

Distributional Consequences of Quantitative Easing: The View of the German Population

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1. Introduction

- Economic inequality has received a lot more attention in the mainstream academic literature than it did in the past.
- Bernanke (2015) claims that long-term economic factors play a crucial role for the rise in inequality, whereas economic policy does not have much of an influence.
- Atkinson (2014) argues that the increase in inequality is due to a roll-back of the welfare state.
- However, in the discussion about economic inequality, monetary policy is typically not considered to be a major determinant.

1. Introduction

- Bernanke (2005) states that ‘the effects of monetary policy on inequality are almost certainly modest and transient’.
- This view has been challenged along several dimensions.
- In their literature survey, Colciago et al. (2018) mention three general propagation mechanisms of how monetary policy could affect the relative economic position of individuals.
 - (i) an income effect due to changes in interest rates affecting borrowers and savers in the opposite direction,
 - (ii) a wealth effect resulting from changes in financial market prices, and
 - (iii) a substitution effect, arising from an alteration of the relative price between current and future consumption.

1. Introduction

- There is a surge in academic research on this issue.
- Recent theoretical contributions are:
 - Lahcen and Gomis-Porqueras (2018): limited access to basic financial services can lead to consumption inequality in a DSGE model with endogenous credit market participation.
 - Ferrara and Tirelli (2019): investigate disinflation and inequality in a two-agent New Keynesian model. Lower inflation softens the cash in advance constraint on firms working capital, which raises labour demand and lowers inequality. The disinflation raises dividends, which increases inequality.

1. Introduction

- Recent empirical contributions are:
- Cravino et al. (2018): prices of the goods consumed by high-income households are relatively less volatile. Inequality will be affected if monetary policy affects the relative prices of the goods consumed at different points on the income distribution.
- Bunn et al. (2018) employ UK household panel data: the effect of monetary policy on income and wealth inequality has been small.
- Albert and Gómez-Fernández (2018) combine micro and macro data on the US: expansionary monetary policy shocks benefits the relative rich via soaring stock prices; the relative poor benefit from an improvement in their debt position.

1. Introduction

- De Luigi et al. (2019) use euro area data on household wealth: the ECB's unconventional monetary policy has an inequality-increasing effect for the majority of the countries.
- Mumtaz and Theophilopoulou (2019) employ monthly household level data from the UK: expansionary monetary policy shocks are transmitted through changes in net property and financial wealth and lead to higher wealth inequality and contribute to its fluctuations.
- Evginides and Fasianos (2020) use UK household data: unconventional monetary policy shocks have long-lasting effects on wealth inequality.

1. Introduction

- Parallel to the academic debate, there is a public debate.
- Distributional aspects of monetary policy are also widely discussed, e.g., in the German press.
 - Frankfurter Allgemeine Zeitung (2016): ‘Monetary policy: Bundesbank downplays distributional effects’.
 - Süddeutsche Zeitung (2016): ‘Monetary policy: Cheap money increases inequality’.
 - Frankfurter Rundschau (2014): ‘The ECB is the bank of the rich’.
 - Die Welt (2016) ‘The fairy tale of evil cheap money’.
 - Die Zeit (2018) ‘ECB monetary has contributed to a reduction in economic inequality.’

1. Introduction

- However, almost no reference is made as to how laypersons view the effects of quantitative easing on their economic situation as well as national inequality.
- Bunn et al. (2017) take a brief look at households' perception included in a UK household survey.
- Older households appear to be the main group who feel that lower interest rates have made them worse off.
 - As a reason for why their income situation was affected, households primarily mention lower interest payments (about 75%) or lower receipts (about 90%).
 - Changes in the size of pensions and effects on house prices are noted by about 30% of the UK population.

1. Introduction

- **Research questions**

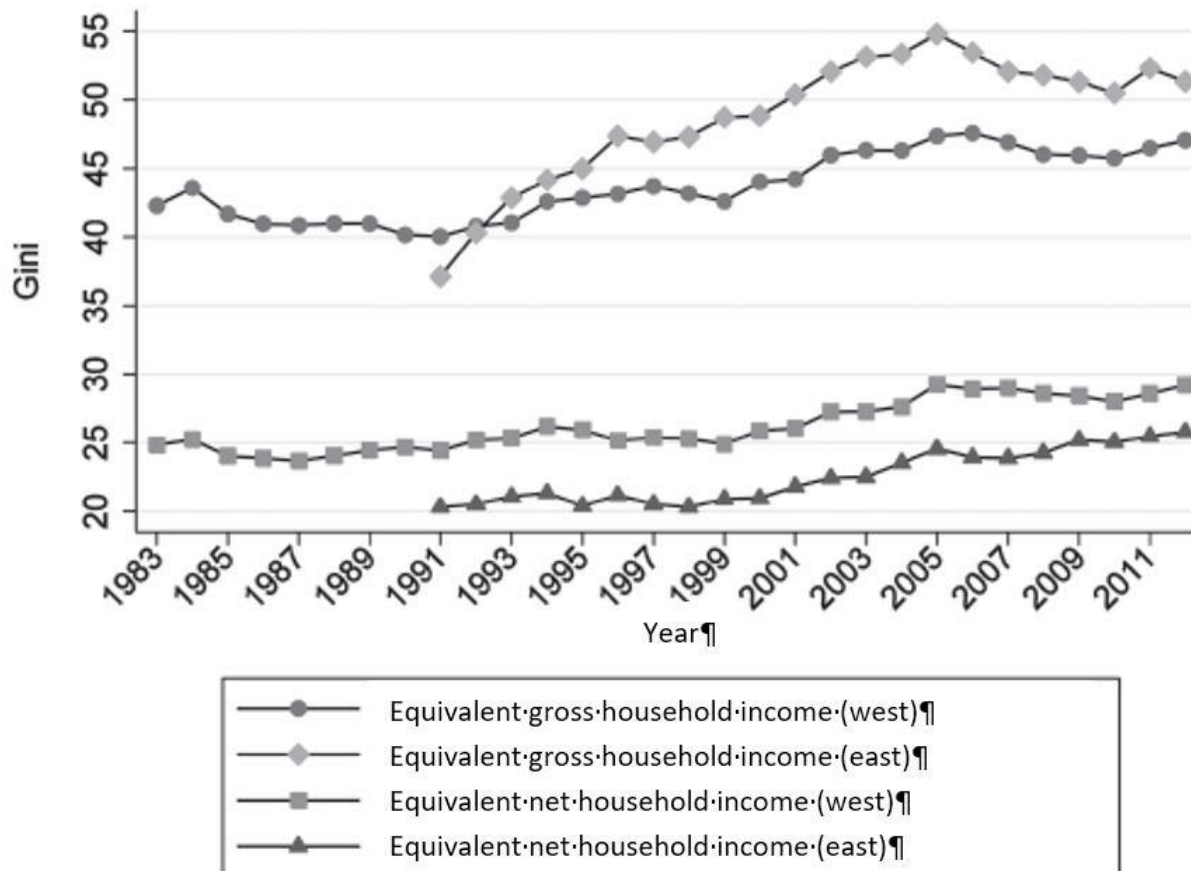
- (1) How do laypersons view the impact of quantitative easing on their personal income situation as well as national inequality?
- (2) What are the typical characteristics of individuals perceiving distributional consequences of QE?
- (3) Who is unable to answer questions about the distributional consequences of QE?

- **Research methodology**

- Analyse representative survey data on the German population.

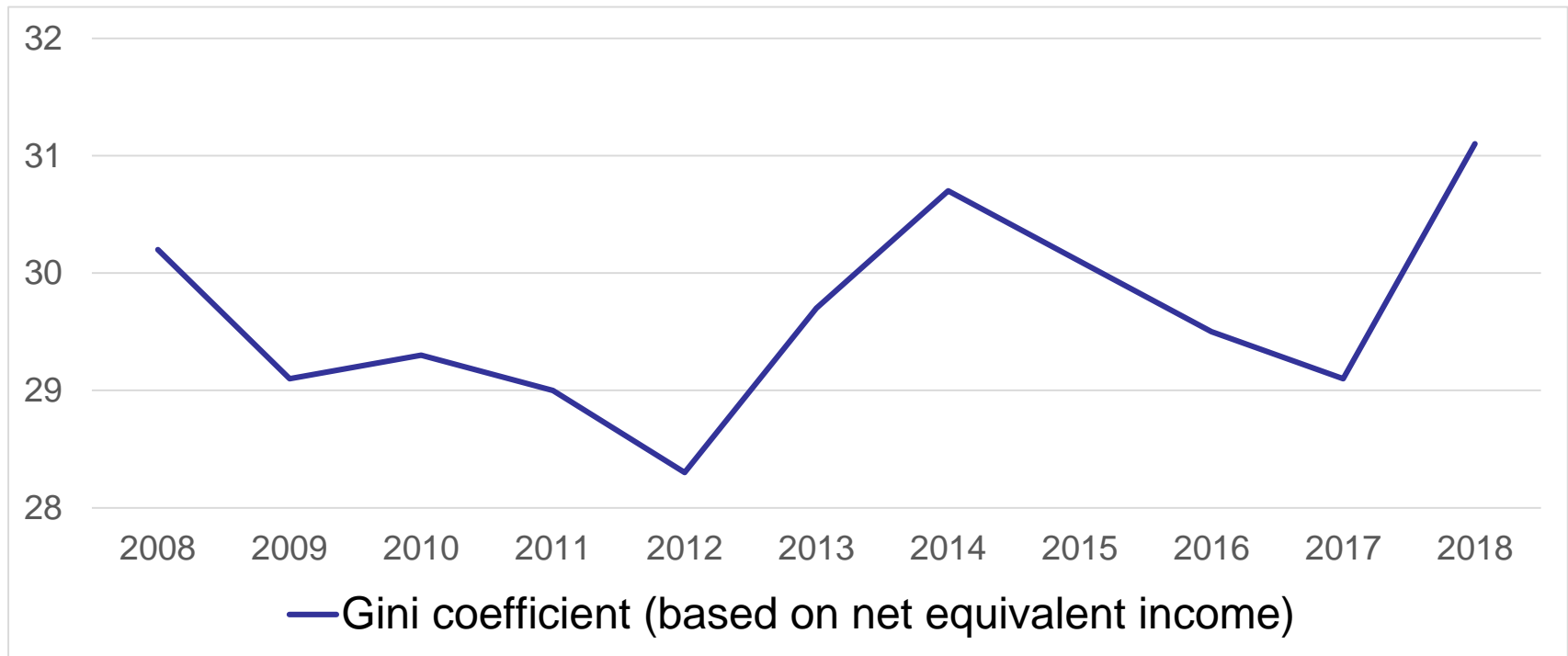
2. Background

- The German income distribution (Corneo 2015).



2. Background

- And after the Great Financial Crisis:



- Monetary policy is not seen as a factor influencing economic inequality in Germany (e.g., Biewen et al. 2019).

3. Data and Descriptive Statistics

- We use unique and novel survey data.
- Omnibus survey administered between 6 February and 2 March 2018 by GfK.
- The sample consists of 2,015 representatively selected persons from the German population aged 14 or above.
- The survey is based on quota sampling and face-to-face interviews using pen-pads.
- Questions were pre-tested.
- GfK's survey quality control: contact checks, address comparisons, sampling tests, and qualitative checks of the final interviews.

3. Data and Descriptive Statistics

- In public opinion surveys, it is important to keep questions and context as simple as possible.
- There is always a trade-off between scientific and everyday language.
- Respondents can answer 'don't know', which is necessary to avoid biases due to 'non-attitudes' (Zaller 1992).
- Pre-testing indicated that it is important to introduce the topic in some detail.

3. Data and Descriptive Statistics

- The introduction is quite long and still non-trivial, even though it is a substantial simplification of the actual events.

During and after the financial crisis, the European Central Bank (ECB) markedly changed its monetary policy.

For instance, the interest rate that commercial banks pay for borrowing money from the ECB has been lowered substantially. This interest rate fell from 4% in June 2007 before the financial crisis to 0% in March 2016, which is also the current value.

Moreover, since March 2015, the ECB purchases a substantial number of government bonds as part of its ‘unconventional’ monetary policy measures and thus increases the available liquidity in the economy.

3. Data and Descriptive Statistics

- How do people assess the impact of QE on their personal economic situation ('egotropic' perspective).

Q1) *After implementation of these monetary policy measures, has your economic situation become better or worse compared to when the ECB conducted its normal (that is, pre-crisis monetary) policy? In particular, when the ECB was charging 4% interest and had not implemented 'unconventional' monetary policy measures.*

a) *As a result of the ECB's measures, my economic situation is better compared to under pre-crisis monetary policy.*

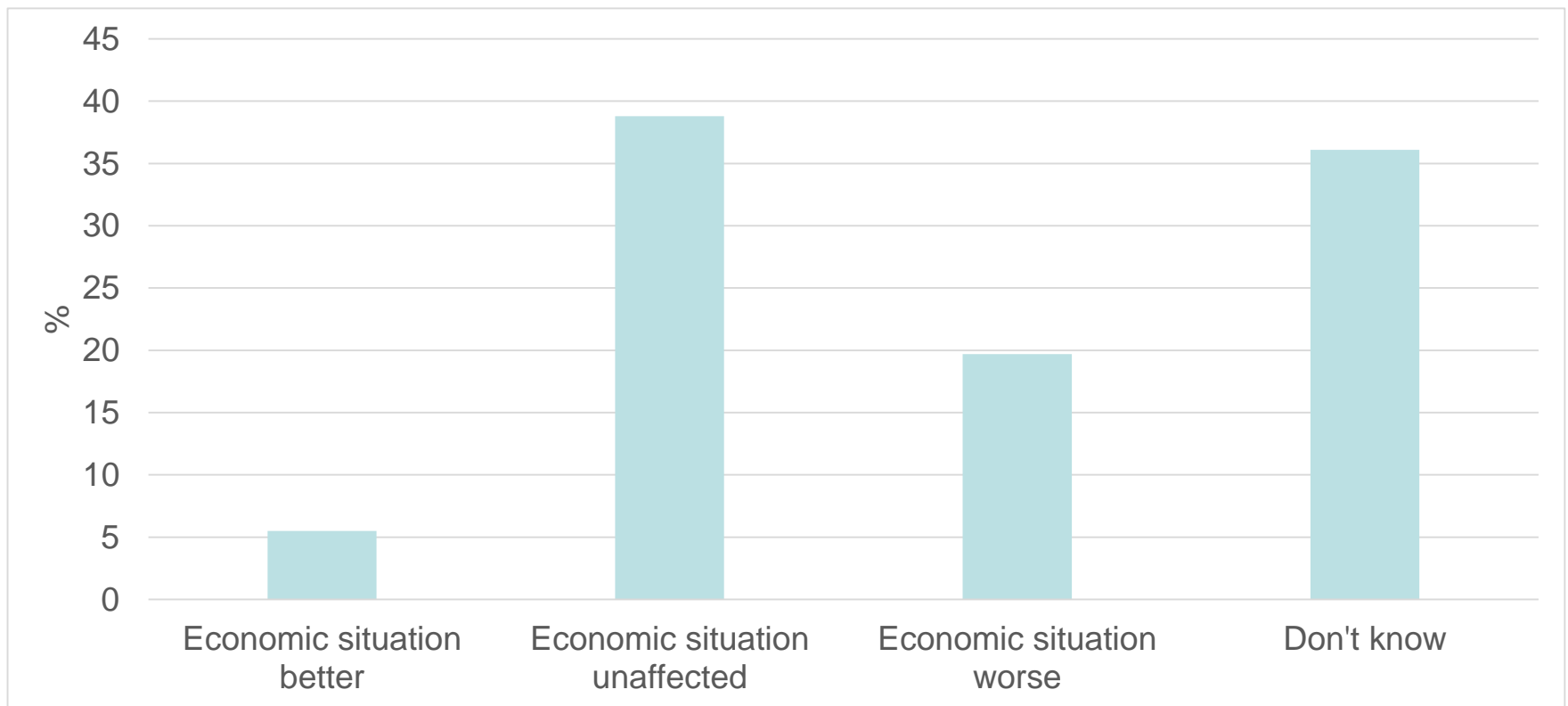
b) *The ECB's monetary policy measures have no influence on my economic situation.*

c) *As a result of the ECB's measures, my economic situation is worse compared to under pre-crisis monetary policy.*

d) *Don't know.*

3. Data and Descriptive Statistics

- Answer frequencies to Q1: has QE made the personal economic situation better or worse?



3. Data and Descriptive Statistics

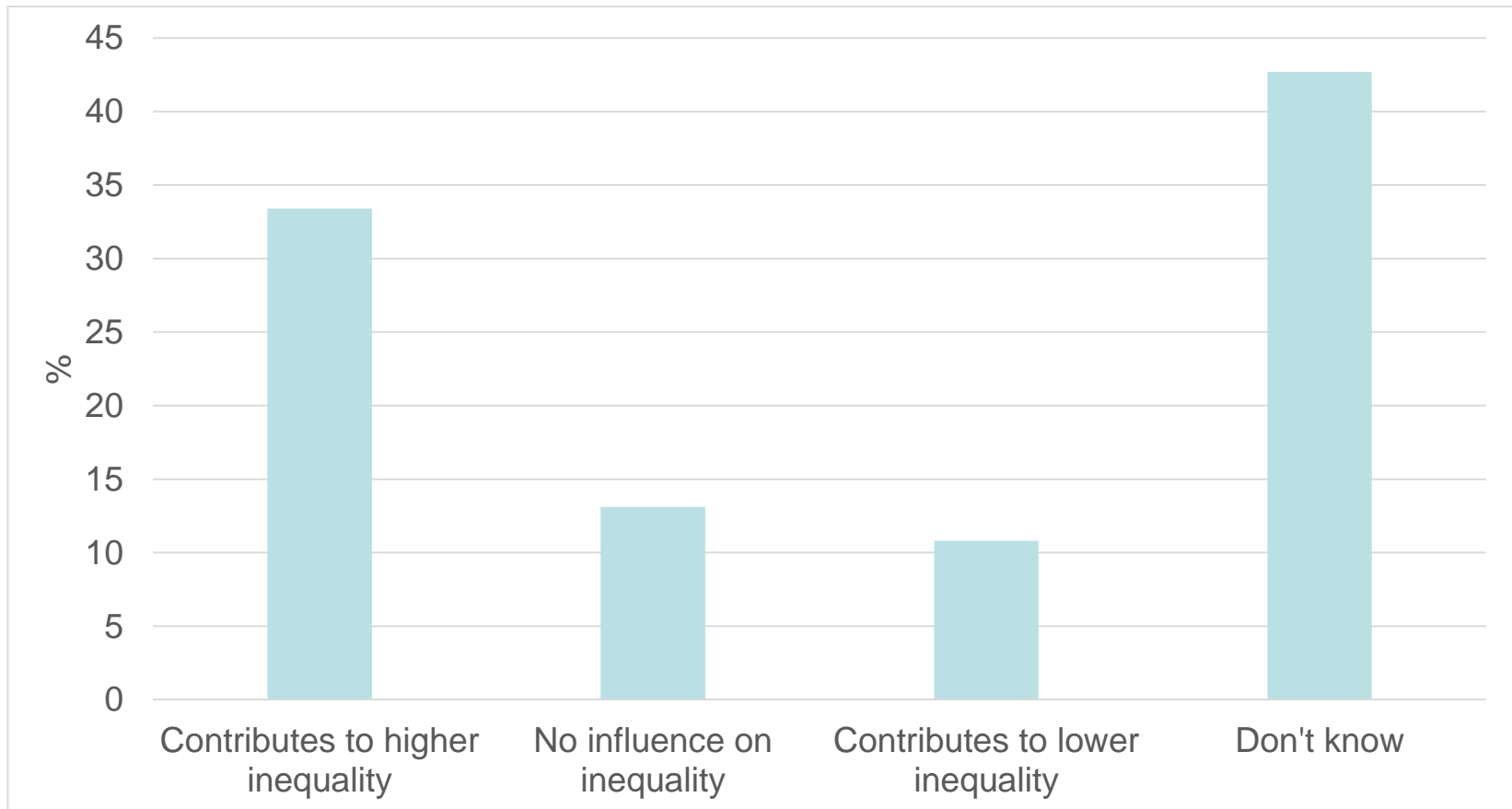
- How do people assess the impact of QE on income inequality ('sociotropic' perspective).

Q2) Do you have the impression that the ECB's monetary policy during and after the financial crisis has affected the income and wealth distribution in Germany and, if yes, how?

- a) It contributes to increasing economic inequality.*
- b) It has no influence on economic inequality.*
- c) It contributes to reducing economic inequality.*
- d) Don't know.*

3. Data and Descriptive Statistics

- Answer frequencies to Q2: has QE contributed to general economic inequality?



4. Analysing Attitudes Towards the Effects of QE

- What are the typical characteristics of individuals perceiving distributional consequences of QE?
- Exploratory analysis using multivariate ordered logit models.
- Commence with a very general model and then reduce the model size in a consistent general-to-specific modelling approach (Hendry 1993).
- Statistical inference takes place at a 5% significance level.
- Up to 48 indicators spanning six dimensions are employed.
- Considering all possibly relevant variables takes into account both omitted variable bias and standard-error-decreasing complementarity (Hayo 2018).

4. Analysing Attitudes Towards the Effects of QE

- The indicators cover the following dimensions:
- (i) *Economic Situation*: (1) Household net income per capita (alternatively net personal income), (2) Lower-middle income quartile, (3) Upper-middle income Quartile, (4) Upper income Quartile, (5) Saver, (6) Borrower, (7) Satisfaction with his/her economic situation, (8) Own house, (9) Own flat.
- (ii) *Monetary Policy Knowledge*: (10) Objective knowledge; (11) Subjective knowledge; (12) Inflation Information Treatment.
- (iii) *Central Bank Trust*: (13) Trust in ECB.
- (iv) *Political Preferences and Attitudes*: Vote intention for (14) Alternative for Germany (AfD); (15) Conservatives (CDU/CSU); (16) Greens; (17) Left Party; (18) Liberals (FDP); (19) Social-Democrats (SPD); (20) Public choice view of the political process.

4. Analysing Attitudes Towards the Effects of QE

- (v) Socio-demographic Indicators: (21) Female; (22) Age; marriage Status: (23) Single; (24) Partner; (25) Married; Formal education: (26) Certified apprenticeship; (27) Secondary school; (28) University-entrance diploma; (29) University degree; (30) Trade Union Member; employment categories: (31) Blue collar; (32) White collar; (33) Public servant; (34) Self-employed; (35) Farmer; (36) Employed full time; (37) Employed part time; (38) Unemployed; (39) Nonworking; (40) Housewife; (41) Apprenticeship; (42) Community size; (43) East Germany; (44) No internet access; (45) Number of Children.
- (vi) Psychological Indicators: (46) Risk propensity; time preferences: (47) future-oriented time preference; (48) short-run impatience.
- *Note:* Since 20% of the observations are missing for household and personal income, the missing values are imputed.

4. Analysing Attitudes Towards the Effects of QE

- Explaining Q1, the perceived effect of QE on the respondents' economic situation, using ordered logit regressions.
- Testing-down restriction: $F(41, 1.9e+06) = 1.1$.
- * and ** indicate significance at a 5% and 1% level, respectively.

	Model 1		Model 2		Model 3		Model 4	
	Robust SEs		Normal SEs		Larger sample		Population weights	
Variables	Coef.	SEs	Coef.	SEs	Coef.	SEs	Coef.	SEs
i) Economic Situation								
Saver	-0.50**	0.13	-0.50**	0.13	-0.45**	0.13	-0.53**	0.14
ii) Monetary Policy Knowledge								
Objective knowledge	-0.23**	0.05	-0.23**	0.05	-0.23**	0.05	-0.22**	0.05
iii) Central Bank Trust								
Trust in ECB	0.75**	0.06	0.75**	0.06	0.78**	0.06	0.85**	0.07

4. Analysing Attitudes Towards the Effects of QE

iv) Political Preferences and Attitudes	Model 1		Model 2		Model 3		Model 4	
Conservatives (CDU/CSU)	0.66**	0.14	0.66**	0.14	0.63**	0.14	0.68**	0.15
Liberals (FDP)	0.51*	0.25	0.51*	0.24	0.51*	0.25	0.31	0.25
v) Socio-demographic Indicators								
Age	-0.01**	0.003	-0.01**	0.003	-0.01**	0.003	-0.01**	0.003
Community size	0.05*	0.02	0.05*	0.02	-0.05*	0.02	0.02	0.02
vi) Psychological Indicators								
Cut value 1	0.33	0.28	0.33	0.28	0.39	0.28	0.33	0.30
Cut value 2	3.92	0.31	3.92	0.31	4.03	0.31	4.10	0.33
No. of observations	1,261		1,261		1,338		1,338	
Test of joint significance	Chi ² (7) = 222**		Chi ² (7) = 252**		Chi ² (7) = 239**		F(7, 1254) = 28**	
Pseudo-R ²	0.11		0.11		0.12		n.a.	

4. Analysing Attitudes Towards the Effects of QE

- Significant average marginal effects of the variables from Model 3 on the probability of choosing a particular answer to Q1, the perceived effect of QE on the respondents' economic situation (in percentage points)

Variables	Worse after QE	No change after QE	Better after QE
Saver	8	-4	-4
Objective knowledge	4	-2	-2
Trust in ECB	-14	7	6
Conservatives (CDU/CSU)	-11	6	5

4. Analysing Attitudes Towards the Effects of QE

- Explaining Q2, the perception that QE reduces economic inequality, using ordered logit regressions.
- Testing-down restriction: $F(43,75509.4) = 1.0$.

	Model 5		Model 6		Model 7		Model 8	
	Robust SEs		Normal SEs		Larger sample		Population weights	
Variables	Coef.	SEs	Coef.	SEs	Coef.	SEs	Coef.	SEs
i) Economic Situation								
ii) Monetary Policy Knowledge								
Objective knowledge	-0.25**	0.05	-0.25**	0.05	-0.23**	0.05	-0.20**	0.05
iii) Central Bank Trust								
Trust in ECB	0.39**	0.06	0.39**	0.06	0.36**	0.06	0.33**	0.07

4. Analysing Attitudes Towards the Effects of QE

iv) Political Preferences and Attitudes	Model 5		Model 6		Model 7		Model 8	
Left Party (Die Linke)	-0.53*	0.22	-0.53*	0.23	-0.47*	0.22	-0.60*	0.23
v) Socio-demographic Indicators								
Age	-0.01*	0.003	-0.01*	0.003	-0.004	0.003	-0.01*	0.003
East Germany	-0.30*	0.15	-0.30*	0.14	-0.32*	0.14	-0.35*	0.15
vi) Psychological Indicators								
Cut value 1	0.44	0.26	0.44	0.26	0.49	0.25	0.28	0.27
Cut value 2	1.80	0.28	1.80	0.26	1.77	0.27	1.59	0.29
No. of observations	1,165		1,165		1,239		1,239	
Test of joint significance	Chi ² (5) = 85**		Chi ² (4) = 96**		Chi ² (4) = 77**		F(5, 1234) = 12**	
Pseudo-R ²	0.04		0.04		0.04		n.a.	

4. Analysing Attitudes Towards the Effects of QE

- Significant average marginal effects of the variables from Model 7 on the probability of choosing a particular answer to question Q2, the effect of QE on economic inequality (in percentage points)

Variables	Increases inequality	No effect on inequality	Reduces inequality
Objective knowledge	5	-2	-3
Trust in ECB	-8	3	5
Left Party (Die Linke)	11	-4	-7
East Germany	7	-3	-5

5. Who is Unsure About the Impact of QE on Personal Income and Inequality?

- About 36% and 43% of respondent, respectively, could not provide an answer to the questions Q1 or Q2.
- What are the characteristics of this large group of people who are unsure about the effects of QE?
- We use logit regressions, with those answering 'don't know' coded as 1 and those providing an answer coded as 0.

5. Who is Unsure About the Impact of QE on Personal Income and Inequality?

- Explaining ‘don’t know’ answers to Q1 and Q2 using logit models: average marginal effects (in percentage points)
- Testing-down restriction: Q1: $F(34,316079.2) = 1.2$. Q2: $F(27,136069.1) = 1.0$

	Model 9	Model 10	Model 11	Model 12
	Q1: Don't know answer		Q2: Don't know answer	
Variables	Marginal effect	Marginal effect	Marginal effect	Marginal effect
i) Economic Situation				
Saver	n.a.		-4	-5*
ii) Monetary Policy Knowledge				
Objective knowledge	-10**	-10**	-9**	-10**
Subjective knowledge	-4**	-4**	-4**	-4**
iii) Central Bank Trust				
Trust in ECB	-3*	-3*	-2*	-3**

5. Who is Unsure About the Impact of QE on Personal Income and Inequality?

iv) Political Pref.	Model 9	Model 10	Model 11	Model 12
CDU/CSU	-11**	-11**	-11**	-11**
AfD	-12**	-11**	-11**	-11**
Left Party (Die Linke)	-16**	-16**	-16**	-17**
Greens	-7*	-8*	-8*	-8*
Public choice view	3**	2**	2**	2*
v) Socio-demo. Ind.				
Age	-0.1*	-0.1*	-0.1*	-0.1
Apprenticeship	-10**	-11**	-10**	-10**
Secondary school	-15**	-15**	-15**	-15**
Uni-entrance diploma	-19**	-20**	-20**	-20**
University degree	-22**	-25**	-22**	-25**
Community size		n.a.	1*	1*
vi) Psycholog. Ind.				
No. of observations	1,845	2,015	1,817	2,015
Test of joint significance	Chi ² (13) = 294**	Chi ² (13) = 281**	Chi ² (15) = 242**	Chi ² (15) = 287**
Pseudo-R ²	0.13	0.14	0.13	0.14

6. Conclusion

- Recently, a widespread debate started about the effects of quantitative easing on economic inequality, both within academia as well as across the general media.
- Using representative survey data collected in Germany in 2018, it is studied how laypersons perceive the effects of QE on their personal financial situation as well as with regard to economic inequality.
- Almost 40% think that their personal economic situation is unaffected by QE.
- In contrast, about 20% believe that QE has made them worse off and only 6% think that it made them better off.

6. Conclusion

- We find that about one third of the population is of the opinion that QE contributed to inequality, only one in ten thinks it is the opposite, and slightly more than 10% cannot perceive an impact.
- We then characterise the respective groups with the help of multivariate ordered logit models using 48 individual indicators proxying (i) Economic Situation, (ii) Monetary Policy Knowledge, (iii) Central Bank Trust, (iv) Political Preferences and Attitudes, (v) Socio-demographic Situation, and (vi) Psychological Situation.
- Those respondents who feel that their economic situation has deteriorated as a result of QE are, on average, savers and those with better objective knowledge about monetary policy affairs.

6. Conclusion

- Those Germans who believe that they are personally better off have relatively more trust in the ECB and are supporters of conservative (CDU/CSU) and liberal (FDP) parties.
- Magnitudes can be quite large:
 - A saver with ‘perfect’ monetary policy knowledge has a 30 pp higher probability of feeling worse off as a result of QE compared to a non-saver who has zero monetary policy knowledge.
 - A CDU/CSU supporter with maximum trust in the ECB has an 80 pp greater likelihood of feeling better off, compared to a supporter of other political parties who knows nothing about monetary policy knowledge.

6. Conclusion

- The view that QE contributes to economic inequality in Germany is favoured by Left Party supporters and East Germans.
- This perception coincides with rising economic inequality after the financial crisis as measured by the Gini index.
- Thus, it is conceivable that people attribute this rise to QE.
- We find that people with higher objective monetary policy knowledge believe that QE contributed to economic inequality.

6. Conclusion

- Magnitudes can be quite large:
 - A Left party supporter with ‘perfect’ monetary policy knowledge living in East Germany has a roughly 45 pp higher likelihood of saying that QE contributed to economic inequality compared to a West German who does not vote for the Left party and has no monetary policy knowledge.
 - Quite the reverse perception is shown to exist for respondents characterised by a high degree of trust in the ECB, with maximum trust decreasing the likelihood by about 20 percentage points compared to minimal trust.

6. Conclusion

- Therefore, the direction of association of ECB trust and monetary policy sophistication with the outcome of the ECB's QE programmes is consistent across egotropic and sociotropic perspectives.
- While the finding for ECB trust is in line with intuition, in light of recent theoretical results by Iacono and Rinaldi (2019), it is puzzling that better-informed persons in society perceive inequality to be greater than less-informed persons.

6. Conclusion

- Finally, we study people – roughly 40% – who did not provide an answer to the questions relating QE to their personal economic situation or national inequality.
- Persons described by a high level of monetary policy knowledge and formal education, tend to be able to provide answers to the QE questions, especially if they also have specific preferences for political parties.
- Magnitudes can be quite large:
 - A person with a university degree, ‘perfect’ objective monetary policy knowledge, and a Left Party preference has a roughly 80 pp greater likelihood of answering the QE questions compared to a person who only received basic education, knows nothing about monetary policy, and has no clear party preference.

6. Conclusion

- It is interesting to mention some of the variables that were not found to be significant in either the egotropic or sociotropic perspective on QE (Abadie 2020).
- Insignificant are:
 - Absolute or relative per capita income.
 - Whether people are homeowners.
 - An information treatment in the form of a graph showing the ECB's performance with regard to inflation, which allows drawing causal conclusions.
 - Age, gender, or job-related variables.
 - Risk attitude or time preferences.