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Gender differences in optimism

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Gender Differences in Optimism

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Gender Differences in Optimism

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April 24, 2019

Abstract. This paper examines gender differences in optimism about the economy. We measure optimism using Swedish survey data in which respondents stated their beliefs about the country's future economic situation. We argue that this measure of optimism is preferable to common measurements in the literature since it avoids confounding individuals' economic situation with their perception of the future and it can be compared to economic indicators. In line with previous research, we find that men are more optimistic than women; however, men are also more prone to be wrong in their beliefs about the future economic situation. Furthermore, in sharp economic downturns, the gender differences in optimism disappear. This convergence in beliefs can be explained by the amount of available information on the economy.

Keywords: Gender, optimism, perception of the future, economic downturns

JEL: J16, D83

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1. Introduction

Optimism about the economy is a double-edged sword: at its most beneficial, it may serve to encourage valuable investments, and, as a consequence, economic growth. However, excessive optimism may result in herd behavior, with the potential to encourage larger economic fluctuations and the creation of economic bubbles. We employ a detailed dataset to examine gender differences in optimism regarding the Swedish economy.

Previous research has shown that men are more optimistic than women on such varied issues as the risks of nuclear war (Gwartney-Gibbs and Lach 1991), online purchases (Garbarino and Strahilevitz 2004), and relationship survival (Srivastava et al. 2006). To our knowledge, however, there is only one previous study by Jacobsen et al. (2014) that focuses on gender differences in optimism about the general economic situation. As far as we know, our study is the first to assess whether men are correct in their more optimistic beliefs, and the first to examine whether the gender differences persist in response to more information on the economy.

Our conception of optimism can be defined as *the relative expectation about the future at a given point in time*. In line with Jacobsen et al. (2014), we operationalize this definition based on survey respondents' beliefs about whether the economy one year from now will improve or worsen relative to today.

In the literature, optimism is often defined as a *bias*: the difference between a person's expectation about a specific event and the outcome that follows (Armor and Taylor 2002). The outcome in question typically pertains to the individual, making this type of optimism difficult to distinguish from overconfidence, a term with which it is sometimes used synonymously (Barber and Odean 2001). In addition, this type of optimism appears to be related to success in the professional domain (Johnson and Fowler 2011; Puri and Robinson 2007). Another definition is *dispositional optimism*, which can be described as generalized positive outcome

expectancy (Carver, Scheier, and Segerstrom 2010; Angelini and Cavapozzi 2017). It is usually assessed through statements such as, 'I'm a believer in the idea that "every cloud has a silver lining"' (Scheier, Carver, and Bridges 1994).

Unlike optimism bias, our definition of optimism focuses on a non-individual outcome, namely, the future economic situation of Sweden. Unlike dispositional optimism, it focuses on a concrete situation rather than a general outlook on life. Advantages of this definition are that (i) it avoids confounding individuals' economic situation with their perception of the future, and that (ii) it makes it possible to compare beliefs about the future to outcomes, measured by economic indicators.

The data reveal that, overall, women are less optimistic than men regarding the Swedish economy. This result may be explained by our finding that men seem more prone than women to make forecast errors. However, the gender differences in optimism disappear in times of economic crises. This convergence in optimism correlates with more news coverage on the economy. A plausible explanation for this, we argue, is the different ways in which good and bad information is processed by men and women.

2. Gender and optimism

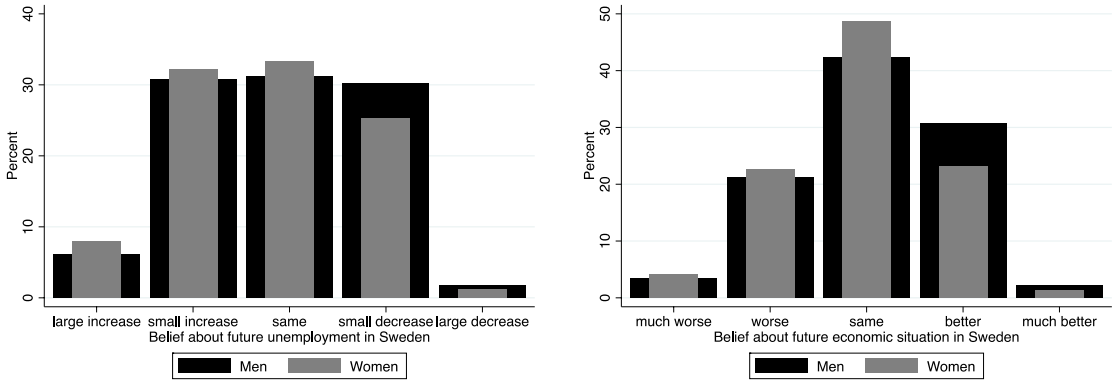
We employ data from a monthly survey (*Konjunkturbarometern*) by the National Institute of Economic Research (NIER), a Swedish government agency. The survey asks respondents about their beliefs regarding their own economic situation now and in the future, and the economic situation of Sweden now and in the future with regard to general economic conditions, unemployment and inflation. The dataset contains background variables such as income, education, occupation, age, and household status (see Table A1) and covers 309,344 respondents over the period 1996-2018.

All survey questions related to economic beliefs have a similar structure. In questions about

the future, the respondent is asked to compare the situation 12 months from now to that of today, with answers given on a five-point rating scale (1 ‘much worse’, 2 ‘worse’, 3 ‘same’, 4 ‘better’, 5 ‘much better’). Answers to the question about future unemployment have a similar five-point rating scale (1 ‘large increase’, 2 ‘small increase’, 3 ‘same’, 4 ‘small decrease’, 5 ‘large decrease’). Importantly, we can control for how people’s view of their own situation affects their beliefs about the Swedish economy.

Figure 1 shows the distribution of beliefs about future unemployment and the future economic situation in Sweden 1996-2018, taking gender into account. According to both measures, women have less optimistic beliefs regarding the future than men, in line with previous evidence (e.g., from the United States (Jacobsen et al. 2014)).

Figure 1. Distribution of beliefs about future unemployment and economic situation in Sweden by gender, 1996-2018



Note: On the left, the variable is beliefs about future unemployment in 12 months compared to today. On the right, the variable is beliefs about the individual’s future economic situation in 12 months compared to today. Number of observations are 309,344.

The gender differences persist when these measures are used as outcome variables in ordered logistic regressions while controlling for background variables as well as beliefs about the individual’s own economic situation in Table 1 (for an extended version reporting coefficients for all covariates, see Table A2). In the simplest models (I) and (IV), the full sample of 309,344 individuals is used. The inclusion of additional covariates in models (II) and (V) reduces the

sample size to 269,511, and the inclusion of the inflation error variable in models (III) and (VI) further reduces the sample to 245,447 individuals.[1]

Table 1. Beliefs about future unemployment and economic situation in Sweden, 1996-2018

	Beliefs about the future economy			Beliefs about future unemployment		
Variables	(I)	(II)	(III)	(IV)	(V)	(VI)
Male	1.345***	1.306***	1.301***	1.234***	1.240***	1.228***
	(0.0219)	(0.0221)	(0.0228)	(0.0190)	(0.0209)	(0.0204)
Beliefs about one's own situation						
worse		2.104***	1.899***		1.659***	1.572***
		(0.0891)	(0.0866)		(0.0579)	(0.0555)
same		4.129***	3.702***		2.454***	2.321***
		(0.179)	(0.174)		(0.0819)	(0.0780)
better		7.037***	6.301***		3.043***	2.878***
		(0.310)	(0.303)		(0.106)	(0.101)
much better		7.862***	7.040***		3.095***	2.911***
		(0.375)	(0.361)		(0.115)	(0.110)
Inflation error			0.996***			0.996***
			(0.000249)			(0.000293)
Additional covariates		Yes	Yes		Yes	Yes
Observations	309,344	269,511	245,447	309,344	269,511	245,447

Note: Odds ratios from ordered logistic regressions. In columns (I)-(III), the dependent variable is belief about the economic situation in Sweden 12 months from now compared to today economic situation in Sweden today compared to 12 months ago, whereas in (IV)-(VI) it is belief about the unemployment rate in Sweden 12 months from now compared to today. In both cases, the dependent variable is ordered from 1 (much worse/large increase) to 5 (much better/large decrease). All estimations include year-month fixed effects. Estimated coefficients for additional covariates can be found in Table A2. Robust standard errors clustered by months in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The estimated odds ratios indicate that men have 1.30–1.35 higher odds than women of giving an optimistic response about the future economic situation and 1.20–1.25 higher odds of giving an optimistic response about the future unemployment level. The gender differences persist in multinomial logistic regressions (Table A3), as well as OLS regressions (Table A4), suggesting

[1] NIER did not collect income data for 2002 which further reduces the sample when we include additional covariates.

that the result is robust to different assumptions about the nature of the dependent variable.[2] Furthermore, separate ordered logistic regressions for each income and educational group (Table A5) show that gender differences are present for all combinations of educational and income categories. While the impact of income on the gender difference is higher for respondents in the lowest educational category (i.e., people who only finished primary school), income seems to play less of a role for optimism in individuals with higher levels of education.

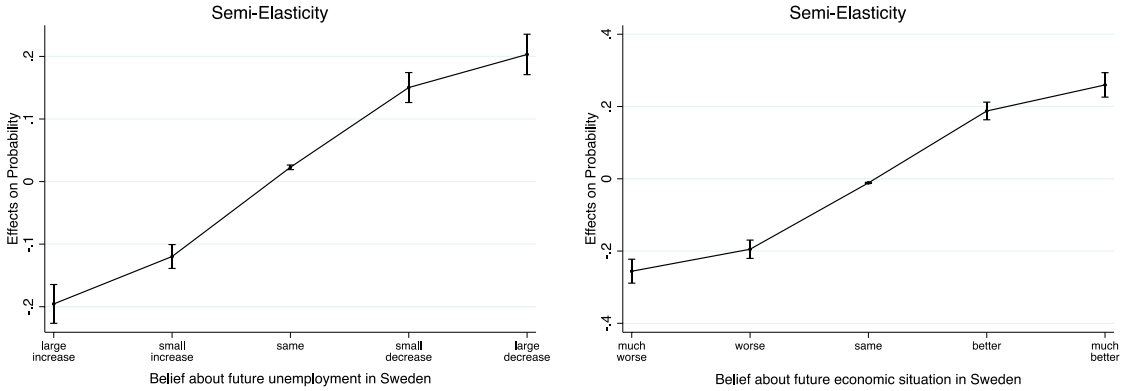
Optimism about the future economy may be affected by how well-informed respondents are about the current economy. The main regressions in Table 1 (Models III and VI) therefore contain a measure that assesses how correct respondents are about the rate of inflation. This is based on a survey question which, unlike the others, requires respondents to give a numerical answer: They are asked to state the exact percentage increase in prices today compared with 12 months ago. We use this information to create a variable that measures the absolute deviation from the inflation rate, defined as the annual percent change in consumer price index by Statistics Sweden. Hence, the further away from zero, the larger is the individual's error in guessing the current inflation rate. When we use this variable as an outcome in an OLS regression (see Table A6), together with the same set of covariates as before, the results confirm the existence of gender differences in terms of being informed about the inflation rate. Men appear to have a more accurate perception about the current inflation rate. However, when the sample is reduced to include only individuals whose response were within a range of 2 percentage points of the correct answer, and including additional covariates, the gender differences disappear. This indicates that, once we exclude outliers, there appear to be no difference in how well-informed women and men are about the economy.

[2] Multinomial logistic regression is similar to ordered logistic regression, except that it does not assume an order to the categories of the outcome variable but treats them as nominal. OLS results are presented because the model plays an important role as an empirical benchmark.

The regressions in Table 1 control for a person's own economic situation. Our definition of optimism focuses on a non-individual outcome, and by including beliefs about one's own situation we can further control for variation that pertains to the individual and hence avoid confounding individuals' economic situation with their perception of the future. On average the respondents are more optimistic about their own situation than they are about the Swedish economy (Figure A1).

We proceed by using the most saturated model in columns (III) and (VI) of Table 1 to estimate the marginal effects of being male versus being female, where all covariates are held constant at their means. The conditional marginal effects for each of the outcome categories are plotted in Figure A2 in the Appendix, and are statistically significant in all cases. However, both men and women are more likely to answer 'same' than any of the other alternatives on the five-point rating scale. It is therefore useful to relate the marginal effects to the size of the predicted probabilities. This semi-elasticity, i.e., proportional difference in probability between men and women for each outcome category, is presented in Figure 2. Being a man increases the probability of answering that the future economy will be 'much better' with 25 percent, and lowers the probability of answering 'much worse' with a similar level. Similarly, being a man increases the probability of answering that we will see a 'large decrease' in unemployment with 20 percent, and lowers the probability of answering 'large increase' with a similar level.

Figure 2. The semi-elasticity of being a man on beliefs about future unemployment and economic situation, 1996-2018



Note: Semi-elasticities are calculated based on Model III (right figure) and Model VI (left figure) in Table 1. On the left, the outcome variable is beliefs about future unemployment in 12 months compared to today. On the right, the outcome variable is beliefs about the individual's future economic situation in 12 months compared to today. All covariates are held constant at their means. Vertical lines refer to a 95% confidence interval. Number of observations are 245,447.

To examine whether men are correct in being more optimistic about the economy, we create three measures of forecast errors in which we measure deviations in future GDP growth or unemployment level from current GDP growth or unemployment level. The three measures differ in the accepted range for the answer 'same' (0.5, 1, or 1.5 standard deviation). A binary variable indicating an inaccurate prediction serves as the outcome variable in linear probability models, including the same covariates as before. The results in Table 2 reveal that men are between 1.9 to 5.0 percentage points more likely to make forecast errors about the future economic situation, and 1.3 to 2.0 percentage points more likely to make forecast errors about future unemployment.

Table 2. Linear probability regression on forecast errors, 1996-2018

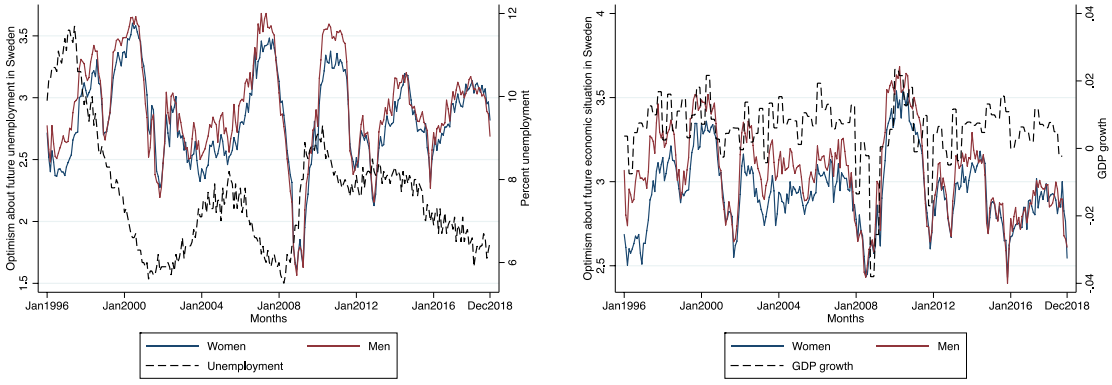
	Accepted range for the answer "same"		
Variables	0.5 s.d.	1 s.d.	1.5 s.d.
Beliefs about the economy			
Male	0.0185***	0.0443***	0.0504***
	(0.00543)	(0.00423)	(0.00358)
Beliefs about unemployment			
Male	0.0132***	0.0198***	0.0198***
	(0.00326)	(0.00274)	(0.00274)
Additional covariates	Yes	Yes	Yes
Observations	245,447	245,447	245,447

Note: Coefficients from OLS regressions. The dependent variable is a binary variable indicating respondents' forecast errors. Forecast errors are calculated in the following way: Actual GPD growth rate, or unemployment level, 12 months from now is defined as being the "same" if it lies within either 0.5, 1, or 1.5 standard deviations (see columns). If actual GPD growth rate, or unemployment level, 12 months from now is above 0.5, 1, or 1.5 standard deviations, it is defined as being "better" or "much better", and if it smaller it is defined as being "worse" or "much worse". The respondent's beliefs about the economy (top section) or beliefs about unemployment (bottom section) is compared to the actual outcome, and the binary variable indicating a respondent's forecast errors takes the value 1 if the respondent's beliefs differ from the actual outcome. All estimations include year-month fixed effects. Additional covariates include all covariates in Table 1, as well as Table A2. Robust standard errors clustered by months in parentheses. s.d. stands for standard deviation. *** p<0.01, ** p<0.05, * p<0.1

3. Information and gender convergence

We plot the average beliefs of men and women over time in Figure 3, including series for the unemployment rate and GDP growth. The gender belief series occasionally converge when beliefs about the future state of the economy are at their lowest, and rightfully so: the level of optimism moves in the opposite direction to the unemployment rate and follows the GDP growth trend more closely.[3] Overall, it seems that during sharp economic downturns, the gender difference in optimism disappears.

Figure 3. Monthly beliefs by gender, unemployment rate, and GDP growth, 1996-2018



Note: Monthly beliefs refer to the monthly average in beliefs about unemployment or the economic situation in Sweden in 12 months compared to today, within each gender group. Data on unemployment and GDP growth are from Statistics Sweden. Number of observations are 309,344. Between 1996 and 2018 there are 276 months.

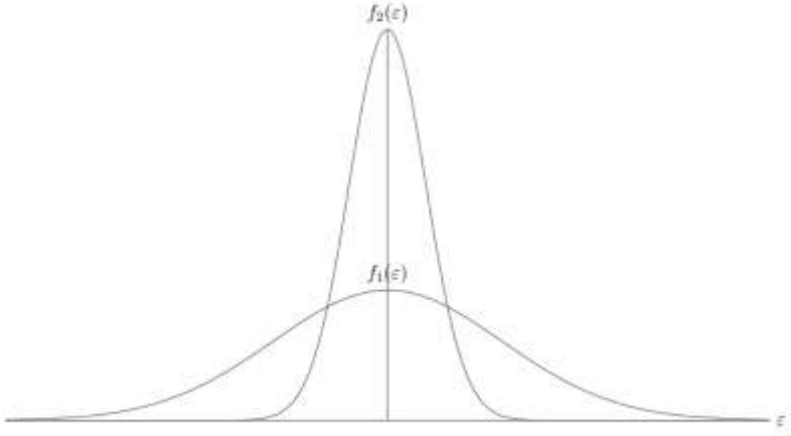
We argue that this gender convergence can be explained, at least in part, by information and

[3] Beliefs about the future state of the economy appear to diverge around the time of the bursting of the dot-com bubble, which affected specific industries. In addition, the series diverge after 2015.

the way it is processed. It is a well-known phenomenon in psychology that bad information has a greater impact on an individual than good information (Baumeister et al. 2001): for example, the distress of losing a certain amount of money is greater than the happiness associated with gaining the same amount (Tversky and Kahneman 1981, 1991). Furthermore, while Madsen (1994) and Johnson and Fowler (2011) suggest that optimism bias should increase in situations of uncertainty when information is scarce, Zullow (1991) finds that pessimistic rumination in songs and newsmagazines predict economic recession via decreased consumer optimism. Relatedly, Sweeny, Carroll, and Shepperd (2006) find that individuals shelve their optimism when they are exposed to information that indicates that their expectations are inaccurate or when an undesired outcome seems possible. Similarly, Carroll, Sweeny, and Shepperd (2006) suggest that people are more likely to change their predictions for outcomes that were difficult to control and could have severe negative consequences. Based on this, we would expect optimism to be forsaken in the wake of an economic crisis.

Previous research has shown that men are more confident than women only when information is absent or ambiguous, but that the confidence difference disappears when information is unambiguous and available (Lenney 1977; Barber and Odean 2001). If we assume that the amount of information available is proportional to the accuracy of an individual's prediction of the future economy, we can illustrate the link between information and beliefs about the future using Figure 4. Here, we let ε_i denote the measurement error in a prediction of the future, and the spread of ε is determined by the amount of information about the economy that individuals receive. For a given density function $f_1(\varepsilon)$ with variance σ_1^2, we have that an information increase introduces a mean-preserving spread of the distribution so that $f_2(\varepsilon)$ is the new density function with variance σ_2^2, and $\sigma_2^2 < \sigma_1^2$. Hence, predictions are more accurate when information is abundant and ε is more centered around the mean.

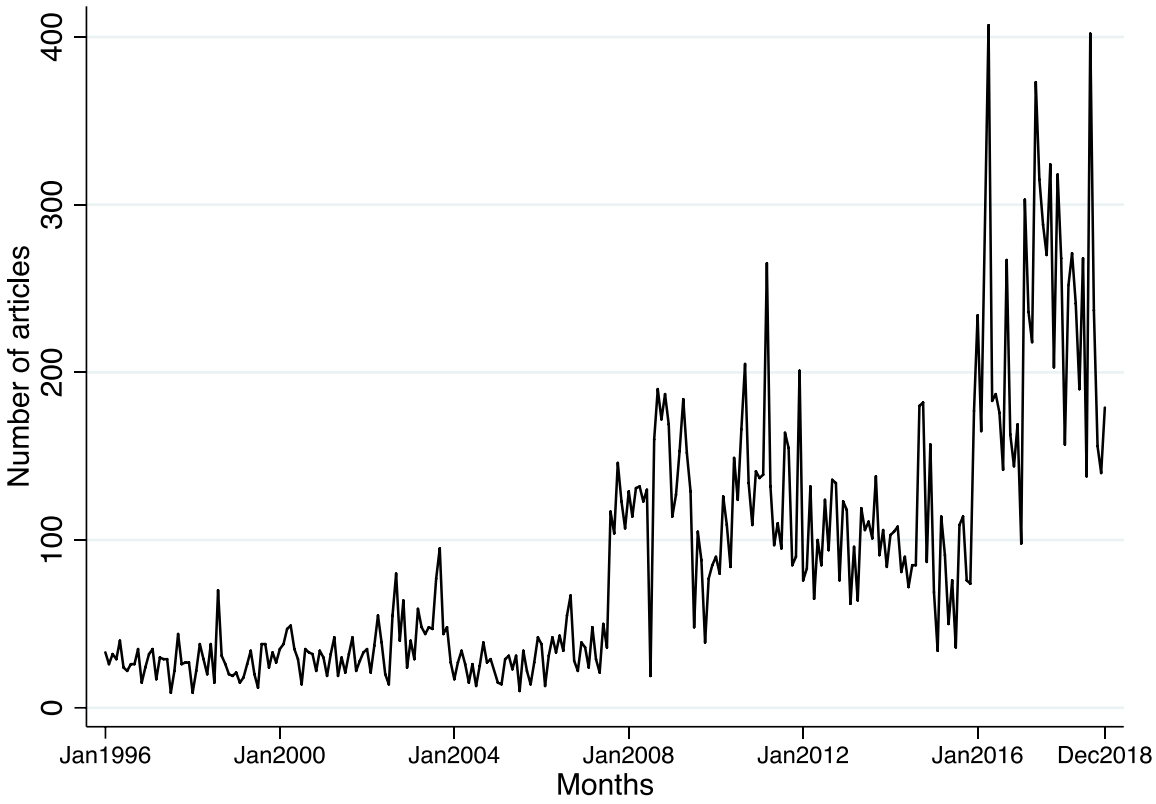
Figure 4. Assumed relationship between information and spread of the distribution of ε



If there are systematic differences in optimism between men and women, such that men's measurement errors are larger than women's, less information in good times might explain men's optimism about the future together with their observed tendency to make greater forecast errors than women.

To investigate whether the amount of information affects gender differences in beliefs and explains their convergence, we need a measure of information. We counted the number of articles in all printed newspapers in Sweden that included the phrase 'Swedish economy' ('Sveriges ekonomi') using the online media research service 'Mediearkivet' (Retriever 2019). Figure 5 shows how the total number of articles varied monthly between January 1996 and December 2018.

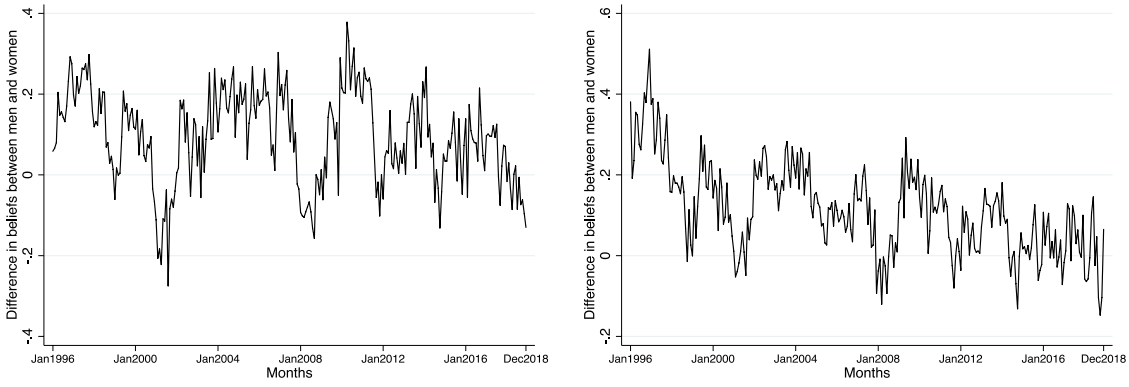
Figure 5. Number of articles that include the phrase "Swedish economy", monthly, 1996-2018



Note: The series refer to the number of articles each month in all printed newspapers in Sweden that included the phrase 'Swedish economy' ('Sveriges ekonomi') using the online media research service 'Mediearkivet' (Retriever 2019), from January 1996 to December 2018 (276 months).

In Figure 6, we plot the difference in beliefs between men and women over time. A positive value indicates that the monthly mean for men is above that of women, while a negative value indicates the opposite relationship. A value close to zero indicates that beliefs have converged. As can be seen, only rarely does the value go below zero.

Figure 6. Difference in beliefs between men and women, monthly means, 1996-2018



Note: On the left, the variable is difference in beliefs about the future unemployment rate in 12 months compared to today. On the right, the variable is difference beliefs about the future economic situation in Sweden in 12 months compared to today. The differences are calculated by subtracting the monthly mean of women's answer about the future situation from the monthly mean of men's answer about the future situation. Number of observations are 309,344. Between 1996 and 2018 there are 276 months.

We subtract the monthly mean of the beliefs of women from the monthly mean of the beliefs of men and used this gender difference as the outcome variable in OLS regressions, including all previous covariates and the information measure (number of newspaper articles) scaled by 100.[4] In Models II-IV in Table 3, we also take the Great Recession into account by including a dummy taking the value one for the recession's duration. Since there is no official dating of the Great Recession in Sweden, we present three alternatives for which we set the end point to the first, second and third quarter of 2009.[5]

[4] See Table A7 for descriptive statistics for the variables on difference in beliefs and newspaper articles.
[5] There is no official consensus on when the Great Recession came to Sweden or when it ended, but a report from the Swedish Fiscal Policy Council (Bergman 2011) uses a variety of methods to identify its starting point as the last quarter of 2007 and its end-point sometime during the first three quarters of 2009, findings that are consistent with reports from NIER for the time period 2007-2009, see https://www.konj.se/publikationer/konjunkturlaget/konjunkturlaget-2001-2011.html.

Table 3. Information and the difference in beliefs about the economic situation in Sweden, 1996-2018

	Model I		Model II: Great recession defined as October 2007 until March 2009		Model III: Great recession defined as October 2007 until June 2009		Model IV: Great recession defined as October 2007 until September 2009	
Variables	Beliefs about the economy	Beliefs about unemployment	Beliefs about the economy	Beliefs about unemployment	Beliefs about the economy	Beliefs about unemployment	Beliefs about the economy	Beliefs about unemployment
Information	-0.0685***	-0.0414***	-0.0543***	-0.00934***	-0.0585***	-0.00701***	-0.0629***	-0.0115***
	(0.000458)	(0.000510)	(0.000448)	(0.000441)	(0.000474)	(0.000453)	(0.000488)	(0.000463)
Great Recession			-0.0747***	-0.169***	-0.0436***	-0.150***	-0.239***	-0.127***
			(0.000811)	(0.000635)	(0.000897)	(0.000739)	(0.000851)	(0.000768)
Observations	245,447	245,447	245,447	245,447	245,447	245,447	245,447	245,447
R-squared	0.181	0.049	0.207	0.172	0.191	0.107	0.102	0.108

Note: Coefficients from OLS regressions. The dependent variable is a measure of difference in beliefs about the future economy and unemployment, and refers to the monthly difference between men and women. We subtract the monthly mean of women's beliefs about unemployment or the economic situation in Sweden in 12 months compared to today from the monthly mean of men's beliefs about unemployment or the economic situation in Sweden in 12 months compared to today. The variable Information refers to the number of articles (in hundreds) about the Swedish economy. All estimations include additional covariates listed in Table A2. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

The estimated coefficients in Table 3 indicate that the amount of information reduces the distance between men's and women's beliefs about the future. One hundred additional articles on the 'Swedish economy' is associated with a decrease in the mean gender difference in beliefs about the future economy by between 0.05 and 0.07 (40-56 percent of the mean gender difference) and a decrease in the mean gender difference in beliefs about future unemployment by between 0.01 and 0.04 (10-40 percent of the mean gender difference).

Interestingly, the Great Recession is associated with a decrease in gender differences both as regards beliefs about unemployment and beliefs about the economy. As a robustness check we also divide the sample into a pre-crisis period and a post-crisis period and the negative association between information and gender differences holds (see Table A8 in the Appendix).

We have, in this section, proposed a relationship between information and beliefs about the future. It is, however, not obvious that the observed convergence in gender beliefs is a result of increased information. Both information and beliefs likely respond to economic indicators such as unemployment and productivity growth. Further studies are needed to consolidate these findings.

4. Conclusions

This paper examined gender differences in optimism about the economy. Optimism is important for investment behavior, and may also explain herd behavior that encourages large economic fluctuations. We defined and measured optimism in a manner that avoided confounding individuals' economic situation with their perception of the future, and furthermore made it possible to compare beliefs about the future to real-world outcomes. In line with previous research, we found that men were more optimistic than women, but they were also more likely to be wrong in their beliefs about the future economic situation. In addition, we found evidence supporting the idea that gender beliefs converge with an increase in the amount of available information on the economy.

Our study highlights the importance of measuring optimism correctly. The optimism discussed in the previous literature generally measures perceptions related to the individual's own situation. Our data reveals that more than half of the survey respondents differ in their perception of their own future economic condition compared to their perception of the future Swedish economy.

In contrast to the previous literature, therefore, we measure optimism as beliefs about a general outcome, while we are also able to control for the individual's perception of his/her own situation. This makes our measure reflect a more distinct idea of optimism, which is clearly separate from concepts such as over-confidence or self-efficacy (Bandura 1997). Although we find robust evidence of an association between information and gender convergence in optimism, both information and beliefs likely respond to economic indicators such as unemployment and productivity growth.

The definition and measurement of optimism proposed here, could, we believe, serve as a valuable foundation for future studies, which are needed to consolidate the relationship between optimism, information and gender. Such studies could be based on rigorous experimental design or combine survey data with administrative sources providing an even richer set of background variables. Future research in this vain could also further examine the relationship between optimism and other variables of interest, such as income, education and occupational choice.

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Appendix

Table A1. NIER descriptive statistics over gender, 1996-2018

Variables (categorical)	Women	Men
Income		
<180	0.189	0.127
180-285	0.239	0.215
285-440	0.282	0.299
440+	0.291	0.359
Education		
Primary school	0.155	0.171
Secondary school	0.394	0.445
Higher than secondary school	0.451	0.384
Age		
16-29	0.116	0.125
30-49	0.385	0.382
50-64	0.278	0.271
64+	0.173	0.169
Household		
Single	0.257	0.258
Single with children	0.0521	0.0268
Married	0.332	0.351
Married with children	0.258	0.259
Other	0.101	0.105
Occupation		
Self-employed and professional	0.0838	0.143
Self-employed farmers	0.00388	0.0132
Clerical and public employees	0.325	0.263
Skilled manual workers	0.148	0.178
Other manual workers	0.111	0.120
Other occupations	0.294	0.250
Unemployed	0.0336	0.0332
Number of observations	150,413	158,931
Percent of total number of observations	48.6	51.4

Note: Cell entries for variables refer to means. The total number of observations is 309,344. Income is measured in thousands of Swedish krona (SEK). SEK 1000 is approximately USD 107, using the exchange rate on February 21, 2019. Data on occupations are not available for 2002, and the years for which occupations are available have a total of 132,322 observations for women and 137,189 observations for men.

Table A2. Beliefs about future unemployment and economic situation in Sweden, 1996-2018, extended version of Table 1

	Beliefs about the future economy			Beliefs about future unemployment		
Variables	(I)	(II)	(III)	(IV)	(V)	(VI)
Male	1.345***	1.306***	1.301***	1.234***	1.240***	1.228***
	(0.0219)	(0.0221)	(0.0228)	(0.0190)	(0.0209)	(0.0204)
Beliefs about one's own situation						
worse		2.104***	1.899***		1.659***	1.572***
		(0.0891)	(0.0866)		(0.0579)	(0.0555)
same		4.129***	3.702***		2.454***	2.321***
		(0.179)	(0.174)		(0.0819)	(0.0780)
better		7.037***	6.301***		3.043***	2.878***
		(0.310)	(0.303)		(0.106)	(0.101)
much better		7.862***	7.040***		3.095***	2.911***
		(0.375)	(0.361)		(0.115)	(0.110)
Inflation error			0.996***			0.996***
			(0.000249)			(0.000293)
Secondary schooling		1.069***	1.061***		1.101***	1.094***
		(0.0122)	(0.0126)		(0.0136)	(0.0145)
Higher education		1.150***	1.140***		1.285***	1.276***
		(0.0172)	(0.0176)		(0.0221)	(0.0230)
Age 30-49		0.817***	0.823***		0.738***	0.744***
		(0.0138)	(0.0145)		(0.0130)	(0.0138)
Age 50-64		0.742***	0.750***		0.670***	0.677***
		(0.0136)	(0.0142)		(0.0146)	(0.0152)
Age 64+		0.772***	0.774***		0.752***	0.754***
		(0.0169)	(0.0174)		(0.0164)	(0.0171)
Single with children		0.917***	0.910***		0.956**	0.937***
		(0.0212)	(0.0215)		(0.0208)	(0.0212)
Married		0.948***	0.946***		0.937***	0.932***
		(0.0101)	(0.0109)		(0.0113)	(0.0118)
Married with children		0.963***	0.960***		0.968**	0.960***
		(0.0134)	(0.0142)		(0.0150)	(0.0152)
Other household situation		0.960***	0.957***		0.936***	0.929***
		(0.0140)	(0.0150)		(0.0159)	(0.0162)
Income 180-285		1.014	1.006		1.009	1.008
		(0.0140)	(0.0140)		(0.0143)	(0.0148)
Income 285-440		1.094***	1.084***		1.092***	1.087***
		(0.0179)	(0.0179)		(0.0192)	(0.0195)
Income 440+		1.182***	1.173***		1.206***	1.200***
		(0.0235)	(0.0236)		(0.0274)	(0.0273)
Self-employed and professional		1.033*	1.021		0.941***	0.932***
		(0.0183)	(0.0190)		(0.0158)	(0.0163)
Self-employed farmers		0.928*	0.927*		0.887***	0.877***
		(0.0412)	(0.0425)		(0.0382)	(0.0385)
Clerical and public employees		1.015	1.002		0.980	0.971*
		(0.0131)	(0.0135)		(0.0142)	(0.0147)
Skilled manual workers		0.929***	0.922***		0.877***	0.875***

	(0.0156)	(0.0156)		(0.0161)	(0.0165)	
Other manual workers	0.961**	0.951***		0.890***	0.888***	
	(0.0172)	(0.0176)		(0.0156)	(0.0157)	
Unemployed	0.873***	0.866***		0.753***	0.752***	
	(0.0238)	(0.0237)		(0.0180)	(0.0182)	
Observations	309,344	269,511	245,447	309,344	269,511	245,447

Note: Odds ratios from ordered logistic regressions. In columns (I)-(III), the dependent variable is belief about the economic situation in Sweden in 12 months from now compared to today, whereas in (IV)-(VI) it is belief about the unemployment rate in Sweden in 12 months from now compared to today. In both cases, the dependent variable is ordered from 1 (much worse/large increase) to 5 (much better/large decrease). Inflation error is a variable that measures how correct respondents are about the current rate of inflation. It is defined as the respondent's absolute deviation from actual inflation rate. All estimations include year-month fixed effects. Robust standard errors clustered by months in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A3. Multinomial logistic regression on beliefs about unemployment and the economic situation in Sweden, 1996-2018

	Beliefs about future unemployment				Beliefs about future economic situation			
Variables	Large increase	Small increase	Small decrease	Large decrease	Much worse	Worse	Better	Much better
Gender	0.814***	0.993	1.284***	1.587***	0.942	1.066***	1.509***	1.905***
	(0.026)	(0.017)	(0.020)	(0.071)	(0.035)	(0.018)	(0.024)	(0.082)
Beliefs about one's own situation			1.016	0.626***	0.256***	1.166***	0.984	0.492***
worse	0.609***	0.996	(0.034)	(0.063)	(0.013)	(0.053)	(0.048)	(0.077)
	(0.022)	(0.030)	1.101***	0.629***	0.070***	0.472***	0.869***	0.400***
same	0.416***	0.930***	(0.037)	(0.053)	(0.004)	(0.022)	(0.042)	(0.056)
	(0.016)	(0.026)	1.264***	0.806**	0.078***	0.488***	1.829***	1.165
better	0.386***	0.866***	(0.044)	(0.077)	(0.004)	(0.021)	(0.085)	(0.163)
	(0.016)	(0.026)	1.304***	1.597***	0.164***	0.481***	1.770***	3.932***
much better	0.651***	0.856***	(0.048)	(0.158)	(0.010)	(0.024)	(0.087)	(0.556)
	(0.034)	(0.031)	1.284***	1.587***	0.942	1.066***	1.509***	1.905***
Observations	245,447				245,447			

Note: Odds ratios from multinomial logistic regressions. The excluded baseline category is the answer "same". All covariates are included in all estimations (see Table 1, as well as Table A2). The dependent variable is belief about the unemployment rate in Sweden in 12 months compared to today, and belief about the economic situation in Sweden in 12 months compared to today. In both cases, the dependent variable is ordered from 1 (much worse/large increase) to 5 (much better/large decrease). Robust standard errors clustered by months in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A4. OLS, beliefs about the economic situation in Sweden, 1996-2018

	Beliefs about the future economy			Beliefs about future unemployment		
Variables	(I)	(II)	(III)	(IV)	(V)	(VI)
Male	1.134***	0.110***	0.107***	0.101***	0.101***	0.0953***
	(0.00789)	(0.00704)	(0.00729)	(0.00705)	(0.00756)	(0.00745)
Beliefs about one's own situation						
worse		0.304***	0.265***		0.212***	0.189***
		(0.0153)	(0.0167)		(0.0144)	(0.0150)
same		0.585***	0.542***		0.391***	0.366***
		(0.0158)	(0.0175)		(0.0140)	(0.0143)
better		0.792***	0.747***		0.487***	0.462***
		(0.0169)	(0.0186)		(0.0146)	(0.0151)
much better		0.832***	0.787***		0.486***	0.458***
		(0.0187)	(0.0199)		(0.0157)	(0.0162)
Inflation error			Yes			Yes
Additional covariates		Yes	Yes		Yes	Yes
Observations	309,344	269,511	245,447	309,344	269,511	245,447

Note: Coefficients from OLS regressions. In columns (I)-(III), the dependent variable is belief about the unemployment rate in Sweden 12 in months compared to today, whereas in (IV)-(VI) it is belief about the economic situation in Sweden in 12 in months compared to today. In both cases, the dependent variable is ordered from 1 (much worse) to 5 (much better). All estimations include year-month fixed effects. Additional covariates are the same as in Table 1 and are listed in Table A2. Robust standard errors clustered by months in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A5. Effect of being male on beliefs about the future unemployment and economic situation in Sweden, by education and income, 1996-2018

		Yearly income (SEK)			
Education	Beliefs about	≤180,000	180,001-285,000	285,001-440,000	440 001+
Primary school	Economic situation	1.116**	1.385***	1.310***	1.582***
		(0.0509)	(0.0501)	(0.0562)	(0.0891)
	Unemployment	1.112**	1.239***	1.247***	1.306***
		(0.0458)	(0.0455)	(0.0479)	(0.0697)
	Observations	10,116	11,928	11,788	6,915
Secondary school	Economic situation	1.310***	1.303***	1.361***	1.346***
		(0.0450)	(0.0375)	(0.0414)	(0.0425)
	Unemployment	1.140***	1.283***	1.279***	1.224***
		(0.0363)	(0.0366)	(0.0368)	(0.0368)
	Observations	15,670	26,376	33,796	28,666
Further education	Economic situation	1.285***	1.220***	1.254***	1.269***
		(0.0526)	(0.0436)	(0.0375)	(0.0306)
	Unemployment	1.327***	1.204***	1.192***	1.215***
		(0.0545)	(0.0415)	(0.0342)	(0.0296)
	Observations	10,369	17,001	26,803	46,019

Note: Odds ratios for being male from ordered logistic regressions. The dependent variable is belief about unemployment or the economic situation in Sweden in 12 months compared to today, and is ordered from 1 (large increase/much worse) to 5 (large decrease/much better). Each row-column entry represents a separate estimation. Estimations include all covariates, corresponding to the most saturated models in column III and VI of Table 1. Robust standard errors clustered by months in parentheses. SEK 1,000 is approximately USD 107, using the exchange rate on February 21, 2019. *** p<0.01, ** p<0.05, * p<0.1

Table A6. Inflation perception errors and gender, 1996-2018

	Full sample		Inflation error < 2 percentage points	
Variables	(I)	(II)	(III)	(IV)
Male	-1.816***	-1.802***	-0.00733***	-0.00458
	(0.180)	(0.187)	(0.00265)	(0.00283)
Beliefs about one's own situation				
worse		-1.147***		0.00498
		(0.301)		(0.00615)
same		-3.013***		0.00308
		(0.302)		(0.00556)
better		-3.378***		0.00276
		(0.336)		(0.00566)
much better		-3.112***		0.00529
		(0.358)		(0.00594)
Additional covariates		Yes		Yes
Observations	276,563	245,447	171,118	154,698

Note: Coefficients from OLS regressions. Dependent variable is the absolute deviation, in percentage points, of the respondent's belief about current inflation from that of actual inflation rate. Columns (III) and (IV) restrict the sample to individuals whose beliefs are within a 2 percentage point range of actual inflation. All estimations include year-month fixed effects. Additional covariates are the same as in Table 1 and are listed in Table A2. Robust standard errors clustered by months in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A7. Descriptive statistics for monthly difference in beliefs and newspaper articles on the Swedish economy, 1996-2018

Variable	mean	min	max	s.d.
Newspaper articles	77.52	9	407	69.24
Difference in beliefs about the future Swedish economy	0.126	-0.147	0.511	0.112
Difference in beliefs about the future unemployment rate	0.101	-0.275	0.378	0.115

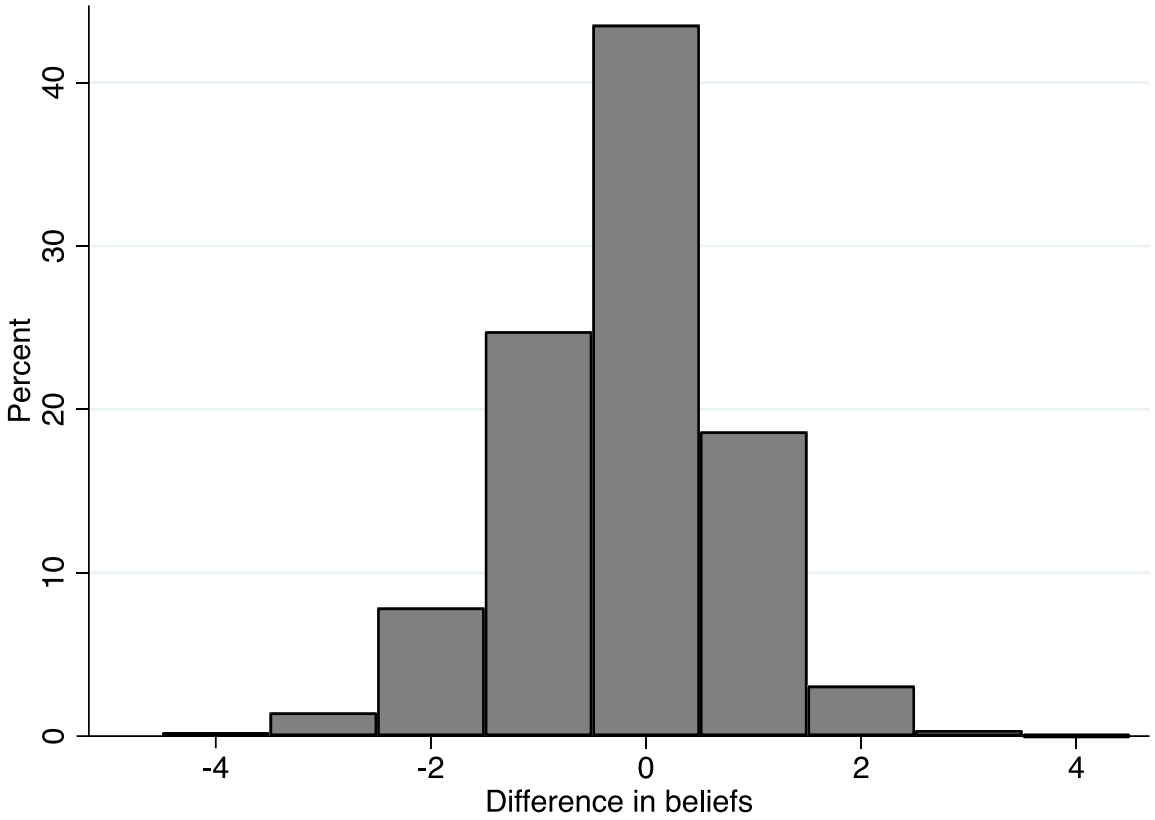
Note: s.d. stands for standard deviation. Number of observations are 309,344. Between 1996 and 2018 there are 276 months. Newspaper articles refer to the monthly number of printed newspaper articles that included the phrase 'Swedish economy' ('Sveriges ekonomi'). Difference in beliefs about the future economy and unemployment refers to the monthly difference between men and women. We subtract women's beliefs about unemployment or the economic situation in 12 months compared to today from men's beliefs. A positive value indicates that the mean for men is above that of women.

Table A8. Information and the difference in beliefs about the economic situation in Sweden

Variables	Beliefs about the economy	Beliefs about unemployment
Time period 1996-Q32007		
Information	-0.0137***	-0.0483***
	(0.00135)	(0.00138)
Observations	151,187	151,187
R-squared	0.062	0.023
Time period Q42007-2018		
Information	-0.0101***	-0.00296***
	(0.000504)	(0.000715)
Observations	94,260	94,260
R-squared	0.013	0.018

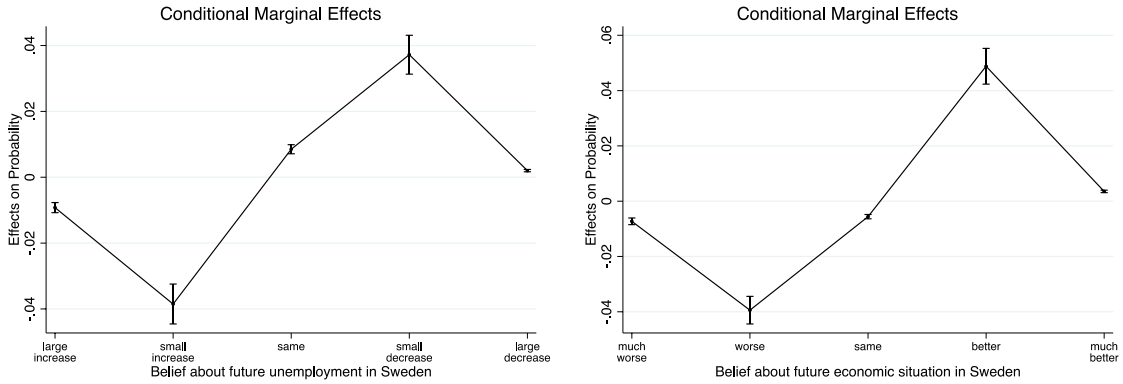
Note: Coefficients from OLS regressions. The dependent variable is a measure of difference in beliefs about the future economy and unemployment, and refers to the monthly difference between men and women. We subtract the monthly mean of women's beliefs about unemployment or the economic situation in Sweden in 12 months compared to today from the monthly mean of men's beliefs about unemployment or the economic situation in Sweden in 12 months compared to today. The variable Information refers to the number of articles (in hundreds) about the Swedish economy. All estimations include additional covariates listed in Table A2. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure A1. Differences in beliefs about the Swedish economy and the individual's own economic condition, 1996-2018



Note: The figure shows the difference between beliefs about the Swedish economic situation and beliefs about the respondent's own situation. The variables are ordered from 1 (much worse) to 5 (much better), and the differences are calculated by subtracting the respondents answer about her own economic situation from the respondents answer about the Swedish economic situation. Number of observations are 309,344.

Figure A2. The marginal effect of being a man on beliefs about future unemployment and economic situation, 1996-2018



Note: Marginal effects are calculated based on Model III (right figure) and Model VI (left figure) in Table 1. On the left, the outcome variable is beliefs about future unemployment in 12 months compared to today. On the right, the outcome variable is beliefs about the future economic situation in 12 months compared to today. All covariates are held constant at their means. Vertical lines refer to a 95% confidence interval. Number of observations are 245,447.