is employment in a skilled sector conditional on being employment. When attritors are assumed to be *Non-employed*, their outcome is set to missing. When they are assumed to be working in the *Right Sector*, which in this case is a skilled sector, their outcome is set to one. When they are assumed to be working in the *Wrong Sector*, which in this case an unskilled sector, their outcome is set to zero. The scenario in which both female and male attritors are non-employed is not reported as it is equivalent to the original scenario in which attritors' outcomes are missing. Skilled sectors include motor-mechanics, plumbing, hospitality, hairdressing, construction, electrical work, welding, carpentry, teaching, secretary and accounting, machining and fitting, and a residual category. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a.

Appendix D. Other Findings

Figure D.1: The Evolution of Employment Rate by Gender and Baseline Occupation Type

(a) (Wage- or Self-) Employed

(b) Further Education

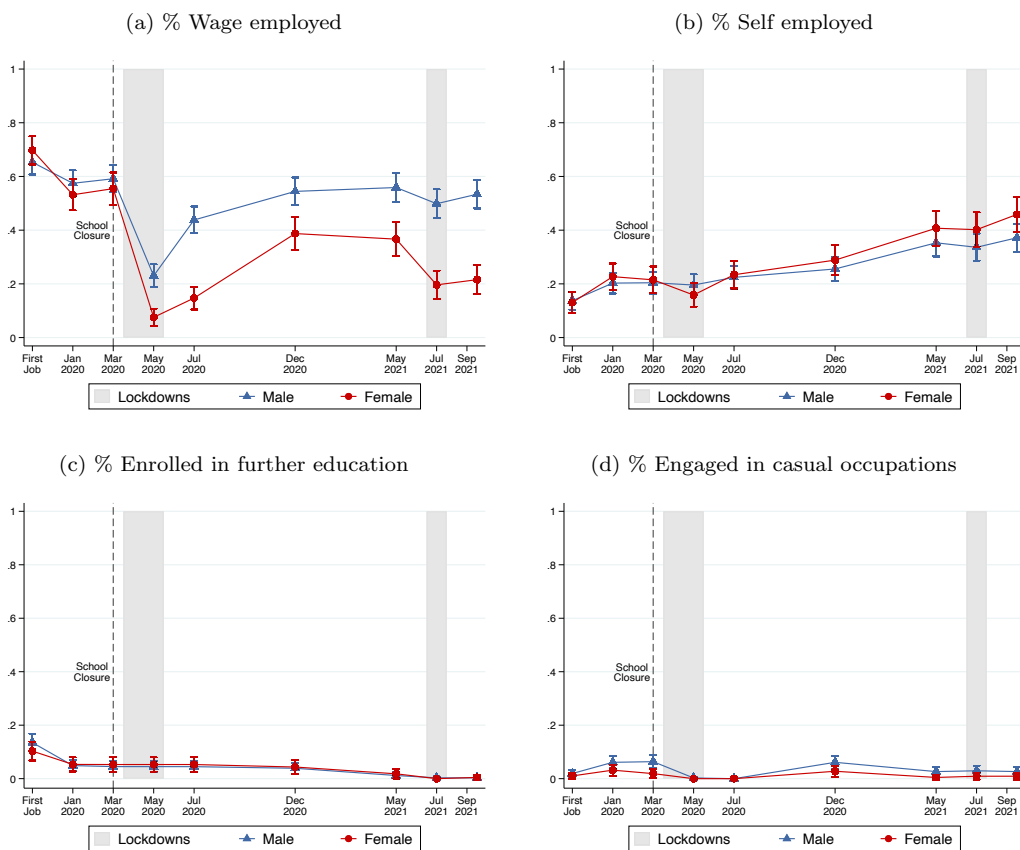(c) Casual Occupations

(d) Other Non-Employed
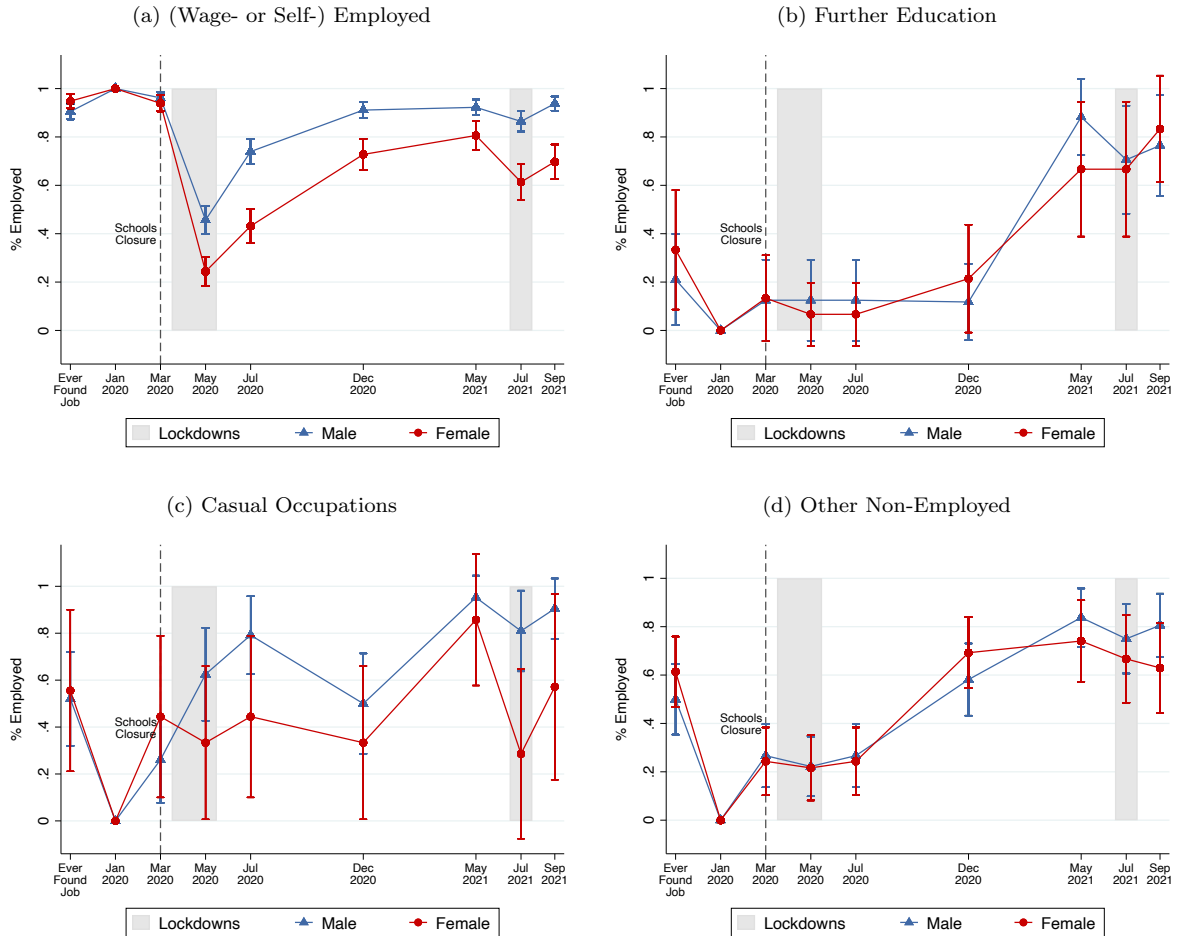
Notes: The figure illustrates the average share of employed respondents that at baseline (in January 2020) were wage- or self-employed (panel [a]), were enrolled in educational programs, (panel [b]), were engaged in casual occupations (panel [c]), and without an occupation ("other non-employed") (panel [d]), over time and by gender. Within the "other non-employed" category, we cannot distinguish the unemployed from not economically active individuals. 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. 95% robust confidence intervals are reported.

Figure D.2: Vocational Graduates' Careers in the UNHS

(a) Employment Profile by Gender

(b) Earnings Profile by Gender
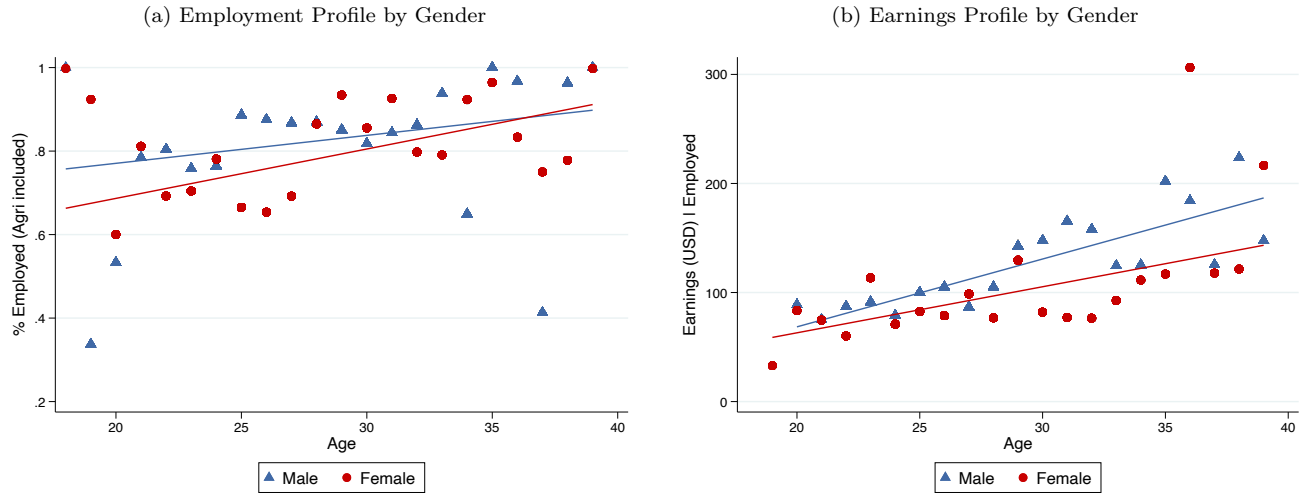
Notes: This figure shows average employment rate (panel [a]) and monthly earnings conditional on employment (panel [b]) by age and a fitted line separately for female and male respondents who completed post-secondary vocational education from the Uganda National Household Survey 2016/2017 (UNHS). The UNHS sample is restricted to respondents aged 18–39. In panel (a), the slopes and standard errors of the fitted lines are 0.007 (0.003) for males and 0.012 (0.004) for females. In panel (b), they are 7.241 (1.701) for males and 3.856 (1.435) for females.

Figure D.3: The Emergence and Persistence of Gender Disparities After the Lockdowns by Gender and Type of Actvity

(a) % Wage employed

(b) % Self employed

(c) % Enrolled in further education

(d) % Engaged in casual occupations

Notes: The figure illustrates the average share of wage employed respondents (panel [a]), self-employed respondents (panel [b]), respondents enrolled in educational programs (panel [c]) and respondents 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 D.4: The Emergence of Gender Disparities in Skilled Employment After the Lockdowns

(a) % Employed in Agriculture | Employed

(b) % Employed in Unskilled Sectors | Employed
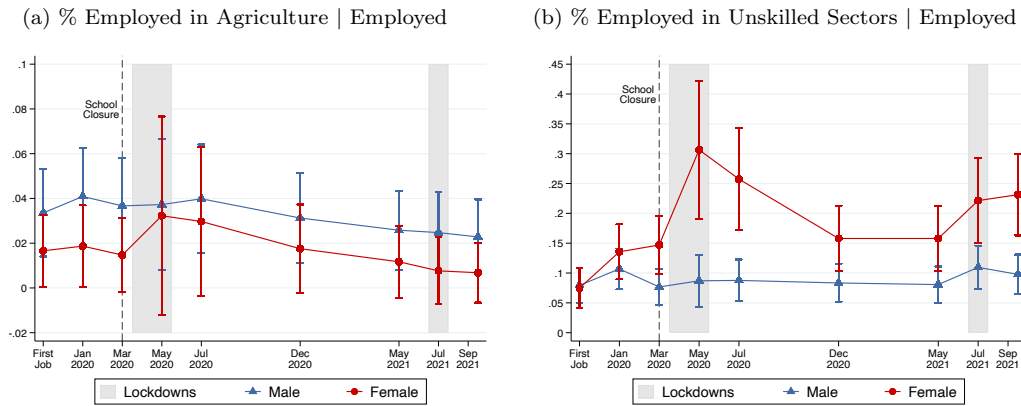
Notes: The figure illustrates the average share of respondents employed in agriculture (panel [a]) and in non-agricultural unskilled sectors (panel [b]) conditional on being employed over time and by gender. Skilled sectors include motor-mechanics, plumbing, hospitality, hairdressing, construction, electrical work, welding, carpentry, teaching, secretary and accounting, machining and fitting, and a residual category. Unskilled sectors include agriculture, retail, and a residual category. For details on these residual categories see the notes to Figure 3a. 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 D.1: The Effects of Lockdowns on Hours Worked, Borrowing, Selling Assets, Mental Health, Ability to Work

Variable	N	(1) Male Mean/SE	N	(2) Female Mean/SE	T-test Difference (1)-(2)
Business reduced hours of operation (Jul20)	160	0.812 (0.031)	77	0.818 (0.044)	-0.006
Self-employed: reduced working hours (Jul20)	21	0.476 (0.112)	12	0.583 (0.149)	-0.107
Wage-employed: reduced working hours (Jul20)	32	0.344 (0.085)	24	0.458 (0.104)	-0.115
Hours worked (May21)	310	9.681 (0.113)	170	9.753 (0.178)	-0.072
Hours worked (Jul21)	283	8.830 (0.147)	131	8.435 (0.213)	0.395
Hours worked (Dec21)	307	9.684 (0.118)	147	9.320 (0.209)	0.364
Since lockdown borrowed money to cover living expenses (Jul20)	309	0.184 (0.022)	200	0.145 (0.025)	0.039
In the next two weeks will money to cover living expenses (Jul20)	309	0.107 (0.018)	200	0.090 (0.020)	0.017
In the last four months borrowed money to cover living expenses (Dec20)	326	0.261 (0.024)	226	0.230 (0.028)	0.031
Borrowed money to cope with second lockdown (Sep21)	108	0.102 (0.029)	80	0.200 (0.045)	-0.098*
Sold assets as result to COVID-19 (Jul20)	376	0.152 (0.019)	265	0.132 (0.021)	0.020
Self-employed: sold assets to cope with second lockdown (Sep21)	108	0.019 (0.013)	80	0.000 (0.000)	0.019
Wage-employed: sold assets to cope with second lockdown (Sep21)	189	0.026 (0.012)	80	0.013 (0.013)	0.014
Anxious due to COVID-19 oubtreak (Jul20)	364	0.764 (0.022)	252	0.849 (0.023)	-0.085***
Anxious due to COVID-19 oubtreak (Dec20)	326	0.653 (0.026)	226	0.743 (0.029)	-0.090**
Anxious due to COVID-19 oubtreak (Sep21)	339	0.732 (0.024)	217	0.797 (0.027)	-0.066*
Schools closure affected ability to work through childcare, scale 0-10 (Sep21)	338	0.964 (0.127)	217	2.336 (0.215)	-1.372***

Notes: The table reports summary statistics by gender and tests gender differences for a set of outcomes. The survey round in which each outcome is measured is reported in parenthesis.

Figure D.5: Female Concentration in Severely Hit Economic Sectors Over Time
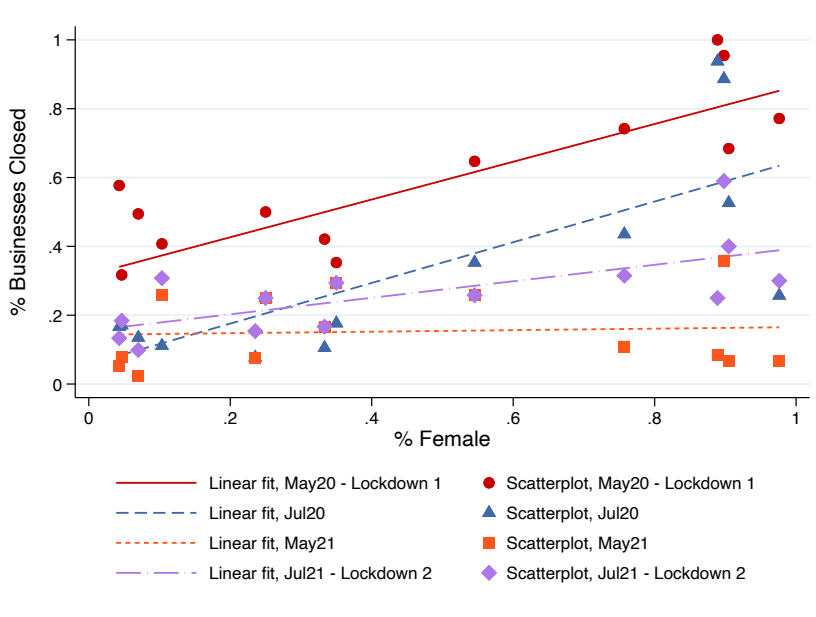
Notes: The figure displays the economic sectors in which our workers were employed pre-pandemic by the share of female workers hosted before the pandemic and the share of businesses that were closed in May 2020, July 2020, May 2021, and July 2021. A linear fit was added for each period. In May and July 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.

Table D.2: Decomposing the Gender Gap in Employment: The Role of Different Sectors of Employment

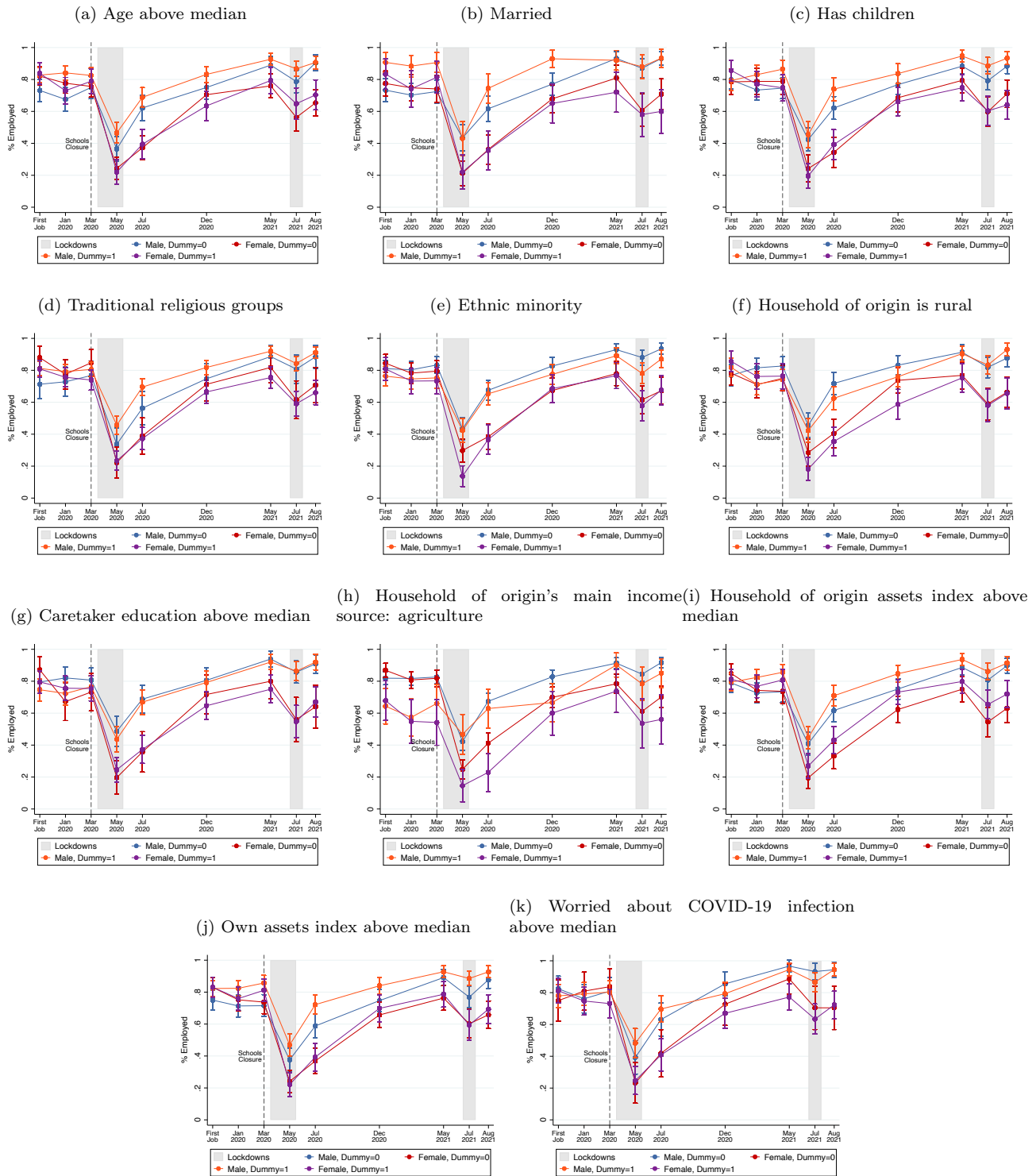|	FirstJob	Jan20	Mar20	May20	Jul20	Dec20	May21	Jul21	Sep21
Panel A: Raw Means and Difference									
Average Male Employment	0.858	0.888	0.912	0.447	0.715	0.864	0.918	0.850	0.918
Average Female Employment	0.869	0.805	0.806	0.233	0.387	0.682	0.783	0.606	0.683
Gender Gap	-0.012	0.083	0.106	0.214	0.328	0.182	0.136	0.244	0.235
Panel B: Portion of the Gap due to Different Sectors of Employment									
Method: Reweighting	0.019	0.033	0.062	0.107	0.082	0.024	-0.016	0.044	0.028
Method: Oaxaca-Blinder	0.019	0.034	0.065	0.112	0.085	0.026	-0.017	0.048	0.030
Explained % Gender Gap	1.589	0.411	0.614	0.523	0.259	0.144	0.128	0.197	0.127

Notes: The table quantifies the part of the gender gap in employment rate explained by different pre-pandemic sectors of employment. Panel (A) reports average employment rate by gender over time and the difference between female and male respondents. The statistics are calculated for all respondents with non-missing pre-pandemic sector of employment (i.e., respondents that were employed either in January 2020 or March 2020 or both). Panel (B) reports the part of the gender gap explained by different sectors of employment in absolute value and as a share of the overall gender gap. We calculate the explained part of the gap in two ways. First, as the difference between average sector-reweighted and actual female employment rates in each point of time. Sector-reweighted female employment rate is equal to female employment rate when weighting the female sample so that the first moment of $Hit\ Sector_i$ 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, using the Oaxaca-Blinder decomposition in each point of time using $Hit\ Sector_i$ as explanatory variable and reporting the part of the gap due to different endowments.

Table D.3: Decomposing the Gender Gap in Employment: The Role of Different Childcare Responsibilities

	FirstJob	Jan20	Mar20	May20	Jul20	Dec20	May21	Jul21	Sep21
Panel A: Raw Means and Difference									
Average Male Employment	0.796	0.770	0.798	0.437	0.674	0.798	0.911	0.834	0.905
Average Female Employment	0.819	0.776	0.765	0.221	0.368	0.678	0.772	0.605	0.674
Gender Gap	-0.023	-0.005	0.033	0.217	0.306	0.120	0.139	0.229	0.231
Panel B: Portion of the Gap due to Different Childcare Responsibilities									
Method: Reweighting	0.012	0.004	0.020	-0.010	-0.004	0.028	0.023	0.051	0.026
Method: Oaxaca-Blinder	0.012	0.005	0.020	-0.011	-0.004	0.028	0.023	0.051	0.026
Explained % Gender Gap	0.531	0.898	0.606	0.051	0.012	0.233	0.164	0.222	0.113

Notes: The table quantifies the part of the gender gap in employment rate explained by different childcare responsibilities. Panel (A) reports average employment rate by gender over time and the difference between female and male respondents. The statistics are calculated for all respondents with non-missing information on the number of school-age children in the household. Panel (B) reports the part of the gender gap explained by different childcare responsibilities in absolute value and as a share of the overall gender gap. We calculate the explained part of the gap in two ways. First, as the difference between average children-reweighted and actual female employment rates in each point of time. Children-reweighted female employment rate is equal to female employment rate when weighting the female sample so that the first moments of the explanatory variables, indicators for whether the respondent has zero, one, or more than one school-age children in the household, match those in the male sample. Second, using the Oaxaca-Blinder decomposition in each point of time using 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.

Figure D.6: Heterogeneities in Gendered Effect of Lockdowns on Employment by Socio-Economic Characteristics

(a) Age above median

(b) Married

(c) Has children

(d) Traditional religious groups

(e) Ethnic minority

(f) Household of origin is rural

(g) Caretaker education above median

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

(i) Household of origin assets index above median

(j) Own assets index above median

(k) 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; belonging or not to the main religious and ethnic groups; rural and urban; with caretaker educated below and above the sample median; 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. 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. The data point referring to the first job can be interpreted as an indicator for individuals who ever worked after completing vocational education. 95% robust confidence intervals are reported.

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Appendix E. Robustness Tests

Figure E.1: The Emergence and Persistence of Gender Disparities After the Lockdowns (Unconditional Outcomes)

(a) % Employed in Sector of Training

(b) % Employed in Skilled Sector

(c) Monthly Earnings (USD)
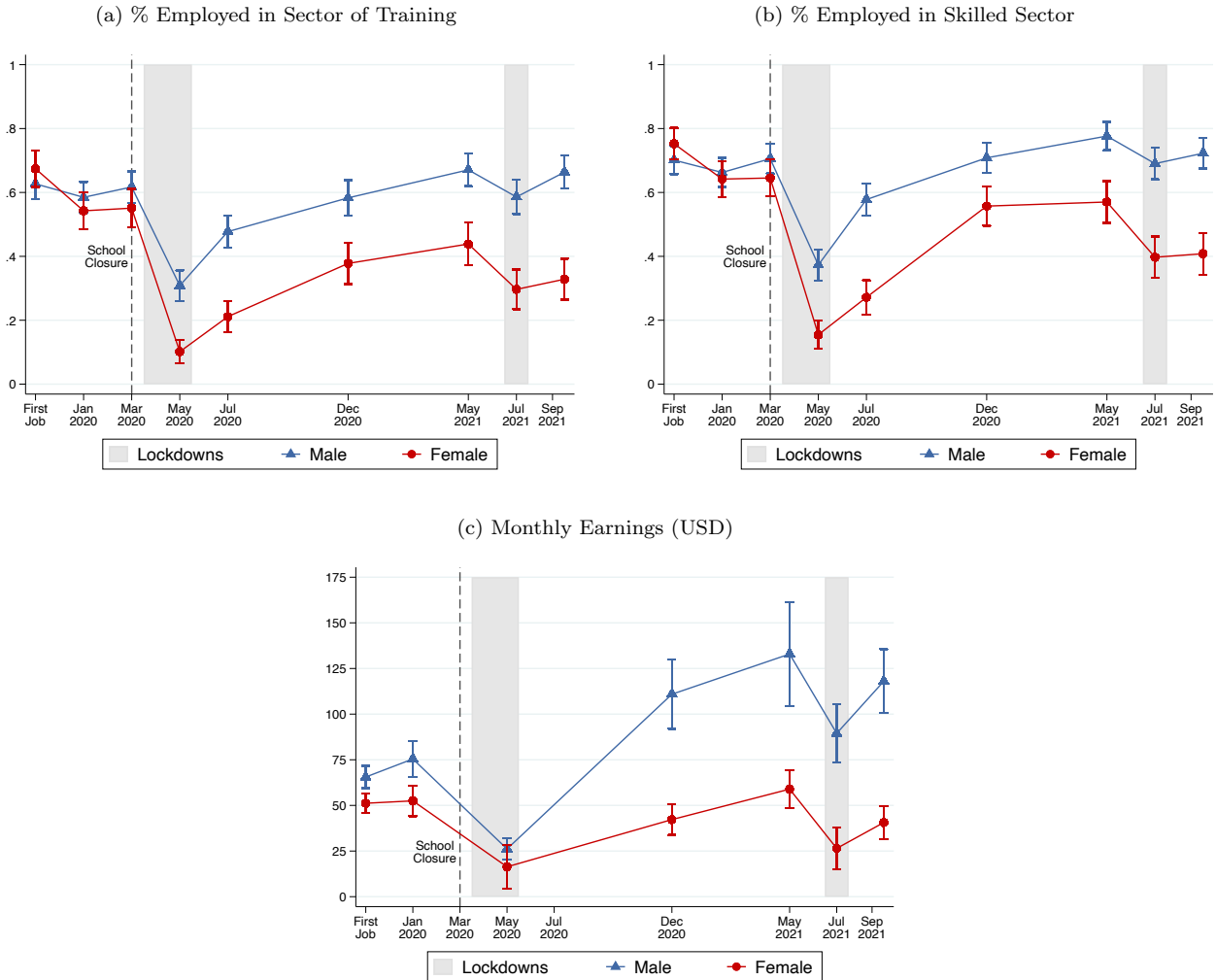
Notes: The figure illustrates average unconditional employment rate in the sector of training (panel [a]); unconditional employment rate in a skilled sector (panel [b]); and unconditional monthly earnings (panel [c]); over time and by gender. The outcome variables are coded as zero for non-employed respondents, and the average outcome in each point of time is calculated over all the respondents. 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. 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. For details on these residual categories see the notes to Figure 3a. Unskilled sectors include agriculture, retail, and a residual category. 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 interval midpoint throughout. 95% robust confidence intervals are reported.

Figure E.2: 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

(j) Leaving out teaching

(k) Leaving out secretary and accounting

(l) Leaving out agriculture

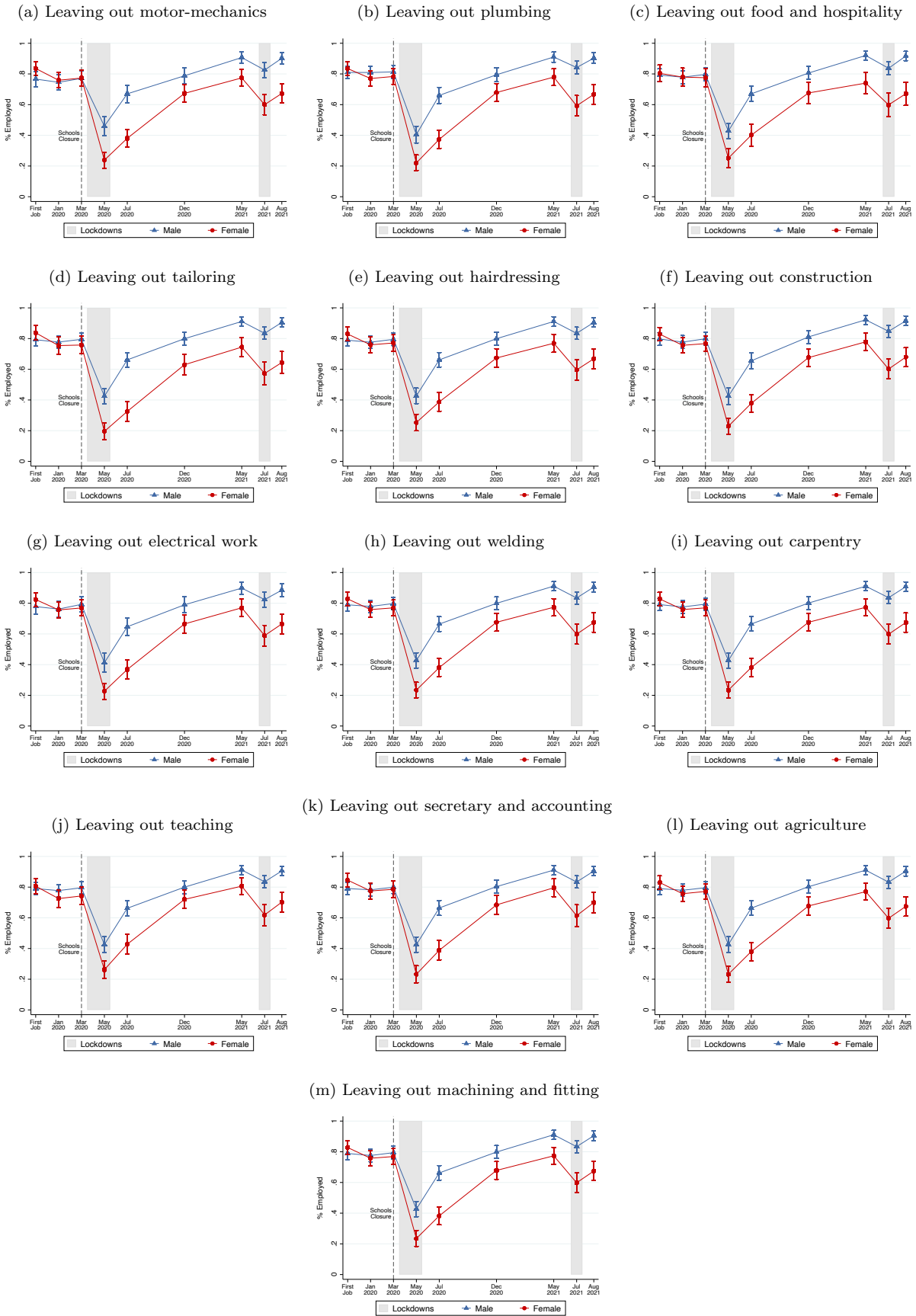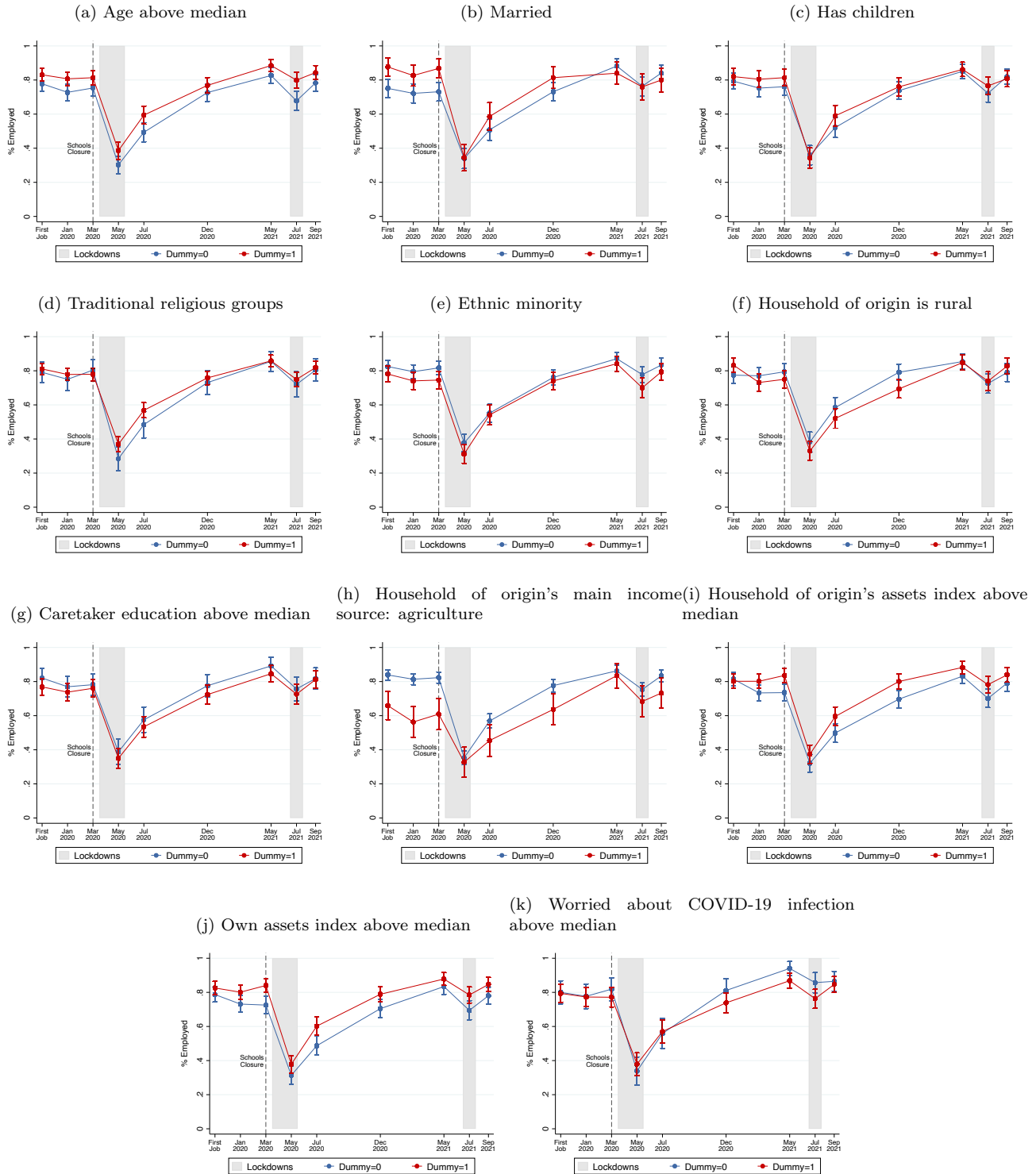(m) Leaving out machining and fitting

Figure E.3: Heterogeneities in Effect of Lockdowns on Employment by Socio-Demographics

(a) Age above median

(b) Married

(c) Has children

(d) Traditional religious groups

(e) Ethnic minority

(f) Household of origin is rural

(g) Caretaker education above median

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

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

(j) Own assets index above median

(k) 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; belonging or not to the main religious and ethnic groups; rural and urban; with caretaker educated below and above the sample median; 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. The data point referring to the first job can be interpreted as an indicator for individuals who ever worked after completing vocational education. 95% robust confidence intervals are reported.

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Figure E.4: The Evolution of Female Employment for Different Cohorts of Vocational Graduates
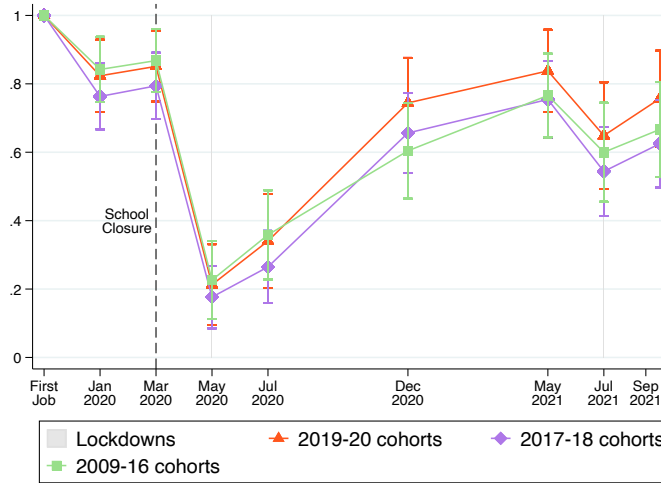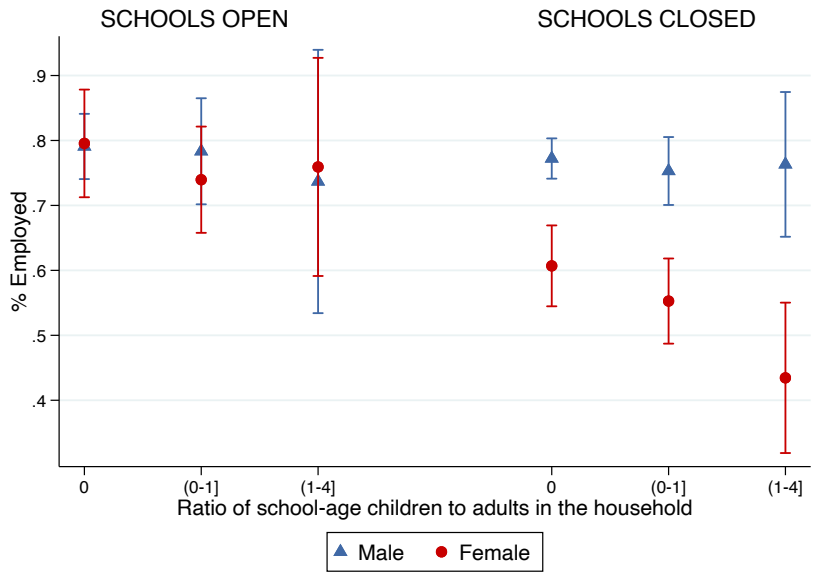

Notes: The figure illustrates average employment rates for female respondents of different cohorts (i.e., who completed vocational graduation in different years) over time. At each point in time, a respondent is coded as employed if her main activity is either wage- or self-employment. The first data 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. The data point referring to the first job can be interpreted as an indicator for individuals who ever worked after completing vocational education. 95% robust confidence intervals are reported.

Figure E.5: The Emergence and Persistence of a Gender Gap in Employment for Respondents in Mixed and Single-Gender Sectors
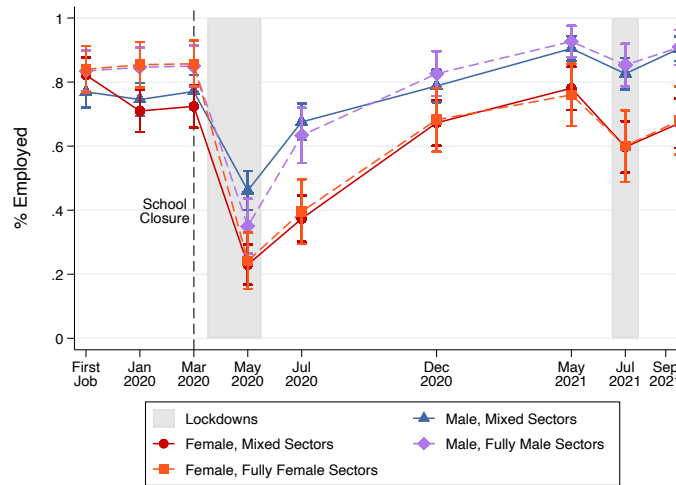
Notes: The figure illustrates average employment rates separately for male and female respondents who received training in mixed or single-gender sectors over time. Single-gender sectors are sectors in which more than 95% of the trainees have the same gender, as measured in our sample. Using this definition, motor-mechanics, welding and carpentry are fully-male sectors; tailoring ad teaching are fully-female sectors. 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. It can be interpreted as an indicator for individuals who ever worked after completing vocational education. 95% robust confidence intervals are reported.

Figure E.6: 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. School-age children are children aged 3 or more. 95% robust confidence intervals are reported.