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Written Testimony

House Budget Committee Hearing:
Ensuring Women can Thrive in the Post-Pandemic Economy
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Chairman Yarmuth, Ranking Member Smith and Members of the Committee,

Thank you for inviting me to speak today.

The COVID-19 pandemic has upended our lives and disrupted the economy and labor markets in many different ways. One reason it has been hard to grapple with the labor market impacts of the COVID-19 recession is its unique nature. Economic downturns in the United States are usually associated with a larger employment drop for men than for women, but during the COVID-19 recession, employment losses were larger for women (Albanesi and Kim (2021)).

This is illustrated in Figure 1 which reports the percentage change in the employment-to-population ratio by gender relative to the same month in 2019 for each month in 2020 and 2021. In April 2020, employment was 18 percent lower for men and 23 percent lower for women relative to April 2019. In October 2020, employment was 6 percent lower than in October 2019 for men and 8 percent lower for women. By December 2021, employment was still 3 percent lower relative to December 2019 for men and 4 percent lower for women.

There are demand-side and supply-side reasons for the gender differences in employment changes during typical recessions and during the COVID-19 recession. On the demand side, the asymmetry is partly explained by gender differences in the occupation distribution, with men primarily employed in production occupations and women concentrated in service occupations, which tend to be less cyclical (Albanesi and Şahin (2018)). During the pandemic, however, there has been a sizable drop in the demand for services, as a result of both the mitigation measures initially enacted to contain the pandemic and consumers' response to the risk of infection (Chetty et al. (2020)). Given the concentration of women in service occupations, they have been disproportionately hit by the corresponding employment losses.

On the supply-side, married women tend to increase their attachment to the labor force during economic downturns relative to expansions, as a form of family-level insurance against the risk of employment loss for their husbands (Ellieroth (2019)). This mechanism acts as an automatic stabilizer, and as the share of women in the labor force increased in the

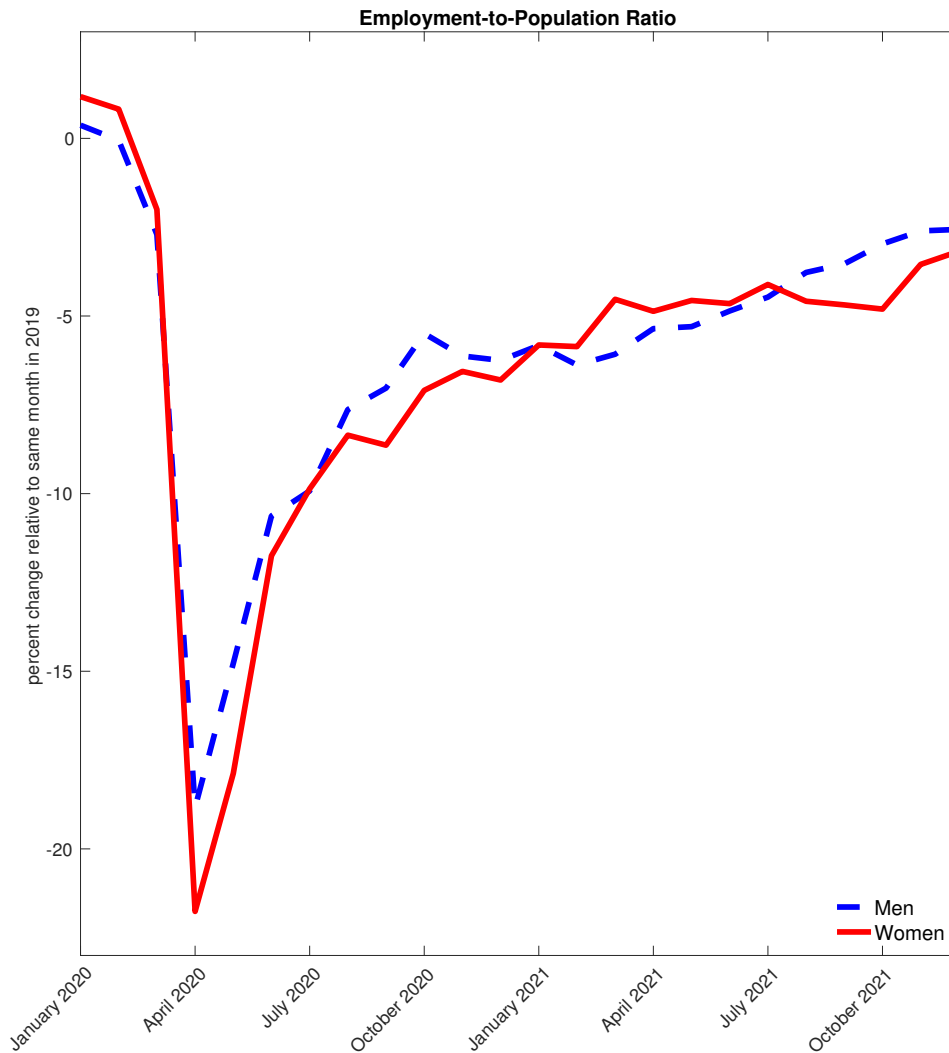


Figure 1: Change in the employment-to-population ratio relative to the same month in 2019, by gender, January 2020 to December 2021. Population age 25-54 years old. Source: Author's calculations from Current Population Survey, Bureau of Labor Statistics.

post-war period, it contributed to a reduction in the business cycle volatility of aggregate employment (Albanesi (2019)). By contrast, during the pandemic, limited availability of in-person childcare and schooling options have led some parents – and mothers in particular – to exit the labor force.

The decline in women’s employment during the COVID-19 recession has raised concerns that the pandemic may lead to a long lasting set back in women’s employment going forward. In this testimony, I will discuss the degree to which the pandemic recession has hit women, mothers in particular, highlighting the main forces that have led to this outcome. I will also examine some possible continuing impacts of the pandemic on the labor market. I will conclude by placing the decline in women’s employment during the pandemic in a broader context, given that women’s participation has stagnated in the United States since the mid-1990s.

Comparing COVID-19 to the Great Recession

To illustrate how the employment losses of men and women during the COVID-19 recession differed from earlier recessions, I compare it to the Great Recession, which had a typical pattern.

Figure 2 shows the change in the employment-to-population ratio by gender and family status during COVID-19 and the Great Recession relative to pre-recession values. I divide the population into four demographic groups, by marital status and presence of children younger than 12 years old residing in the household.¹ For the Great Recession, I consider two phases. The first is December 2007 to June 2009, which corresponds to the official recession dates determined by the Business Cycle Dating Committee of the National Bureau of Economic Research. The second runs from July 2009 to July 2012, when the broader economy was recovering but labor markets were still stagnant. For COVID-19, I consider three phases. The first comprises March, April and May 2020, when the pandemic started and the strictest mitigation measures were in place. The second corresponds to June to December 2020, a period with less stringent mitigation measures, and the third phase is 2021.

During the Great Recession, the decline in women’s employment was sizably smaller than

¹The size of each demographic group varies by gender. In February 2020, among women 17 percent are single without children, 6 percent are single with children, 15 percent are married without children, and 14 percent are married with children. Among men, 17 percent are single without children, 2 percent are single with children, 15 percent are married without children, and 15 percent are married with children.

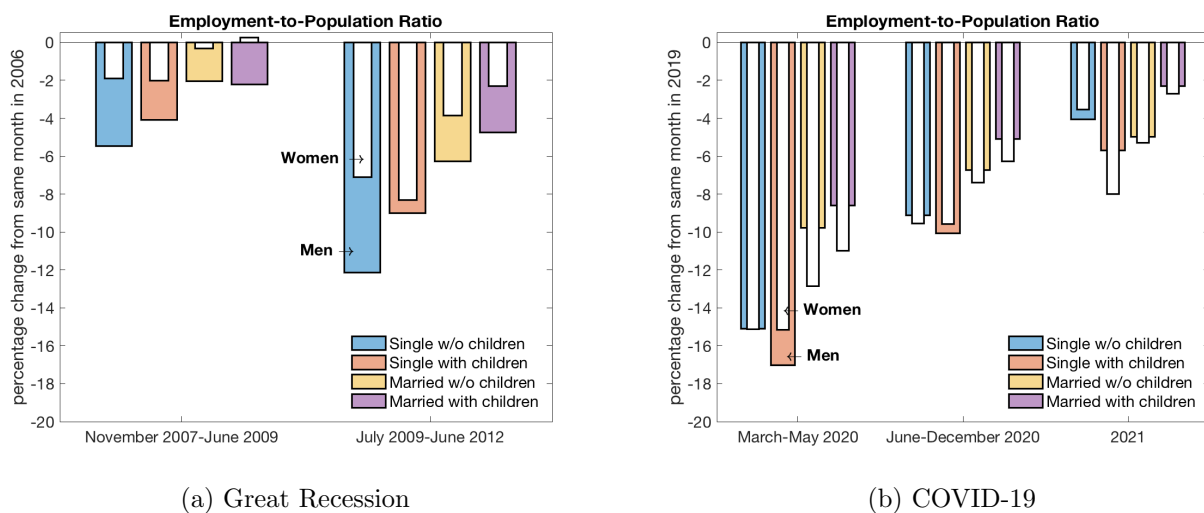


Figure 2: Change in the employment-to-population ratio relative to the same month in 2006 for the Great Recession and relative to the same month in 2019 for the COVID-19 recession, by gender and family status. Individuals "with children" have children younger than 12 years old residing in their household. Source: Author's calculations from Current Population Survey, Bureau of Labor Statistics.

men's for every demographic group. In the period from November 2007 to June 2009, the magnitude of the drop in employment for single women was less than half of the drop for single men. For married women, employment barely changed while it declined by 5 percent for married men. In the period from July 2009 to June 2012, gender gaps in employment loss were smaller, but still favored women.

During COVID-19, the pattern is markedly different. Gender gaps in employment are negligible for single workers without children, but are sizable for single parents and married workers. For married workers, the gender gaps were largest in March-May 2020 when married women experience a decline in employment which was approximately 3 percent larger than for comparable men, and declined later in the pandemic. Among single parents, mothers experienced a 15 percent decline in employment in March-May 2020 relative to 2019, smaller than the 17 percent decline for single fathers. In May-December 2020, employment was approximately 10 percent lower for both groups, but during 2021, employment was 8 percent lower for single mothers and 6 percent lower for single fathers when compared to 2019.

Both labor demand and supply factors likely contributed to women's larger employment losses during the pandemic, and I will now discuss these in turn.

Labor Demand: Occupations

To explore the role of labor demand, Albanesi and Kim (2021) classify workers by occupation based on their flexibility and contact intensity. Flexible occupations include those that allow their employees to work remotely, whereas inflexible occupations require physical presence due to onsite equipment or outdoor activities. The distinction between high-contact and low-contact occupations is based on workers’ physical proximity to customers or co-workers while on the job.

Table 1 displays where various occupations fall in the categorization and Table 2 reports the distribution of workers by gender across occupations pre-pandemic for the four categories defined in Table 1. The inflexible/high-contact occupations are the most vulnerable to lower demand due to COVID-19, they account for 17 percent of total employment and are dominated by female workers, with a female share of 73 percent. Flexible/high-contact occupations also exhibit a high female share at 76 percent and account for 6 percent of total employment. Male workers are disproportionately represented in inflexible/low-contact occupations, which account for 26 percent of total employment with a female share of employment of only 19 percent. Occupations in this category experience the largest decline in employment in typical recessions. Flexible/low-contact occupations are the largest category, accounting for 51 percent of overall employment, with a female share of 50 percent.²

Table 1: Occupation Classification

	Flexible	Inflexible
High-contact	Education, Training, and Library	Healthcare Practitioners and Technical Healthcare Support Food Preparation and Serving Personal Care and Service
Low-contact	Management Business Computer and Mathematical Architecture and Engineering Life, Physical, and Social Science Community and Social Services Legal Arts, Design, Entertainment, Sports, and Media Sales and Related Office and Administrative	Protective Service Building and Grounds Cleaning and Maintenance Farming, Fishing, and Forestry Construction Trades, Extraction Installation, Maintenance, and Repair Production Transportation and Material Moving

Author’s classification based on O*NET. Occupations are inflexible if they cannot be performed remotely, flexible otherwise. Occupations are high-contact if they require interactions with co-workers or customers at a distance of less than 6 feet, low-contact otherwise.

²The occupation and industry distribution by gender does not vary by marital status, see Cortes and Pan (2018).

Table 2: Occupational Distribution by Gender

Group	Employed women	Employed men	Total employed	Female share
Flexible, High-contact	10	3	6	76
Flexible, Low-contact	53	48	51	50
Inflexible, High-contact	26	9	17	73
Inflexible, Low-contact	11	40	26	19

Values in percentage for February 2020. Source: Author's calculations based on Current Population Survey, Bureau of Labor Statistics.

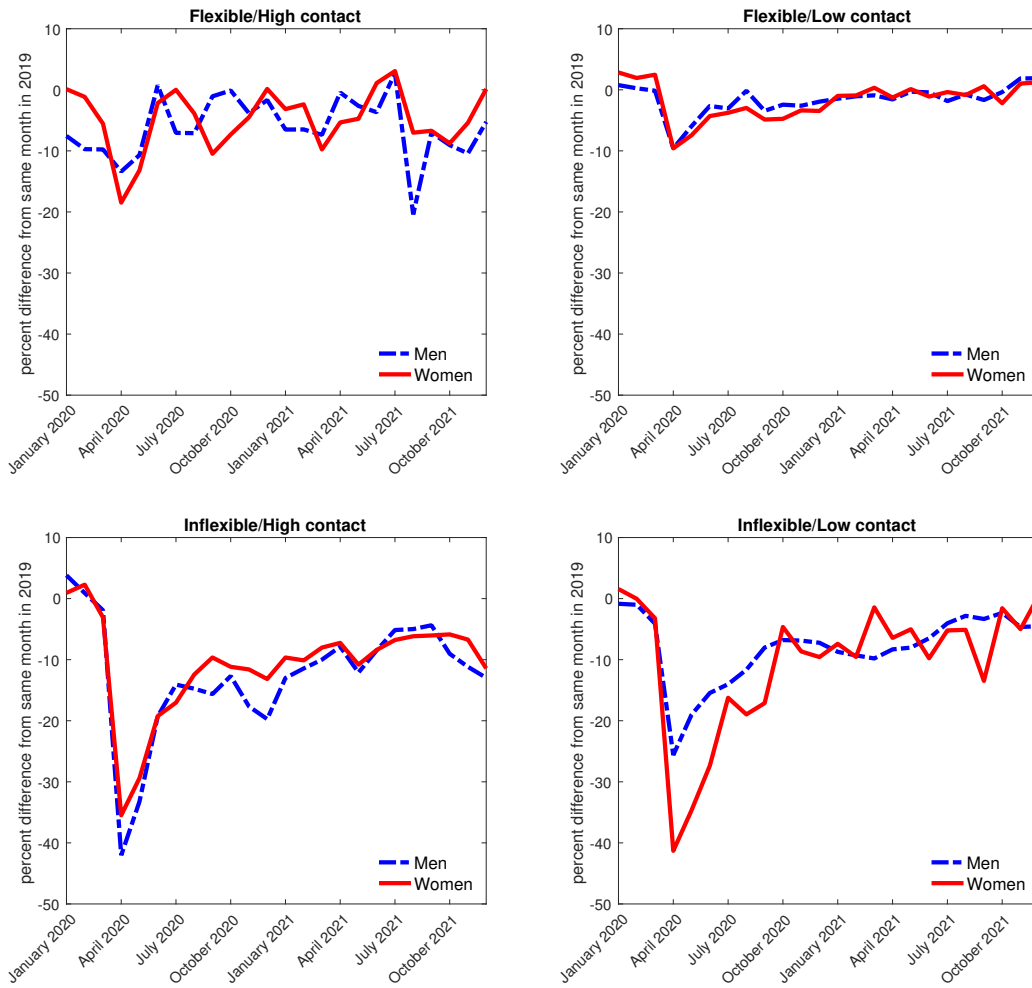


Figure 3: Percentage change in the employment-to-population ratio by occupation from same month in 2019. Population age 25-54 years old. The numerator consists of the number of persons employed for each gender in each occupation, the denominator the number of persons of the same gender in the population. Source: Authors' calculations based on CPS.

Figure 3 displays the change in the employment-to-population ratio for these four occupational categories relative to the same month in 2019 by gender. Inflexible/high-contact occupations show the largest decline in employment, with a drop in April 2020 relative to April 2019 of 38 percent for women and 41 percent for men, hovering at around -10 percent relative to the same month in 2019 from September 2020 until the end of 2021. Inflexible/low-contact occupations are the second worst hit, with a decline in employment close to 23 percent for men and 41 percent for women in April 2020 relative to April 2019. For these occupations too the recovery has stalled, with employment approximately 10 percent lower than in the same month in 2019 from October 2020 to the end of 2021. Employment in flexible/high-contact occupations was 19 percent lower for women and 15 percent lower for men relative to one year prior in April 2020 but recovered rapidly, and has remained 2-8 percent lower than pre-pandemic from July 2020 onward. Finally, flexible/low-contact occupations, which account for the biggest share of employment, were the least impacted, with a drop in employment of -10 percent relative to one year prior in April 2020 for both men and women, and a recovery to 2-4 percent lower relative to pre-pandemic from June 2020 onward.

Two patterns clearly emerge. First, for the flexible occupations, the decline in employment and the gender differences in that decline were small. The second pattern is that in inflexible occupations, initial employment losses were sizable and even at the end of 2021 employment remained well below 2019 values. Additionally, workers with the lowest representation by gender in each occupation lost more jobs. This may be due to negative selection of male workers into female dominated inflexible/high-contact occupations and of female workers into the male dominated inflexible/low-contact occupations.

Labor Supply

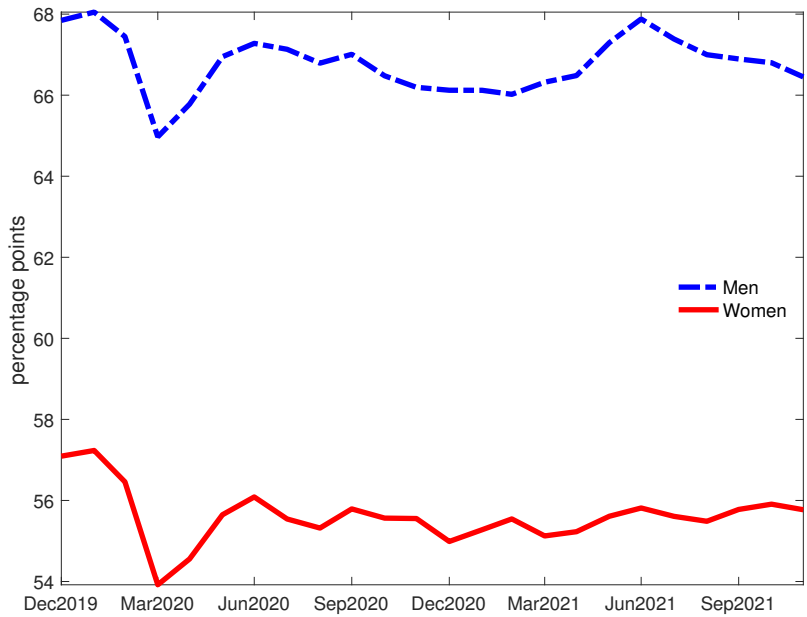
Labor force participation declined for both men and women during the pandemic, as can be seen in Figure 4, which plots the labor force participation rate for the prime age population. Men's labor force participation rate was 68 percent in February 2020 and it dropped to 65 percent in April 2020, recovering to 67 percent by June 2020. Women's participation dropped from 57 percent in February 2020 to 54 percent in April 2020, and hovered between 55 and 56 percent for the rest of 2020 and in 2021. For both men and women, the participation rate has not recovered to pre-pandemic levels, leading to a rise in the number of working age individuals not in the workforce. This pattern is also unusual, as labor force participation is mildly pro-cyclical for men (Cajner, Coglianesse, and Montes (2021)) and, as previously

noted, tends to rise in recessions for married women.

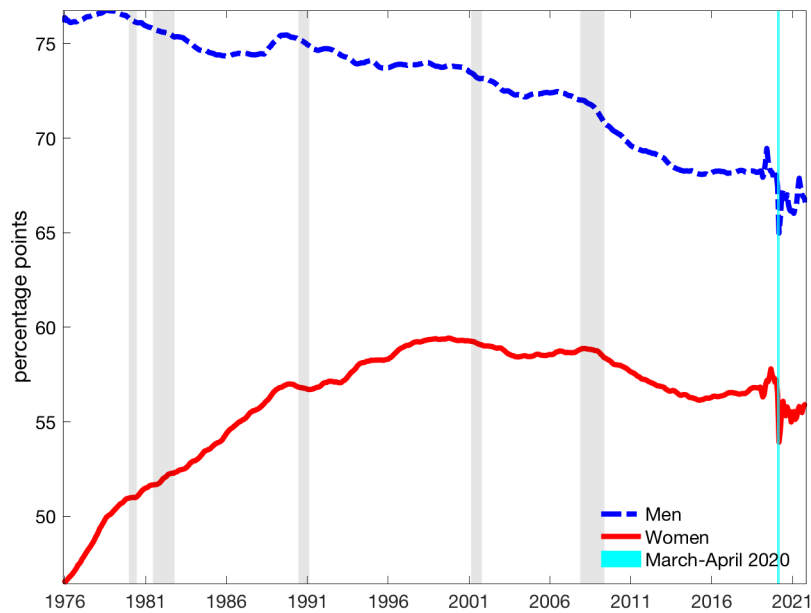
A unique factor associated with the pandemic was the increased childcare needs due to the disruption to schools and childcare services, which may have contributed to a reduction in labor supply of parents. Figure 5 presents female-male differences in the change in non-participation during the pandemic relative to February 2020 by family status, controlling for differences in age, education and occupation across these groups. The estimates suggest that the biggest gender differences occur for single parents in 2020 and married parents in the second half of 2020, and that by 2021 there are no longer sizable gender gaps. Further breakdown of the data, suggests that the rise in women’s non-participation relative to men during COVID-19 is mostly accounted for by transitions from unemployment, rather than voluntary quits. This is surprising, as it follows several decades of continued convergence in unemployment-to-nonparticipation flows across genders (Albanesi and Şahin (2018)).

Additional evidence on the negative effects of the pandemic on women’s labor supply is provided in Hansen, Sabia, and Schaller (2022). Using mobile phone location data to measure school foot traffic, they find that K-12 school reopenings positively affect the labor supply of married women with school-aged children, increasing both employment and work hours.

Why was it mothers in particular who responded to the lack of predictable in-person schooling activities in households where fathers were also present? Gender norms likely played a role. But from an economic perspective, this response should also be driven by differences in the opportunity cost as measured by wages (Albanesi and Olivetti (2009)). In the United States, there is a substantial “child penalty” that reduces wages for women when, and even before, they become mothers and throughout the course of their lifetime. The penalty is driven by a combination of occupational choices, labor supply on the extensive and intensive margin, that begin well before women have children. Cortes and Pan (2020) estimate that the long run child penalty— three years or more after having the first child— for US mothers is 39 percent and they also find that child related penalties account for two-thirds of the overall gender wage gap in the last decade. Given the child penalty, most working mothers at the start of the pandemic were likely to be earning less than their partners, and for those couples the optimal response to the increased child supervision needs was for mothers to reduce labor supply. For single mothers, the unavailability of childcare options may have directly impeded their ability to search for and maintain employment.



(a) Labor force participation rate: December 2019-December 2021



(b) Labor force participation rate: January 1976-December 2021

Figure 4: Labor force participation rate by gender in the United States. Population age 25-54 years old. Grey bars denote recession dates based on the National Bureau of Economic Research Business Cycle Dating Committee. Source: Current Population Survey, Bureau of Labor Statistics.

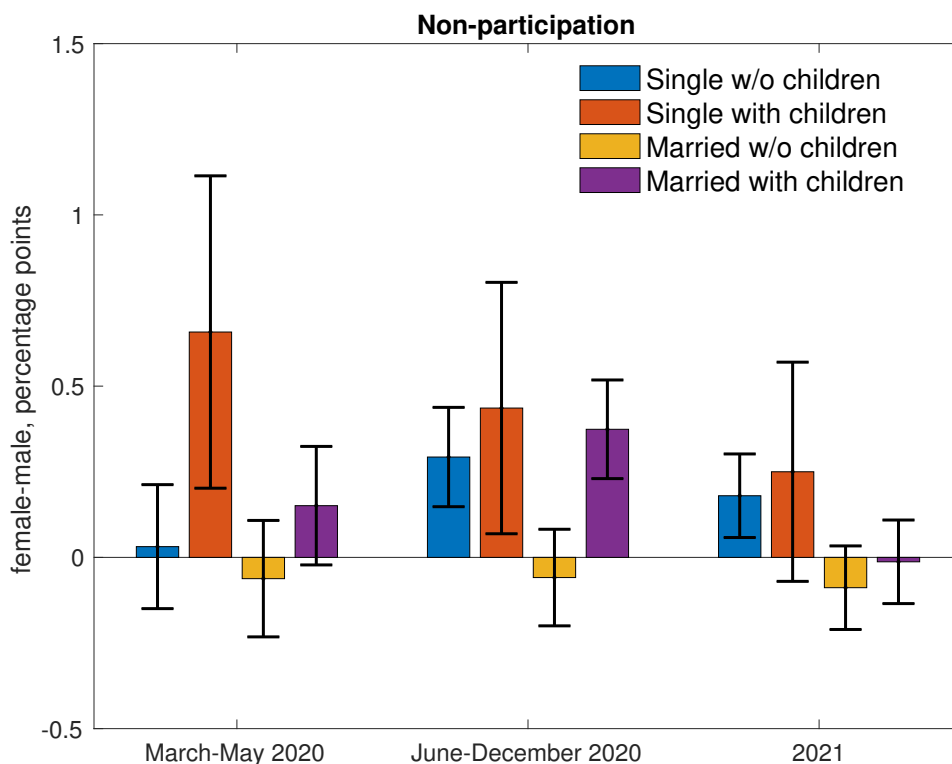


Figure 5: Female-male difference in changes in non-participation relative to February 2020 by family status, controlling for age, education and occupation. Error bars denote 90% confidence intervals. Population 25-54 years old. Individuals "with children" have children younger than 12 years old residing in their households. Source: Author's calculations from Current Population Survey, Bureau of Labor Statistics.

Racial Disparities

The labor market impact of COVID-19 has been disparate by race. Figure 6 plots the change in the employment-to-population ratio relative to the same month in 2019 by race for men and women starting in January 2020, illustrating the large racial disparities for both men and women.



Figure 6: Change in the employment to population ratio relative to the same month in 2019 by gender and race, by gender, January 2020 to December 2021. Source: Author's calculations from Current Population Survey, Bureau of Labor Statistics.

For men, at the start of the pandemic in spring 2020 the main difference is between white men, who experienced a 17 percent drop in employment, and the other racial groups, whose employment fell by 22-23 percent. During the rest of 2020, employment recovered more for Asians and Whites, while during 2021 employment of Hispanic men converges to employment for White men and it remains lower for Black men. Hispanic women were the most severely impacted at the height of the pandemic, experiencing a 28 percent decline in employment in April 2020 compared to the same month in 2019, with black women experiencing a 23 percent decline and White and Asian women a 20 percent decline. Asian, Black and Hispanic women experienced a much slower recovery in employment during the rest of 2020, while in

2021 it is Black and Hispanic women’s employment that lagged employment for both White and Asian women. Interestingly, gender gaps in the decline in employment are smallest for the Asian and Black population, and largest for the White and Hispanic population.

What drives these racial disparities? My previous analysis suggests two possible economic factors. The first is the occupation distribution, which affects labor demand. Table 3 reports the occupation distribution for men and women by race. Focussing on women, we see that 28 percent of Asian women and 29 percent of Black women were employed in Inflexible/High-contact occupations, compared to 24 percent of Hispanic and White women. Additionally, 23 percent of Hispanic women were employed in Inflexible/Low-contact occupations, compared to 7 percent of Asian women, 14 percent of Black women and 8 percent of White women. By contrast 58 percent of Asian women and 56 percent of White women were employed in Flexible/Low-contact occupations compared to 50 percent of Black women and 46 percent of Hispanic women. This suggests that the over-representation of Black and Hispanic women in inflexible occupations and the over-representation of Asian and White women in flexible occupations contributed to racial disparities in employment.

Table 3: Occupation Distribution by Race and Gender

Occupation	Asian Men	Asian Women	Black Men	Black Women	Hispanic Men	Hispanic Women	White Men	White Women
Flexible/High-Contact	3	7	3	7	2	7	4	12
Flexible/Low-Contact	65	58	40	50	31	46	53	56
Inflexible/High-Contact	14	28	11	29	9	24	7	24
Inflexible/Low-Contact	18	7	46	14	58	23	36	8

Percentage in each occupation by gender/race in February 2020. Values in each column sum to 100. Source: Author’s calculations based on Current Population Survey, Bureau of Labor Statistics.

The second possible factor is family status, which affects labor supply. Table 4 reports the distribution by family status of men and women by race. As previously noted, the rise in non-participation during the pandemic was most pronounced for single mothers, followed by married mothers. Twenty-two percent of Black women are single mothers, compared to 16 percent for Hispanic women, 8 percent for White women and 4 percent for Asian women. Additionally, the fraction without children, combining both single and married, is the lowest for Hispanic women, at 55 percent, while it is above 60 percent for the other racial groups. The higher incidence of single mothers among Black women and of both single and married mothers among Hispanic women may have contributed to a bigger reduction in their labor supply, compared to White and Asian women during COVID-19.

Another important factor affecting labor supply is the incidence of COVID-19 infections,

Table 4: Family Status by Race and Gender

Family status	Asian Men	Asian Women	Black Men	Black Women	Hispanic Men	Hispanic Women	White Men	White Women
Single w/o children	35	26	55	48	40	30	38	31
Single with children	2	4	8	22	7	16	4	8
Married w/o children	27	34	18	16	23	25	29	33
Married with children	36	36	19	14	30	29	28	28

Percentage in each demographic group by gender/race in February 2020. Values in each column sum to 100. Source: Author’s calculations based on Current Population Survey, Bureau of Labor Statistics.

particularly severe cases requiring hospitalization, across racial groups. It is well documented that COVID-19 infection rates have been higher in Black and Hispanic communities, throughout the course of the pandemic. This likely depressed labor supply of both men and women in these groups.

Will the Jobs Return?

As we look forward to the end of the pandemic, one critical question is whether employment will return to pre-pandemic levels. Since the 1990-1991 recession, the United States have experienced *jobless recoveries*. That is, even as GDP and aggregate demand rebounded, labor markets continued to stagnate and employment struggled to attain pre-recession levels.

There are two main explanations for jobless recoveries. The first is that the slow and incomplete rebound of employment was due to the adoption of labor saving technologies, such as automation, leading to a long-run decline in the demand for routine jobs. The resulting job losses are concentrated in recessions, and when the economy recovers, the lost jobs are not reinstated. This phenomenon affects primarily middle skill workers, and is a key mechanism through which the trend toward *job polarization* has affected business cycles (see Acemoglu and Autor (2011) and Jaimovich and Siu (2020)).

As I have argued, the pandemic has affected service occupations that may seem less amenable to automation. However, the pandemic has also given employers an additional incentive to embrace automation, as long as the risk of COVID-19 infection persists. Are jobs that were lost during the COVID-19 recession more or less susceptible to automation?

One way to measure the susceptibility to automation is Routine Task-Intensity (RTI), an index developed by Autor and Dorn (2013) that calculates the routine, manual, and abstract task inputs in each occupation based on job task requirements. Higher values of RTI correspond to higher susceptibility to automation. Albanesi and Kim (2021) calculate

that 34 percent of all jobs in Inflexible/High-contact occupations were highly susceptible to automation in February 2020, compared to 22 percent of all jobs in Inflexible/Low-contact occupations that are most hit by typical recessions. These findings suggest that even the health care and personal service jobs that mostly comprise Inflexible/High-contact occupations are susceptible to automation, leaving open the possibility that employment losses in those occupations may not be fully reversed as the broader economy recovers from the pandemic.

The second explanation for jobless recoveries is the flattening of female labor force participation starting in the early 1990s. In my work, I have shown that, even before the 1990s, recoveries had been jobless for men. However, as long as female labor force participation was rising briskly, female employment tended to grow very rapidly in recoveries, sustaining aggregate employment (Albanesi (2019)). As the rise in female participation slowed in the 1990s, the rate of growth of women’s employment during recoveries became similar to men’s, slowing the recovery of aggregate employment. For this reason, a full recovery of female participation may be a key driver of aggregate employment post-pandemic.

Prospects for Women’s Labor Force Participation

There are a number of factors that may contribute to hold down women’s participation post-pandemic. Mothers who leave the labor force temporarily to take care of children have typically experienced substantial declines in wages and lifetime earnings. Adda, Dustmann, and Stevens (2017) estimate that the component of the child penalty associated with spells of non-participation, due to human capital depreciation or skill obsolescence, accounts for 13% of the overall gender wage gap. The prospect of reduced earnings may discourage re-entry into the workforce. Additionally, employer investments in human capital and the career paths offered to women are affected by the expectation of career interruptions (Albanesi and Olivetti (2009)). After many decades of increasing labor market attachment for women (Goldin (2006)), the reduction in mothers’ labor supply associated with the pandemic may reverse the slow progress made in this area.

Such effects will also interact with the extent to which remote work continues after the pandemic. Lack of flexibility has long been seen as a barrier to women’s career advancement (Goldin (2014), Cortés and Pan (2019)). The increased ability to work remotely, which is expected to continue after the pandemic (Barrero, Bloom, and Davis (2021)) when child care needs are normalized, may benefit women. However, even as remote work has grown for many workers during the pandemic, it increased considerably more for women (Bick,

Blandin, and Mertens (2020)). If it is mostly women who continue to take advantage of remote work arrangements, they may be stigmatized and miss out on career advancement opportunities, particularly in highly competitive professional and managerial occupations.

While the decline in women’s labor force participation during the pandemic was sizable, it is important to note that labor force participation of women has stagnated since the early 1990s in the United States, as can be seen in Figure 4. Female labor force participation reached 59 percent in 1997 and stayed at that level until the 2007-2009 recession, when it started to decline. By contrast, it grew by half a percentage point per year on average throughout the post-war period up to that point. The male-female gap in labor force participation rate in 1997 was 15 percentage points, and fell to 9 percentage points by 2021, as a consequence of the greater decline in the labor force participation of men over that period.

This is a puzzling development in light of the continued rise in women’s educational attainment relative to men (Goldin, Katz, and Kuziemko (2006)) and their entry into professional high-earning occupations (Black and Juhn (2000)). While there is an extensive literature on the rise in women’s participation, less attention has been paid to its slowdown. In my own research, I have shown that the discontinued growth in labor force participation is driven by married women and is linked to the growth in inequality in the 1990s, particularly the rise in top incomes of college educated men (Albanesi and Prados (2022)). This rise reduced labor supply of their wives, also mostly college educated, leading some of them to stop working and some of them to reduce their work hours, which contributed to increase gender gaps in earnings for college workers. Goldin (2021) argues that women with a college degree may also be adversely affected by the rise in “greedy jobs” – typically professional and managerial occupations that require high weekly hours. These jobs are particularly hard for working mothers and may discourage them from continuing on those career paths, despite their considerable educational investments. For women without a college degree, just-in-time scheduling and the resulting unpredictability of work hours, particularly in retail and other customer facing occupations, has also posed a significant challenge in the last decade.

Women’s labor force participation has continued to rise in other countries, as can be seen in Table 5, which reports labor force participation for prime age men and women in selected OECD countries between 1990 and 2019. In 1990, the United States ranked 5th out of 23 in women’s participation, while by 2019, the United States’s rank had dropped to 21st.

Why has the United States fallen behind comparable countries in women’s participation? Blau and Kahn (2013) find that 28% of the difference can be attributable to differences in work-family policies. These include: 1) entitlements to paid parental leave; 2) giving workers the right to switch to a part-time schedule without exception; 3) publicly provided

childcare services. While providing childcare services unambiguously increases women's labor force participation, paid parental leave and part-time entitlements could in principle have an ambiguous effect on women's employment. These entitlements would increase parents' ability to participate in the work force, but they may discourage some firms from hiring women, as long they are more likely to take advantage of these benefits. However, the cross-country evidence clearly supports the notion that more access to parental leave and part-time entitlements is associated with higher and increasing female participation and employment.

In the United States, provision of paid parental leave by firms in the private sector has increased over the past two decades (see Goldin, Pekkala Kerr, and Olivetti (2020)). Only large employers in the professional service and technical sectors have been offering such programs. They typically provide fewer benefits than government mandated programs in comparable countries and are only accessible to full-time high-wage employees. For this reason, private provision of parental leave entitlements has not closed the gap between the United States and other countries.

Country	1990		2000		2010		2019	
	Men	Women	Men	Women	Men	Women	Men	Women
1 Australia	93	67	90	70	91	75	91	79
2 Austria	..	..	94	76	92	82	92	86
3 Belgium	92	61	92	73	92	80	89	80
4 Canada	93	75	91	78	91	82	91	83
5 Denmark	95	88	92	84	92	85	90	83
6 Finland	93	86	91	85	91	84	90	85
7 France	95	73	94	79	94	83	92	83
8 Germany	90	63	93	77	93	81	93	83
9 Greece	94	51	94	62	94	72	93	78
10 Iceland	..	..	96	88	92	84	92	86
11 Ireland	92	45	92	65	89	73	91	76
12 Israel	89	61	87	70	87	75	86	80
13 Italy	94	54	91	58	89	64	88	68
14 Luxembourg	95	50	94	65	95	76	93	84
15 Netherlands	93	58	93	73	93	82	92	83
16 New Zealand	93	69	91	73	92	77	93	82
17 Norway	92	79	91	83	90	84	89	83
18 Portugal	94	68	92	77	93	85	93	88
19 Spain	94	47	93	63	92	79	92	82
20 Sweden	95	91	91	86	93	87	94	89
21 Switzerland	..	..	97	78	95	82	95	87
22 United Kingdom	95	73	92	76	91	78	92	82
23 United States	93	74	92	77	89	75	89	76
Average non-US	93	66	92	75	92	80	91	82
Rank US	10	5	14	10	20	18	19	21

Table 5: Labor force participation rate by gender, 25-54 years old. Source: OECD Employment Statistics.

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