**L I S E R - M E G A** series
on gender dimensions of the
COVID-19 pandemic

**#3**

# Gender differences in attitudes towards COVID-19 and sanitary measures

This is the third of a series of notes about gender dimensions of the COVID-19 pandemic. Each note focuses on a particular dimension of gendered impacts of the crisis. It first quickly reviews relevant academic and policy research and presents the views of selected national or international experts about what happened and what can be done.

In the beginning of the COVID-19 pandemic, no efficient medical treatment or vaccine were available. Hence, public interventions essentially aimed at limiting human interactions and mobility. Populations' compliance with these measures was instrumental to mitigate health and socio-economic damages. Still, by the end of 2021, the pandemic had caused over 317 million cases and over 5.5 million deaths worldwide. While new variants keep on emerging, the perception of danger posed by the virus declines and fatigue regarding sanitary measures grows, threatening governments' ability to manage future waves of infections. It thus remains important to understand the determinants of compliance with sanitary measures, such as mask-wearing, mobility restrictions, and later, vaccination adoption.

Women and men may have differently perceived the health risks of COVID-19, and hence may have differently considered the importance of complying with sanitary measures. These measures may also have implied different constraints on women and on men. The research we review here has shown that women have been more likely to comply with these measures, and that only part of this difference in behavior is explained by differences in the perception of the COVID-19 risks

This note first summarizes the main findings of various international studies analyzing behavioral differences between women and men in the face of the pandemic. The first part of the literature review presents gender differences in terms compliance with preventive, non-pharmaceutical interventions which were central tools in 2020. The second focuses on attitudes towards vaccination, which was introduced in 2021. The note then summarizes the main findings of a study conducted by LISER on these topics for Luxembourg and its

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neighboring regions. To conclude, we provide the transcript of an interview conducted by LISER with the authors of one of the key articles presented in Section 1.

## 1. Differences between women and men's attitudes towards COVID-19 and sanitary measures: A summary of the scientific evidence

### Compliance with sanitary measures during 2020

We summarize here the results of two important multi-country studies, *Perrotta et al. (2021)* and *Galasso et al. (2020)*. *Perrotta et al. (2021)* designed and conducted an online survey investigating how different demographic groups differ in (i) their perception of the threat posed by COVID-19, (ii) their confidence in the preparedness of various organizations to handle the pandemic, and (iii) the uptake of preventive and social distancing behaviors. Respondents were recruited between March 13th and April 19th in 2020 via targeted Facebook advertisements in Belgium, France, Germany, Italy, the Netherlands, Spain, the United Kingdom, and the United States.

**Perception of the threat posed by COVID-19.** Authors asked respondents to rate the threat that COVID-19 poses to themselves, their family, their local community, their country, and the world, from very low threat to very high threat. The heat maps show that the perceived threat of COVID-19 is significantly higher than the perceived threat of the flu. In particular, the threat to oneself is on average 49% higher, the threat to the family is 46% higher, the threat to the local community is 45% higher, the threat to the country is 64% higher, and the threat to the world is 54% higher. The perceived threat is significantly higher among women than among men, except for the threat to oneself and to the family among people aged 65 and over.

*Figure 1: Threat perception of COVID-19*
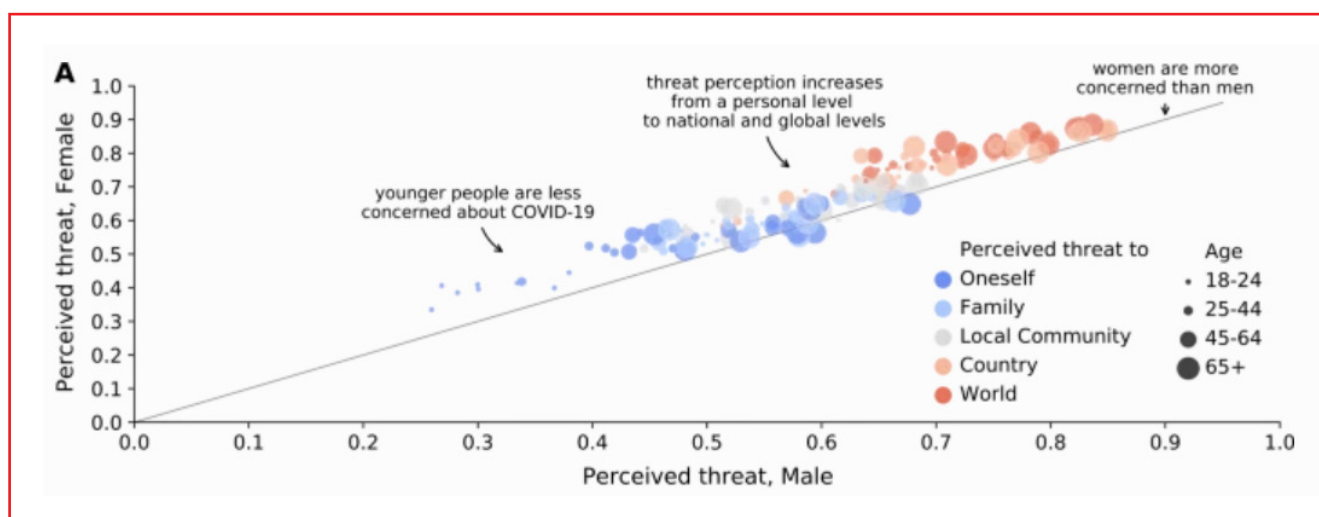


*Note: The figure displays relationship between the threat perceived by female and male respondents, where colors indicate different levels of society and sizes indicate the age of respondents.*
*Sources: Perrotta et al. (2021)*

**Institution preparedness.** Authors also wanted to rate respondents' confidence in the preparedness of various organizations to effectively deal with the COVID-19 pandemic from not confident at all to very confident. They consider five items: (i) the confidence in the local healthcare system (as the average confidence in doctors/healthcare professionals and in local hospitals), (ii) the national healthcare system, (iii) the World Health Organization (WHO), (iv) the local government, and (v) the national government. Men tend to be more confident in the local and national healthcare system, whereas women tend to be more confident in the WHO and the local government. No significant variation is observed in the confidence in the national government, although there is a substantial difference in the United States, where men have greater confidence in the national government than women.

**Protection measures.** Lastly, authors have investigated how respondents protected themselves during the early stage of the pandemic. List of actions from which respondents could choose are: (i) stockpiling food and/or medicine; (ii) wearing a face mask; (iii) frequent use of hand sanitizer; (iv) frequent hand washing; (v) increased social distancing; (vi) reduced use of public transportation. Figure 2 shows the adoption rate of these behaviors by country during the period March 13th – April 19th, 2020. The least frequent action is the stockpiling of food and/or medicine, ranging from about 18% in the United Kingdom to about 31% in the United States. Wearing a face mask ranges from about 7% in the Netherlands to about 60% in Italy. As for hand hygiene, the adoption of more frequent use of hand sanitizer ranges from about 50% in Germany to about 72% in the United States, whereas the adoption of more frequent hand washing ranges from about 87% in Germany to about 94% in Spain. The most frequently reported behaviors are social distancing (from 93% in the United States to about 98% in Italy) and mobility reductions (ranging from 67% in the Netherlands to 82% in Spain). On average, women tend to adopt more protective behaviors than men.

*Figure 2: Adoption rate of wearing a face mask by sex*
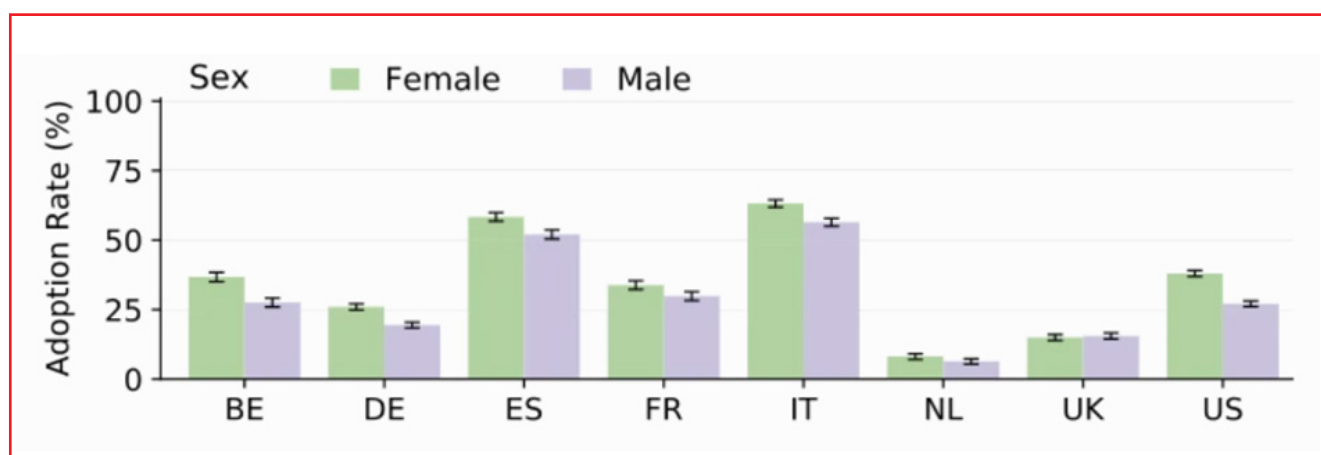


*Note: The figure displays adoption rate of wearing a face mask by sex and by country. Bar charts show mean values as bars and 95% confidence intervals as errors*
*Sources: Perrotta et al. (2021)*

*Galasso et al. (2020)* analyze gender differences both in behavior—namely, compliance with the new public health rules—and in attitudes toward the virus—the assessment of how dangerous it is and which policy measures should be adopted to combat it. They use original data from two waves of a nationally representative panel survey conducted in eight OECD countries (Australia, Austria, France, Germany, New Zealand, the United Kingdom, and the United States).

They observe large gender differences in the individual perception regarding the seriousness of COVID-19 as a health problem in the respondent's country. The data from the first wave in all eight countries in March 2020 show that 59.0% of the female respondents considered COVID-19 to be a very serious health problem, against 48.7% of the men. In data from the second wave, in mid-April, these proportions had decreased by more than 15 percentage points among both men and women, but a sizable and significant gender difference remained.

In addition to the perception of danger, respondents were asked how much they agree, on a 1-to-5 scale (from completely agree to completely disagree), with a large number of measures.[1] Substantial gender differences are also present in individual attitudes toward these restraining measures. In mid-April, the overall agreement with restraining measures had decreased among both men and women, and the gender difference remained sizable.

[1] These measures include closing schools, closing nonessential shops, postponing elections, prohibiting nonessential travels, stopping public transportation, using cellular phones to trace people's movements, imposing a curfew, imposing quarantine on people entering the country, closing borders, imposing self-quarantine at home, prohibiting meetings of two or more people, imposing quarantine away from home on people infected by COVID-19, and closing nonessential economic activities and institutions. In the second wave, individuals were also asked how much they agree with conducting systematic tests on the population and mandating the use of face masks in public places.

*Figure 3: Compliance index*



*Note: The figure shows the compliance index for men and women, in the pooled sample and by country, in the first wave of the survey (panel A) and in the second wave (panel B). The compliance index is the average of a set of dummy variables equal to one if the respondent follows a specific recommended rule (such as washing hands more often and avoiding crowded places) and zero otherwise. Authors also report the 95% confidence intervals from OLS regressions of this compliance index on the female dummy.*
*Sources: Galasso et al. (2020)*

### Attitudes towards vaccination

General mistrust in vaccines and concerns about future side effects in particular are barriers to achieving population immunity to COVID-19 through vaccination. Public health communication should be tailored to address these concerns. We have seen that women are much more likely to adopt protective measures. Are they also more likely to get vaccinated?

*Paul et al. (2021)* used data from a large panel study of the psychological and social experiences of over 75,000 adults (aged 18+) in the UK during the COVID-19 pandemic. The study started on 21st March 2020 and involved online weekly data collection from participants for the duration of the COVID-19 pandemic in the UK. Authors found that respondents are worried about unforeseen effects of the vaccine with 16.3% of the respondents expressing strong worries and 52.9% expressing moderate worries. Among respondents, 8.5% expressed a strong preference for natural immunity, whilst 44.7% also expressed some feelings that natural immunity might be better than a vaccine. Women were more likely to express concerns specifically about unforeseen effects of vaccines and less of a preference for natural immunity. Findings of this study suggest that the largest behavioral and attitudinal barriers to receiving a COVID-19 vaccine are a general mistrust in the benefits and safety of vaccines and concerns about their unforeseen effects.

*Kreps et at. (2021)* employing a survey of 1096 adult Americans conducted an experiment to evaluate a series of seven hypothetical vaccines. For each hypothetical vaccine, an experiment randomly assigned values of five different vaccine attributes— efficacy, the incidence of minor side effects, government approval process, manufacturer, and cost/financial inducement. After seeing the profile of each vaccine, the respondent was asked whether he/she would choose to receive the vaccine described, or whether he/she would choose not to be vaccinated. Finally, respondents were asked to indicate how likely they would be to take the vaccine on a seven-point Likert scale. Across all choice sets, in 4419 cases (58%) respondents said they would choose the vaccine described in the profile rather than not being vaccinated. Efficacy had the largest effect on individual vaccine preferences. An efficacy rate of 90% increased uptake by about 20% relative to the baseline at 50% efficacy. Even a high incidence of minor side effects had only a modest negative effect (about 5%) on willingness to vaccinate. Whether the vaccine went through full FDA approval or received an Emergency Use Authorization (EUA), an authority that allows the Food and Drug Administration mechanisms to accelerate the availability and use of treatments or medicines during medical emergencies, significantly influenced willingness to vaccinate. An EUA decreased the likelihood of vaccination by 7% compared to a full FDA authorization; such a decline would

translate into about 23 million Americans. While a $20 co-pay reduced the likelihood of vaccination relative to a no cost baseline, financial incentives did not increase willingness to vaccinate. Lastly, the manufacturer had no effect on vaccination attitudes. Women and older subjects were significantly less likely to report willingness to vaccinate than men and younger subjects, all else equal.

## 2. The case of Luxembourg

In order to study the impact of COVID-19 crisis, researchers from the Luxembourg Institute of Socio-Economic Research (LISER) and the University of Luxembourg have conducted an online survey among the residents of Luxembourg and the border regions from early March to mid-April 2021. The survey had a specific module dedicated to attitudes towards COVID-19 measures (social distancing, testing and vaccination) as well as relevant individual characteristics such as behavioral traits and beliefs. Almost 700 individuals responded to this module.

Simple descriptive statistics of the data are presented in Figure 4a and Figure 4b. They illustrate the differences in attitudes towards COVID-19 measures between women and men. The comparisons suggest that the proportion of women who are compliant with health measures is higher than men's in almost all dimensions. Figure 4 reveals that women are more supportive of mask-wearing, with 81% of women considering it as a civic duty, compared to 71% for men. Two thirds of women claim to always wear masks in public places, compared to only 55% of men. Furthermore, 54% of women (47% of men) claim to never forget safety measures throughout the day, and 69% of women (60% of men) consider themselves as careful about applying safety measures in March 2021 as they were in the beginning of the pandemic. Also, 73% of women (63% of men) support the government's actions against the pandemic in general.

Figure 4b pertains to testing, proactive risk avoidance and vaccination outcomes. The proportion of women involved in testing also appears higher than men's. Indeed, 88% of women in our sample participated in Luxembourg's large-scale testing campaign, compared to 82% of men. Also, spontaneous testing (in case of feeling sick or in case of contact with an infected person) is more prevalent among women (67%) than men (59%). Furthermore, proactive behaviors of risk avoidance seem slightly more pronounced among women. Indeed, 89% of women (84% of men) avoid physical contacts (shaking hands, kissing, hugging,…) and 70% of women (64% of men) try to avoid public places since the start of the pandemic. Finally, the only exception to the overall higher compliance of women pertains to vaccination, with a similar proportion (75%) of both women and men intending to get vaccinated.

*Figure 4a & 4b: Average levels of attitude towards COVID-19 measures, by gender*
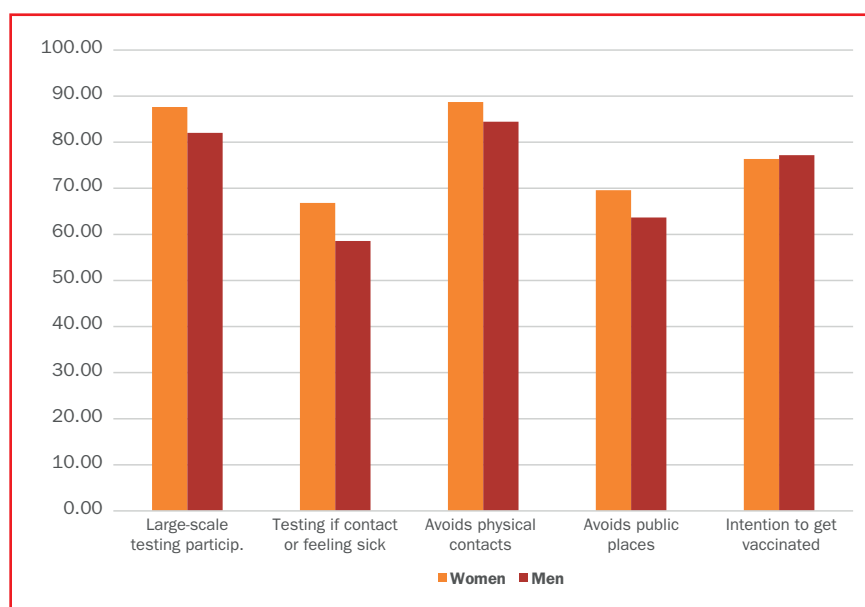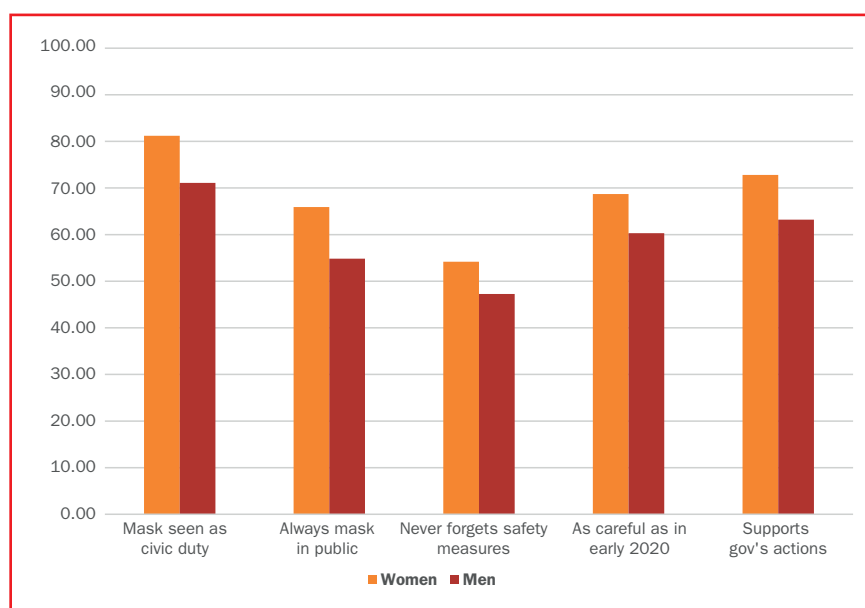




*Sources: Peluso, E., Amétépé, F. S., Andreoli, F., Genevois, A-S., Menta, G., Salagean, I., Van Kerm, P., & Verheyden, B. (2022). COVID-19 and Gender Equality in Luxembourg. Ministère de l'égalité entre les femmes et les hommes (MEGA).*

These figures are however simple comparisons of proportions between women and men. The study hence develops a methodology to identify the main mechanisms driving these differences. In particular, women are more averse to risk, and perceive COVID-19 as more dangerous to their health than men. By taking these factors into account, the study shows that the difference in attitudes between women and men is smaller than suggested by the mean comparisons. Still, women remain more compliant than men for a number of policies, in particular in the conscientious adoption of masks and social distancing, and in their support of the government's actions. Women are only marginally more willing to get tested

than men who have similar socio-demographic characteristics and risk perceptions, and they do not have a higher propensity for proactive risk-avoidance of physical contacts and public places. Finally, the study shows that women a significantly less willing to get vaccinated, by about 5 percentage points, once risk attitudes are taken into account. This can be explained by the fact that, compared to men, women are more frequently concerned about the vaccine's safety. This is sensible since both mild side effects and ultrarare blood clots were overwhelmingly reported on women. The study thus concludes that gender differences in attitudes depend on the health measures considered, and that effective communication strategies might benefit from a gender-specific treatment. For instance, woman-to-woman communications stressing that the vaccines' sizeable benefits undoubtably outweigh their risks should be considered.

## 3. The experts' insights

In October 2020, researchers Vincenzo Galasso, Vincent Pons, Paola Profeta, Michael Becher, Sylvian Brouard and Martial Foucault published a thorough examination of gender differences in COVID-19 attitudes and behavior in a paper "Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries". Exploring rich survey data from March and April 2020, they document that women are more likely to perceive COVID-19 as a very serious health problem, to agree with restraining public policy measures and to comply with tem compared to men.  Two of the authors of the study, Dr. Vincenzo Galasso (Bocconi University) and Dr. Paola Profeta (Bocconi University), have answered our questions and shared the highlights of their recent research with us.

1. **Could we start by looking at pre-COVID-19 literature and discuss whether gender differences in compliance with public policy rules have been documented?**

   **Dr. Paola Profeta:** We have some evidence that before COVID-19 men and women differed in their compliance with public policy rules. In particular, we have evidence related to paying taxes showing that women pay taxes more than men and that they are less exposed to tax evasion. Also, there is evidence that in general, women act more according to rules and law; in particular, women commit less crime, they are more in line with the law, and tend to be less corrupted. This is true for women as individuals, when we observe their attitudes towards following the rules as citizens through different surveys. It is also true when we look at literature on women as policy makers or politicians. In this case we know that women are less corrupt, less involved in bribes, and more in inclined to following the rules.

2.  **Let us turn to your research. First, are there gender differences in the perceptions of the seriousness of COVID-19 as a health problem?**

    **Dr. Vincenzo Galasso:** There are persistent differences between men and women and those differences are found in all the countries that are part of our study. We conducted a survey in March, April, June and December 2020 in 8 OECD countries: Australia, Austria, Germany, France, Italy, New Zealand, the UK, and the USA. We asked respondents to rate how serious they think the health consequences of COVID-19 are going to be. We could observe that there are differences in answers depending on gender, and those differences appear in every country in both March and April. Women are more concerned about health consequences of COVID-19. Despite the fact that we observe different levels of concern in different countries, in April, concerns were much lower in Austria as opposed to Italy or the UK, but nevertheless, gender differences persist in all countries.

3.  **The pandemic has led to the imposition of restraining measures that the vast majority of us had never experiences before – closing schools, stay-at-home orders, quarantines, postponing elections, etc. How can attitudes towards these measures be documented, and, again, did you observe differences between men and women?**

    **Dr. Vincenzo Galasso:** Our survey had a set of questions addressing this. For example, we showed respondents a list of measures taken in certain countries against the spreading of Coronavirus, and asked them to rate how much do they agree with the measures on a scale from 0 to 10, where 0 meant "I completely disagree" and 10 "I completely agree". The list of measures was long and contained, for example, closing daycares, schools and universities, closing non-essential shops, postponing elections, prohibiting non-essential trips, closing public transportation, implementing curfew, to some extreme things such as using mobile phone data to control people's movements, closing borders, general lockdown – prohibiting people to leave their home. These questions were asked in March, and then in April we added a set of questions on mandatory wearing of face masks outside home, and again we find striking differences between men and women in terms of how much do they agree with these measures. We constructed an index which took care of answers to all these questions, and we found a large variance across countries, in terms of how much people agree to these measures. For example, Italy, New Zealand, the UK, were the countries where people agreed with the measures the most, as opposed to the US, where the agreeableness was lower, but regardless of the baseline agreeableness level, gender difference was there, because women were more in agreement with all restrictive measures. This goes hand in hand with what we have discussed before,

women were more concerned regarding the health problems related to COVID-19, and so they accepted and agreed with these restrictive measures more.

4. **Your research documents how strictly individuals have followed the rules, such as washing hands more often, stop greeting people by shaking hands or hugging, keeping physical distance, etc. Do you find gender differences in compliance with these rules? Can you explain the driving forces of this result?**

**Dr. Paola Profeta**: Yes, we find that there is a gender difference in compliance with the rules. We construct a compliance index as an average of 'dummy variables' (which equal one if the respondent answered that he/she followed this specific recommended rule, and zero otherwise). From the pooled data from the eight countries for a total sample of over 10,000 individuals, we see that there is a significant gap between compliance among women and men. Women comply more than men, and the difference is large. There is a little difference between the first and the second wave, where differences between genders decrease in the second wave. Differences across countries are quite small when we look at the compliance. Interestingly, the strongest difference between men and women appeared when we looked at the specific measure which is coughing into one's elbow, which is a measure that basically protects the others. This seems to be in line with the general idea that women care more about other is terms of social utility from what happens to the others.

In terms of the factors which may drive and explain these results we have done lots of analysis in the paper. We tried to understand what is the role of sociodemographic factors, for example, what is the role of age, economic conditions, health conditions, economic activity, etc., so we include controls for these variables and see that the difference between women and men is still there when we control for a battery of different characteristics. Other important factors may be psychological and behavioral differences between men and women. For example, we know that men and women differ in risk-aversion and huge body of literature shows that women are more risk-averse than men. So, these psychological traits might be important when they have to follow the rules. Another possible factor could be trust in science, because men and women may also differ in terms of their trust in science. The rules introduced by governments were based on scientific evidence, so trust in scientists may be another important determinant of compliance with the rules. Lastly, we take into account political ideology which represents to what extent do individuals support government intervention or are aligned with particular government. Taken into account all these factors, we still find difference between women and men in compliance with rules.

5.  **We focused on gender so far. Did you observe important differences by age, income, education or family composition?**

**Dr. Vincenzo Galasso**: As far as individual behavior goes; the most striking feature is certainly gender. There are some differences in terms of perceptions and attitudes which are related to age. If you look at the psychological costs of the pandemic it turns out that it is much larger the younger part of the population compared to the older. But as far as we look at the compliance with the rules, there is not much of a difference. We can say that it depends on the country. There are countries where you find that there is a statistically significant difference related to education, where educated people comply more, but that is not true everywhere and it is also not a very strong effect. What is a big difference instead, which cuts across this cleavage, more than education and income, is employment status of the individual during the pandemic. In another research we look at how people were affected on their labor market participation and there we see very large differences according to education. In particular, what happens is that educated people were less likely to lose their job and more likely to work from home. So, this prevented them from losing their job and it protected them from the pandemic itself, because by being at home they had a lower risk of getting infected. On the other hand, low educated people have either lost their jobs completely or they were more likely to continue working on their work place which exposed them to the pandemic. So, there are differences, but not so much in terms of individual behavior, there are differences in terms of how the risk of the pandemic hit different people.

6.  **Countries included in your research are 8 OECD countries: Australia, Austria, France, Germany, Italy, New Zealand, the UK, and the USA. Are there any sharp differences across countries that you cover?**

**Dr. Vincenzo Galasso**: There are differences in terms of levels. When you think about how much people were concerned about the seriousness of COVID-19, how much they were complying with the measures, and how much they were in favor of the measures, you see very large differences across countries. When we go back to the gender difference instead, it was pretty much stable over all countries. The differences may be due to several things. First, the timing of the pandemic has been different. The first survey was run in the end of March 2020, and there you clearly see that some countries were already into lockdown (for example, Italy had been in lockdown for two weeks already), where other countries were just entering. The seriousness of the pandemic was at different stages in different countries which may justify why people had different levels of concern and compliance. Country differences remain in the survey that we run in June 2020 and December 2020, but again there are lots of elements that are country specific,

such as where the country stands, depends on the history of the pandemic, and the measures that have been implemented.

7. **Do you see possible implications of your research for the post-pandemic public health and in particular for the vaccination campaign?**

**Dr. Vincenzo Galasso**: In December 2020 wave of the survey, we included questions on vaccination intentions. We asked people how much likely were they to get vaccinated if vaccine was available and they had to choose on a scale from 0 (which meant "not at all") to 10 (which meant "absolutely yes"). For these questions as well, we find a strong gender difference. However, in this case, what we find is that women are less likely to get their vaccine. This is a striking result if we think about what was just said before, where women were more concerned about COVID-19, they were more willing to follow the measures and to comply with the measures, however, they were not happy to get vaccinated. This result might seem a bit counterintuitive. Vaccination hesitancy is higher among women in our data.

8. **Is more research needed in this area? Where?**

**Dr. Paola Profeta**: Of course, more research is needed, both in general and with respect to gender differences during the pandemic. We know that pandemic has affected men and women differently, and in terms of economic consequences it has hit women stronger. We know that pre-existing gender differences with respect to economic conditions, social roles, etc. which we know are large, may have an important role because the pandemic is exacerbating existing gender gaps. In general, the way men and women are going to react to the pandemic has to be explored. We are moving from one wave to another, and each time we learn a little bit more, but at the same time the economic consequences in addition to the health and social consequences become stronger. COVID-19 is not only a health crisis, but also an economic and social one, and all these aspects have to be better investigated, so that we can understand what will happen in the long run. Another thing interesting to investigate is how women as policy makers and politicians are reacting to COVID-19 crisis. Initial, preliminary evidence seems to suggest that there is a difference in the style of the leadership, policy making type and approach in terms of rules and policy proposals when men and women act as policy makers, but we need more time and data to investigate this in detail and come to some conclusions.

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