



Title	Leading the Fight Against the Pandemic: Does Gender Really Matter?
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Publication date	2021
Publication information	Garikipati, Supriya, and Uma Kambhampati. "Leading the Fight Against the Pandemic: Does Gender Really Matter?" Taylor and Francis, 2021. https://doi.org/10.1080/13545701.2021.1874614 .
Publisher	Taylor and Francis
Item record/more information	http://hdl.handle.net/10197/26535
Publisher's version (DOI)	10.1080/13545701.2021.1874614

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To cite this article: Supriya Garikipati & Uma Kambhampati (2021) Leading the Fight Against the Pandemic: Does Gender Really Matter?, *Feminist Economics*, 27:1-2, 401-418, DOI: 10.1080/13545701.2021.1874614

To link to this article: <https://doi.org/10.1080/13545701.2021.1874614>



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Published online: 01 Mar 2021.



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LEADING THE FIGHT AGAINST THE PANDEMIC: DOES GENDER REALLY MATTER?

Supriya Garikipati and Uma Kambhampati

ABSTRACT

Since the start of the ongoing coronavirus pandemic, the relationship between national women leaders and their effectiveness in handling the COVID-19 crisis has received much media attention. This paper scrutinizes this association by considering income, demography, health infrastructure, gender norms, and other national characteristics and asks if women's leadership is associated with fewer COVID-19 cases and deaths in the first few months of the pandemic. The paper also examines differences in the policy responses of leaders by gender. Using a constructed dataset for 194 countries, it uses a variety of economic and sociodemographic variables to match nearest neighbors. The findings show that COVID-19 outcomes, especially deaths, are better in countries led by women and may be explained by the timing of lockdowns. The study uses insights from behavioral studies and leadership literature to speculate on the sources of these gender differences as well as on their implications.

KEYWORDS

COVID-19, pandemic, national leadership, women leaders, risk aversion

JEL Codes: B54, J16

HIGHLIGHTS

- COVID-19 offers a unique spotlight on the effectiveness of national leadership in crises.
- Little is known about how women versus men leaders manage national crises.
- Nearest-neighbor matching reveals women-led countries performed better in COVID-19 outcomes.
- Women leaders locked down their countries more quickly than their men-led neighbors.
- Women leaders also communicated in ways that were markedly different from men leaders.

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INTRODUCTION

National responses to the COVID-19 pandemic and their outcomes have been avidly compared across the world. Given the importance of leadership in times of crisis, national leaders have been in the spotlight. Have leaders been slow in recognizing the risks? Have they engaged with the science? Have they weighted the economic costs more heavily than lives? In this context, much media attention has been focused on the performance of women national leaders, especially of two high-profile women leaders – Angela Merkel and Jacinda Ardern – who seemed to have steered their countries through the initial weeks with less loss of life than their immediate comparators in Europe.

In this paper, we consider the question of the leader's gender and COVID-19 outcomes more systematically and discuss some of the plausible reasons for our findings. Using a 194-country dataset constructed for this purpose, we analyze two questions. First, are there any significant and systematic differences in the COVID-19 outcomes (cases and deaths) between countries led by men versus countries led by women in the first few months of the pandemic? Second, can we point to differences in policy measures adopted by these leaders that might explain the differences in outcomes? In particular, we consider the timing of lockdowns in these countries.

The paper relates to various branches of literature that examine gender differences in beliefs and behavior, in particular attitudes toward risk and uncertainty. There is strong evidence within this literature that women, even those in leadership roles, are more risk-averse than men. For example, Gary Charness and Uri Gneezy (2012) assemble fifteen studies that report findings from one investment game, carried out in different countries, with different instructions, durations, payments, and subject pools. They consistently find that men invest more and thus appear to be more risk taking than women. While this headline result is far from canonical (Nelson 2015), especially given the roles of cultural and contextual modulators (Schubert et al. 1999; Gneezy, Leonard, and List 2009), it surfaces very frequently. In the current crisis, too, several incidents of risky behavior by men leaders have been reported, including the dismissal of COVID-19 as “a little flu or a bit of a cold” by Brazilian President Jair Bolsonaro (Phillips 2020), and United Kingdom Prime Minister Boris Johnson's statement that he “shook hands with everybody” at a hospital that he visited (Guardian 2020). While it is tempting to draw simplistic conclusions based on such reports, a reliable conclusion requires systematic investigation.

Our paper also relates to literature on the role of leaders in national outcomes, which lends texture to two conceptually extreme opinions: the idea that powerful leaders are a social myth, created to satisfy our psychological needs (Gemmell and Oakley 1992) and the view that a

handful of influential leaders have determined the course of history (Keegan 1998). The second view has found greater credence in the literature. Benjamin Jones and Benjamin Olken (2005), using death of a leader as an exogenous variation in leadership, find that individual leaders play a crucial role in shaping national growth. Besley Timothy, Jose G. Montalvo, and Marta Reynal-Querol (2011) find that more competent leaders (in terms of education and skills) result in better national outcomes.

The performance of leaders in the COVID-19 pandemic offers a unique global experiment in national crisis management where various issues, including that of effectiveness of leadership, can be examined across countries. There are very few studies about the impact of a leader's gender in a national crisis, partly because there are so few women leaders. In our sample of 194 countries, we have just twenty (~10 percent) women leaders. This lack of women's leadership has given way to the "single-sex" conjectures that support the "Great Men" view of history, within which events are seen as determined by the instrumental and causal influence of a small number of men. For example, John Keegan (1998) writes that the political history of the last century can be found in the biographies of six men: Lenin, Stalin, Hitler, Mao, Roosevelt, and Churchill. However, if a leader's attributes or traits have explanatory power, as much of the literature concludes, then gender might also be important in representing an inherent proclivity for certain types of policymaking, especially in the case of an emergency like the pandemic.

This question is of significance to feminist scholarship regarding how a woman leader should behave (Chin 2004). Much of the dominant discourse within the leadership literature remains heavily masculinized, with women leaders being asked to "lean in" or conform to behavior expected of a "leader" (Sandberg 2013). These impositions suggest an acceptance of the "absolute" dominance of traits of leadership that are deemed as successful at all times and in all situations and which women must display if they seek to succeed. On the other hand, it might be more appropriate to view leadership success as being contextual – certain traits being better suited to tackling certain situations. This points to diversity in leadership, not merely as a way of ensuring or signaling gender equality (which may have its own value) but as a way to promote efficiency in the face of multi-dimensional challenges.

A note of caution before we begin. The pandemic is still ongoing, and our analysis relates only to the initial responses of national leaders and initial outcomes. Given the fast-evolving situation, much will change over the next few months. Despite this, the early reactions and outcomes are revealing because they capture the initial, instinctive, and emergency responses of the leaders before institutions take over. They, therefore, highlight the significance of early and effective leadership in a crisis.

DATA AND METHODOLOGY

Data construction

This paper uses a dataset collated by the authors for the purpose of this inquiry. We gathered information on total deaths and total cases due to COVID-19 up to May 19th from the Worldometer site. We merged this with a range of economic and sociodemographic data from the World Bank's (2020) World Development Indicators and United Nations Development Programme's (UNDP; 2020) Human Development Index for 194 countries. We collated data on current women leaders from various websites. If countries have more than one head of state, we made a distinction between the executive head (de facto head) and the titular head (de jure or nominal head) based on the characteristics of the political system. We followed the general rule that in parliamentary regimes, the prime minister is the executive leader, while in presidential systems, it is the president, and in communist states, the chairman of the party is the executive head of state.¹ We use this dataset to first analyze if there is a systematic difference by gender of the national leader in the total number of deaths and cases experienced due to COVID-19. We also use it to consider national policy responses to the pandemic, particularly the timing of lockdowns.

The first step of our analysis centers around two outcome variables – the total number of COVID-19 cases and total deaths. There are several problems with the quality of data available on these two variables in the early stages of the pandemic. To start, the number of cases depended on the amount of testing that a country had been able to undertake. With the shortage of test kits, most countries had less than optimal testing. Over time, as the availability of tests increases, this data should become more reliable. To the extent that tests were reserved for those who were symptomatic, data on deaths is likely to be more reliable, though there are concerns about its comparability across countries. In some countries, if a COVID-positive person dies, the death is registered as a COVID-19 death, irrespective of any other previous illness (like tuberculosis or cancer). But this practice varies across countries. Our analysis is based on the best data available, but it is subject to these limitations. As time progresses, better COVID-19 data will become available, and this analysis can be updated.

Another issue that needs to be highlighted is that this study relates to the start of the pandemic. There is the expectation that the pandemic will last for at least twelve to eighteen months until we find a vaccine or develop herd immunity (Gallagher 2020). Our analysis, therefore, is only about the immediate reaction to the first wave. Outcomes by the end of the pandemic will depend on a range of other factors, including the impact of other institutions, the cultural norms prevalent in countries, and the impact of the lockdown on the economy, health, and well-being of individuals.

Methodology

As mentioned above, any investigation involving women leaders suffers from the problem of small sample size, with only 20 out of 194 countries being led by women in our data. In addition, countries that select women leaders may have specific characteristics that enable them to respond to such crises better. They may be richer, less populous, or have better gender relations. Thus, OLS estimation could suffer from two problems – that of a small number of women-led countries and the potential problem of selection. To correct for these problems, we use the nearest-neighbor matching method wherein we compare a unit in the treated group (women-led countries) with a unit in the control group that is as similar to it as possible along a range of covariates. Matching is a quasi-experimental technique that provides a more reliable way of comparing two groups when sample sizes are heavily imbalanced and where there may be selection issues (Stuart 2010).

The nearest-neighbor matching method pairs each woman-led country in our sample with its closest comparator and estimates the effect of being woman-led on the dependent variables (COVID-19 cases and deaths). The closeness of the match depends on the variables we are matching by. While matching by discrete variables is straightforward, exact matching on continuous variables is less likely because two countries are unlikely to have exactly the same population or the same elderly population. This problem is compounded when we match by many continuous variables, and this makes the matches less “close.”

In our analysis, the initial matching is based on four sociodemographic and economic variables that have been seen as important in the transmission of COVID-19 – GDP per capita (current USD), population, population density (people/Km²), and population over 65 years. We use these variables to match for a range of reasons. First, we include population, as we might expect the number of cases and deaths to be higher in countries with larger populations. This variable helps us to control for differences in population size. Second, we include GDP per capita, as both the impact of COVID-19 and the ability to respond to it are likely to be influenced by the prosperity of a country. In particular, we might expect that individuals in less densely populated and prosperous countries are likely more easily able to socially distance than those in heavily populated and poorer countries. In the initial estimates, the GDP variable would also capture the impact of health infrastructure, but we have controlled for this separately in our extension models. Third, we include population density as a matching variable because it has been observed that COVID-19 spreads faster in densely populated regions where social distancing is difficult. Finally, we include population over 65 years because COVID-19 is especially fatal among

older individuals, with the death rates climbing steeply for those over 60 years.

We follow this core analysis by testing for robustness across the sample as well as across matching variables. We consider not only the nearest neighbor but also two nearest, three nearest, and five nearest neighbors to consider how robust the effect is. We also extend our matching variables to include three other characteristics – annual health expenditure per capita, number of tourists entering the country, and gender inequality. Each of these variables allows us to control for factors that could be significant in determining the outcome variables.²

We may expect that countries that have a better-equipped health system are likely to perform better in the context of a pandemic. We, therefore, extend our matching model by including the annual expenditure on health in each country (current USD). We also match by openness to tourism because the more open a country is to international travel, the harder it will be to control the initial importation of the pandemic. Third, it has been proposed that countries that have more gender-equitable institutions might well be those that elect women leaders and that their gender equality rather than their women leaders may have facilitated their differentially better outcomes. This may not only mean that women find gaining power easier in these countries, but that women in power may also enjoy greater trust and support from a political and social context that perpetuates the acceptance of women leaders and may find it easier to champion cautious policies, if they choose to do so. Indeed, the COVID-19 experience of a group of Scandinavian countries may well fall in this category. Matching by the UNDP's Gender Inequality Index (GII), therefore, allows us to control for these differences between women-led countries and their comparators and to identify the impact of a country being woman-led more precisely. The GII is made up of three distinct components – health (maternal mortality and adolescent birth rate), empowerment (education and number of parliamentary seats held by women), and women's labor market participation.

RESULTS

COVID-19 cases and deaths by gender of national leader

Table 1 presents summary statistics for the matching covariates and dependent variables by the gender of the country's leaders. Although these are raw statistics and not useful to draw inferences, it is clear that women-led countries have fared better in terms of absolute number of COVID-19 cases and deaths, with men-led countries having nearly double the number of deaths (~2000) as women-led ones (~1000).

Table 1 Summary statistics for matching covariates and dependent variables by gender of leaders

Study variable	Women-led countries					Men-led countries				
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<i>Dependent variables</i>										
Total COVID-19 cases	20	16,806	40,231	12	177,289	173	26,333	126,399	8	1.550e + 06
Total COVID-19 deaths	20	1,056	2,619	1	9,080	150	1,994	9,046	1	91,981
<i>First-stage matching covariates</i>										
GDP pc (current USD)	18	38,123	26,222	1,326	82,797	158	14,547	23,246	271.8	185,741
Population	20	2.001e + 07	3.991e + 07	38,717	1.647e + 08	174	4.190e + 07	1.555e + 08	30,231	1.439e + 09
Population density	20	675.2	1,569	3	7,140	174	505.3	2,652	0	26,337
Population 65 years and over	18	15.23	5.096	5.158	21.72	162	8.471	6.162	1.085	27.58
<i>Extended matching covariates</i>										
Avg. annual pc health expenditure	13	3,014	2,538	18.75	7,375	159	724.4	1,240	13.59	7,456
Number of international tourists	18	7.151e + 06	1.055e + 07	178,000	3.888e + 07	137	9.196e + 06	1.598e + 07	14,000	8.932e + 07
Gender Inequality Index 2018	13	0.186	0.184	0.0390	0.542	141	0.363	0.186	0.0440	0.834

Source: Dataset constructed by authors from various sources.

COVID-19 outcomes (first-step matching)

As discussed above, we use the nearest-neighbor matching method, which matches eighteen of the twenty women-led countries in our sample with their nearest neighbor using four matching characteristics – GDP per capita, population, population density, and percentage of elderly dependents.³ As the number of matching characteristics increase, the size of the sample falls as we do not have complete information for all countries. In particular, for the smaller, women-led countries like Aruba and Saint Maarten, we are unable to provide matches even with a base model that only matches with population and GDP per capita.

Table 2 presents the results for matched estimations for both total COVID-19 cases and deaths. Our matched estimations show a definite and consistent pattern, confirming that there are 1,900 fewer deaths in women-led countries than in comparable countries led by men. This is also true of the number of cases, which are between 18,640 to 22,924 fewer in women-led countries when compared to matched men-led ones, although here the significance of the treatment variable decreases as we increase the number of matches. These results suggest that after controlling for GDP per capita, population, population density, and elderly population, women-led countries perform significantly better than men-led countries. Stronger results on deaths than cases indicate that although women-led countries were often as hard hit by the virus as comparable men-led ones, they managed the crisis to result in fewer fatalities. The results are robust whether we consider a single neighbor, the two nearest neighbors, or even the three nearest neighbors.

Table 2 Comparing COVID-19 outcomes in women-led countries with nearest neighbors (first-step matching)

	<i>Specification</i>		
	<i>Nearest neighbor</i>	<i>Two nearest neighbors</i>	<i>Three nearest neighbors</i>
<i>Dependent variable</i>			
COVID-19 cases	– 22,924.199** (11,463.149)	– 21,095.944* (11,080.639)	– 18,640.055* (10,807.616)
Observations	171	171	171
COVID-19 deaths	– 1,942.174** (825.987)	– 1,883.039** (786.827)	– 1,885.419** (913.729)
Observations	155	155	155

Notes: Standard errors in parentheses. Results for five nearest neighbors are similar. **, * denote statistical significance at the 5 and 10 percent levels, respectively.

COVID-19 outcomes (extended matching)

To test the robustness of our results, we extend the matching to include three other variables that are likely to have an impact on COVID-19 outcomes: the condition of the country's healthcare systems, which will impact on its ability to fight the pandemic; openness to tourism, which has been professed to affect the rate and speed of transmission, especially early on in the pandemic, before lockdowns; and finally, more liberal and equitable gender norms, which may support policy making and compliance in times of crisis.

Table 3 presents the results for these extensions, including estimates for the nearest neighbors, for the second and third nearest neighbors. Our results remain robust across these estimations; hence in the interests of space, we present results only for the nearest neighbor. Overall, we find that both cases and deaths continue to be lower for women-led countries when we match using the three extension variables, with results for deaths being stronger and consistent.

With respect to *health expenditure*, conceptually speaking, we might expect this variable to both influence the number of deaths as well as the readiness with which a country is willing to shut down. In particular, countries with worse health infrastructure may choose to shut down quicker for fear of the inability to cope with the impact of the virus. This has, in fact, been the case in many developing countries like India and South Africa. Empirically, however, we find that women-led countries with relatively good health care systems, like Germany, have led the decision to lockdown. After controlling for this, we find that women-led countries have significantly fewer (1,900 fewer) deaths and cases (approximately 22,000 fewer) than countries led by men (column 2, Table 3).

There has been some concern that countries that are *open to international travel* are likely to be more badly affected by the virus, especially in the

Table 3 Comparing COVID outcomes in women-led countries with the nearest neighbor (extended matching)

<i>Variable</i>	<i>Health expenditure</i>	<i>Openness to tourism</i>	<i>Gender norms</i>
COVID-19 cases	− 22,218.469** (10,730.846)	− 18,112.060 (12,517.940)	− 20,614.353* (11,364.689)
Observations	162	134	150
COVID-19 deaths	− 1,944.306** (834.670)	− 1,654.561* (919.648)	− 1,793.428** (874.805)
Observations	147	123	138

Notes: Standard errors in parentheses. **, * denote statistical significance at the 5 and 10 percent levels, respectively.

weeks before borders were closed. Our results show that, after controlling for openness to travel, women-led countries continue to have an advantage in COVID-19 deaths, but they do not experience significantly lower cases.

Finally, we match also by the *gender inequality index* (GII) to consider the fact that countries that elect women are generally more equal and, therefore, likely to have better resilience. We find that, even after matching for the gender-equity indicator, women's leadership provides an advantage.

Robustness tests

We carry out further tests to check the robustness of our results. We drop the nations that have been in the COVID-19 spotlight – United States, Germany, and New Zealand – from our sample to see if they might be driving the results, and we note that these changes in the sample only strengthen the results (Table 4).

We also test the robustness of our results to dropping three other countries for various reasons – Switzerland, which is led by a Council of members, though in 2020 its President is a woman; Guam and Puerto Rico because they are US protectorates for which Worldometer provides COVID-19 statistics separately but under its mother-nation. Our results remain unchanged in sign and significance (Table 5).

Policy responses to COVID-19 by gender of leader

Our results so far confirm that women-led countries performed better in terms of the number of COVID-19 deaths experienced and also (though less significantly) in the number of cases. We now turn to consider whether these differences are caused by the immediate policy responses of the leaders. In the early stages of the pandemic, leaders had very few policy

Table 4 Comparing COVID-19 outcomes in women-led countries without nations in the spotlight

<i>Dependent variable</i>	<i>Without the US</i>	<i>Without Germany</i>	<i>Without New Zealand</i>
COVID-19 cases	– 13,950.271* (7,204.287)	– 25,059.271** (11,436.389)	– 22,290.665* (11,732.464)
Observations	170	170	170
COVID-19 deaths	– 1,350.468** (589.843)	– 1,927.662** (826.502)	– 1,859.013** (830.593)
Observations	154	154	154

Notes: Standard errors in parentheses. **, * denote statistical significance at the 5 and 10 percent levels, respectively.

Table 5 Comparing COVID-19 outcomes in women-led countries without nations in the spotlight

<i>Dependent variable</i>	<i>Without Switzerland</i>	<i>Without Guam and Puerto Rico</i>
COVID-19 cases	– 23,095.212** (11,490.947)	– 20,454.107* (11,471.198)
Observations	170	169
COVID-19 deaths	– 1,948.792** (831.339)	– 1,681.366** (780.867)
Observations	154	153

Notes: Standard errors in parentheses. **, * denote statistical significance at the 5 and 10 percent levels, respectively.

instruments that they could deploy. In particular, given the global shortage of testing kits and associated materials, very few countries had sufficient equipment or infrastructure in place to deploy test and trace policies. This meant that the only feasible policy was lockdown, and the only question then was the speed and decisiveness with which this policy was announced. Over time, the effectiveness of setting up a test and trace system might become crucial.

In what follows, therefore, we are interested in whether women leaders locked down countries systematically more quickly than men leaders. It is worth noting that four women-led countries – Iceland, Taiwan, Hong Kong, and Myanmar – managed their response without going into a national lockdown. They will therefore not feature in these results, and our analysis will relate to the sixteen women-led countries and ninety-nine men-led countries that imposed national lockdowns.

Policy responses (first-step matching)

In trying to understand whether women-led countries locked down earlier than men-led countries, we focus on deaths at lockdown – that is, how many COVID-19 deaths occurred in the country before the leader decided to lockdown the economy. Our matching estimates comparing the timing of lockdown in women-led countries with their closest neighbor are presented in Table 6. These results indicate that when compared with their closest neighbor, women-led countries closed down significantly more quickly than countries led by men. Women-led countries experienced approximately twenty-four fewer deaths than their nearest neighbor men-led countries when they locked down. Results remain robust when we match to two or three closest neighbors.

Table 6 Comparing timing of lockdowns in women-led countries with nearest neighbors (first-step matching)

<i>Dependent variable</i>	<i>Specification</i>		
	<i>Nearest neighbor</i>	<i>Two nearest</i>	<i>Three nearest</i>
COVID-19 deaths at lockdown	-23.974*** (7.752)	-23.291*** (8.065)	-24.643*** (8.535)
Observations	115	115	115

Notes: Standard errors in parentheses. *** denotes statistical significance at the 1 percent level.

Table 7 Comparing timing of lockdown in women-led countries with nearest neighbors (extended matching)

<i>Dependent variable</i>	<i>Health expenditure</i>	<i>Openness to tourism</i>	<i>Gender norms</i>
COVID-19 deaths at lockdown	-24.664*** (8.169)	-22.357** (9.029)	-20.552*** (7.915)
Observations	110	98	105

Notes: Standard errors in parentheses. ***, ** denote statistical significance at the 1 and 5 percent levels, respectively.

Policy response (extended matching)

Extending our lockdown model to match for annual health expenditure, openness to tourists, and GII, we find again that the women-led countries locked down significantly earlier (at lower number of deaths) than countries led by men (Table 7). This reflects the fact that women leaders reacted more quickly and decisively to the crisis. Better initial outcomes in women-led countries when compared to men-led ones may have been at least partly because of this difference in responses.

Why did women leaders respond differently to the COVID-19 crisis from men leaders? In what follows, we will consider the behavioral economics and leadership literature, including feminist scholarship to speculate on the sources of these differences, as well as on their implications.

DISCUSSION

Our results above confirm that women leaders reacted more quickly and decisively in the face of potential fatalities, locking down earlier than men leaders in similar circumstances. While this may have longer-term economic implications, which we cannot test here, it has certainly helped these

countries to save lives, as evidenced by the significantly lower numbers of deaths in these countries. Why have women been quicker to lockdown? As discussed earlier, one idea that might have a bearing on our result is that there are gender differences in attitudes to risk and uncertainty. However, this basic hypothesis has to be nuanced to highlight that while women were less willing to take risks with lives, they were more willing to accept risks in relation to the early lockdown of economies. We also consider lessons from the leadership literature to understand differences in leadership behaviors evidenced by men and women.

Gender differences in attitudes to risk

While risk aversion may explain why women leaders chose to close down their countries significantly early (in terms of the number of COVID deaths at lockdown), it does not explain the significant risk that women leaders were prepared to take with their economies by locking down early. Clearly, we need to look beyond the simplistic headline result. It could be that risks manifest differently in different domains – human life versus economic outcomes. If this were true, then women leaders could be seen as being significantly more risk-averse than men leaders in the domain of human life, though, in the domain of the economy, these women leaders were clearly prepared to take more risk than men leaders.

We find some support for this idea in studies that examine risk-taking behavior when lotteries are framed as losses. For example, Renate Schubert et al. (1999) find that men are more risk-averse than women when lotteries are framed as financial losses rather than gains. Evan Moore and Catherine Eckel (2006) also find that in the loss-domain gambles, men are more risk-averse and less ambiguity-seeking than women. It could be that the relatively late lockdown decisions by men leaders may reflect men's risk-aversion to anticipated losses from locking down the economy.

Another strand of the risk literature that is of interest to us considers risk-taking decisions by leaders on behalf of others in their group. Seda Ertac and Mehmet Gurdal (2012) observe that the women who lead and decide for the group are no different (in risk attitudes) to women who do not wish to lead. Among men, however, those who like to lead tend to take more risk on behalf of the group. Similarly, studies find that while both men and women are often overconfident, men are more overconfident of success in uncertain situations than women (Barber and Odean 2001).

Evidence in psychology also indicates that women are seen to respond more strongly and intensely than men when anticipating negative outcomes (Fujita, Diener, and Sandvik 1991). This can affect their utility of a risky choice and hence their decision. For example, if a negative outcome is anticipated as being worse by women than by men, women will be more risk-averse in situations like the current pandemic. Men, on the other hand,

were found to respond with anger to negative experiences. While anger is seen to make men less cautious about future gambles, women respond with caution, making them more prudent in their beliefs and restrained in their actions (Lerner et al. 2003).

The neuroscience literature, in its turn, indicates that there could be sex differences in empathy that cannot be explained as cultural derivatives of socialization alone but have deeper neurobiological drivers. Leonardo Christov-Moore et al. (2014) find that there are important quantitative gender differences in the networks involved in affective and cognitive forms of empathy, as well as a qualitative divergence between the sexes in how emotional information is integrated to support decision-making processes.

Gender differences in leadership styles

It is likely that leadership characteristics other than risk attitudes may also systematically differ between men and women. The early literature associated leaders with “masculine” attributes characteristic of stereotypical men. For example, Joseph Rost examines 221 definitions of leadership from the last century and concludes that leadership has most frequently been described as “rational, management-oriented, male, technocratic, quantitative, cost-driven, hierarchical, short-term, pragmatic and materialistic” (1991: 8). Of course, women can display these supposedly “male” management traits and vice versa.

Alice Eagly and Blair Johnson (1990) conduct a meta-analysis of research comparing men and women leadership styles and conclude that evidence can be found for both the presence and absence of differences between the sexes. While research in organizational studies found little difference between men’s and women’s leadership styles, laboratory experiments and assessment studies found evidence to suggest that leadership styles were somewhat gender stereotypic with men likely to lead in a “task-oriented” style and women in an “interpersonally oriented” manner. Consistent with this finding, women tended to adopt a more democratic and participative style and a less autocratic or directive style than men. These attributes have been seen as key in a number of studies, especially in managing a crisis (Waugh and Streib 2006).

In another meta-analysis of forty-five studies of transformational versus transactional styles of leadership, Alice Eagly, Mary Johannesen-Schmidt, and Marloes van Engen (2003) find a small overall tendency for women to be more transformational than men and show a tendency toward a style of leadership that is interpersonal, forming and nurturing new relationships with others. Men leaders are more likely to exhibit transactional leadership associated with “management by exception,” a tendency to passive decision making that avoids taking action until things get really critical. This finding

coordinates with our results that women national leaders tended to act more quickly in terms of locking down their economies.

Evidence from the leadership literature also suggests that good communications skills are important for women to be chosen as leaders (Lemoine, Aggarwal, and Steed 2016). Indeed, the decisive and clear communication styles adopted by several women leaders have received much praise in the ongoing crisis. Norway's Prime Minister, Erna Solberg, spoke directly to children answering their questions, while New Zealand's Prime Minister, Jacinda Ardern, was praised for the way in which she communicated and for checking in with her citizens through Facebook Live.

Thus, our results could be associated with women being risk-averse with respect to lives and having a clear, empathetic, interpersonal, and decisive communication style. These findings suggest that it may be useful to study leadership using a "contextual" lens within which women leaders can gain respect and credibility not by "leaning-in" but by leading with their own unique style of leadership. A demand for diversity in leadership is, then, not about affirmative action, but a demand for a range of abilities to manage a range of challenges.

CONCLUSION

In this paper, we ask if there is a significant and systematic difference by gender of the national leader in the number of COVID-19 cases and deaths in the first few months of the pandemic. We also examine differences in policy responses by men versus women leaders as plausible explanations for the differences in outcomes. We use a specifically constructed dataset for 194 countries for our analysis. Our findings show that COVID-19 outcomes are systematically and significantly better in countries led by women, and to some extent, this may be explained by the proactive policy responses they adopted. Even accounting for institutional context and other controls, being women-led has provided countries with an advantage in the current crisis.

Examining what is already known about the gender differences in behavior from a variety of disciplines gives us some insights into the behavior of men and women leaders in tackling the current pandemic. While the factors affecting outcomes are likely to be complex, the attributes of the leader are especially important early in a crisis. Our results indicate that the pandemic posed a very different kind of challenge and one that is likely to become more common. Given that countries and organizations face varying challenges, diversity in leadership approaches will help to mitigate risk. Such diversity is not simply a matter of equity but also a matter of effectiveness in the face of multi-dimensional challenges.

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ACKNOWLEDGMENTS

The authors are grateful for research assistance provided by Antara Mandal and Abhilash Kondraganti. We are grateful for comments and discussions with Alice Eagly, Michael Nolan, and two anonymous referees. Any errors remain the responsibility of the authors.

FUNDING

This work was supported by a University of Liverpool Internal Grant [Grant Number 10180].

- ¹ It is worth noting that identifying a country as man- or woman-led was not always straightforward. In Namibia, for instance, the Head of Government is designated as a woman, but the Head of State and Government is a man. On further reading, we assigned it as a man-led country. Switzerland is led by a Council of Members who share power. Since January 1, 2020, the President (for one year only) has been a woman. We, therefore, designated Switzerland as a woman-led country.
- ² We considered several other variables. Noteworthy among these are “trust” and “risk-aversion” that citizens evince (trusting citizens are more likely to be receptive to emergency policy measures, and risk-averse individuals are more likely to socially distance and wear masks), as well as “timing of election” (countries on track to run elections may have different policy responses in terms of the timing of lockdown). But data limitations for these variables reduced our sample severely. For instance, for trust, we had data for just six women-led countries; for a measure of risk aversion, it went down to four, and for timing of election, it was one as Serbia was the only woman-led country that was scheduled to have elections during the period of study. Despite this, results remained robust (especially on deaths) and are available from authors on request.
- ³ A full list of the women-led countries in the sample is available from the authors upon request.

REFERENCES

- Barber, Brad and Terrance Odean. 2001. “Boys Will be Boys: Gender, Overconfidence, and Common Stock Investment.” *Quarterly Journal of Economics* 116(1): 261–92.
- Besley, Timothy, Jose G. Montalvo, and Marta Reynal-Querol. 2011. “Do Educated Leaders Matter?” *Economic Journal* 121(554): 205–27.
- Charness, Gary and Uri Gneezy. 2012. “Strong Evidence for Gender Differences in Risk Taking.” *Journal of Economic Behavior and Organization* 83(1): 50–8.
- Chin, Jean Lau. 2004. “Division 35 Presidential Address: Feminist Leadership: Feminist Visions and Diverse Voices.” *Psychology of Women Quarterly* 28(1): 1–8.
- Christov-Moore, Leonardo, Elizabeth A. Simpson, Gino Coudé, Kristina Grigaityte, Marco Iacobonia, and Pier Francesco Ferrari. 2014. “Empathy: Gender Effects in Brain and Behavior.” *Neuroscience and Biobehavioral Reviews* 46(4): 604–27.
- Eagly, Alice H., Mary C. Johannesen-Schmidt, and Marloes L. van Engen. 2003. “Transformational, Transactional, and Laissez-Faire Leadership Styles: A Meta-Analysis Comparing Women and Men.” *Psychological Bulletin* 129(4): 569–91.
- Eagly, Alice H. and Blair T. Johnson. 1990. “Gender and Leadership Style: A Meta-Analysis.” *Psychological Bulletin* 108(2): 233–56.
- Ertac, Seda and Mehmet Y. Gurdal. 2012. “Deciding to Decide: Gender, Leadership and Risk-Taking in Groups.” *Journal of Economic Behavior and Organization* 83(1): 24–30.
- Fujita, Frank, Ed Diener, and Ed Sandvik. 1991. “Gender Differences in Negative Affect and Well-Being: The Case for Emotional Intensity.” *Journal of Personality and Social Psychology* 61(3): 427–34.
- Gallagher, James. 2020. “When Will the Outbreak End and Life Get Back to Normal?” *BBC News*, March 23.
- Gemmill, Gary and Judith Oakley. 1992. “Leadership: An Alienating Social Myth?” *Human Relations* 45(2): 113–29.
- Gneezy, Uri, Kenneth L. Leonard, and John A. List. 2009. “Gender Differences in Competition: Evidence from a Matrilineal and a Patriarchal Society.” *Econometrica* 77(5): 1637–64.

- Guardian. 2020. "‘I Shook Hands with Everybody,’ says Boris Johnson Weeks before Coronavirus Diagnosis." *The Guardian*, March 27. <https://www.theguardian.com/world/video/2020/mar/27/i-shook-hands-with-everybody-says-boris-johnson-weeks-before-coronavirus-diagnosis-video>.
- Jones, Benjamin F. and Benjamin A. Olken. 2005. "Do Leaders Matter? National Leadership and Growth Since World War II." *Quarterly Journal of Economics* 120(3): 835–64.
- Keegan, John. 1998. "Winston Churchill." *Time Magazine*, April 13. <http://content.time.com/time/magazine/article/0,9171,988157,00.html>.
- Lemoine, G. James, Ishani Aggarwal, and Laurens Bujold Steed. 2016. "When Women Emerge as Leaders: Effects of Extraversion and Gender Composition in Groups." *Leadership Quarterly* 27(3): 470–86.
- Lerner, Jennifer S., Roxana M. Gonzalez, Deborah A. Small, and Baruch Fischhoff. 2003. "Effects of Fear and Anger on Perceived Risks of Terrorism: A National Field Experiment." *Psychological Science* 14(2): 144–50.
- Moore, Evan and Catherine Eckel. 2006. "Measuring Ambiguity Aversion." Working Paper, *Research Gate*.
- Nelson, Julie A. 2015. "Are Women Really More Risk-Averse Than Men? A Re-Analysis of the Literature Using Expanded Methods." *Journal of Economic Surveys* 29(3): 566–85.
- Phillips, Tom. 2020. "Bolsonaro Says He ‘Wouldn’t Feel Anything’ if Infected with Covid-19 and Attacks State Lockdowns." <https://www.theguardian.com/world/2020/mar/25/bolsonaro-brazil-wouldnt-feel-anything-covid-19-attack-state-lockdowns>.
- Rost, Joseph C. 1991. *Leadership in the 21st Century*. New York: Praeger.
- Sandberg, Sheryl. 2013. *Lean in: Women, Work and the Will to Lead*. New York: Random House.
- Schubert, Renate, Martin Brown, Matthias Gysler, and Hans Wolfgang Brachinger. 1999. "Financial Decision-Making: Are Women Really More Risk-Averse?" *American Economic Review* 89(2): 381–5.
- Stuart, Elizabeth A. 2010. "Matching Methods for Causal Inference: A Review and a Look Forward." *Statistical Science* 25 (1): 1–21.
- United Nations Development Programme (UNDP). 2020. "Human Development Index (HDI)." <http://hdr.undp.org/en/content/human-development-index-hdi>.
- Waugh, William L. and Gregory Streib. 2006. "Collaboration and Leadership for Effective Emergency Management." *Public Administration Review* 66(1): 131–40.
- World Bank. 2020. "World Development Indicators." <https://databank.worldbank.org/source/world-development-indicators>.