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The Gendered Impact of the COVID-19 Crisis on the Iranian Labor Market

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Abstract

Despite sizable government interventions to sustain the economy, in the first year of the pandemic (2021/22), approximately 1 million jobs were lost in the Islamic Republic of Iran, and labor force participation contracted by 3 percentage points. Iranian women were the most affected: two out of three jobs lost between 2019/20 and 2020/21 were previously held by women. The gendered impact of the crisis contributed to widening Iranian women's disadvantage in the labor market. Most importantly, the gains in female labor force participation that had slowly accumulated since 2011 vanished. Consistent with what is observed in other countries, women with young children were the most affected by the crisis. The combined effect of school closures and unequal intra-household allocation of care responsibilities, associated with prevailing gender norms, pushed Iranian women with children out of the labor force. Whether or not these trends will be reversed as the management of the COVID-19 pandemic is normalized and the economy recovers from the crisis remains an important policy question.

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The Gendered Impact of the COVID-19 Crisis on the Iranian Labor Market

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Introduction

The COVID-19 crisis has had a dramatic impact on the labor market of both developed and developing countries. A common finding across the international literature on the subject is the differential employment impact of the pandemic across groups, with women being among the most affected. The gendered impact of the COVID-19 pandemic is primarily explained by existing differences in terms of sector of employment and occupation as well as by differences in care and domestic responsibilities between men and women. Given the concentration of women in service occupations, and particularly in contact-intensive occupations, they have been disproportionately hit by the corresponding employment losses. Similarly, the closing of schools and nurseries due to lockdown measures to contain the pandemic implied an increase in the demand for childcare. As the burden has mostly fallen on women, many mothers were forced to exit the labor market.

In MENA countries, where low female labor force participation is a structural labor market concern, the impact of the COVID-19 crisis is expected to have posed further constraints to the welfare and socio-economic inclusion of women.

The Islamic Republic of Iran was among the world's early epicenters of the pandemic, which struck the country as it was already grappling with a severe economic crisis spurred by structural constraints and external shocks driven by US and international sanctions.

Overall, the analysis indicates that more than 1 million jobs were lost during the first year of the pandemic, with two-thirds of job losses being concentrated among women. Interestingly, compared to what has been observed in other countries, the impact of the COVID-19 crisis did not materialize through an increase in unemployment, but through a reduction in labor force participation. In fact, not only were women more likely than men to lose their job as a result of the crisis, but they were also more likely to withdraw from the labor force altogether. Results indicate that the pandemic contributed to widening the gender gap in labor force participation (0.7 percentage point increase) and employment (0.5 percentage point increase), while – due to the larger decline in participation for Iranian women – the pandemic contributed to narrowing the gender gap in unemployment (1.6 percentage point decline). In line with what has been observed in other countries, the gendered impact of the crisis was the strongest among women with care responsibilities within the household, particularly for women with young children.

The gendered impact of the crisis was the strongest among salaried workers in the private sector. In fact, while male jobs in the salaried private sector increased by 133,000 units between 2019-20 and 2020-21, female jobs contracted by 242,000 units. Results of panel analysis indicate that the gendered response in private sector employment cannot be entirely explained by differences in job and individual characteristics, but it might reflect underlying gender norms affecting both labor demand (widespread belief that men have more "right" to jobs compared to women in time of crisis) and labor supply (gendered distribution of care responsibilities within the household).

COVID-19 in the Islamic Republic of Iran

The Islamic Republic of Iran has been hit hard by the COVID-19 pandemic, which has claimed over 133,000 lives and affected close to 7 million people out of a population of 85 million.

The Islamic Republic of Iran was among the world's early epicenters of the pandemic and the worst-hit country in the Middle East. The first case in the country was recorded as early as February 19, 2020, and, by March 4, authorities announced that the virus had spread to nearly every province. Lockdown

measures ensued by the end of March, with travel bans, closure of economic activities, religious sites (including mosques) and all grades of educational institutions. Starting at the end of April, restrictions began to ease, albeit at different rates depending on the local evolution of the pandemic.[2] Overall, compared to other countries in the region, the Islamic Republic of Iran sustained relatively stringent containment measures throughout the entire first year of the COVID-19 pandemic, reflecting recurrence and intensity of pandemic waves.

The education sector was among the most affected by the government's measures put in place to contain the spread of the pandemic. Schools, starting from kindergartens, remained fully closed nationally during the first three months of the crisis. Starting on May 16, schools were allowed to reopen only in areas classified at low risk of COVID-19 transmission ("white" regions) and with caps in terms of in-person attendance. Full nationwide in-person reopening of schools was only achieved in April 2022, more than two years after the start of the pandemic.

Containment measures imposed by the government to limit the spread of the pandemic were accompanied by a recovery stimulus package to both households and firms amounting to 1,000 trillion IRR (close to 5 percent of GDP). To support households, the government introduced an emergency cash transfer benefiting 4.3 million households in addition to providing micro-small loans and expansion of unemployment insurance and minimum wages.[3] In addition, businesses were supported through concessional loans and a moratorium on all payments to the government for three months (including taxes, social security contributions, interests on loans, utility bills…).[4]

Economic disruption from COVID-19 added to the ongoing challenges the Iranian economy faced, spurred by structural constraints and external shocks driven by US and international sanctions. During 2010/2011 to 2019/2020, GDP grew at an annual rate of –0.1%, and the Islamic Republic of Iran's per capita GDP fell below regional and income group averages. In 2019/20, GDP contracted by 6.8 percent year on year after US sanction waivers on the country's oil exports expired. The spread of COVID-19 and the subsequent collapse of oil markets also impacted the last quarter of the year's GDP (ending March 2020) as oil production reached a three-decade low.

Data

The data used for the analysis presented in this paper come from the *Iran Labor Force Survey (LFS)*, which is the primary source of employment statistics in the country. The survey has been conducted since spring 2005 and, for each quarter, provides representative estimates of main labor market indicators at the national and provincial levels.[5] The sampling of LFS is on a rotating panel basis in the sense that each household is sampled in two consecutive seasons of two consecutive years.[6]

[2] Starting April 26, 2020, the management of COVID-19 related restrictions was implemented depending on the number of cases recorded at the regional level. In particular, regions, provinces and counties were classified according to a three-tier system (red, yellow, white) depending on the local number of COVID-19 infections and deaths.

[3] The stimulus package supporting households included the following: (i) interest-free loans of 10 million rials (20 million rials for female headed households); (ii) 120 trillion rials allocated for purchasing medical equipment; (iii) 50 trillion rials allocated to the unemployment insurance fund, and (iv) raising of the legal minimum wage by 20 percent.

[4] file:///C:/Users/wb306348.WB/Downloads/part_2-05_Zahra_Zamani.pdf

[5] The information available in LFS covers a wide range of topics including household member's demographic and employment status, such as education, migration, working hours, industry, occupation, and experience (but not wage and income).

[6] In each quarter, about 25 percent of the samples are interviewed for the first time, 25 percent for the second time, 25 percent for the third time, and 25 percent of the individuals are interviewed for the fourth and last time.

The Islamic Republic of Iran is among the few middle-income countries availing LFS data collected since the start of the pandemic. The analysis presented in this paper uses LFS data covering the period from March 2019 to February 2021, corresponding to Persian years 1398 and 1399, the latter being the first full year of the COVID-19 pandemic.[7]

The Impact of COVID-19 on the Iranian Labor Market

The Iranian labor market has historically been characterized by marked differences based on gender. Similar to what has been observed in other countries in the MENA region, women in the Islamic Republic of Iran tend to have significantly lower participation rates and higher levels of unemployment comparted to men.

Over the last decade, despite the progressive increase in female labor force participation and decline in female unemployment, the gender gap in labor market outcomes has remained substantial (Table 1). Differentials in labor market outcomes based on gender add to other labor market asymmetries based on area of residence (urban vs rural) and age. In particular, the labor market in Iranian cities is characterized by lower participation rates and higher unemployment, the latter being particularly high among youth and, even more, among young women.

Table 1: Trends in labor market indicators, 2011-2019

	Participation rate				*Unemployment rate*			
	overall	**female**	**male**	**gap (f/m)**	**overall**	**female**	**male**	**gap (f/m)**
2011/12	40.53	13.77	67.13	0.205	12.32	21.02	10.55	1.992
2012/13	41.00	14.9	67.31	0.221	12.14	19.75	10.44	1.892
2013/14	41.09	13.44	69	0.195	10.45	19.83	8.61	2.303
2014/15	40.65	13.07	68.59	0.191	10.57	19.73	8.8	2.242
2015/16	41.76	14.44	69.39	0.208	11.06	19.47	9.29	2.096
2016/17	43.21	16.29	70.43	0.231	12.43	20.74	10.49	1.977
2017/18	44.21	17.43	70.87	0.246	12.10	19.89	10.19	1.952
2018/19	44.51	17.55	71.61	0.245	12.06	18.94	10.37	1.826
2019/20	44.06	17	71.1	0.239	10.65	17.53	9.01	1.946

Note: Survey weights used in the analysis
Source: LFS various years

The COVID-19 pandemic had a sizable impact on employment levels in the Islamic Republic of Iran, with the negative effects materializing primarily through changes in labor market participation. Between 2019-20 and 2020-21, the employment rate of the working age population declined by 2 percentage points, corresponding to approximately 1 million jobs being lost among the population aged 15 and above. Job losses resulted in a substantial decline in labor force participation, with inflows into inactivity originating not only from employment, but also from unemployment. Overall, between 2019-20 and 2020-21, labor force participation declined by 3 percentage points, going from 44.05 to 41.26 percent and unemployment declined from 10.65 to 9.61 percent. The labor market impact of COVID-19 persisted throughout the first year of the pandemic, with no variation across quarters (Table 2).

[7] For the remainder of the paper, Persian years 1398 (spanning March 2019 to February 2020) and 1399 (spanning March 2020 to February 2021) will be referred to as 2019-20 and 2020-21.

Table 2: Labor market impact of COVID-19, by season

	Participation			Unemployment			Employment to population		
	2019/20	**2020/21**	**Diff yoy**	**2019/20**	**2020/21**	**Diff yoy**	**2019/20**	**2020/21**	**Diff yoy**
Spring	44.37	41.76	-2.61***	10.81	9.51	-1.3***	39.57	37.79	-1.78***
Summer	44.31	41.28	-3.03***	10.45	9.54	-0.91***	39.68	37.35	-2.33***
Fall	43.80	41.19	-2.61***	10.67	9.57	-1.1***	39.13	37.25	-1.88***
Winter	43.75	40.83	-2.92***	10.67	9.84	-0.83***	39.08	36.81	-2.27***

Note: survey weights used in the analysis
Source: LFS various years

Similar to what has been observed in other countries, women were affected the most by the labor market impact of the pandemic. In the Islamic Republic of Iran, two out of three jobs that were lost between 2019-20 and 2020-21 were previously held by women. As shown in Table 3, the gendered impact of the pandemic is clearly seen on the extensive margin, with Iranian women being more likely than Iranian men to withdraw from the labor force after either losing their jobs or after terminating their search for employment. On the other hand, Iranian men were more likely than women to reduce the intensity of their labor market engagement, as shown by a relatively larger reduction in hours worked and underemployment (Table 4).

Table 3: Changes in participation and unemployment 2019-20/2020-21, by gender

	Participation rate		Employment to WAP rate		Unemployment rate	
	female	**male**	**female**	**male**	**female**	**male**
2019/20	17	71.1	14.02	64.69	17.53	9.01
2020/21	13.9	68.66	11.72	62.9	15.65	8.39
Difference (yoy)	*-3.1****	*-2.44****	*-2.3****	*-1.79****	*-1.88****	*-0.62****
Differential covid impact (F/M)	*1.27****		*1.28****		*3.03****	

Note: Notes: Stars indicates levels of significance of t-test on equality of means between the two years: * p<0.1, ** p<0.05, *** p<0.01. Survey weights used in the analysis
Source: LFS 2019-20, 2020-21

Table 4: Changes in work hours and underemployment 2019-20/2020-21, by gender

	Hour worked (total)		Hours worked (main job)		Under-employment rate	
	female	**male**	**female**	**male**	**female**	**male**
2019/20	32.6	46.7	33.8	48.9	10.5	13.4
2020/21	31.2	44.1	34.0	47.5	11	16.3
Difference (yoy)	-1.4***	-2.6***	*0.2*	*-1.4****	*0.5***	*2.9****
Differential covid impact (F/M)	*0.54****		*-0.12****		*0.17****	

Notes: underemployment defined as share of employed individuals working less than 44 hours per week and willing/able to work more hours. N Stars indicates levels of significance of t-test on equality of means between the two years: * p<0.1, ** p<0.05, *** p<0.01. Survey weights used in the analysis
Source: LFS 2019-20, 2020-21

The labor market impact of the pandemic was not uniform across socio-economic groups. On average, the decline in labor force participation was relatively stronger for women with tertiary education, and

among younger cohorts (Table 5).[8] Similar results also emerge when looking at changes in employment or unemployment. Interestingly, the presence of children aged 0-14 or 0-5 does not seem to have increased, on average, women's likelihood to reduce labor force participation or employment as a response to the COVID-19 crisis. To the contrary, with the sole exception of the impact on unemployment for women with children aged 0-5, the labor market impact of COVID-19 seems to have been stronger among women without children. A possible interpretation of this finding is that the presence of children is positively correlated with age and younger individuals seem to have been affected the most by the crisis. Further evidence is provided in the econometric analysis that follows.

Table 5: Changes in labor force participation and employment-to-population by gender and demographic characteristics (year on year difference in means – percentage points)

	LABOR FORCE PARTICIPATION		EMPLOYMENT TO POPULATION		UNEMPLOYMENT	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**
LOCATION						
RURAL	*-2.57****	*-3.57****	*-2.22****	*-3.33****	*-0.22**	*0.29*
URBAN	*-2.37****	*-2.95****	*-1.63****	*-1.96****	*-0.76****	*-2.76****
EDUCATION						
NO EDUCATION	*-2.47****	*-1.96****	*-2.43****	*-1.90****	*0.14*	*-0.45****
PRIMARY	*-2.49****	*-2.45****	*-2.08****	*-2.29****	*-0.44****	*-0.76****
SECONDARY	*-2.71****	*-2.85****	*-2.25****	*-2.15****	*-0.28***	*-2.35****
TERTIARY	*-2.19****	*-5.71****	*-0.49*	*-2.93****	*-1.81****	*-3.28****
MARITAL STATUS						
UNMARRIED	*-4.15****	*-4.31****	*-2.09****	*-2.09****	*-2.09****	*-3.30****
EVER MARRIED	*-1.69****	*-2.83****	*-1.60****	*-2.35****	*0.00*	*-1.57****
CHILDREN 0-14						
NO	*-3.31****	*-3.02****	*-2.27****	*-2.03****	*-1.09****	*-2.23****
YES	*-2.13****	*-3.16****	*-1.92****	*-2.55****	*-0.09*	*-1.52****
CHILDREN 0-5						
NO	*-2.92****	*-3.32****	*-1.99****	*-2.45****	*-0.99****	*-1.72****
YES	*-1.25****	*-2.50****	*-1.39****	*-1.88****	*0.25**	*-2.32****
AGE GROUP						
15	*-2.17****	*-1.36****	*-1.45****	*-0.86****	*-1.88***	*-5.70****
20	*-6.01****	*-4.87****	*-3.74****	*-2.49****	*-1.42****	*-2.62***
25	*-3.85****	*-5.35****	*-2.69****	*-3.27****	*-0.56*	*-0.94*
30	*-1.76****	*-4.14****	*-1.57****	*-3.03****	*-0.03*	*-1.03*
35	*-1.48****	*-4.22****	*-1.16****	*-3.63****	*-0.24*	*-0.36*
40	*-0.82****	*-2.88****	*-1.03****	*-2.51****	*0.28*	*-1.09****
45	*-0.18****	*-2.08****	*0.16*	*-2.13****	*-0.36**	*0.59**
50	*-1.21****	*-2.13****	*-0.79**	*-1.95****	*-0.50***	*-0.93***
55	*-1.76****	*-1.30****	*-1.93****	*-1.23****	*0.39*	*-0.60*
60	*-3.63****	*-1.90****	*-3.50****	*-1.87****	*-0.12*	*-0.07*
65	*-2.86****	*-0.63****	*-2.76****	*-0.61****	*-0.32**	*-0.15*

[8] See annex table A1 for estimates of labor force participation, employment and unemployment for men and women in 2019-20 and 2020-21.

Notes: Stars indicates levels of significance of t-test on equality of means between the two years: * p<0.1, ** p<0.05, *** p<0.01
Source: LFS 2019-20, 2020-21

In order to better gauge the differential labor market impact of the COVID-19 crisis between comparable men and women, we estimate the following linear OLS model on the pooled sample of individuals in the working age population observed in the 2019-20 and 2020-21 LFS survey waves:

$$(1) \quad Y_{ips} = \alpha_0 + \beta\, Female_i + \gamma\, Covid_i + \delta\, (Female_i * Covid_i) + \eta\, X_i + FE_p + FE_s + \epsilon_i$$

where Y_i is the outcome of interest (labor force participation, employment and unemployment[9]) for individual *i* in province *p* and season *s.* The model further includes a dummy variable to identify the gender of the respondent (*Female*), a dummy identifying the pandemic (corresponding to Persian year 2020-21 from March 2020 to February 2021) and an interaction between the two, which identify the differential impact of the pandemic on female and male individuals. The vector X_i includes individual controls, such as age, age squared, education, marital status as well as a dummy indicating urban residence. Additional controls include season and province dummies. Moreover, in order to capture how the presence of children might have differentially impacted men and women after controlling for individual characteristics, the sample was partitioned to focus on the following groups: women and men with any child aged 0-5; women and men with any school-aged child (age 6-14) and women and men without any child aged 0-14. Results are presented in Table 6.

Table 6: Gendered impact of the pandemic - regression results

	All	Any 0-5 child	Any 6-14 child	No child 0-14
Labor force participation				
female==1	-0.548***	-0.719***	-0.634***	-0.421***
	(0.002)	(0.002)	(0.002)	(0.002)
covid==1	-0.024***	-0.011***	-0.020***	-0.032***
	(0.002)	(0.002)	(0.002)	(0.003)
female==1 & covid==1	-0.007***	-0.017***	-0.013***	0.003
	(0.002)	(0.003)	(0.003)	(0.003)
Employment				
female==1	-0.523***	-0.691***	-0.605***	-0.398***
	(0.002)	(0.002)	(0.002)	(0.002)
covid==1	-0.018***	-0.012***	-0.016***	-0.022***
	(0.002)	(0.002)	(0.002)	(0.003)
female==1 & covid==1	-0.005**	-0.009**	-0.010***	0.003
	(0.002)	(0.003)	(0.003)	(0.003)
Unemployment				
female==1	0.062***	0.072***	0.041***	0.066***
	(0.003)	(0.005)	(0.003)	(0.004)
covid==1	-0.004***	0.003*	-0.001	-0.008***
	(0.001)	(0.002)	(0.002)	(0.002)
female==1 & covid==1	-0.016***	-0.027***	-0.011**	-0.016***
	(0.004)	(0.006)	(0.005)	(0.006)

[9] For the purpose of this analysis, unemployment is defined over the working age population, not the labor force.

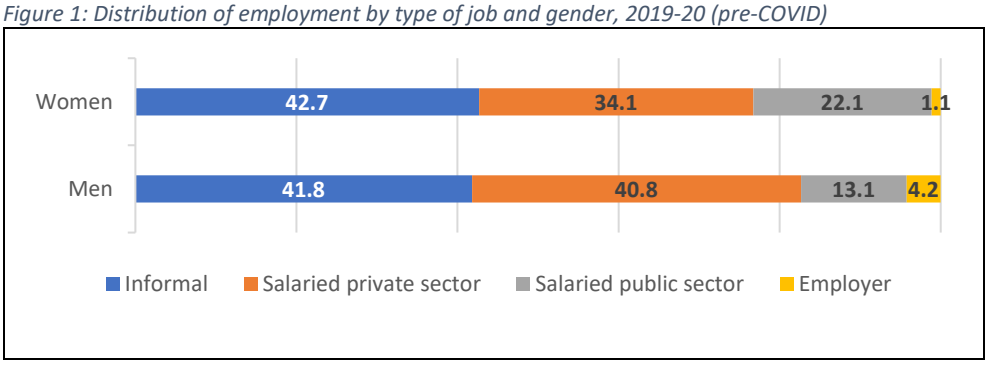
Note: Sample period covers March 2019 to February 2021; sample consists of all people in working age (15+). All specifications include controls for age, age squared, education, marital status as well as season, urban and province dummies. Specifications include constant term and are estimated using sample weights and robust standard errors. Standard errors in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

The results indicate that the pandemic contributed to widening the gender gap in labor force participation (0.7 percentage point increase) and employment (0.5 percentage point increase), while – due to the larger decline in participation for Iranian women – the pandemic contributed to narrowing the gender gap in unemployment (1.6 percentage point decline). The impact of the pandemic on the gender gap in labor force participation was the strongest for individuals with young children in the 0-5 age group, whereas – when looking at employment – the impact was similar between women with children in the 0-5 age group and 6-14. On the other hand, with the sole exception of unemployment, the gendered impact of the pandemic disappears once restricting the sample to men and women without any children below the age of 14. These findings, similar to what has been observed in other countries, seem to indicate that an increase in childcare responsibilities related to school closures is likely to have had a disproportionate effect on Iranian women compared to men.

As previously discussed, the decrease in labor force participation was the joint outcome of job destruction and the decline in unemployment. In order to further investigate the gendered impact of the pandemic, the remaining of this section will be devoted to better understanding how pre-COVID-19 gender differences in employment might have contributed to the differential impact of the pandemic between men and women.

A common finding across studies on the subject is that the impact of the pandemic has been heterogeneous across job types, with those in the informal sector being the most affected. The Islamic Republic of Iran is no exception. Overall, while the informal sector accounted for 42 percent of employment in 2019-20, 62 percent of the jobs lost because of the pandemic were in the informal sector.[10] Between 2019-20 and 2020-21, employment in the informal sector declined by 6 percent, against a 3 percent drop in formal sector employment, leading to a 1 percentage point decline in informality. As shown in Figure 1, in 2019-20, female workers were only 1 percentage point more likely to be in the informal sector compared to men. While marginally more likely to be in informal jobs compared to men, salaried women were more likely to be employed in the public sector, and therefore potentially more protected against layoff during the crisis.

Figure 1: Distribution of employment by type of job and gender, 2019-20 (pre-COVID)



[10] In this analysis, the definition of the informal sector encompasses self-employment in agriculture and non-agriculture sectors, contributing family workers and unpaid apprentices.

Overall, as seen in Figure 2, the employment impact of the pandemic and its gendered implications were not uniform across job types. As previously discussed, the bulk of job losses for both male and female workers was concentrated in the informal sector. What is of particular interest is the gendered impact of the pandemic among salaried workers in the private sector. In fact, while male employment increased, albeit marginally, during the first year of the pandemic, the opposite trend was observed among women.[11]

Figure 2: Changes in employment 2019-20/2020-21, by gender and type of job

In order to better investigate whether the differential gendered impact of the pandemic is due to differences in pre-pandemic characteristics of employment, we take advantage of the rotating panel component of the LFS and restrict the sample to individuals who were interviewed at least one time pre and post March 2020 and who were employed before the pandemic.[12] In particular, we estimate the following model:

$$(2) \quad Pr(Y_{i,2020} | Y_{i,j2019} == 1) = \alpha_0 + \beta\, Female_i + \gamma\, Jobtype_{ij2019} + \delta\, (Female_i * Jobtype_{ij2019}) + \eta\, X_i + \gamma\, Z_{ij2019} + \epsilon_i$$

where the dependent variable is the probability of being employed in 2020-21 for individual *i* conditional on him/her holding a job *j* before the start of the pandemic. The main variable of interest is the interaction term between a dummy indicating female workers and a categorical variable indicating the job type before the pandemic, which can be either informal (omitted category), salaried worker in the private sector or salaried worker in the public sector. Controls include a set of individual characteristics X_i which includes age, age squared, education, marital status urban residence and province dummies. Moreover, in order to capture the fact that some sectors might have been disproportionately affected by the crisis, sector dummies for the job held in 2019-20 were included in the model. As in previous analysis, the

[11] Salaried employment in the private sector increased by 133,000 units among male workers, while it declined by 242,000 units among female workers.

[12] Due to the small sample size for female workers, individuals who were working as employers before the pandemic were excluded from the analysis.

potential gendered impact of the crisis operating through norms associated with childcare responsibilities is assessed by analyzing separately women and men with any child aged 0-5; women and men with any school-aged child (age 6-14) and women and men without any child aged 0-14. Results are presented in Table 7.

Table 7: Gendered impact of the COVID-19 crisis on among individuals employed pre-pandemic

Dependent variable – probability of being employed in 2020/21, conditional on being employed in 2019/20.

	All	Any 0-5 child	Any 6-14 child	No child 0-14
Female==1	-0.321***	-0.373***	-0.341***	-0.274***
	(0.009)	(0.016)	(0.013)	(0.015)
Private sector employee[(a)]	-0.005	-0.005	0.003	-0.015
	(0.005)	(0.007)	(0.007)	(0.009)
Public sector employee[(a)]	0.004	-0.005	0.007	0.005
	(0.008)	(0.01)	(0.011)	(0.016)
Female & private sector employee	0.061***	-0.044	-0.014	0.097***
	(0.016)	(0.032)	(0.026)	(0.022)
Female & public sector employee	0.267***	0.294***	0.274***	0.242***
	(0.013)	(0.021)	(0.019)	(0.022)
N	57872	20113	27313	23457
r2	0.133	0.179	0.164	0.098

Notes: (a) omitted category is employment in the informal sector. All specifications include controls for age, age squared, education, marital status as well as season, urban, province dummies and sector of employment in 2019. Specifications include constant term and are estimated using sample weights and robust standard errors. Standard errors in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

As expected, for given individual characteristics, women who were working in the informal sector before the pandemic suffered the brunt of its job market impact, with lower likelihood of remaining employed compared to men ranging from 27 percentage points, in case of no children in the 0-14 age category, to 37 percentage points, for those with younger children in the 0-5 age category. On the other hand, the gendered impact of the crisis was the smallest among public sector workers, ranging from 2-3 percentage points among public sector employees with no children, to around 8 percentage points for those with children aged 0-5. Results for private sector salaried employees are more nuanced. In fact, among private sector salaried workers with no children 0-14, women experience a 17 percentage points lower likelihood to be employed post pandemic compared to men, a gender gap which is about 10 percentage points lower compared to what observed in the informal sector. On the other hand, the gender gap is as high as the one observed for women working in the informal sector when considering individuals with children. These results, in line with what has been observed in other countries, highlight the critical role played by childcare responsibilities and related reduction in labor supply in exacerbating the gendered labor market impact of the pandemic.

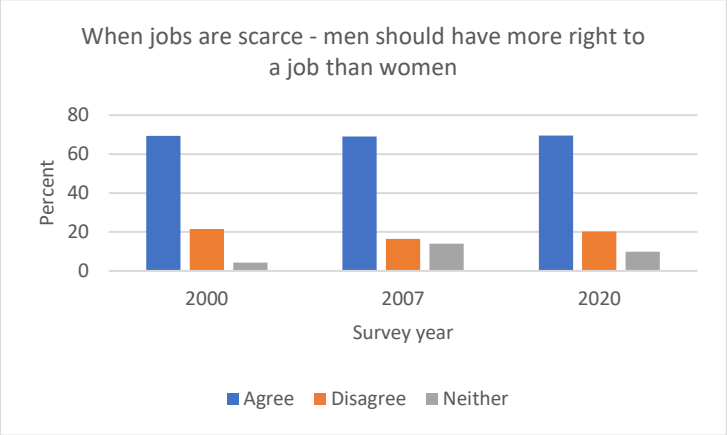
Data allow for a more in-depth analysis of the gendered impact of the COVID-19 pandemic on salaried workers in the private sector. In particular, information on establishment size and job tenure could be used to assess whether the differential impact of the pandemic on male and female workers employed in

the private sector could reflect more precarious employment relations among Iranian women. As shown in Table 8, while women working as private sector employees have lower probability to be employed in micro-businesses, they have significantly shorter job tenure compared to their male counterparts, which possibly puts them at a disadvantage in times of crisis. Motherhood and maternity related leave/inactivity spells could further play a role in determining observed differences between men's and women's tenure and experience. Moreover, prevailing gender norms could further reinforce women's disadvantage on the labor market during recessions. As evidenced in the World Values Survey, close to 70 percent of Iranians believe that men should have more right to a job than women when jobs are scarce (Figure 3).

Table 8: Changes in the distribution of private sector employees by firm size, tenure and experience by gender

	2019-20		2020-21		Diff yoy	
	men	women	men	women	men	women
Firm size						
1-4	54.4	47.0	55.3	43.4	0.9	-3.6
5-9	18.7	22.9	18.2	25.5	-0.5	2.5
10-19	11.0	16.0	10.8	16.0	-0.2	0.1
20-49	6.3	6.3	6.1	6.1	-0.2	-0.3
50+	9.6	7.8	9.6	9.1	0.0	1.2
Average firm size	1.98	2.05	1.96	2.12	-0.02	0.07
Years at current job	8.2	4.8	8.8	5.1	0.6	0.3

Figure 3: Opining regarding men and women right to a job in times of crisis



Source: World Values Survey

Regression analysis provides further insights. As before, we use the rotating panel component of the LFS, but this time restricting the sample to individuals who were employed as salaried workers in the private sector before the pandemic. The estimated model is as follows:

$$Pr(Y_{i,2020}|Y_{i,j2019} == 1) = \alpha_0 + \beta\ Female_i + \ \eta\ X_i + \gamma\ Z_{ij2019} + \ \epsilon_i$$

where the dependent variable is the probability of being employed in 2020-21 for individual *i* conditional on him/her holding a job *j* as salaried employee in the private sector in 2019-20, before the start of the pandemic. The main variable of interest is the gender dummy identifying female individuals. Controls

include a set of individual characteristics X_i which includes age, age squared, education, marital status, urban residence and province dummies and a set of pre-crisis job characteristics $Z_{j,2019}$ which includes size of the establishment, job tenure and sector. As in previous analysis, the potential gendered impact of the crisis operating through norms associated with childcare responsibilities is assessed by analyzing separately women and men with any child aged 0-5; women and men with any school-aged child (age 6-14) and women and men without any child aged 0-14. Results are presented in Table 9.

Table 9: Gendered impact of the COVID-19 crisis on private sector employment

Dependent variable – probability of being employed in the private sector in 2020/21, conditional on being employed in the private sector in 2019/20.

	All		Any 0-5 child		Any 6-14 child		No child 0-14	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.172***	-0.166***	-0.319***	-0.322***	-0.264***	-0.260***	-0.093***	-0.093***
	(0.015	(0.016	0.029	(0.03	0.024	(0.026	0.02	(0.022
Tenure		0.003***		0.004**		0.002*		0.005***
		(0.001		(0.001		(0.001		(0.001
Firm size 5-9		0.074***		0.074***		0.077***		0.061**
		(0.012		(0.02		(0.018		(0.021
Firm size 10-19		0.125***		0.133***		0.136***		0.122***
		(0.016		(0.023		(0.022		(0.026
Firm size 20-49		0.154***		0.144***		0.189***		0.124***
		(0.019		(0.028		(0.026		(0.035
Firm size 50+		0.170***		0.170***		0.151***		0.217***
		(0.017		(0.027		(0.026		(0.025
N	20323	20323	7582	7582	9668	9668	7825	7825
r2	0.057	0.087	0.077	0.113	0.073	0.106	0.052	0.091

Note: Sample period covers March 2020 to February 2021; sample consists of all people in working age (15+) who were employed in the private sector in 2019/20. All specifications include controls for age, age squared, education, marital status as well as season, urban and province dummies. Control for pre-pandemic private sector job characteristics include the following: size of establishment, sector and tenure. Specifications include constant term and are estimated using sample weights and robust standard errors. Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01

The regression analysis results confirm the previous findings. Women with children, and in particular those with younger children in the 0 to 5 age group were the most disadvantaged compared to men, with a lower probability of retaining private sector employment of 32 percent, compared to a 26 percent gender gap for individuals with school aged children (age 6 to 14). While these results are in line with what was previously observed and consistent with prevailing gendered distribution of care responsibilities within the household, female workers' disadvantage persists even when focusing on the subset of individuals with no children in the 0-14 age group. Even in absence of children, Iranian women were 9 percent less likely than Iranian men to retain their salaried employment in the private sector. Interestingly, controlling for pre-crisis job characteristics, such as tenure and establishment size (specifications numbers 2, 4, 6 and 8), does not affect significantly the size of the gender gap. These results seem to suggest that the gendered impact of the employment crisis spurred by COVID-19 was driven by both supply (decline in female labor supply due to the increase in care responsibilities/unpaid care work) and demand

considerations which are not fully explained, neither by differences in observable characteristics between men and women nor by job characteristics.

Conclusions

The emergence of the COVID-19 pandemic has had a disruptive impact on labor markets across the world due to the combined effects of containment measures affecting the operation of business activities in "high social contact" sectors and reduction in consumers' demand. The Islamic Republic of Iran was among the world's early epicenters of the pandemic, which struck the country as it was already grappling with a severe economic crisis spurred by structural constraints and external shocks driven by US and international sanctions. Overall, it is estimated that during the first year of the COVID-19 pandemic the Iranian labor market lost as many as 1 million jobs, with Iranian women bearing the brunt of the crisis: two of every three jobs lost during the first year of the pandemic were previously held by women. The gendered impact of the crisis contributed to widening Iranian women's disadvantage on the labor market. Most importantly, the gains in female labor force participation that had slowly accumulated since 2011 vanished.

Consistent with what has been observed in other countries, women with young children were the most affected by the crisis. The combined effect of school closures and unequal intra-household allocation of care responsibilities, which is associated to prevailing gender norms, pushed Iranian women with children out of the labor force. Whether or not these trends will be reversed as the management of the COVID-19 pandemic is normalized and the economy recovers from the crisis remains an important policy question.

Annex

Table A1: Changes in labor force participation and employment-to-population by gender and demographic characteristics

	LABOR FORCE PARTICIPATION				EMPLOYMENT TO POPULATION				UNEMPLOYMENT			
	Men		Women		Men		Women		Men		Women	
	2019-20	*2020-21*	2019-20	*2020-21*	2019-20	*2020-21*	2019-20	*2020-21*	2019-20	*2020-21*	2019-20	*2020-21*
LOCATION												
RURAL	76.0	73.5	18.8	15.2	70.5	68.3	17.3	14.0	7.2	7.0	7.8	8.1
URBAN	69.6	67.2	16.5	13.5	62.9	61.3	13.0	11.0	9.6	8.9	21.0	18.3
EDUCATION												
NO EDUCATION	48.7	46.3	9.5	7.6	46.7	44.3	9.4	7.5	4.1	4.3	1.1	0.7
PRIMARY	58.1	55.6	10.5	8.0	54.4	52.3	10.1	7.8	6.4	6.0	3.8	3.0
SECONDARY	78.1	75.4	12.0	9.2	70.9	68.6	10.0	7.8	9.3	9.0	17.0	14.6
TERTIARY	81.6	79.4	45.3	39.6	71.7	71.2	33.5	30.5	12.2	10.4	26.1	22.8
MARITAL STATUS												
UNMARRIED	56.4	52.3	25.4	21.0	43.2	41.1	16.4	14.3	23.4	21.3	35.5	32.2
EVER MARRIED	77.1	75.4	15.0	12.2	73.5	71.9	13.5	11.1	4.7	4.7	10.2	8.6
CHILDREN 0-14												
NO	60.3	57.0	17.8	14.8	52.7	50.4	13.9	11.9	12.7	11.6	21.8	19.6
YES	81.8	79.6	16.2	13.1	76.6	74.7	14.1	11.6	6.3	6.2	13.0	11.4
CHILDREN 0-5												
NO	65.1	62.1	17.8	14.5	58.1	56.1	14.5	12.0	10.7	9.7	18.7	17.0
YES	87.8	86.5	14.9	12.4	82.9	81.5	12.9	11.0	5.6	5.8	13.6	11.3
AGE GROUP												
15	18.6	16.4	3.8	2.5	15.0	13.5	2.8	1.9	19.2	17.3	26.5	20.8
20	64.8	58.8	18.8	14.0	49.4	45.6	11.0	8.5	23.9	22.4	41.5	38.8
25	88.2	84.4	25.7	20.3	72.7	70.0	16.6	13.3	17.6	17.1	35.4	34.4
30	93.1	91.3	23.1	18.9	84.4	82.8	18.0	14.9	9.3	9.3	22.0	21.0
35	94.4	92.9	24.1	19.9	88.4	87.2	21.2	17.5	6.4	6.1	12.4	12.0
40	93.8	93.0	22.2	19.3	89.3	88.3	20.9	18.4	4.8	5.1	5.9	4.8
45	89.4	89.2	19.3	17.2	85.5	85.6	18.8	16.7	4.4	4.0	2.6	3.2
50	75.0	73.8	14.3	12.2	71.9	71.1	13.9	11.9	4.1	3.6	2.9	1.9
55	60.5	58.8	10.0	8.7	58.3	56.4	9.8	8.6	3.6	4.0	1.7	1.1
60	40.9	37.3	6.7	4.8	39.9	36.4	6.6	4.8	2.5	2.4	0.9	0.8
65	21.4	18.5	2.7	2.0	21.1	18.3	2.6	2.0	1.4	1.0	0.9	0.7