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Gendered Impacts of COVID-19 in Developing Countries[†]

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The COVID-19 pandemic and the associated shutdowns, social distancing measures, and school closures have resulted in a global recession that sharply reduced output and employment in nearly all countries. In many high-income economies, one of the most unusual characteristics of this recession has been a disproportionate impact on women in the labor market (Alon, Coskun, et al. 2021). In the United States, for example, the unemployment rate increased by 3 percentage points more for women compared to men. This marks a sharp deviation from the usual pattern of recent recessions in high-income economies, which have affected men's employment more than women's.

In this paper, we explore how the COVID-19 recession has affected women's versus men's employment in developing countries. While the impact of school closures is similar, we argue that differences in the distribution of job characteristics and in the role of income effects have limited the employment reductions experienced by women in low-income economies. As a case study, we show how these factors play out in Nigeria, the most populous country in sub-Saharan Africa.

I. Origins of Gender Differences in the Pandemic

The literature on the gendered impact of the COVID-19 pandemic has pointed out two primary reasons why women in advanced economies experienced unusually large employment reductions. The first is the distribution of job characteristics of employed women and men. In the COVID-19 recession, employment losses were concentrated in contact-intensive occupations in the service industry, such as wait staff in restaurants and workers in hotels and entertainment. In many countries, these sectors and occupations have high female employment shares, which contributed to large job losses for women during the pandemic (Albanesi and Kim 2021; Alon, Coskun, et al. 2021).

While developing countries also employed shutdowns and social distancing measures, contact-intensive service industries account for a small share of women's employment (see Figure B1 in the online Appendix). Especially in the poorest economies, many more women work in family-based agriculture and nonfarm household enterprises, where there are only small employment changes over the cycle. Hence, the distribution of job characteristics for women and men in the economy is one explanation for why the impact of the pandemic on women's employment was different in low-income countries.

The second reason underlying women's reduced labor supply in high-income economies was the impact of increased childcare needs during closures of schools and daycare centers. A number of studies document that during school closures, parents—and, in particular, mothers—spent much more time on childcare and homeschooling tasks (Adams-Prassl et al. 2020). Correspondingly, reductions in labor supply were particularly large among mothers of school-age children (Alon, Coskun, et al. 2021).

School closures during the pandemic were widely adopted in high- and low-income economies alike, and while the duration of school closures varies widely across countries, there is no clear correlation with income levels (Alon et al. 2022). Nevertheless, the effects of these closures on women's and men's labor supply may still depend on local conditions. The need for additional childcare is reduced if informal modes of childcare are available—for example, if an

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extended family is living together and grandparents can look after children during closures. The need for spending time on homeschooling also depends on how much remote schooling actually takes place. If no remote schooling is available and families decide that kids will simply take a break from learning, parental time needs are lower. The evidence indeed suggests that learning activities during school closures were reduced even more in low-income countries compared to high-income ones (see Figure B2 in the online Appendix), which is consistent with a lower impact of closures on parents' time needs.

Another factor determining the impact of school closures on labor supply is the extent to which spending time on childcare and homeschooling interferes with work. Alon, Coskun, et al. (2021) show that among parents who can work from home (e.g., workers with office jobs who can connect remotely), there is no gender gap in the impact of increased childcare needs on labor supply. It is mothers with jobs that have to be done at a specific workplace (such as a manufacturing plant or a retail store) who reduce labor supply a lot when childcare needs go up. In low-income economies, a large share of employment is done in or around the home, such as family-based agriculture and other forms of self-employment. This fact suggests, once again, that the impact of school closures on labor supply in general and on women's labor supply in particular may be smaller in low-income economies.

In what follows, we document how these factors shape the impact of the pandemic on women's employment in Nigeria.

II. The Employment Impact of the COVID-19 Pandemic in Nigeria

Nigeria was one of the first African countries that reported COVID-19 cases. As in many other countries, the government implemented strict measures to contain the spread of the virus, including travel restrictions and school closures. We use data from the Nigeria COVID-19 National Longitudinal Phone Survey to assess the impact of the pandemic on employment. We focus on data collected in September 2020, covering outcomes when school closures and other containment measures were still in effect, and in February 2021, when schools were open again. For these survey waves, we can compare outcomes to data collected around the same months two years prior in Nigeria's General Household Survey. Comparing outcomes for the same season is important given that employment in Nigeria varies over the planting and harvesting seasons.

In both September 2020 and February 2021, a variety of COVID mitigation measures were in place (see Figure B3 in the online Appendix for a timeline). Measures of people's mobility had mostly recovered by September 2020; restrictions and shutdown measures were the most stringent in April and May of 2020 and gradually relaxed afterward. However, school closures were still ongoing in September 2020; most schools fully reopened only in November 2020 (see Figure B4 in the online Appendix). Hence, the comparison of outcomes for September 2020 and February 2021 is informative about the impact of school closures.

Figure 1 shows how overall employment of prime-age adults (ages 21 to 55) varies across the survey waves for women and men. Comparing the levels in July–September of 2018 and September of 2020, we observe a substantial drop in the share of employed adults. Women's employment drops by 9.0 percentage points, much larger than the drop of 6.1 percentage points for men. Hence, the initial impact mirrors the observation from high-income economies that women's employment was disproportionately affected by the pandemic. However, this picture is reversed by February 2021: here we observe a substantial increase of women's employment by 4.7 percentage points compared to the pre-pandemic period, versus a moderate decline of 1 percentage point in men's employment. Similarly, in terms of weekly hours worked conditional on being employed, there is a sharp rise in women's labor supply in February 2021 compared to before the pandemic (see Figure B5 in the online Appendix).

Table 1 displays individual-level regression results of the impact of the pandemic on employment by gender that include individual and household controls and geographic fixed effects. Regressions for September pool data for September 2020 with the July–September survey in 2018, and regressions for February include data for February 2021 and January–February 2019. "COVID" is an indi-

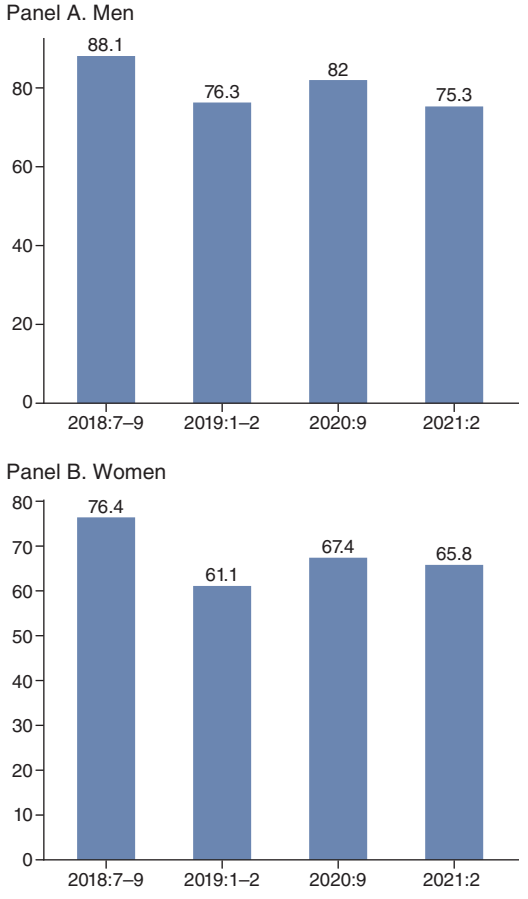

Figure 1. Share of Working Adults in Nigeria by Gender

Notes: The share of adults of age 21–55 who worked in the past week (at time when interview was conducted). Sample includes $\approx$ 9,000 and $\approx$ 4,000 individuals for pre-COVID and COVID interviews, respectively.

cator variable equal to one for September 2020 and February 2021, respectively, and zero for the pre-pandemic period.

The regressions confirm that women lost substantially more employment in the early phase of the pandemic but also experienced an expansion of employment later in the recovery, both relative to men and in absolute terms. On the intensive margin, women who continued working worked more hours both in September and February compared to the pre-pandemic period.

III. The Role of Childcare

To examine the possible role of childcare needs during school closures for employment changes, we expand the regressions displayed in Table 1 by including indicator variables for the presence of children in the household. Following the empirical setting in Alon, Coskun, et al. (2021), we distinguish between households with at least 1 child under the age of 5, households where the youngest child is of school age (here defined as 5 to 14, as compulsory education in Nigeria is completed at age 14), and households who either do not have children or only have older children. These indicator variables are interacted with the COVID indicator variable and gender. Table 2 displays the coefficient estimates for the double interaction of COVID with the female indicator variable and the child variables. For September 2020, the regressions confirm the finding of Alon et al. (2022) for high-income economies that employment declined the most among mothers of school-age children. Given that schools were still closed in September 2020 but not in February 2021, this finding strongly suggests that as in high-income countries, increased childcare needs during school closures were an important driver of women's employment declines during the pandemic.

Overall, the aspect of increased childcare needs for school-age children is the main parallel between the experiences during the pandemic of women in high-income economies and women in Nigeria. However, even among parents of school-age children, we do not observe a statistically significant gender gap in working hours during school closures conditional on continued employment. This may reflect that in low-income countries, a smaller share of children continued learning activities during school closures, which reduced the need for parental time. Moreover, unlike in high-income countries, we do not observe statistically significant gender differences in initial employment changes among those without children. This observation is consistent with the notion that in low-income countries, the industry composition of employment did not favor one gender over the other in the pandemic recession. Likewise, there are no statistically significant gender differences among those with young children, which may be due to lower initial use of formal childcare, the

TABLE 1—IMPACT OF COVID-19 ON EMPLOYMENT AND HOURS OF WORK FOR ADULTS

	Employment status				Weekly working hours			
	September	September	February	February	September	September	February	February
COVID	−0.045	−0.025	0.036	0.004	−2.766	−4.136	4.859	3.197
	(0.013)	(0.014)	(0.031)	(0.033)	(0.969)	(1.228)	(2.272)	(2.224)
COVID × female		−0.035		0.058		2.784		3.242
		(0.018)		(0.024)		(1.264)		(1.210)
Observations	12,229	12,229	12,444	12,444	9,634	9,634	8,519	8,519
R^2	0.20	0.20	0.22	0.22	0.23	0.23	0.25	0.25
Mean pre-COVID	0.817	0.817	0.680	0.680	34.3	34.3	31.6	31.6
Age fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LGA fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control variables	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Robust standard errors (in parentheses) are clustered at the state level. Controls include gender, urban, number of household members, access to electricity and internet, asset ownership, access to finance, consumption quantile before the pandemic, education and literacy, marriage status, head of household status, a geographic fixed effect (LGA), and a dummy for a pre-COVID interview held in January. In regressions for weekly working hours, only working adults are included. Results that combine intensive and extensive margins are reported in Table B1 in the online Appendix.

TABLE 2—ROLE OF CHILDCARE FOR IMPACT OF COVID-19 ON EMPLOYMENT AND HOURS OF WORK

	Employment status		Weekly working hours	
	September	February	September	February
COVID × female × young kids	0.028	0.070	0.374	−3.007
	(0.029)	(0.035)	(1.975)	(2.102)
COVID × female × school-age kids	−0.058	0.031	2.768	6.701
	(0.028)	(0.035)	(1.542)	(2.134)
COVID × female × no kids	−0.035	−0.025	1.137	−0.878
	(0.048)	(0.052)	(2.196)	(3.093)
Observations	12,229	12,444	9,634	8,519
Mean pre-COVID	0.817	0.680	34.3	31.6
Age fixed effects	Yes	Yes	Yes	Yes
LGA fixed effects	Yes	Yes	Yes	Yes
Control variables	✓	✓	✓	✓

Notes: Robust standard errors (in parentheses) are clustered at the state level. Controls include gender, urban, number of household members, access to electricity and internet, asset ownership, access to finance, consumption quantile before the pandemic, education and literacy, marriage status, head of household status, a geographic fixed effect (LGA), and a dummy for a pre-COVID interview held in January. In regressions for weekly working hours, only working adults are included.

fact that a lot of work takes place at home, and the availability of informal childcare.

A final major difference between the employment outcomes of women in high- and low-income economies is that in many high-income economies, women's employment losses have been persistent; in the United States, for example, labor force participation remained well below pre-pandemic levels even after schools reopened and unemployment rates fell to historic lows. In contrast, in Nigeria, we observe that women's employment not only recovered quickly but actually rose above pre-pandemic levels once schools reopened.

For explaining the rise in women's employment in the later phase of the pandemic, based on Alon, Kim, et al. (2021), we conjecture that income effects play a role. In the United States and other high-income countries, governments provided generous transfer payments during the

crisis, making many households less dependent on the next paycheck. In low-income countries, households received few transfers and were much poorer to begin with. The need to make up for income losses during the economic downturn caused by the pandemic may have induced many women to work more or take on additional jobs. Given that women's labor supply was initially lower than that of men, women had more room to expand labor supply to increase household income. The income channel is supported by the observation that the positive effect of the pandemic on women's labor supply in February 2021 is concentrated among poorer households (see Table B3 in the online Appendix for regression results that split the sample by consumption quantiles). This mechanism resembles the insurance role of women's labor supply analyzed by Alon et al. (2020), but here the main impact is during the recovery rather than at the height of the pandemic.

IV. Adolescent Labor and Education

Compared to high-income economies, the gender differences in the employment impact of the pandemic that we document for the case of Nigeria are muted. A channel that is potentially more important in developing countries is the impact of the pandemic on children's education. Early indications are that learning losses are larger in developing countries than in high-income economies and that many older children dropped out of school and started working during the pandemic (see the online Appendix for evidence on the impact of the pandemic on adolescents' labor supply). These changes can have long-run repercussions for children's future earnings as well as for outcomes such as marriage and childbearing. We examine the impact of the pandemic on children's education in low-income economies in Alon et al. (2022).

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