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The impact of COVID-19 on gender inequality in the labor market and gender-role attitudes

Malte Reichelt ^{a,b}, Kinga Makovi ^a and Anahit Sargsyan^a

^aDivision of Social Science, New York University Abu Dhabi, UAE; ^bInstitute for Employment Research, Nuremberg, Germany

ABSTRACT

COVID-19 and ensuing changes in mobility have altered employment relations for millions of people across the globe. Emerging evidence shows that women may be more severely affected by this change. The pandemic, however, may have an impact beyond the immediate restructuring of employment and shift gender-role attitudes within households as a result of changes in the division of household labor. We analyze a representative sample of respondents in the U.S., Germany, and Singapore and show that transitions to unemployment, reductions in working hours and transitions to working from home have been more frequent for women than for men – although not to the same extent across the three countries. We also demonstrate that among couples who had been employed at the start of the pandemic, men express more egalitarian gender-role attitudes if they became unemployed but their partners remained employed, while women express more traditional attitudes if they became unemployed and their partners remained employed. These results indicate that gender-role attitudes might adapt to the lived realities. The long-term consequences will depend on how both men and women experience further shifts in their employment relations as economies recover.

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KEYWORDS Gender inequality; gender-role attitudes; unemployment; COVID-19

1. Introduction

Lockdown and social distancing measures that many countries introduced to curb the spread of COVID-19 had a large impact on employment, including reductions in working hours, furloughs and work-from-home arrangements (Brodeur *et al.* 2020; Coibion *et al.* 2020;

CONTACT Malte Reichelt  mr4827@nyu.edu  NYU Abu Dhabi, Saadiyat Island, Abu Dhabi, UAE
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Gupta *et al.* 2020). The global public health crisis affected working families in two profound ways. On the one hand, government sanctions imposed on mobility and voluntary restrictions of movement for health and safety reasons forced millions of workers to work from home (Brynjolfsson *et al.* 2020; Yassenov 2020). On the other hand, the economic downturn led companies to downsize or forced them into bankruptcy, which for many employees meant working fewer hours or for partial pay or losing their jobs entirely (Adams-Prassl *et al.* 2020; Béland *et al.* 2020; Brodeur *et al.* 2020; Coibion *et al.* 2020; Gupta *et al.* 2020). Emerging evidence suggests that women have been affected more severely by these developments (Adams-Prassl *et al.* 2020; Collins *et al.* 2020; Cowan 2020; Farre *et al.* 2020; Frodermann *et al.* 2020; Kristal and Yaish 2020; Montenovov *et al.* 2020).

However, COVID-19 and the lockdown measures may – in addition to having immediate negative effects for women’s employment – have broader implications for gender inequality. Unanticipated disruptions in the labor market have the potential to reorganize the division of labor at home and, as a result, might cause gender relations to shift at a societal scale. Previous work that focused on the impact of life events on the gendered division of labor and gender-role attitudes has shown that gender roles may shift and adapt to match (voluntarily or involuntarily) chosen behavior or circumstances (Smith-Lovin and Tickamyer 1978; Huber and Spitze 1981; Kroska 1997; Bolzendahl and Myers 2004).

In this paper, we investigate two interrelated questions. First, we analyze how men’s and women’s employment status, their working hours, and their working arrangements (main place of work) changed during the pandemic. While previous work has focused on these outcomes (Adams-Prassl *et al.* 2020; Collins *et al.* 2020; Cowan 2020; Farre *et al.* 2020; Frodermann *et al.* 2020; Kristal and Yaish 2020; Montenovov *et al.* 2020), no prior investigation considered and contrasted all three over the same sample for the countries we analyze. Second, we focus on people who experienced such transitions in their household to study the association between these transitions and gender-role attitudes. To our knowledge, we are the first to study this relationship in the context of the COVID-19 pandemic.

These questions are crucially important, as spells of unemployment, especially when they are prolonged, make it difficult to reintegrate into the labor market (Gangl 2004), a difficulty that women may disproportionately experience (Alon *et al.* 2020). Additionally, societal norms and expectations have been shown to shape the gendered division of

household labor (van der Lippe *et al.* 2011) and contribute to the gender pay gap (Vella 1994; Fortin 2005). Therefore, potential shifts in attitudes toward women's participation in the labor market may also contribute to their economic outcomes for years to come. We address these questions using a representative sample of adults in the U.S., Germany, and Singapore. These countries were selected because of their different experiences with (1) the unfolding of the coronavirus outbreak, (2) governmental responses, and (3) citizens' concerns about the virus. All of these differences might shape the experiences of men and women in the labor market, which provides us with a diverse perspective on our research questions.

2. Theory and hypotheses

2.1. COVID-19 and short-run gender inequality in the labor market

In contrast to previous crises, COVID-19 has had a larger impact on industries with high proportions of female employment (Alon *et al.* 2020; ILO 2020). Moreover, school- and daycare closures increased caregiving responsibilities. Arguably, these changes increased the burden on women more than on men (Alon *et al.* 2020; Ma *et al.* 2020). In the U.S., for example, since the beginning of the pandemic, mothers have reduced their working hours more than fathers (Collins *et al.* 2020), reinforcing and further skewing the existing distribution of childcare duties in most families. We therefore anticipate that women, on average, have experienced more transitions to working from home (H1a) and have been more severely affected in terms of their working hours (H1b) and their employment (H1c). We also recognize that cross-country variation might exist.

2.2. The link between labor market transitions and gender-role attitudes

While the pandemic's larger impact on women's employment may adversely affect gender equality in the short run, shifts in working relations may also alter gender-role attitudes and thus hold broader implications for gender relations. Gender-role attitudes and gender ideology in general encompass diverse factors, such as the belief in gendered separate spheres, individuals' support for a division of paid work and family responsibilities, or the acceptance of male privilege (Davis and

Greenstein 2009). These attitudes can thus be understood as multidimensional constructs (Grunow *et al.* 2018). While gender-role attitudes vary among countries (see Online Appendix for a more detailed explanation of gender-role attitudes in the U.S., Germany, and Singapore), we assume that across all contexts, the pandemic's impact on employment relations may affect the dimension of gender-role attitudes that captures attitudes toward women's involvement in paid work and the division of labor.

Shifts in working relations should be particularly impactful for working couples (Thompson and Walker 1989) and thus potentially affect their gender-role attitudes the most. We theorize the impact of changes in employment relations from the cognitive reinterpretation perspective, which holds that people adjust their gender-role attitudes to accommodate changing family and employment circumstances (Smith-Lovin and Tickamyer 1978; Huber and Spitze 1981; Kroska 1997). In brief, this framework states that both men and women are influenced by their lived experience and shift their gender-role attitudes toward their own circumstance (Bolzendahl and Myers 2004).¹ The primary underlying mechanism discussed by prior work is the division of household labor that impacts gender-role attitudes (Corrigan and Konrad 2007), but other mechanisms – such as differential psychological reactions to non-employment – also play a role (Forret *et al.* 2010; Özcan *et al.* 2010; Schmitt 2012). While these alternatives hold promise for better understanding longer-term change, we focus on changes in employment relations that immediately impact families by making those who are impacted more available for household labor. This immediate 'shock' may thus shape gender-role attitudes in ways that match the new lived realities.

¹Note that this framework is closely aligned with the predictions of cognitive dissonance theory, namely, that personal experiences promote attitudinal change, especially when dissonant cognitions based on one's own attitudes and behavior arise. Prior work speculates that behaviors are less malleable, while attitudes adapt more easily (Schober 2012). We are considering 'shocks' to behavior, specifically, changes in men's and women's involvement in household labor and child care when applicable (unmeasured), and anticipate these to be associated with post-behavior change in attitudes, which we do measure (although we do not measure these attitudes prior to the change in employment relations or working arrangements). Thus, we capture the association between the change in availability of men and women for household labor and their attitudes post-change as outlined here. Both cognitive dissonance theory and the cognitive reinterpretation perspective would predict an adaptation of gender-role attitudes as a response to changes in housework while assuming different psychological mechanisms (i.e. resolving a cognitive dissonance vs. adapting attitudes to behavior more generally).

2.3. Did COVID-19 change the division of household labor?

COVID-19 has indeed changed couples' experiences with employment outside the household and the division of labor at home. Bujard *et al.* (2020), for example, find that both men and women increased their time spent on housework and that women did not engage significantly more in housework than men as a response to lockdown measures. Accordingly, time allocation for childcare has become more equal during COVID-19 when men are working from home or have lost their jobs (Sevilla and Smith 2020). However, Andrew *et al.* (2020) also show that mothers who have stopped working for pay do far more domestic work than fathers in the equivalent situation. In a similar vein, Hank and Steinbach (2020) find that more women now take on the primary role of housework and childcare in the German context, while men are increasingly contributing as well. These findings support our theoretical assumption that time spent at home is associated with increased housework for both men and women. Whether or not these developments lead to more or less egalitarian gender-role attitudes will depend on (1) whether women's or men's employment relations are more affected and (2) how these transitions (and the respective changes in housework) relate to gender-role attitudes. Because transitions to unemployment arguably impose the largest change in availability, we expect these transitions to have the strongest association with gender-role attitudes, while reductions in working hours may produce similar, but weaker, shifts.

2.4. Hypotheses on COVID-19 and gender-role attitudes

We do not anticipate any change in gender-role attitudes when both or neither men and women in working couples' transition to unemployment or reduce working hours, as no change occurs in their relative availability to perform household tasks. When women stop working or reduce hours, while men do not experience any change, we anticipate both women (H2a) and men (H2b) to shift toward more traditional gender-role attitudes as women become more available to participate in a traditional role. We anticipate that the association is stronger for the person who experiences the transition. In contrast, when men stop working or reduce hours, while women's employment relations remain unchanged, gender role attitudes of men could shift in either a more egalitarian (H3a) or a more traditional (H3b) direction. The latter expectation is

based on previous work showing that males' unemployment could also increase women's household labor (Solaz 2005; van der Lippe *et al.* 2018) and may therefore balance out males' increased availability. Because of this ambiguity, we likewise anticipate that women's gender-role attitudes either do not change or shift toward more traditional gender-role attitudes when their partners are impacted (H3b). Again, in this case, we anticipate that the gender-role attitudes of the person experiencing the transition (in this case men) will react more strongly than those of the partner.

Around the globe, many workers are currently being asked to telecommute or perform work at home (e.g. Brynjolfsson *et al.* 2020; Frodermann *et al.* 2020; Yassenov 2020). In contrast to transitions to unemployment or a reduction in working hours, working from home does not necessarily offer the chance to rearrange the division of housework (although it might in some cases; see Hank and Steinbach 2020). When men transition to working from home, however, they may be exposed to the previously 'invisible' labor of childcare and housework of women (Collins *et al.* 2020), which might lead to more egalitarian attitudes among men (H4a). For women's transition to working from home, we do not expect shifts in gender-role attitudes (H4b).

3. Data

We collected a sample of the general population older than 18 years in the U.S., Germany, and Singapore using the survey firm YouGov. The data are representative by age, gender, and education level in all three countries, while in the U.S., the sample is also representative by race and region achieved by YouGov's proprietary advanced matching algorithm (further details on sampling strategy can be found in the Online Appendix). Respondents were reached via email and completed a survey online in May and June 2020. From the complete sample of 5,008 respondents, we constructed two analytical samples used in this article: the first contains individuals who reported that they worked full- or part-time in January 2020, answering retrospective questions about their employment status ($N = 2,594$; 49.7% U.S., 21.1% Germany, 29.2% Singapore). The second sample contains couples in which both the respondent and his or her cohabiting partner worked full- or part-time in January, answering retrospective questions about themselves and their partners ($N = 1,131$; 48.8% U.S., 24.1% Germany, 27.1% Singapore). Further details on the sample construction are reported in the

Online Appendix. Our main dependent variables for the questions regarding the gendered impact of COVID-19 on employment transitions are threefold. We first focus on whether the respondents transitioned to working from home between January and the time of the interview (H1a). Second, we assess whether the respondents experienced a significant reduction in working hours (H1b), meaning a reduction of at least 10 h per week compared to their working hours in January. Third, we assess whether the respondents have lost their full- or part-time employment since January (H1c). Respondents' working arrangement, working hours, and employment situation in January are collected retrospectively at the time of the interview in May or June 2020. Our main independent variable for this analysis is the respondent's gender.

Our main dependent variable for answering questions regarding gender-role attitudes (H2a-H4b) is an index measuring gender norms. The index is composed of the four items taken from the General Social Survey – specifically, 'A working mother can establish just as warm and secure a relationship with her children'; 'A pre-school child is likely to suffer if his or her mother works'; 'Having a job is the best way for a woman to be an independent person. Both the husband and the wife should contribute to the household income'; and 'A husband's job is to earn money; a wife's job is to look after the home and family' – assessed on a 5-point Likert-scale of agreement. While gender-role attitudes and gender ideology in general encompass more diverse factors (Davis and Greenstein 2009) and can be understood as a multidimensional construct (Grunow *et al.* 2018), we are here only focused on the dimension of gender role-attitudes that captures attitudes toward women's and mothers' paid work and the division of labor. The four items are particularly well suited to capturing this dimension and have been strategically chosen for the purposes of this study. We concentrate on these attitudes because we argue that COVID-19 has affected employment relations and these changes, in turn, affect men's and women's understanding of the division of labor. The items are recoded so that higher values indicate more egalitarian views, and the index is calculated as the arithmetic mean of the items. A Cronbach's alpha value of $\alpha = 0.65$ indicates an acceptable reliability of the index. We calculate two alternative measures based on these four items employing iterated principle factor analysis (IPF) and principle component analysis (PCA). These methods can identify latent factors that capture distinguishable aspects of gender-role attitudes and are thus well suited to assessing whether a different combination of the four items (or a

subset) better captures our main construct of interest. A more thorough description of the factor analyses can be found in the Online Appendix. Here, we note that pairwise correlations are at least $\rho = 0.98$ across the three indices.

Our main independent variables for H2a-H4b are indicators of changes in employment relations, reduction in working hours, and transitioning to working from home for both the respondent and his or her cohabiting partner. Control variables common to all models include birth cohort, education, income percentile in January, a variable indicating whether children below the age of 5 are living in the household, country fixed effects, and state fixed effects in the U.S. and Germany. For a more thorough description of all variables, see the Online Appendix.

4. Methods

To assess whether and to what degree women's employment outcomes are more affected by labor market disruptions related to COVID-19, we first compare unconditional mean differences across groups and use simple t-tests. We also calculate linear probability models for each of the three transitions in the respondents' (i) employment outcomes (n):

$$COVID_TRANS_{ni} = \beta_0 + \beta_1 Gender_i + \beta_m X_{mi} + \varepsilon_{mi} \quad (1)$$

where $COVID_TRANS_{ni}$ represents the three indicators for COVID-19-related labor market disruptions; β_0 is a constant, and β_1 estimates the difference in the transition probability by gender; and β_m estimates the relationship of m control variables in vector X_{mi} mentioned above. In these models, we are mainly interested in the statistical association between the gender dummy and the outcomes of interest, which allows us to assess whether transition probabilities are significantly different between men and women.

To estimate how COVID-19-related labor market disruptions in employment outcomes are associated with gender-role attitudes, we estimate the following linear regressions:

$$Attitudes_{gi} = \beta_0 + \beta_n COVID_TRANS_{ni}^{men} + \beta_m COVID_TRANS_{mi}^{women} + \beta_m X_{mi} + \varepsilon_{mi}, \quad \text{for men and women} \quad (2)$$

where $Attitudes_{gi}$ represents the three different indicators for gender egalitarian attitudes; β_n estimates the linear relationships of the COVID-19-

induced employment transitions of men in the household, while β_m represents the linear relationships of the COVID-19-induced employment transitions of women. Additional control variables are indicators for partners' employment relations in January. We estimate the model separately for men and women, which allows us to compare the relationships between employment transitions of the respondent and their partners with gender-role attitudes. We calculate fully separate models instead of interacting a gender dummy with all potential transitions because we assume gender-specific relationships between some variables and gender-role attitudes. Across all models, we cluster standard errors on the state level and use survey weights.

5. Results

We first descriptively assess the gender differences in having transitioned to working from home, having experienced a substantial reduction in weekly working hours (>10), and having become unemployed between January and the time of the interview. Figure 1 shows that across the U.S., Germany, and Singapore, women were significantly more likely to experience any of these transitions, conditional on having worked either full-time or part-time in January, supporting H1a, H1b, and H1c. The differences in the likelihood for these transitions are substantial:

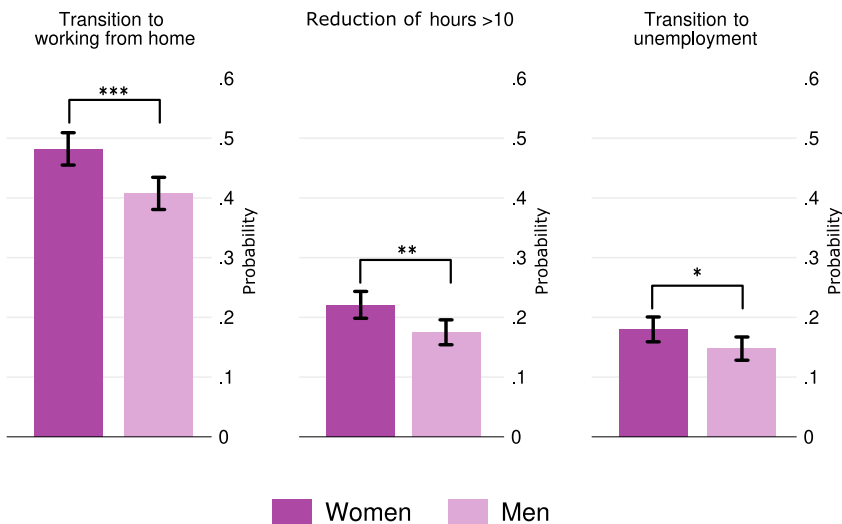


Figure 1. COVID-related changes in labor market outcomes.

Notes: 95% confidence intervals, survey weights used, $N = 2,589$, * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

women have a 7 percentage points higher likelihood of having experienced a transition to working from home, a 5 percentage points higher likelihood of having reduced their weekly hours by more than 10, and a 3 percentage points higher likelihood of having transitioned to unemployment since January. Analyzing these transitions separately for the U.S., Germany, and Singapore reveals remarkable heterogeneities among the countries. For example, while women's risk of transitioning to unemployment is significantly higher than men's only in Germany and Singapore, the likelihood of reducing working hours or transitioning to working from home is only significantly higher for women in the U.S. and close to zero and non-significant for the other countries. For separate analyses and a more thorough interpretation of the country-specific results, please see the Online Appendix.

To explore the potential reasons behind women's larger transition probabilities (H1a-H1c), we evaluate whether gender differences in COVID-19-induced transitions are associated with women's and men's employment status before COVID. We then calculate linear probability models conditional on the control variables outlined above. In [Table 1](#), models 1, 3, and 5 only control for differences in the likelihood of transitions across the three countries, which reveals that gender differences are not due to differences in labor market participation across the countries. Models 2, 4, and 6 add additional variables, which reveal that gender differences in transitions to working from home and in reducing hours mostly hold even after accounting for male-female differences in socio-demographics, income, and pre-COVID employment relations. Gender differences in transitions to unemployment, however, disappear, which can mostly be ascribed to women having worked part-time and having had lower incomes in January, factors associated with a higher risk of becoming unemployed.

In [Figure 2](#), we assess whether COVID-19-related changes in transitions to unemployment, reduction in working hours, or transitions to working from home of respondents and their partners are associated with men's and women's gender-role attitudes. The model includes all control variables described above and further incorporates measures for the partner's employment status in January, which might be associated with gender egalitarian work attitudes and labor market choices made prior to the pandemic. The graph shows estimates for the relationship between the respondents' and/or their partners' transitions on all three measures for gender-role attitudes (based on the arithmetic mean, iterated principle factor analysis (IPF), and principal component

Table 1. Linear-probability models: COVID-related changes in labor market outcomes.

	Transition to working from home		Reduction in working hours		Transition to unemployment	
	(1) Without controls	(2) With controls	(3) Without controls	(4) With controls	(5) Without controls	(6) With controls
Female	0.068** (0.02)	0.101*** (0.02)	0.057** (0.02)	0.040+ (0.02)	0.037* (0.02)	0.007 (0.02)
Children below the age of 5 in household	-0.044 (0.04)		0.047+ (0.02)		-0.061* (0.03)	
Education (ref: Lower secondary or less)						
Upper secondary education		0.110* (0.05)		0.032 (0.04)		0.076+ (0.04)
Post-secondary non-tertiary education or short-cycle tertiary education		0.184** (0.06)		0.046 (0.04)		0.039 (0.04)
Bachelor's or higher		0.331*** (0.05)		0.052 (0.04)		0.034 (0.04)
Birth cohort (ref: 1927–1956)						
1957–1964		-0.020 (0.04)		-0.076+ (0.04)		-0.060 (0.04)
1965–1978		0.049 (0.04)		-0.024 (0.04)		-0.034 (0.03)
1979–1989		0.092* (0.05)		-0.077+ (0.04)		-0.045 (0.04)
1990–2001		-0.096* (0.05)		-0.087* (0.04)		0.013 (0.05)
Working arrangement in Jan. (ref: Mostly working outside)						
Mostly working from home				-0.081* (0.04)		-0.077+ (0.04)
Partly working from home		0.044 (0.05)		-0.050+ (0.03)		-0.091*** (0.02)
Employment relation in Jan. (ref: Full-time employed)						
Part-time employed		-0.061 (0.05)		0.160** (0.06)		0.137*** (0.03)
Survey country (ref: U.S.)						
Germany	-0.104*** (0.03)	0.041+ (0.02)	-0.060* (0.02)	0.060* (0.03)	-0.169*** (0.02)	0.123*** (0.03)
Singapore	0.351*** (0.02)	0.443*** (0.01)	0.072** (0.02)	0.081*** (0.02)	-0.166*** (0.02)	-0.071*** (0.02)
Income percentiles		Yes		Yes		Yes
State fixed effects		Yes		Yes		Yes
Number of observations	1,857	1,857	1,876	1,876	1,961	1,961

Notes: Survey weights used; + $p < 0.01$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

analysis (PCA)). Bars around the point estimate show the 95% confidence intervals for each estimate. The full model including all estimates for control variables can be found in the Online Appendix.

As anticipated, respondents' own transitions to unemployment have the most pronounced association with gender-role attitudes and are the

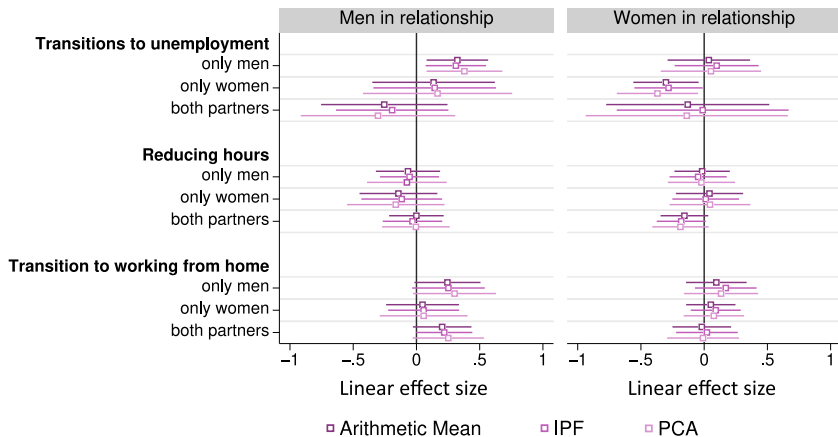


Figure 2. Linear regression: Gender egalitarian attitudes.

Notes: Sample conditioned to respondents who worked full- or part-time in January and whose cohabiting partners worked full- or part-time in January; Survey weights used; Bars signify 95% confidence intervals.

only factors that are significant for both men and women at the 5% level. The results match the predictions based on theories that argue that gender-role attitudes adapt to lived realities (Smith-Lovin and Tickamyer 1978; Huber and Spitze 1981; Kroska 1997; Bolzendahl and Myers 2004). The right-hand side of the graph shows that women's gender-role attitudes are negatively associated with their own transition to unemployment, which supports H2a. Their partners' attitudes are not statistically significantly impacted (not supporting H2b). Second, we show that men's gender-role attitudes are more egalitarian when they transition to unemployment, which supports H3a, potentially as a result of their increased participation in household labor (unmeasured in our study). Again, their partners' attitudes are not statistically significantly impacted (not supporting H3c).

These associations are non-negligible, showing a 0.3 value difference for both men and men for indexes that have a range of approximately 4 (see Table S1 and Figure S2 in the Online Appendix for a description of the indexes). As these associations hold when controlling for income, employment arrangements in January, and as transitions to unemployment are most likely involuntary and resulted from the exogenous shock of the pandemic, we suspect that differences in gender-role attitudes emerge as a consequence of transitions to unemployment. Nonetheless, at this stage, we cannot fully preclude that the causal relationship is reversed and that women, for example, are more likely

to withdraw from the labor market when having more traditional gender-role attitudes. To interrogate this possibility, we analyzed whether having children increases women's likelihood of experiencing this transition and find that the coefficients in the interaction term between female and having children under the age of 5 is small and not statistically significant, suggesting that childcare responsibilities have not explained much gender specific employment disruption so far.

Transitions to working from home are also associated with more egalitarian attitudes among men (significant at the 5% level for some index specifications), supporting H4a. While these results may indicate that exposure to more housework or the partner's work has a positive impact on gender egalitarian views, we cannot preclude that couples with more egalitarian views select occupations in which transitioning to working from home is easier. Controlling for education, income, and employment status in January might not be able to capture potential unobserved differences, e.g. if respondents with more egalitarian views would already work in jobs that allow greater flexibility regarding their working arrangement. We do not find an association for women, supporting H4b.

6. Discussion

Based on nationally representative samples for the United States, Germany, and Singapore, we contribute to empirical evidence documenting the economic toll of COVID-19 and related government and self-imposed restrictions on mobility (Brodeur *et al.* 2020). We focused on the pandemic's differential impact on men and women and found that women in the labor market are more severely affected than men as they are more likely to work from home, reduce working hours, and become unemployed. In particular, the differences in unemployment probabilities are largely due to women's pre-COVID employment situation (e.g. their higher likelihood of working part-time). After taking individual and employment characteristics into account, men's and women's unemployment risks do not substantially differ anymore, pointing toward potential mechanisms of the arising gender inequalities in the labor market. The risk of transitioning to working from home or to reduce working hours is still more pronounced for women, however. The results indicate that while women's higher unemployment risks may be due to their higher share of atypical work arrangements (e.g. part-time), gender differences in transitions to working from home and

reduction in hours are associated with more fine-grained gender differences in the labor market, e.g. men's and women's occupations or industries, which we could not control for. We documented that national variations in these relationships exist. Women are more likely than men to transition to unemployment in Germany and Singapore, while they are more likely to reduce hours or transition to working from home in the U.S.

Most importantly, we are the first to report how the COVID-19-related labor market disruption may influence gender-role attitudes within couples. We find that women's transitions to unemployment (when their partners remain in their jobs) are associated with more traditional gender-role attitudes and that men's transitions to unemployment (when their partners remain in their jobs) are associated with more egalitarian views. The findings provide preliminary support for theories on cognitive reinterpretation and cognitive dissonance (e.g. Kroska 1997; Schober 2012), which predict that gender-role attitudes adapt to the lived realities that change due to COVID-19. Our findings match the theoretical prediction that when men lose their jobs, given that traditional gender beliefs mandate men's full-time employment and limited participation in household labor, they are entering a nontraditional arrangement, which seems to push their attitudes in an egalitarian direction. When women lose their jobs, they are losing the role that could be seen as egalitarian or nontraditional, which pushes their gender-role attitudes in a more traditional direction. We, however, stress the point that – in the present study – we do not yet observe this adaption process and must refer to our future data collection to be able to verify these theoretical predictions as causal.

The analysis reported here is not without limitations. Perhaps the most important is that – due to the so-far cross-sectional nature of our data – we are unable to ultimately reject the possibility of selection into unemployment, especially by women who hold more traditional gender-role attitudes. However, the fact that COVID-19 has affected women's employment relations to a larger degree than men's and the finding that women's changes in employment relations are associated with more traditional gender-role attitudes yield important implications for future gender relations. Employment relations and gender-role attitudes shape each other and co-evolve. In this regard, shifts toward more traditional gender role attitudes as a result of a more traditional division of labor or a more traditional division of labor as a result of traditional gender role attitudes may both reverse some of the change that had

taken hold over the past few decades toward more egalitarian views and labor market participation.

While the direct economic impact of employment disruptions will be long felt, we aimed to draw attention to how these disruptions may impact especially women's likelihood of rejoining the labor market. The data collection that we reported preliminary results from is longitudinal, and we will follow our respondents over the course of the coming year and into 2021. These longer-term lenses will allow us to assess the longevity of these associations and provide us with an opportunity to study potentially gendered patterns of reintegration into the labor market.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Notes on contributors

Malte Reichelt is Assistant Professor of Social Research and Public Policy at the Division of Social Science, New York University Abu Dhabi (NYUAD) and Research Associate at the Institute for Employment Research (IAB) in Nuremberg, Germany. His main areas of research include social stratification, labor markets and work, technological change, and gender inequality.

Kinga Makovi is an Assistant Professor of Social Research and Public Policy at the Division of Social Science, New York University Abu Dhabi (NYUAD). Her main areas of research include social networks, experimental and computational techniques.

Anahit Sargsyan is an Instructor supporting Social Research and Public Policy program at the Division of Social Science, New York University Abu Dhabi (NYUAD). Her main research interests lie in the intersection of data science, AI, computational social science with practical applications in education, health and information systems.

ORCID

Malte Reichelt  <http://orcid.org/0000-0002-6662-3484>

Kinga Makovi  <http://orcid.org/0000-0002-4849-0606>

References

- Adams-Prassl, A., Boneva, T., Golin, M. and Rauh, C. (2020) 'Inequality in the impact of the coronavirus shock: evidence from real time surveys', *IZA Discussion Paper* 13183: 1–49.
- Alon, T.M., Doepke, M., Olmstead-Rumsey, J. and Tertilt, M. (2020) 'The impact of COVID19 on gender equality', *NBER Working Paper* 26947: 1–37.
- Andrew, A., Cattan, S., Costa Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, A. and Sevilla, A. (2020) 'The gendered division of paid and domestic work under lockdown', *IZA Discussion Paper* 13500: 1–30.
- Béland, L.-P., Brodeur, A. and Wright, T. (2020) 'The short-term economic consequences of COVID-19: exposure to disease, remote work and government response', *IZA Discussion Paper* 13159: 1–90.
- Bolzendahl, C.I. and Myers, D.J. (2004) 'Feminist attitudes and support for gender equality: opinion change in women and men, 1974–1998', *Social Forces* 83(2): 759–89.
- Brodeur, A., Gray, D., Islam, A. and Bhuiyan, S.J. (2020) 'A literature review of the economics of COVID-19', *GLO Discussion Paper* 601: 1–71.
- Brynjolfsson, E., Horton, J. J., Ozimek, A., Rock, D., Sharma, G. and TuYe, H.-Y. (2020) 'Covid-19 and remote work: An early look at us data', *NBER Working Paper* 27344: 1–25.
- Bujard, M., Laß, I., Diabaté, S., Sulak, H. and Schneider, N.F. (2020). *Eltern während der Corona-Krise. Zur Improvisation gezwungen*. Bundesinstitut für Bevölkerungsforschung, Report.
- Coibion, O., Gorodnichenko, Y. and Weber, M. (2020) 'Labor markets during the COVID-19 crisis: A preliminary view', *NBER Working Paper* 27017: 1–13.
- Collins, C., Landivar, L.C., Ruppanner, L. and Scarborough, W.J. (2020) 'COVID-19 and the gender gap in work hours', *Gender, Work Organization*: 1–12. doi:10.1111/gwao.12506.
- Corrigall, E.A. and Konrad, A.M. (2007) 'Gender role attitudes and careers: a longitudinal study', *Sex Roles* 56: 847–55.
- Cowan, B.W. (2020) 'Short-run effects of COVID-19 on U.S. worker transitions', *NBER Working Paper* 27315: 1–16.

- Davis, S.N. and Greenstein, T.N. (2009) 'Gender ideology: components, predictors, and consequences', *Annual Review of Sociology* 35: 87–105.
- Farre, L., Fawaz, Y., Gonzalez, L. and Graves, J. (2020) 'How the COVID-19 lockdown affected gender inequality in paid and unpaid work in Spain', *IZA Discussion Paper* 13434: 1–36.
- Forret, M.L., Sullivan, S.E. and Mainiero, L.A. (2010) 'Gender role differences in reactions to unemployment: Exploring psychological mobility and boundaryless careers', *Review of Economics of the Household* 31(5): 647–66.
- Fortin, N.M. (2005) 'Gender role attitudes and the labour-market outcomes of women across OECD countries', *Oxford Review of Economic Policy* 21(3): 416–38.
- Frodermann, C., Grunau, P., Haepf, T., Mackeben, J., Ruf, K., Steffes, S. and Wanger, S. (2020) 'Wie Corona den Arbeitsalltag verändert hat', *IAB-Kurzbericht* 13: 1–12.
- Gangl, M. (2004) 'Welfare states and the scar effects of unemployment: A comparative analysis of the United States and West Germany', *American Journal of Sociology* 109(6): 1319–64.
- Grunow, D., Begall, K. and Buchler, S. (2018) 'Gender ideologies in Europe: a multi-dimensional framework', *Journal of Marriage and Family* 80(1): 42–60.
- Gupta, S., Montenegro, L., Nguyen, T.D., Lozano Rojas, F., Schmutte, I.M., Simon, K.I., Weinberg, B.A. and Wing, C. (2020) 'Effects of social distancing policy on labor market outcomes', *NBER Working Paper* 27280: 1–47.
- Hank, K. and Steinbach, A. (2020) 'The virus changed everything, didn't it? Couples' division of housework and childcare before and during the Corona crisis', *Journal of Family Research* 1–16. doi:10.20377/jfr-488
- Huber, J. and Spitze, G. (1981) 'Wives' employment, household behaviors, and sex-role attitudes', *Social Forces* 60(1): 150–69.
- ILO (2020) *The Covid-19 Response: Getting Gender Equality Right for a Better Future for Women at Work*, Geneva: ILO brief, ILO.
- Kristal, T. and Yaish, M. (2020) 'Does the coronavirus pandemic level the gender inequality curve? (it doesn't)', *Research in Social Stratification and Mobility* 68: 1–5. doi:10.1016/j.rssm.2020.100520.
- Kroska, A. (1997) 'The division of labor in the home: a review and reconceptualization', *Social Psychology Quarterly* 60: 304–22.
- Ma, S., Sun, Z. and Xue, H. (2020) *Childcare Needs and Parents' Labor Supply: Evidence from the COVID-19 Lockdown*, SSRN, ILO.
- Montenegro, L., Jiang, X., Rojas, F.L., Schmutte, I.M., Simon, K.I., Weinberg, B.A. and Wing, C. (2020) 'Determinants of disparities in COVID-19 job losses', *NBER Working Paper* 27132: 1–18.
- Özcan, B., Mayer, K.-U. and Luedicke, J. (2010) 'The impact of unemployment on the transition to parenthood', *Demographic Research* 23: 807–46.
- Schmitt, C. (2012) 'A cross-national perspective on unemployment and first births', *Review of Economics of the Household* 28: 303–35.
- Schober, P. (2012) 'Maternal employment and gender role attitudes: dissonance among British men and women in the transition to parenthood', *Work, Employment and Society* 26: 514–30.
- Sevilla, A. and Smith, S. (2020) 'Baby steps: the gender division of childcare during the Covid-19 pandemic', *IZA Discussion Paper* 13302: 1–29.

- Smith-Lovin, L. and Tickamyer, A.R. (1978) 'Nonrecursive models of labor force participation, fertility behavior and sex role attitudes', *American Sociological Review* 43: 541–56.
- Solaz, A. (2005) 'Division of domestic work: Is there adjustment between partners when one is unemployed? Evidence from French couples', *Review of Economics of the Household* 3: 387–413.
- Thompson, L. and Walker, A.J. (1989) 'Gender in families: women and men in marriage, work, and parenthood', *Journal of Marriage and the Family* 51(4): 845–71.
- van der Lippe, T., de Ruijter, J., de Ruijter, E. and Raub, W. (2011) 'Persistent inequalities in time use between men and women: a detailed look at the influence of economic circumstances, policies, and culture', *European Sociological Review* 27(2): 164–79.
- van der Lippe, T., Treas, J. and Norbutas, L. (2018) 'Unemployment and the division of housework in Europe', *Work, Employment and Society* 32(4): 650–69.
- Vella, F. (1994) 'Gender roles and human capital investment: the relationship between traditional attitudes and female labour market performance', *Economica, New Series* 61(242): 191–211.
- Yasenov, V. (2020) 'Who can work from home?', *IPL Working Paper Series* 20: 1–12.