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**GENDER DIFFERENCES IN OPTIMISM  
DURING THE CORONAVIRUS OUTBREAK**

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# GENDER DIFFERENCES IN OPTIMISM DURING THE CORONAVIRUS OUTBREAK

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## Key Findings

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- The paper examines gender differences in optimism during the coronavirus outbreak.
- It uses an online survey on COVID-19 conducted in Armenia in a state of emergency, where, among others, respondents stated their beliefs about the duration of coronavirus outbreak and its financial impact on the country.
- Controlling for the confounding factors, it is found that men are less optimistic about the duration of coronavirus outbreak in the country, while no gender effect is detected in perceptions about the financial impact of the outbreak in the country.

# 1. Introduction

Gender differences have been found to exist in attitudes towards a variety of situations. For instance, men are found to be more optimistic in their attitudes toward nuclear war (Gwartney-Gibbs and Lach, 1991) or in the risks of buying online (Garbarino and Strahilevitz, 2004) or there are gender biases in student evaluations of teaching (Boring, 2017). Other studies, find that overconfidence and optimism drive economic decisions. Barber and Odean (2001) test the hypothesis that men are more overconfident in the fields such as finance and they find that that men trade more than women (and trading reduces men's net returns by more than for women). With regard to optimism, Puri and Robinson (2007) construct a measure of optimism and find that it is related to economic decisions, for instance, more optimistic people work harder, save more etc.

The current paper studies whether there are gender differences in beliefs about the duration of coronavirus outbreak and its impact on the economy. There are previous studies that consider the gender differences in optimism about the overall economic situation. Specifically, Jacobsen et al. (2014) using Gallup polls and University of Michigan Consumer Sentiment Index survey find that men are significantly more optimistic than women regarding the economy and the stock market. Bjuggren and Elert (2019) find that men are more optimistic than women regarding the Swedish economy and yet they also find that in sharp economic downturns the gender differences disappear.

This paper uses a large scale online survey on COVID-19 conducted by Caucasus Research Resource Centers (CRRC). The survey includes variety of questions on the respondents' beliefs, as well as sociodemographic profile. In particular, the survey asks to state the respondents' beliefs about the financial effects of coronavirus outbreak and undertaken economic measures on the economy, as well as on the duration of transmission of the virus in Armenia. This paper considers whether there are gender differences in those perceptions, by controlling for a number of confounding factors such as age, education and income, following other studies (e.g. Jacobsen et al. (2014)). Meanwhile, the survey also includes a question about the impact on one's own economic situation, which is also controlled for to separate it from the perceptions about overall economic situation in the country. The latter is done following Bjuggren and Elert (2019). The other questions that survey includes about the beliefs, such as government and public responses, government trust, are also taken into account.

Estimating ordered logistic regressions the paper finds that male respondents are less optimistic about the duration of coronavirus outbreak in the country than female respondents are. This gender differences persist when number of background factors and impact on own individual situation are controlled for. Meanwhile, no gender effect is detected in perceptions about the financial impact of

the outbreak and undertaken measures on the country. Note that the finding about men being less optimistic in their beliefs of coronavirus spread duration is somewhat in contrast with previous studies, specifically Jacobson et al. (2014) and Bjuggren and Elert (2019) which find that men are more optimistic regarding the economy.

The paper has used an online survey with its peculiarities, while at the same time providing evidence from quite uncertain period of time. Once new data is available, the topic will be investigated further. The rest of the paper is organized as follows. Section 2 presents the data. Section 3 discusses estimation results and Section 4 concludes.

## 2. Data

The survey on COVID-19 conducted by Caucasus Research Resource Centers (CRRC) is used<sup>1</sup>. The two dependent variables considered are the beliefs about the financial impact and duration of the virus transmission in Armenia. Table A1, given in the Appendix, provides variables definitions and reports the descriptive statistics. Table A2 reports descriptive statistics distinguished by gender. The response to the following question will be considered as a dependent variable:

*What is the financial impact of the coronavirus outbreak and undertaken measures on Armenia?*

The same question is asked about the respondent's own economic situation and answers have similar structure, which is used to control for individual confounding effects. The answers to these two questions are in five-stage rating categories from very negative (1) to very positive (5). The correlation between beliefs about the effects on individuals' own situations and on the overall economic situation is as high as 0.52. As Table A1 in Appendix shows, the average perception of the effect on Armenia is negative, and the same applies to own situation of the respondent, while for the latter the average perception is slightly higher (positive) than for the impact on the overall economy. From Table A2, it can be observed that on average male respondents provided a lower score to both questions than female respondents did.

The next dependent variable is the response to the question about the duration of the spread in Armenia and is formulated as follows:

*In your opinion, how long will the spread of coronavirus continue in Armenia?*

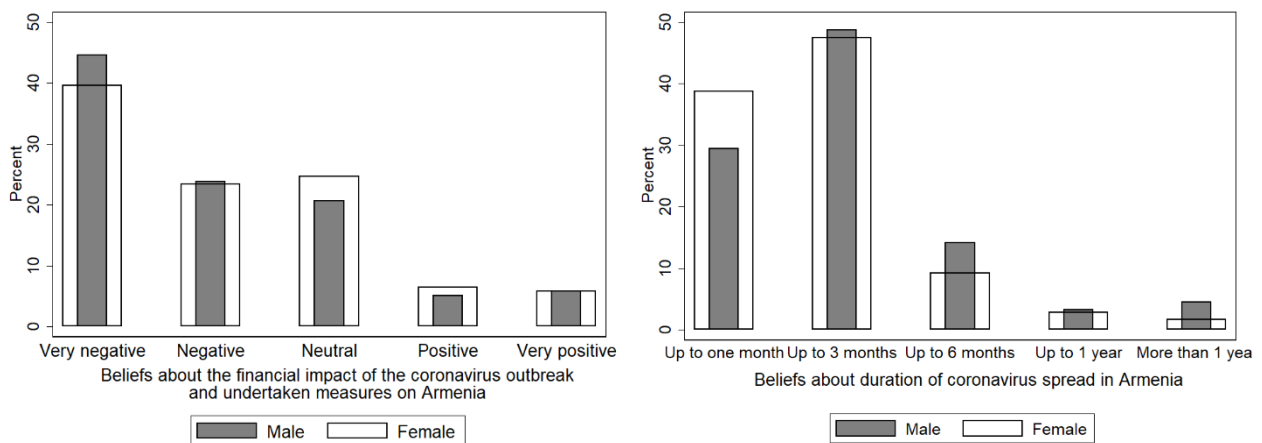
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<sup>1</sup> It was conducted online and was circulated using Facebook advertising modules. The survey covered the period from March 29 to April 8. The survey sample is representative neither for Armenian population nor for the Armenian users of Facebook.

The answer options to the question are “Up to one month” (1); “Up to 3 months” (2); “Up to 6 months” (3); “Up to 1 year” (4); “More than 1 year” (5). Thus, 1 stands for the shortest and 5 is the longest duration, that is more than one year. As Table A1 in Appendix displays, the average belief is that the duration would be up to 3 months. At the same time, Table A2 shows that the average score by the male respondents is higher (longer duration) than for the female respondents.

Figure 1 displays the distribution of beliefs about the impact of the coronavirus outbreak and undertaken measures on the Armenian economy (left graph) and beliefs about duration of the coronavirus spread in Armenia (right graph). For both cases it can be noticed that male respondents have less optimistic beliefs than female respondents. Meanwhile, it is worth noting that even though public health authorities (both locally and internationally) have been telling us that we should expect the outbreak to continue until at least the end of 2020, both male and female respondents are over-optimistic about the short duration of the coronavirus outbreak (majority in both groups believes it will last 3 months or less).

**Figure 1.** Distribution of beliefs about the impact of the coronavirus outbreak and undertaken measures on the Armenian economy (left graph) and beliefs about duration of the coronavirus spread in Armenia (right graph)



### 3. Results

This section will further investigate whether the differences observed in the previous section are driven by gender or are due to other factors. The beliefs about the financial impact on Armenia and duration of the coronavirus spread in Armenia are considered as outcome variables in the logistic regressions. The estimation results are reported in Table 1. Coefficients are the proportional odds ratios, which express the odds of answering a higher category of outcome variable.

**Table 1.** Estimation Results

Variables	Beliefs about the impact on Armenia			Beliefs about the duration of the spread in Armenia		
	(1)	(2)	(3)	(4)	(5)	(6)
Male	0.87** (0.05)	0.87** (0.06)	1.01 (0.07)	1.605*** (0.084)	1.465*** (0.118)	1.479*** (0.121)
Age (18-25)		1.11* (0.06)	0.82** (0.06)		1.222*** (0.078)	1.214*** (0.083)
Age (26-35)		0.92 (0.07)	0.90 (0.08)		1.127* (0.077)	1.136* (0.080)
Age (36-45)		0.88 (0.08)	0.84* (0.08)		1.053 (0.050)	1.061 (0.056)
BS degree and higher		0.87** (0.06)	0.80*** (0.06)		1.111* (0.068)	1.107* (0.068)
Urban		1.00 (0.08)	1.00 (0.09)		1.019 (0.037)	1.020 (0.034)
Income		1.01 (0.01)	1.11*** (0.01)		0.935*** (0.022)	0.937*** (0.021)
Has no job		0.79*** (0.05)	1.31*** (0.07)		1.096 (0.098)	1.125 (0.093)
No compensation, costs will cover		1.01 (0.09)	1.26*** (0.09)		0.994 (0.052)	1.006 (0.048)
No compensation, costs difficult to cover		0.63*** (0.05)	1.26*** (0.07)		1.119** (0.058)	1.166*** (0.065)
Remote experience not available		0.97 (0.08)	1.08 (0.11)		0.830*** (0.056)	0.843** (0.056)
Government Trust		1.11*** (0.02)	1.03* (0.02)		0.918** (0.040)	0.912** (0.041)
Health care system trust					0.876*** (0.032)	0.875*** (0.032)
Government Response		1.00 (0.02)	1.00 (0.03)		1.049** (0.024)	1.050** (0.025)
Public Response					1.046** (0.023)	1.046** (0.022)
Fear of health care system not serving the patients					1.226*** (0.044)	1.224*** (0.045)
Fear of people losing their jobs		0.86*** (0.02)	0.90*** (0.03)			
Beliefs about the impact on one's own situation			2.71*** (0.06)			1.047** (0.023)
Observations	8,094	4,729	4,706	6,970	4,282	4,250
Pseudo R2	0.000461	0.0102	0.112	0.00588	0.0210	0.0215

*Note.* Odds ratios from ordered logistic regressions. Robust standard errors clustered by marzes in parentheses. Significance levels: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

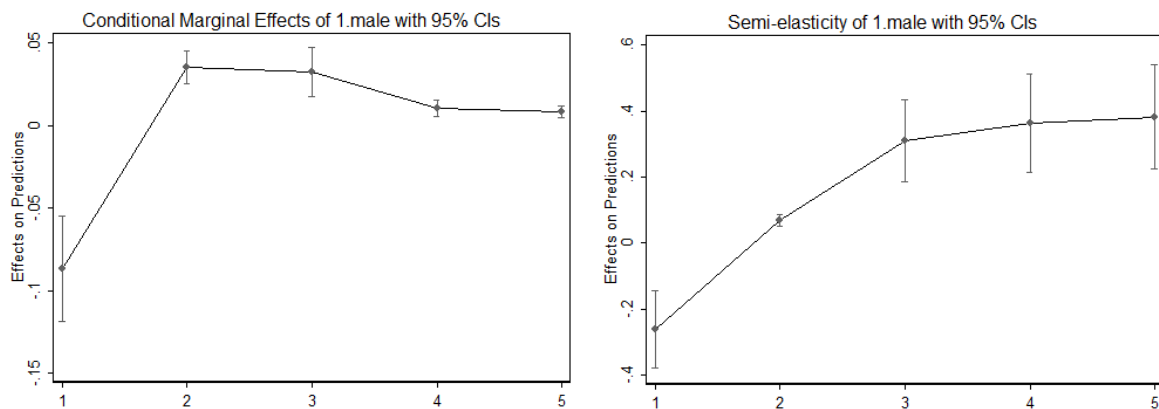
The estimated odds ratios for being male become insignificant when other control variables are included in the models (1)-(3). Thus, when individual confounding factor of impact on one's own financial situation is controlled for, we find that gender does not matter.

From the models (4) -(6), it can be observed that estimated odds ratios indicate that men have 1.5–1.6 higher odds than women of giving a pessimistic response about the duration of the spread in the country.

Thus, for the beliefs about the duration of virus spread it is found that the gender differences in optimism persist when other relevant covariates are taken into account.

Next, the mode (6) is used to calculate conditional marginal effects of male for each of the outcome categories, holding all covariates at their means. The estimates are statistically significant. For better demonstrations these are plotted in Figure 2.

**Figure 2.** Conditional marginal effects and semi-elasticity



The differences are evident. Thus, male respondents are about 9 percentage points less likely to answer that the duration will be up to one month and 3-4 percentage points more likely to state that the duration would be up to three and six months. Male respondents are around 1 percentage point more likely to state that duration would be up to one year and more than one year. As the predicted probabilities for males and females are not equally distributed across the possible outcomes, the semi-elasticity is calculated and is shown in Figure 2. The estimates are statistically significant for all cases. Being a man decreases the probability of answering that the duration would be up to one month with 26 percent, and increases the probability of answering more than a year with 38 percent (the effect is of similar level for the third and fourth categories, 31 and 36 percent, respectively). For the case of up to three months, it is relatively small and is about 7 percent.

## 4. Concluding Remarks

The paper has studied the gender differences in beliefs during coronavirus outbreak. Controlling for confounding factors it is found that male respondents are less optimistic about the duration of coronavirus outbreak in the country than female respondents are. These gender differences persist when number of background factors and belief about the impact on own individual situation are controlled for. Meanwhile, no gender effect is detected in perceptions about the financial impact of the outbreak and undertaken measures on the country. Note that the finding about men being less optimistic in their beliefs of coronavirus spread duration is somewhat in contrast with previous studies, specifically Jacobson et al. (2014) and Bjuggren and Elert (2019) which find that men are more optimistic regarding the economy than women are.

The paper has used an online survey with its peculiarities, while at the same time providing evidence from quite uncertain period of time. Once new data is available, the topic should be investigated further.

## 5. References

- Barber, B. M., and T. Odean. (2001). "Boys Will Be Boys: Gender, Overconfidence and Common Stock Investment." *Quarterly Journal of Economics* 116 (1), 261–292.
- Bjuggren, C.M. and N. Elert. (2019). "Gender differences in optimism", *Applied Economics*, 51(47), 5160-5173.
- Boring, A. (2017). "Gender biases in student evaluations of teaching". *Journal of Public Economics*, 145, 27-41.
- Garbarino, E., and M. Strahilevitz. (2004). "Gender Differences in the Perceived Risk of Buying Online and the Effects of Receiving a Site Recommendation." *Journal of Business Research* 57 (7): 768–775.
- Gwartney-Gibbs, P. A., and D. H. Lach. (1991). "Sex Differences in Attitudes toward Nuclear War." *Journal of Peace Research* 28 (2), 161–174.
- Jacobsen, B., J. B. Lee, W. Marquering, and C. Y. Zhang. (2014). "Gender Differences in Optimism and Asset Allocation." *Journal of Economic Behavior & Organization* 107 (PartB), 630–651.
- Puri, M., and D. T. Robinson. (2007). "Optimism and Economic Choice." *Journal of Financial Economics* 86(1), 71–99.



# Appendix

**Table A1.** Variables' descriptions and some descriptive statistics

Variables	Description	N	mean	sd	min	max
Beliefs about the impact on Armenia	Ordinal variable. What is the financial impact of the coronavirus outbreak and undertaken measures on Armenia? Scoring. Very negative (1); Very positive (5)	8,094	2.027	1.275	1	5
Beliefs about the impact on one's own situation	Ordinal variable. What is the financial impact of the coronavirus outbreak and undertaken measures on you? Scoring. Very negative (1); Very positive (5)	8,285	2.170	1.208	1	5
Beliefs about the duration of the spread in Armenia	Ordinal variable. In your opinion, how long will the spread of coronavirus continue in Armenia? Scoring. Up to one month (1); Up to 3 months(2); Up to 6 months (3); Up to 1 year (4); More than 1 year (5)	6,970	1.889	0.898	1	5
<i>Sociodemographic factors</i>						
Age (18-25)	Dummy variable equal to one, if the age of the individual falls in the range 18-25 and zero otherwise.	8,427	0.325	0.468	0	1
Age (26-35)	Dummy variable equal to one, if the age of the individual falls in the range 26-35 and zero otherwise.	8,427	0.380	0.485	0	1
Age (36-45)	Dummy variable equal to one, if the age of the individual falls in the range 36-45 and zero otherwise.	8,427	0.183	0.387	0	1
Male	Dummy variable equal to one if the individual is male and zero otherwise	8,427	0.315	0.465	0	1
BS degree and higher	Dummy variable equal to one if the individual has bachelor's or master's degree or postgraduate degree and zero otherwise.	8,427	0.629	0.483	0	1
Urban	Dummy variable equal to one if the individual lives in urban area and zero otherwise.	8,427	0.832	0.373	0	1
Income	Ordinal variable. Self-reported income of household. Highest income group (1), lowest income group (8)	6,837	5.192	1.654	1	8
<i>Response by the government and public</i>						
Government Response	Ordinal variable. How exaggerated/underestimated is the severity of coronavirus by the government? Scoring. Exaggerated (1); Very much underestimated (5)	7,651	2.798	1.090	1	5
Public Response	Ordinal variable. How exaggerated/underestimated is the severity of coronavirus by the public? Scoring. Exaggerated (1); Very much underestimated (5)	7,649	3.300	1.341	1	5
Government Trust	Ordinal variable. In the state of emergency how much do you trust the Government. Scoring. Do not trust at all (1); Fully trust (5)	8,239	4.077	1.172	1	5
Health care system trust	Ordinal variable. In the state of emergency how much do you trust the Health Care System. Scoring. Do not trust at all (1); Fully trust (5)	8,214	4.187	1.115	1	5
Fear of health care system not serving the patients	Ordinal variable. How likely is it that the healthcare system will not be able to serve all the patients? Scoring. Very unlikely (1), Very likely (4)	8,063	3.232	0.999	1	4
Fear of people losing their jobs	Ordinal variable. How likely is it that that many people will lose their job as because of virus? Scoring. Very unlikely (1), Very likely (4)	7,588	3.357	0.918	1	4
<i>What will happen if you do not work for at least two weeks because of a coronavirus? (Ref.: Probably I will continue to be paid)</i>						
Has no job	Dummy variable equal to one If the individual selects the option: I don't have a job and zero otherwise.	7,823	0.244	0.429	0	1
No compensation, costs will cover	Dummy variable equal to one If the individual selects the option: I probably will not be paid, but I will be able to cover my living (necessity) expenses and zero otherwise.	7,823	0.130	0.336	0	1
No compensation, costs difficult to cover	Dummy variable equal to one If the individual selects the option: I probably will not be paid and will have hard time to cover my living (necessity) expenses and zero otherwise.	7,823	0.358	0.479	0	1
Remote experience not available	Dummy variable equal to one If the individual indicates having no such experience to the question: How effective is online learning, teaching, and work?. Zero otherwise.	7,569	0.177	0.382	0	1

**Table A2.** Descriptive statistics over the gender

Variables	Female			Male		
	N	mean	sd	N	mean	sd
Beliefs about the impact on Armenia	5,525	2.054	1.283	2,569	1.967	1.254
Beliefs about the impact on one's own situation	5,666	2.213	1.200	2,619	2.078	1.221
Beliefs about the duration of the spread in Armenia	4,690	1.812	0.842	2,280	2.047	0.985
Age (18-25)	5,772	0.344	0.475	2,655	0.283	0.451
Age (26-35)	5,772	0.361	0.480	2,655	0.422	0.494
Age (36-45)	5,772	0.179	0.384	2,655	0.192	0.394
Male						
BS degree and higher	5,772	0.654	0.476	2,655	0.575	0.494
Urban	5,772	0.830	0.376	2,655	0.838	0.368
Income	4,585	5.359	1.613	2,252	4.853	1.686
Government Response	5,219	2.773	1.046	2,432	2.853	1.177
Public Response	5,246	3.293	1.330	2,403	3.313	1.366
Government Trust	5,646	4.138	1.104	2,593	3.943	1.297
Health care system trust	5,640	4.250	1.048	2,574	4.049	1.237
Fear of health care system not serving the patients	5,520	3.239	0.980	2,543	3.214	1.041
Fear of people losing their jobs	5,193	3.359	0.905	2,395	3.352	0.945
Has no job	5,366	0.283	0.451	2,457	0.157	0.364
No compensation, costs will cover	5,366	0.116	0.320	2,457	0.160	0.367
No compensation, costs difficult to cover	5,366	0.331	0.471	2,457	0.415	0.493
Remote experience not available	5,254	0.174	0.379	2,315	0.184	0.388