Leibniz Institute of Agricultural Development in Transition Economies

Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

HoME HOCHSCHULE MERSEBURG University of Applied Sciences
FACHBEREICH WIRTSCHAFTSWISSENSCHAFTEN UND INFORMATIONSWISSENSCHAFTEN

Gabi Waldhof Ulrich Fritsche Jörg Döpke

Subjectivity in Macroeconomic Forecasting

DFG-Priority Program 1859

Experience and Expectation. Historical Foundations of Economic Behavior

EconPol Europe Conference 2019

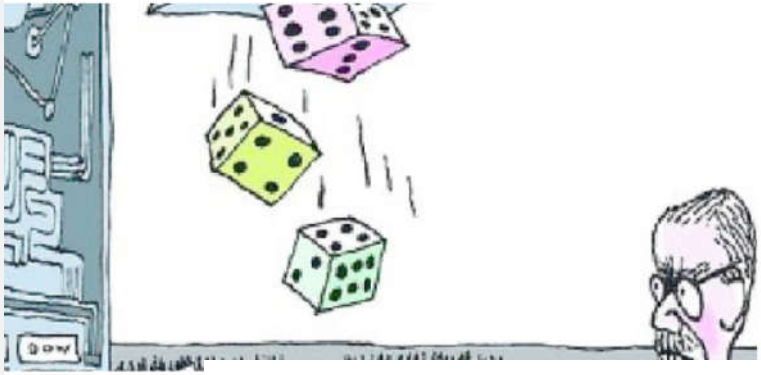
The Media Image of Macroeconomic Forecasts could be better

The frequent inaccurracy of forecasts has been widely covered in the media.

TÜCKEN DER KONJUNKTURPROGNOSEN

Nur ein bisschen besser als Würfeln

VON PATRICK BERNAU UND PHILIP PLICKERT - AKTUALISIERT AM 29.03.2010 - 11:27



Konjunkturprognosen g
große Krise haben Wirts
ihre Modelle bisher kau
Verhaltensweisen der M

ERKLÄR MIR DIE WELT (71)

Warum liegen die Konjunkturprognosen oft daneben?

VON THOMAS STRAUBHAAR - AKTUALISIERT AM 26.10.2007 - 14:30

© F.A.Z.

Laws of Forecasting

1. Forecasts are always wrong!
2. Detailed forecasts are worse than aggregate forecasts!
   - Dell forecasts 410,000 orders for new computer systems in 2004 and 465,000 in 2005
   - Forecasts for the percentage of laptops vs. desktops are less reliable, as are configurations of processor speed, monitor style, hard drive size
3. The further into the future, the less reliable the forecast will be!
   - In 2015 will 750,000 computer orders be filled, or 890,000?

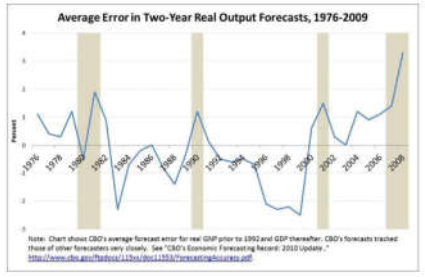
The Economic Forecasts are Wrong, Which is Probably Good News

Len Burman Contributor

Taxes

This article is more than 2 years old.

Today In: Investing



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Gabi Waldhof
PhD student in Economic Ethics, Martin Luther-University & IAMO Halle an der Saale

Why do we care about Macroeconomic Forecasts?

We pay so much attention to forecasts, because they are important to us. They inform our expectations about the future, and thus enable our planning and acting.

Markets

2019 Forecast: Predictions Will Be Wrong, Random or Worse

Every year, the prognosticators come out of hiding. You have to wonder why they bother, given their record.

By Barry Ritholtz
December 7, 2018, 3:30 PM GMT+1

I'm getting a "sell" message from beyond. No, it's a "buy." Photographer: Bettmann/Getty Images

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Popular in Opinion

Saudi Arabia's Best Bet Is to Crash the Price of Oil
by Julian Lee
Market management just isn't working. Instead of supporting oil prices, the kingdom's output cuts are propping up higher-cost rivals.

Trump's Incredible Floating Approval Rating: Weekend Edition
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- Forecasters have a strong influence on narratives of economic policy debate (e.g.“media” ranking in FAZ, 2016)


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→ We need our forecasts to be as accurate as possible

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→ *Can we find anything peculiar in forecaster´s behavior?*

Gabi Waldhof
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Agenda

1. Macroeconomic Forecasts are important to us
2. Survey on forecasting behaviour
3. Macroeconomic Forecasts are subjective
4. Should we aim to make Forecasts less subjective?

Procedure & Sample Composition

Aim: Gain insights in behavioral aspects of forecasting procedure - forecasters‘ theoretical preferences, backgrounds, team work, importance of experience

→ Focus on individual, so **all forecasters** in an institution were invited to participate

The Questionnaire:

- 20min, 20 questions
- 9 Topics, e.g. Models, Theories, Team Behavior, Herding Behavior, Demographics

- Pre-test with 40 retired forecasters
- GESIS consultation

Sample Composition and Demographics

With 34%, our response rate was quite high.

- Retrieved the population of potential institutions from Fricke (2016) and Consensus Forecast (2016)
- We contacted 266 forecasters from roughly 60 institutions in Germany, e.g.
  - Formally politically & economically independent research institutes (DIW, IfW, ifo)
  - International institutions (OECD, IMF, EU)
  - Central bank (Bundesbank)
  - Private forecasting firms (IHS, Kiel Economics)
  - Bank & insurance companies (Commerzbank, Deutsche Bank, Allianz)
  - Policy advice & policy-related institutions (SVR, BMWI)

Number of E-Mails sent	266
Number of E-Mails undeliverable	-12
Number of responses “not appropriate”	-17
Number of long-term absences	-1
Number of remaining invitations	237
Number of responses	81
Number of responses (complete survey)	**56**
Response rate (persons)	34%
Response rate (persons, complete)	24%
Response rate (institutions)	67%

Sample Composition and Demographics

Respondents were roughly 50 years old, male, had a PhD and studied Economics.

	n	
Median age of respondent	43	49 [37; 52.5]
Median years experience as a forecaster	50	10 [5; 18]
Share of female forecasters	54	13%
Academic degree or position	56	Diplom: 9 Master of Science: 4 PhD: 39 Professor: 3 Other: 1
Field of studies	57	Economics: 53 Mathematics: 1 Others: 2
Group of institutions	81	Policy related institutions: 19 Public institutes: 18 Private institutes: 12 Private firms: 32

In brackets: 25 % and 75 % quartiles.

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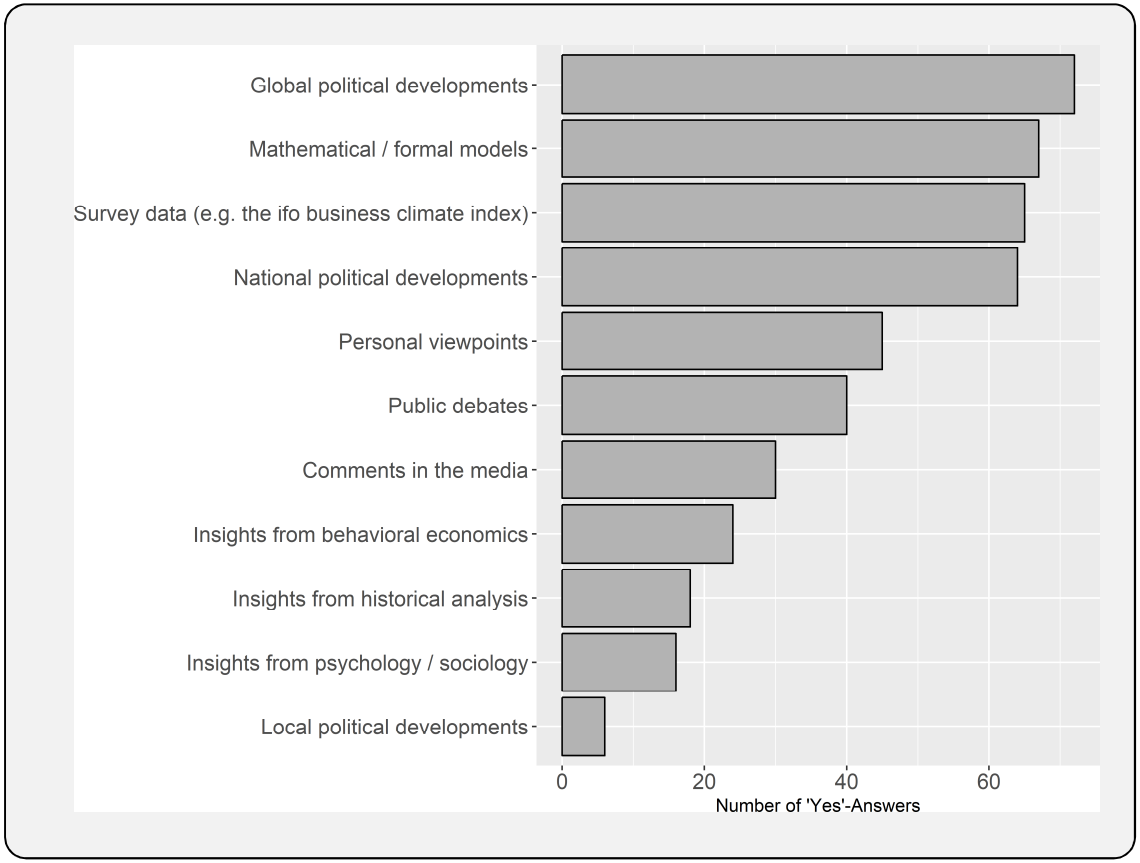
Results: Elements of the forecasting process

Which of the following elements do you take into account in your forecasts?



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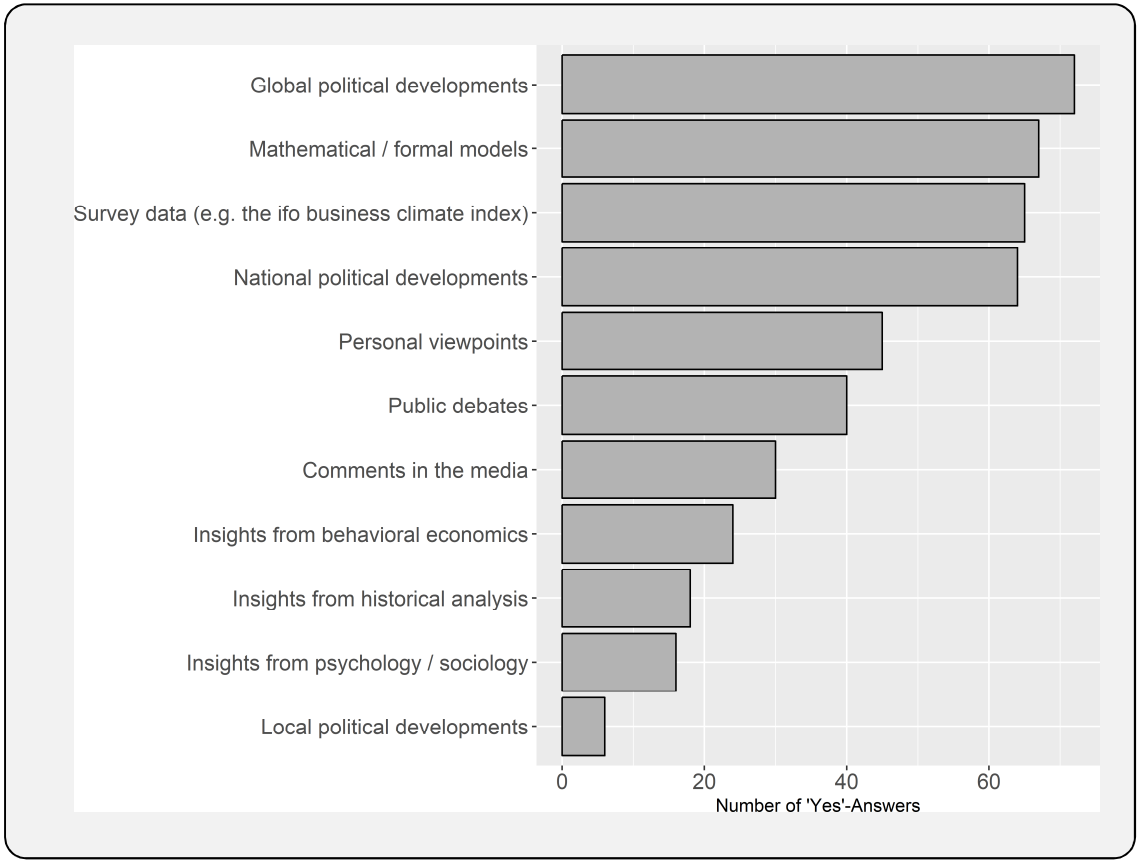
Results: Elements of the forecasting process

Which of the following elements do you take into account in your forecasts?

- 60% of respondents claimed to use „personal viewpoints“



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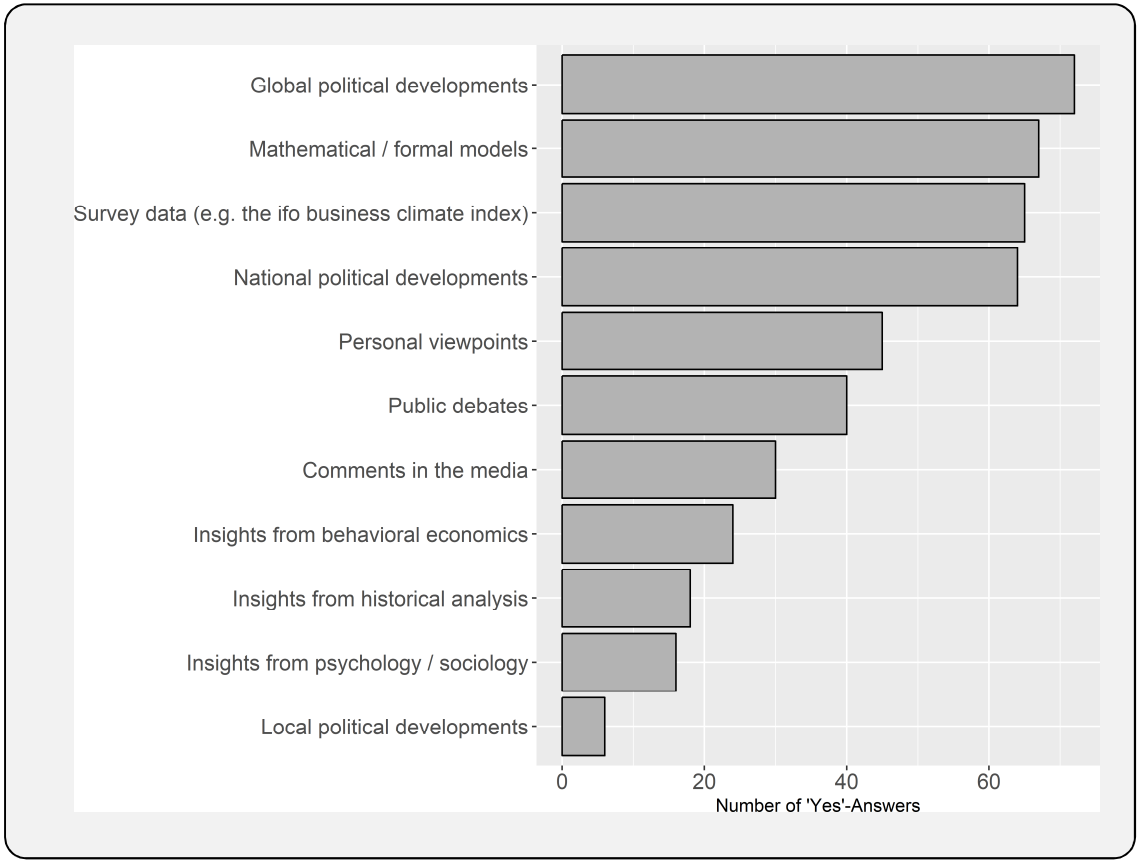
Results: Elements of the forecasting process

Which of the following elements do you take into account in your forecasts?

- 60% of respondents claimed to use „personal viewpoints“
- Forecasts do not only consist of „hard facts“, but many vague elements:
  - *Political developments*
  - *Public debates*
  - *Comments*



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Results: Elements of the forecasting process – some write-ins

Write-ins also demonstrated an importance of subjective forecasting instruments.

- ”Ökonometrische Modelle” (Econometric models)
- ”Erfahrung” (Experience)
- ”Erfahrungswissen” (Experience-based knowledge)
- ”Faustregeln” (Rules of thumb)
- ”Kurzfristige Konjunkturindikatoren” (Short-run business cycle indicators)
- ”Ökonomische Theorie” (Economic theory)
- ”Politökonomische Erwägungen” (Considerations based on political economy)
- ”Wissenschaftliche Erkenntnisse” (Scientiftc insights)
- ”Institutionelle Kenntnisse” (Institutional knowledge)
- ”Historische Erfahrungen” (Historical experiences)
- ”Persönliche Einschätzungen” (Personal assessments)
- ”Politische Bedürfnisse der höheren Ebenen” (Political necessities of higher levels)
- ”Persönliche Prognoseerfahrung” (Personal forecasting experience)
- ”Daten, institutionelle Fakten” (Data, institutional facts)
- ”Marktentwicklung” (Market developments)
- ”Geldpolitik” (Monetary policy)
- ”Finanzmarktpreise” (Prices on financial markets)
- ”Eigene Unternehmensbefragung” (Own survey among firms)

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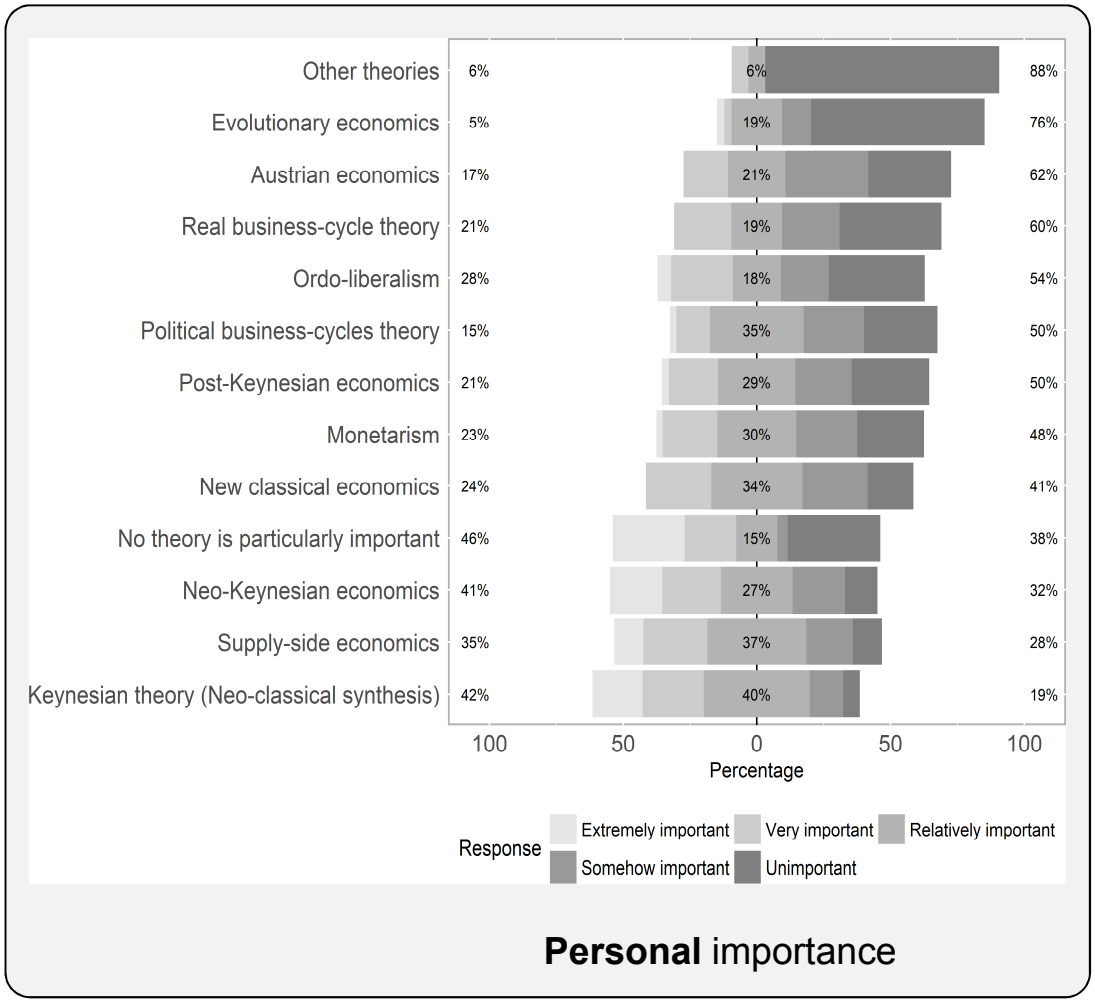
Results: Importance of theories for forecasting

How important are the following theoretical approaches for your forecasting?



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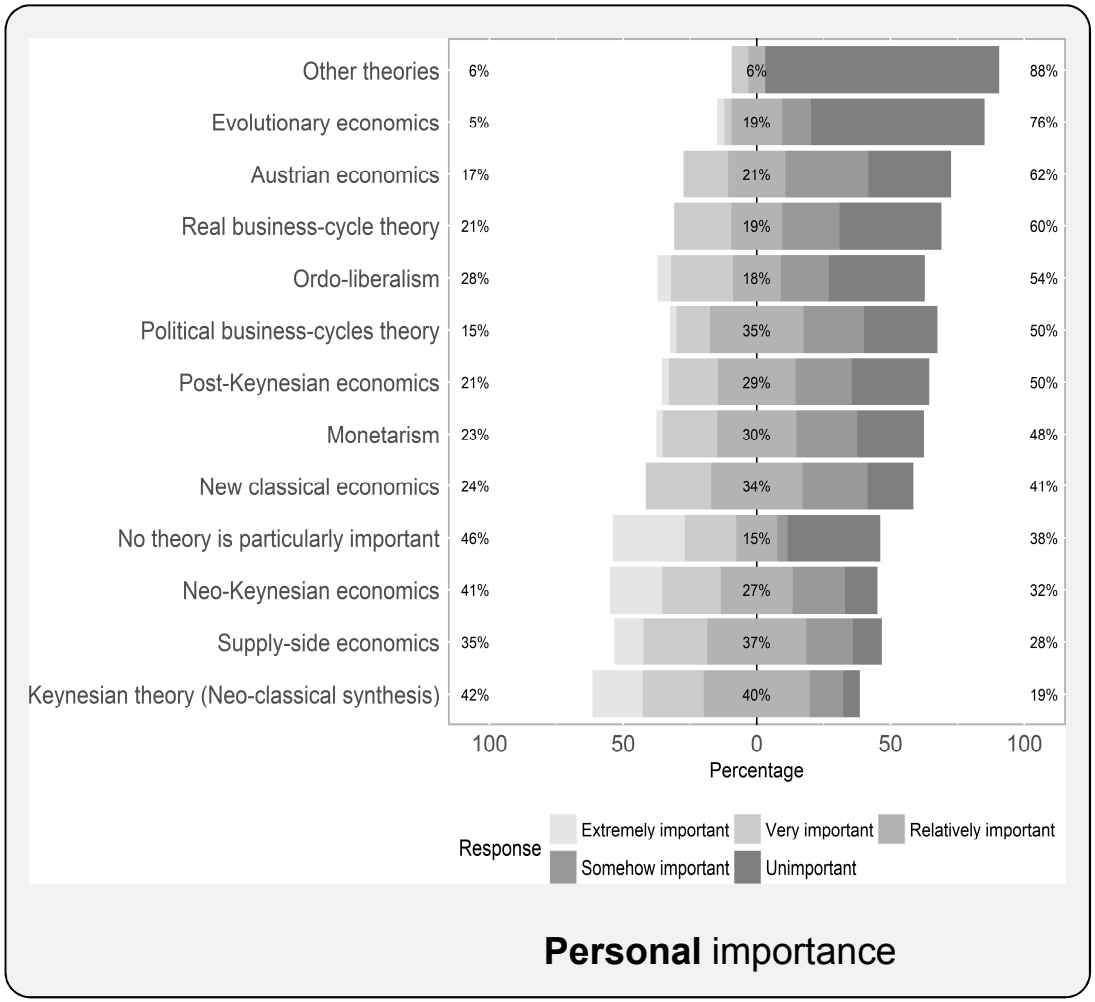
Results: Importance of theories for forecasting

How important are the following theoretical approaches for your forecasting?

Although half of the respondents see no theory as particularly important, there is a clear tendency to use

- *Neo-Keynesian Economics*
- *Supply Side Economics*
- *Neo-Classical Synthesis*



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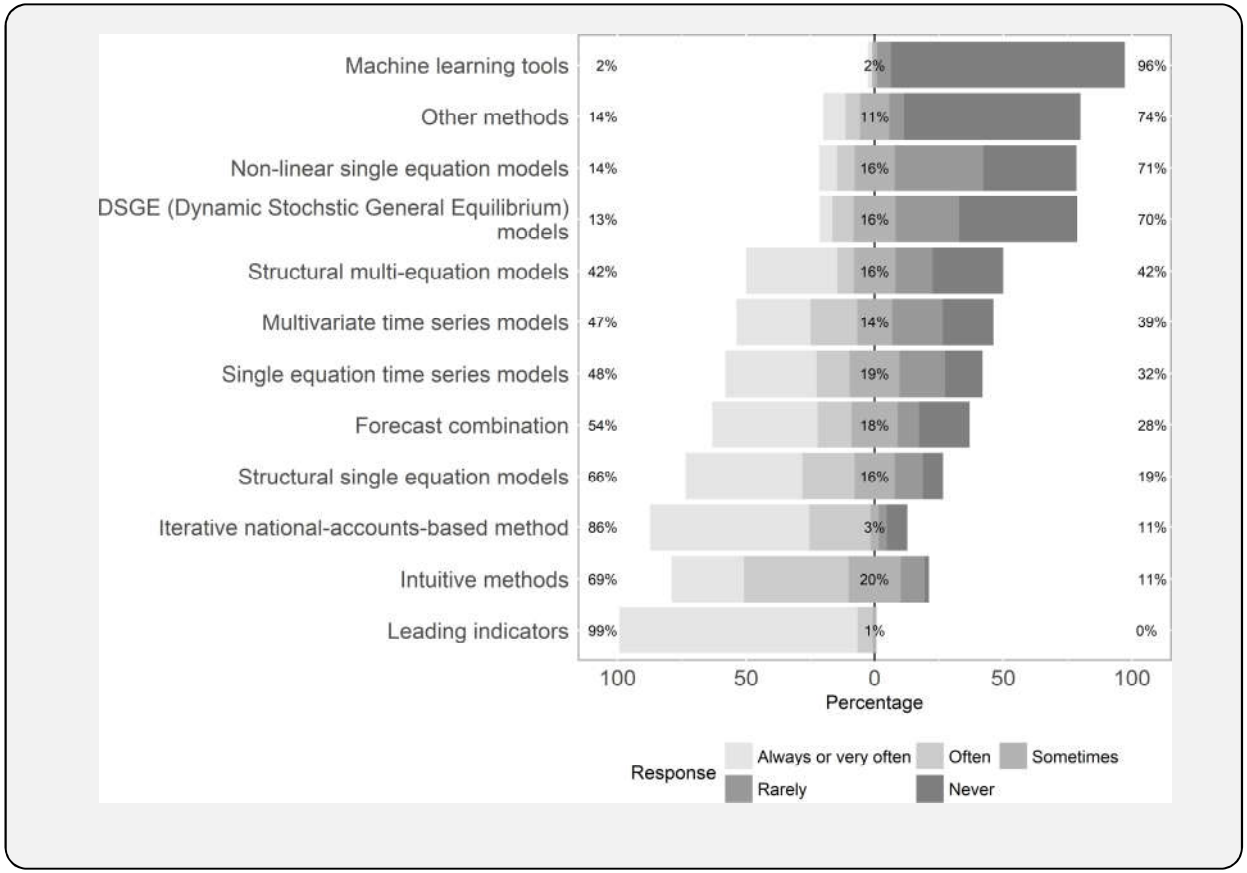
Results: Methods used in forecasting

How often does your institution use the following methods in the forecasting process?



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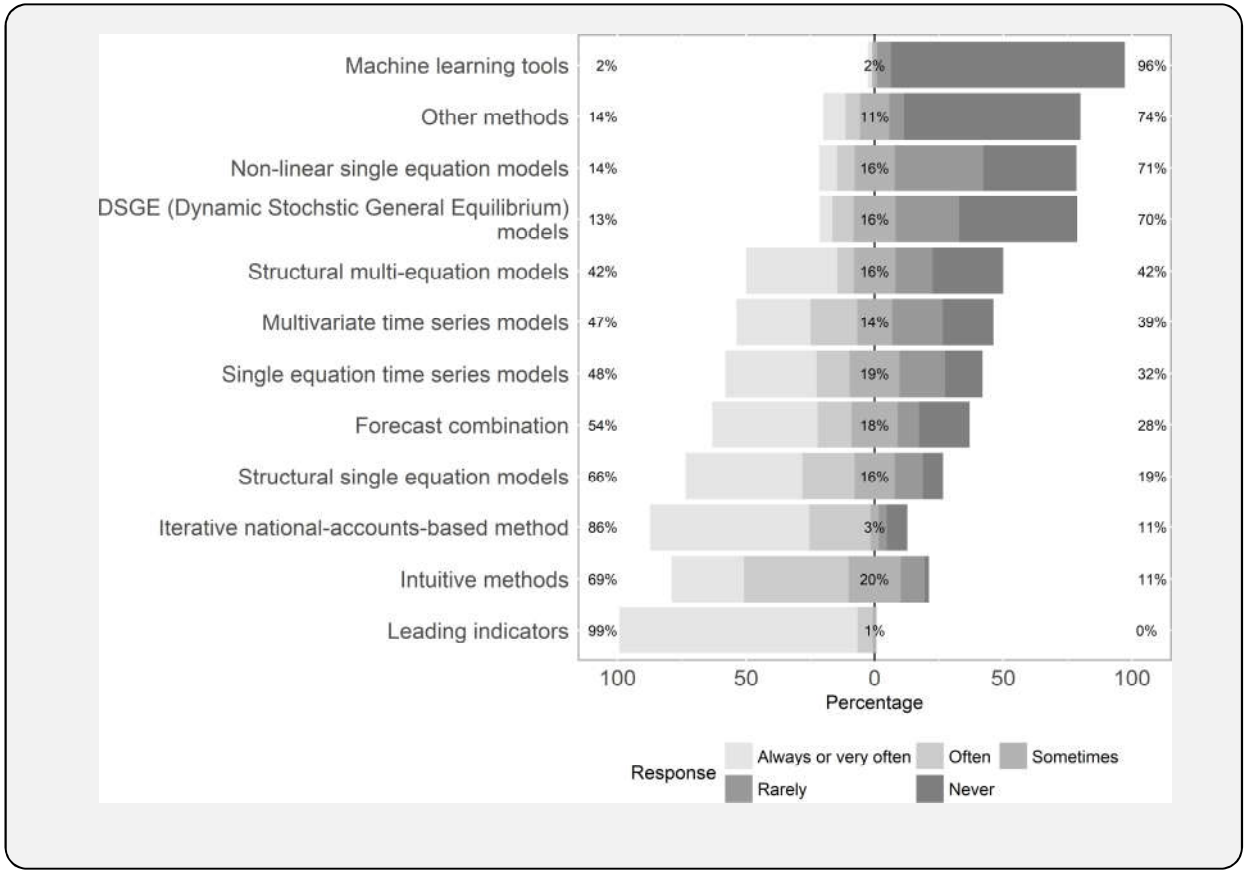
Results: Methods used in forecasting

How often does your institution use the following methods in the forecasting process?

- Roughly 70% of the respondents claimed to use *intuitive methods* „always“ or „often“

→ Subjective estimates appear to be a significant methodological instrument



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Results: Methods used in forecasting – some examples for write-ins

Write-ins also demonstrated a significant use of subjective methods.

- ”Eigene Umfragen” (Own surveys)
- ”Zyklenvergleiche” (Comparison of cycles)
- ”Eigene Unternehmensbefragung” (own business survey)
- ”Kurzfristprognose-Modelle (Faktormodelle, Brückengleichungen). Häufig und regelmäßig (alle 2 Wochen).” (Short-term forecasting models, factor models, bridge-equations, often and on a regular basis (every 2 weeks)).
- ”Zyklusvergleich” (Comparison of cycles)
- ”Nicht-parametrische Methoden” (Non-parametric methods)
- ”Faustregeln” (Rules of thumb)
- ”Historische Elastizitäten” (Historical elasticities)
- ”Judgemental adjustments, Horizontal brainstorming”

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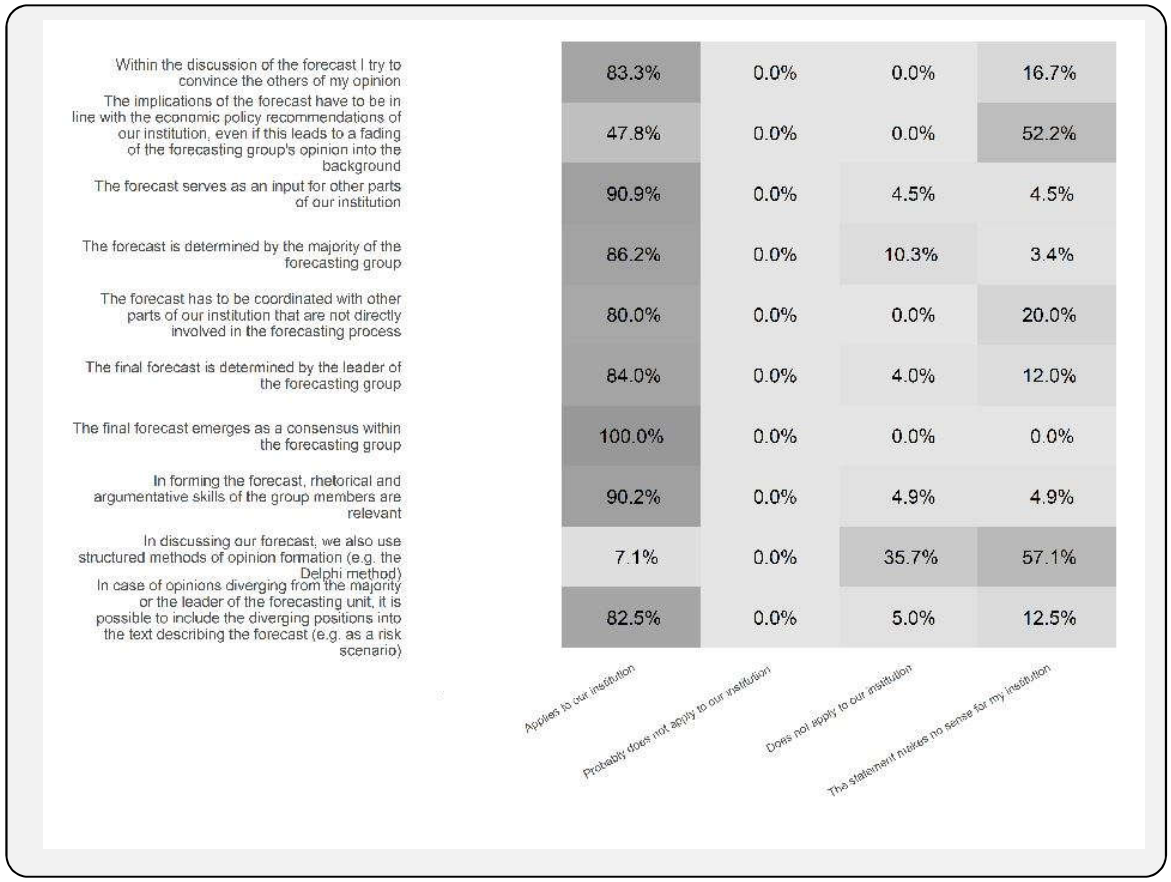
Results: Decision-making within the forecasting team

Which of the following statements applies to your institution?



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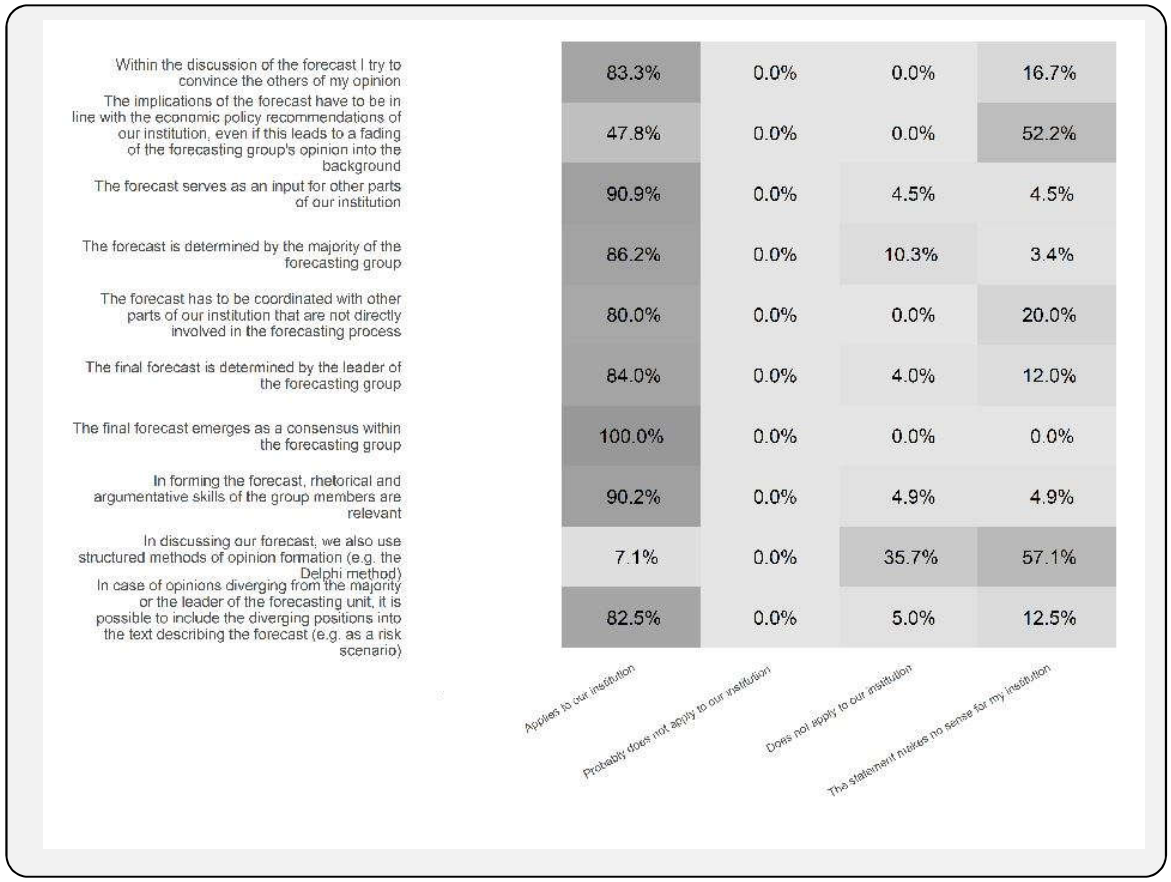

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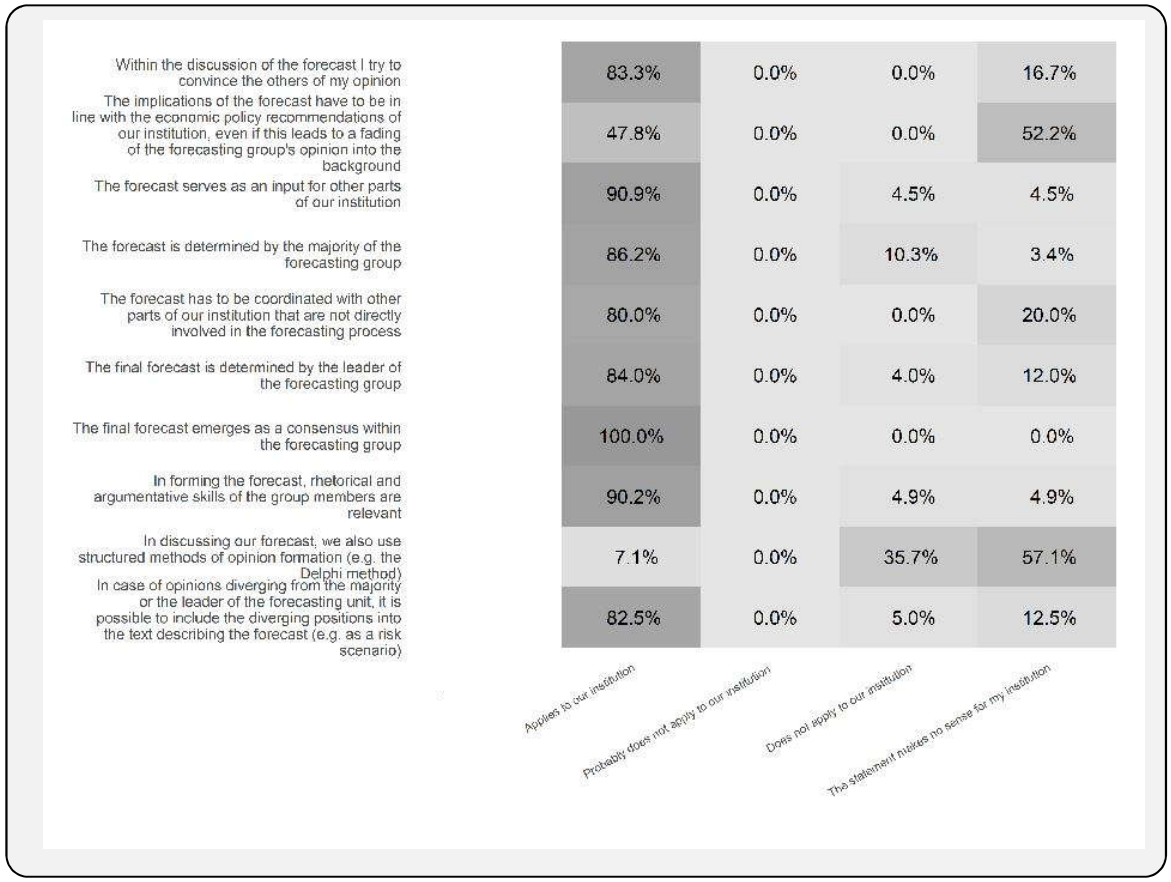

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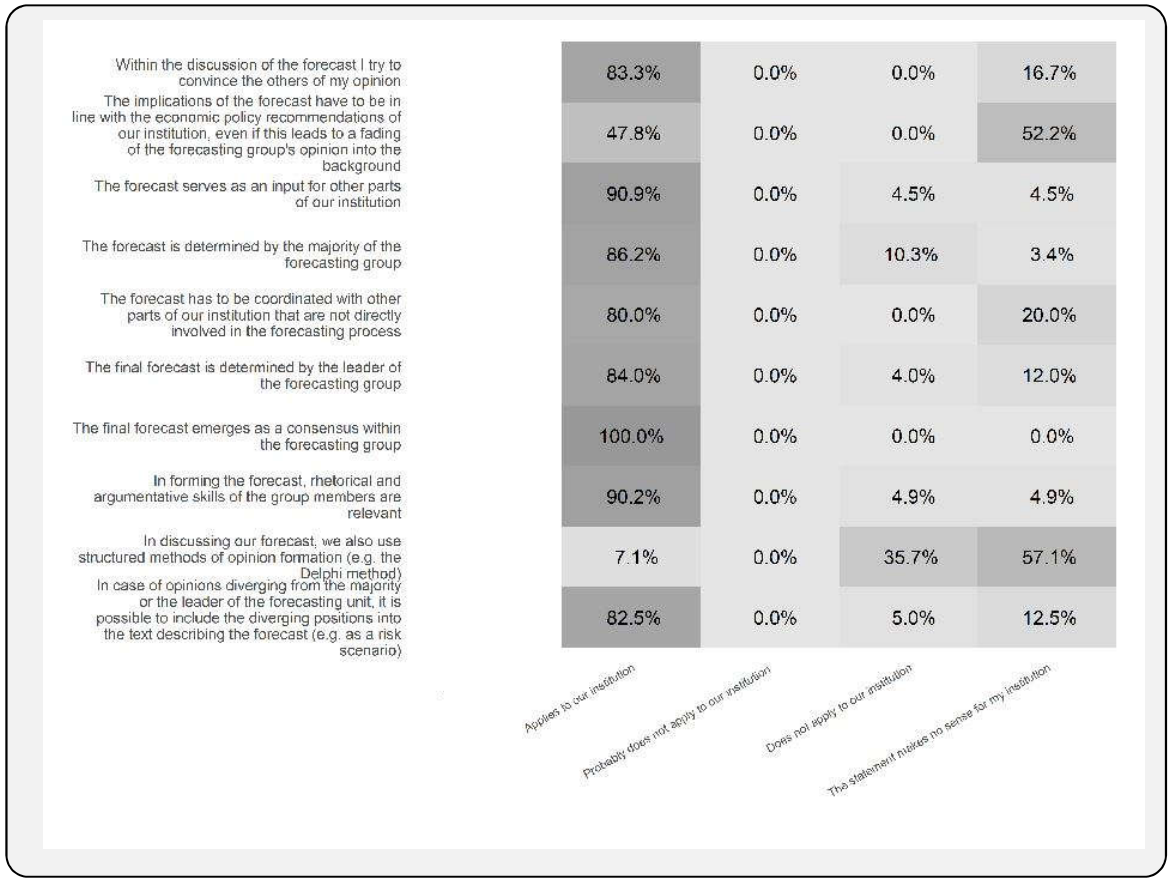
- 83% try to convince others
- Majority decision (86%) / consensus decision (100%)



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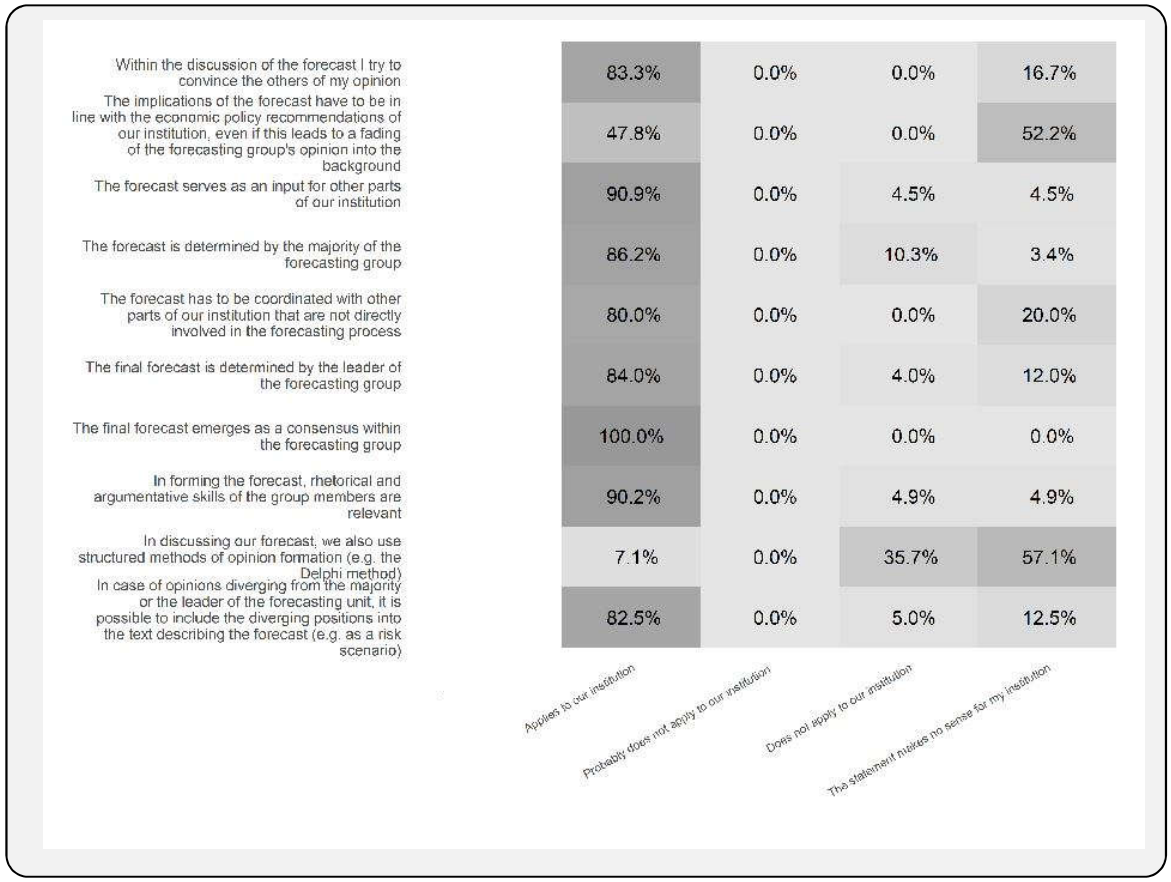
- Group leader decides (84%)



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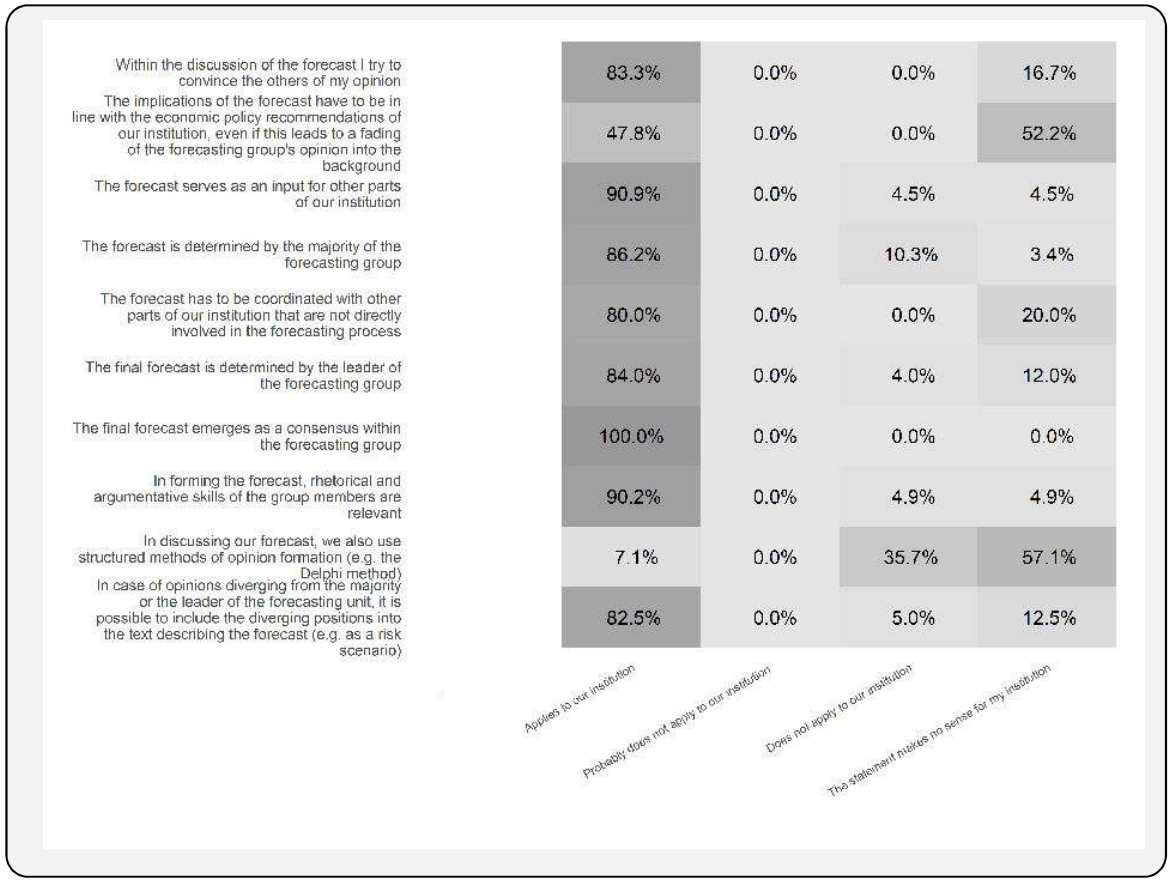
- Group leader decides (84%)
- Rhetorical & argumentative skills are relevant (90%)



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Results: Reasons for forecasting errors – some examples for write-ins

The significant subjectivity of macroeconomic forecasting can be problematic.

- „Annahme unveränderter Politik“ (Assumption of an unchanged policy)
- „Ökonomische Schocks treten auf, die per Annahme ausgeschlossen wurden“ (Occurance of economic shocks that have been ruled out by assumption)
- „Hohe Komplexität: Die falschen Wirkungszusammenhänge hervorgehoben“ (High complexity: focus on the wrong causal relations)
- „Überbewertung von persönlichen Eindrücken und Stimmungen“ (Too much weight on personal impressions and sentiments)
- „Unvorhergesehene Ereignisse, außer Naturkatastrophen“ (Unforeseen events except natural disasters)
- „Prognosefehlern bei exogenen Variablen, die als Input im Modell verwendet, z.B. Welthandel, Wechselkurs, Ölpreis“ (Forecast errors for exogenous variables, that are used as inputs for the model (e.g. world trade, exchange rates, oil prices))
- „Die Zukunft ist unbekannt“ (The future is unkown)
- „Ferientage und Saisoneffekte falsch“ (Trading days and seasonal effects wrong)
- „Shit happens“

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Results: Downsides of being a forecaster – some write-ins

Errors and the low reputation of forecasts are experienced as a downside of the job.

- „Forecasts have no relevance“
- „The low appreciation of forecasts in public and scientific community, e.g. intrinsic errors, effort, relevance for political economy“
- „Wrong perception in public and scientific community about uncertainty (e.g. shocks) and forecasting accuracy: unjustified blaming of missing competencies“
- „poor data quality“
- „low forecast-quality“
- „Bad cost-benefit relationship: data analysis, modeldesign, writing etc. vs. low impact in discourse on political economy“
- „wrong forecasts“
- „limited time budget“
- „general pressure of the job“
- „Pressure in case of wrong forecasts“

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Results: Downsides of being a forecaster – some write-ins

Errors and the low reputation of forecasts are experienced as a downside of the job.

- „Forecasts have no relevance“
- „The low appreciation of forecasts in public and scientific community, e.g. intrinsic errors, effort, relevance for political economy“
- „Wrong perception in public and scientific community about uncertainty (e.g. shocks) and forecasting accuracy: unjustified blaming of missing competencies“
- „poor data quality“
- **„low forecast-quality“**
- „Bad cost-benefit relationship: data analysis, modeldesign, writing etc. vs. low impact in discourse on political economy“
- **„wrong forecasts“**
- „limited time budget“
- „general pressure of the job“
- **„Pressure in case of wrong forecasts“**

Leibniz Institute of Agricultural Development in Transition Economies

Gabi Waldhof
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Results: Measures taken due to the great recession – huge forecasting error

Interestingly, the subjective elements of the forecasting process have not really been addressed since the financial crisis, despite of their significance for the whole process.

- „Review of existing and estimation of new models (new indicators, model averaging)“
- „We increased awareness of inaccuracies, think broader and give greater emphasis to risk szenarios“
- „Systematic forecast error evaluation“
- „The literature on forecasting has become more complex and demands more in-depth studies“
- „Diversity of forecasting methods, models, and combination“
- „We take a closer look at uncertainty measures that rely on market prices. Moreover, we more strongly consider the balance sheets of firms and private households, since balance sheet adjustments weaken economic growth. Bubbles have become more important.“
- „Adjustment of the own survey technique (shorter survey period, faster publication of results)“
- „New methods for data analysis“

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Agenda

1. Macroeconomic Forecasts are important to us
2. Survey on forecasting behaviour
3. Macroeconomic Forecasts are subjective
4. Should we aim to make Forecasts less subjective?

Should we aim to make Forecasts less subjective?

As shown, the forecasting process is quite subjective. It is not advisable however, to attempt to eliminate the subjective elements. So far, they seem crucial for the process. However, forecasting could benefit however from more applied research on this subjectivity.

- Our survey results showed that there is a significant amount of subjectivity involved in the forecasting process.

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Of course not.

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1. The influence of subjective aspects can´t be eliminated.
   Aspects such as personality, experience, capabilities, education inform our perception and consequently our forecasting (e.g. Kahnemann, 2011).

2. Subjective methods are an *integral and necessary part* of forecasting (e.g. Arvan et al., 2019; Dressler, 1972)
   - *ifo Business Climate Index* relies on subjective expectations
   - Quantitative models are always incomplete since not every source of variability can be quantified → gut feeling is necessary
   - Automatised systems can only recognize already known patterns *(backward-looking)*
   - Structural reflection to identify potential new developments can only by made humans and hence through subjective assessments

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→ *We need to learn, when and how subjective aspects should be used in forecasting.*

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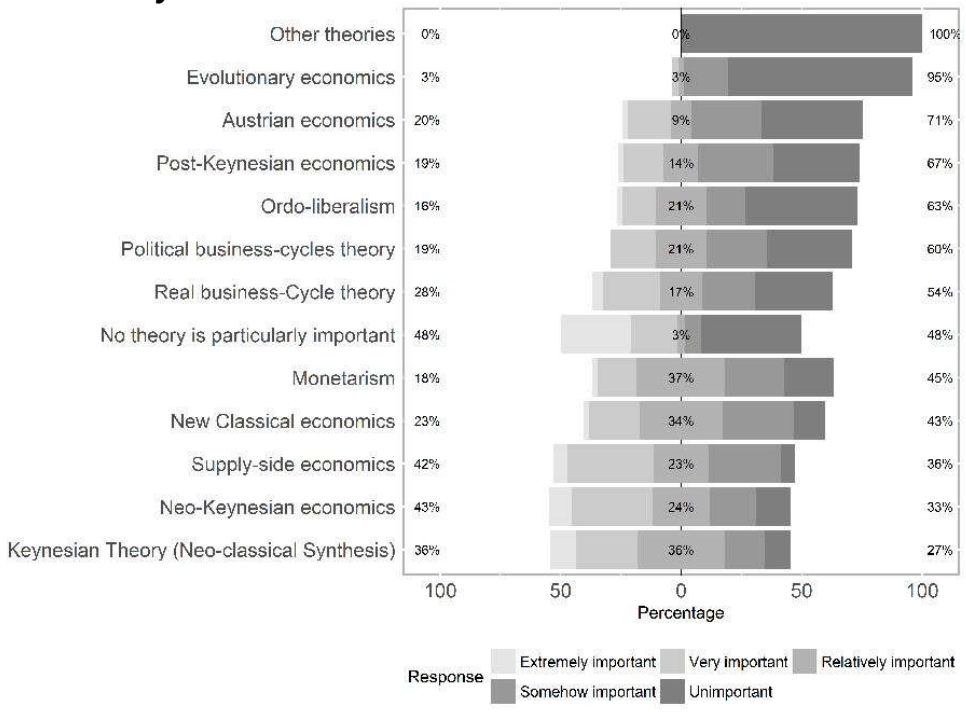
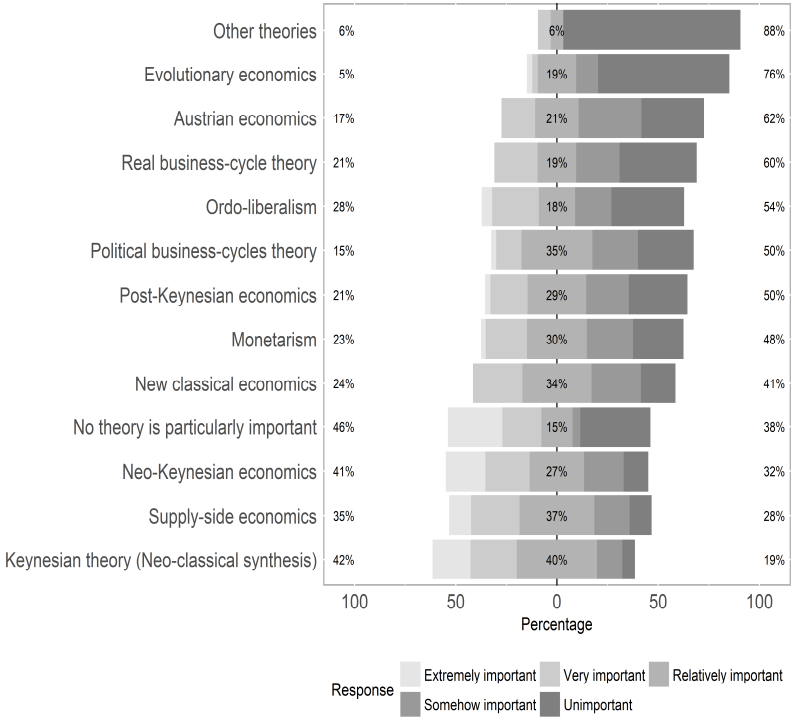
Thank you for your attention!

Results: Importance of theories for forecasting – institution vs. personal

How important are the following theoretical approaches for the forecasting process for you and your institution?



Institutional importance



Personal importance

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Results: “Modern” methods and selected characteristics of forecasters

	Uses the method at least sometimes	Uses the method rarely or never	NA	Test for independence [p-value]	Fisher exact test [p-value]
Method and age					
DSGE models					
Older	2	14	2	[0.62]	[0.45]
Younger	6	19	0		
Probit models					
Older	5	10	3	[0.78]	[0.72]
Younger	6	19	0		
Machine learning					
Older	0	15	3	[>0.99]	[1.00]
Younger	1	22	2		
Method and nature of institution					
DSGE models					
Private	5	27	13	[0.03]	[0.02]
Public	13	16	7		
Probit models					
Private	8	22	15	[0.87]	[0.77]
Public	9	19	8		
Machine learning					
Private	0	30	15	[0.39]	[0.20]
Public	2	23	11		
Method and theoretical position					
DSGE models					
Leaning Keynesian	7	21	19	[0.88]	[0.60]
Leaning neo-classical	2	3	9		
Probit models					
Leaning Keynesian	8	19	19	[>0.99]	[0.64]
Leaning neo-classical	3	2	7		
Machine learning					
Leaning Keynesian	0	25	23	NA	[>0.99]
Leaning neo-classical	0	5	2		

Notes: p-values in brackets. Source: own survey and calculation. NA due to insufficient number of observations.

Some differences in model-use between subjects or institutions:

- *We could **not identify** a difference between **younger and older forecasters** in the use of methods*
- DSGE models significantly more often used by ***public institutions***
- There is ***no difference*** along the “school of thought” division line with respect to usage of forecasting techniques

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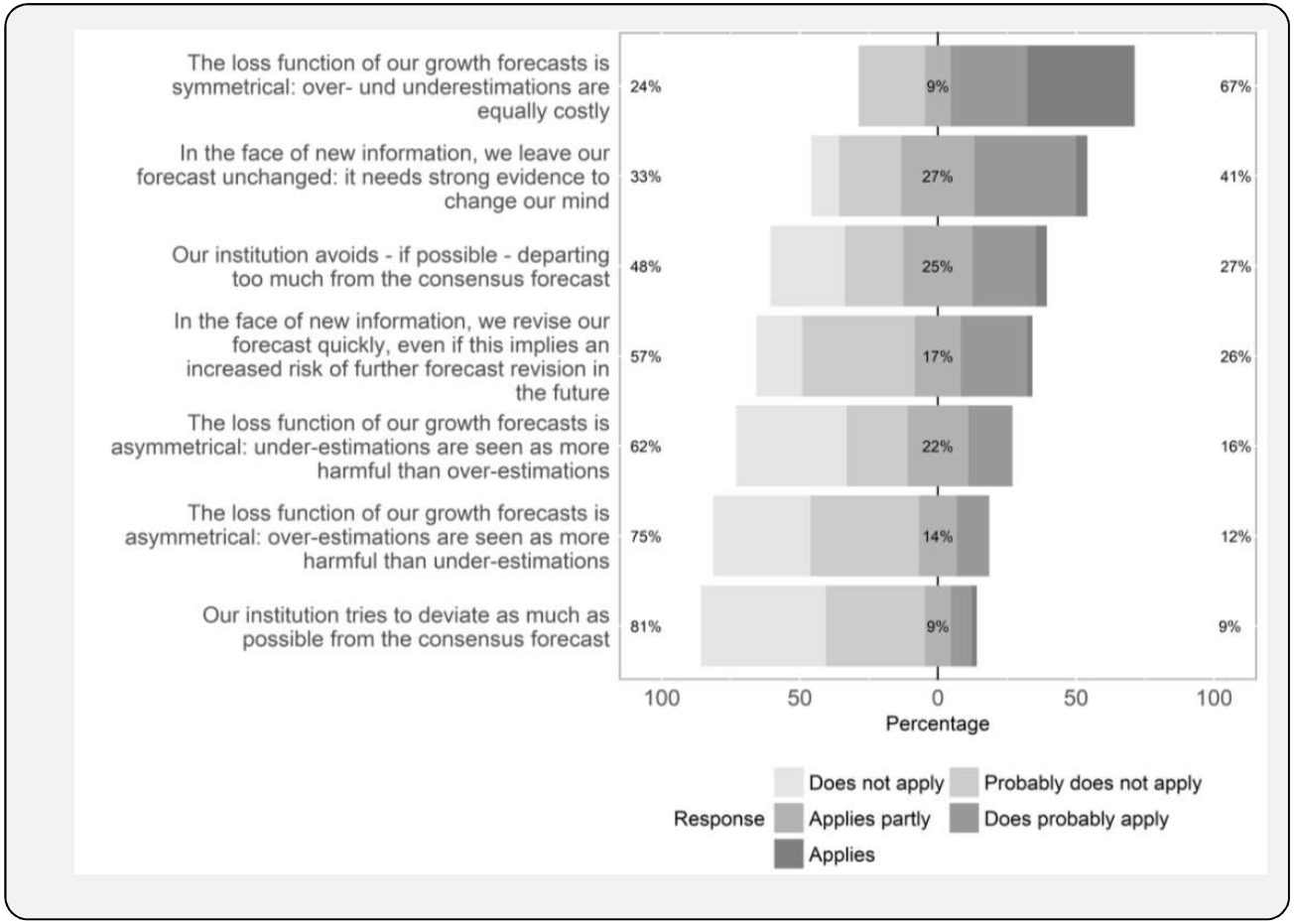
Results: Attitudes to consensus and loss function

Which of the following statements applies to your institution?



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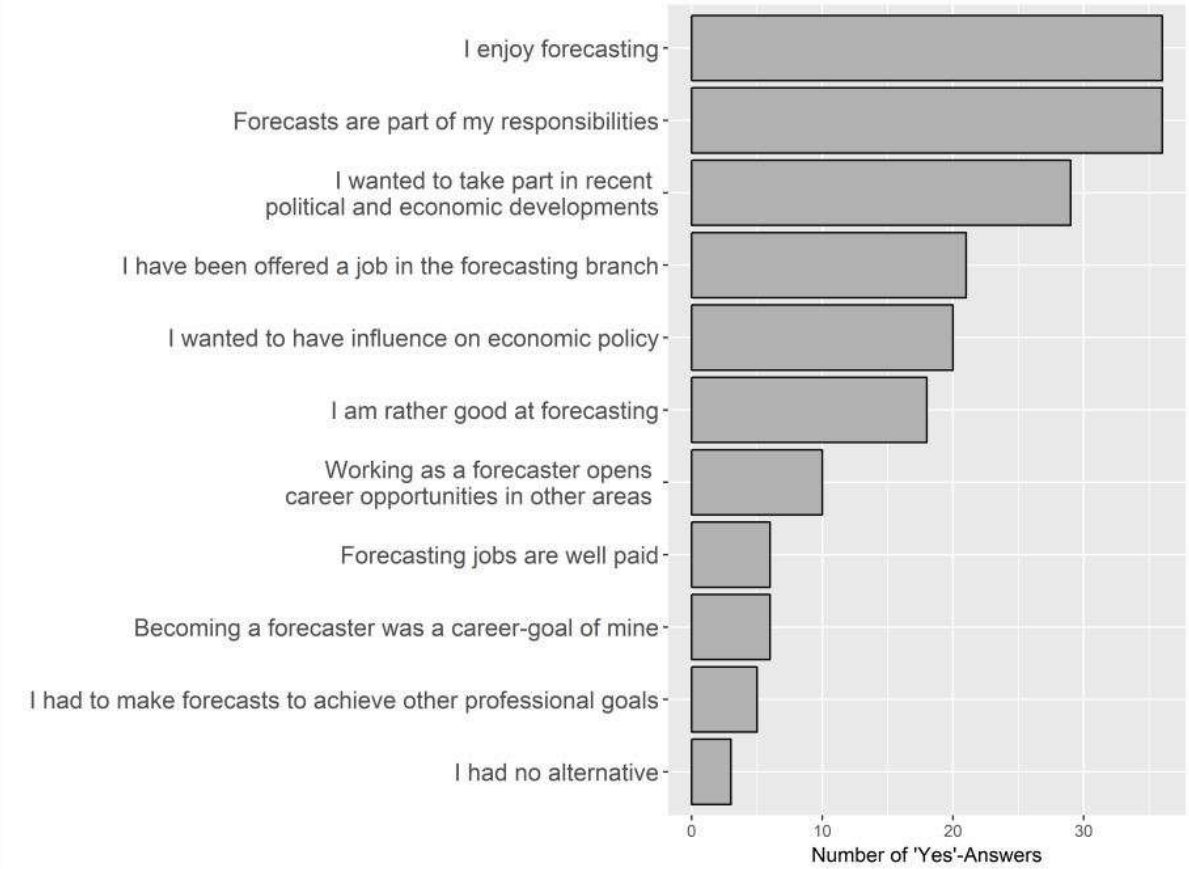
Results: Reasons to become a professional forecaster

What reasons did you have to become a professional forecaster?



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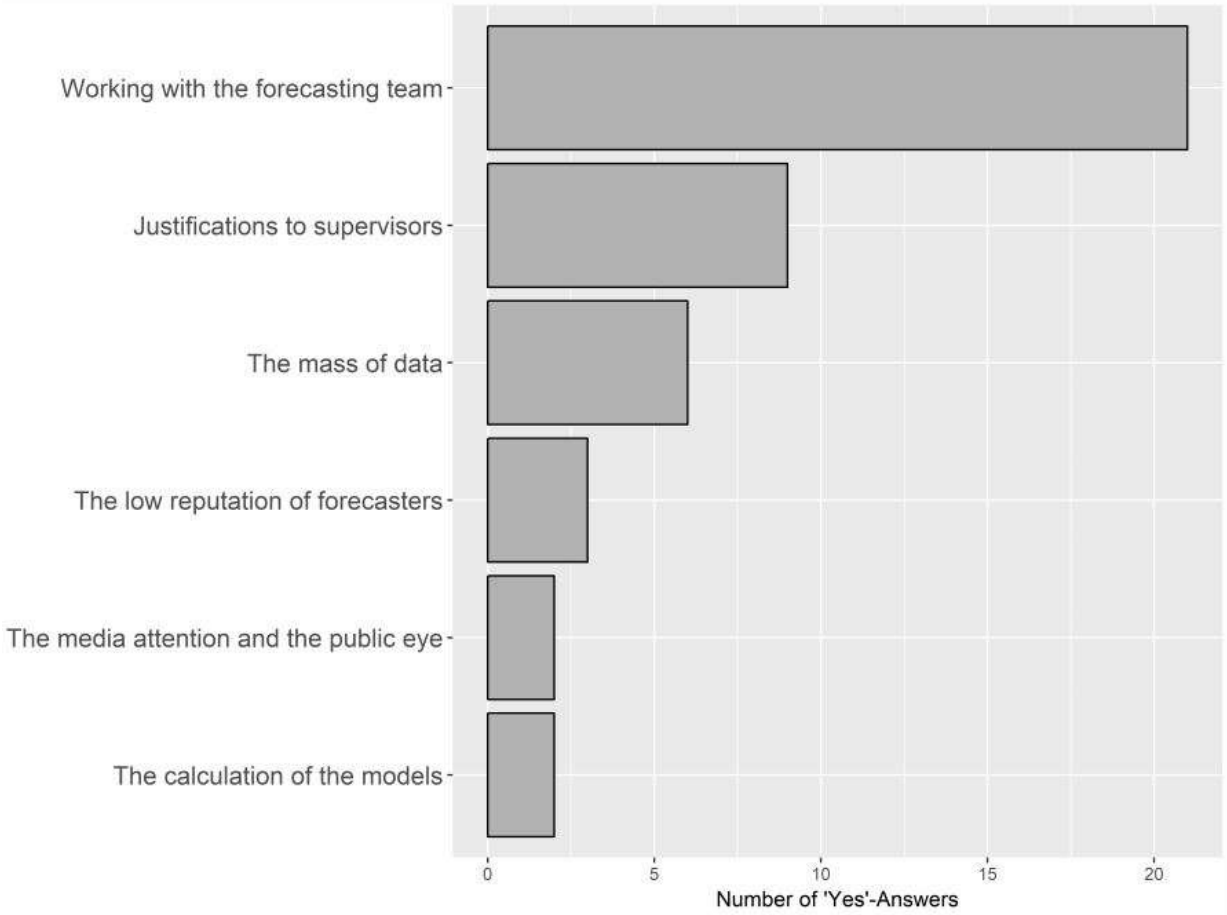
Results: Downsides of being a forecaster

Which aspects of the work as a forecaster do you find burdensome or demotivating?



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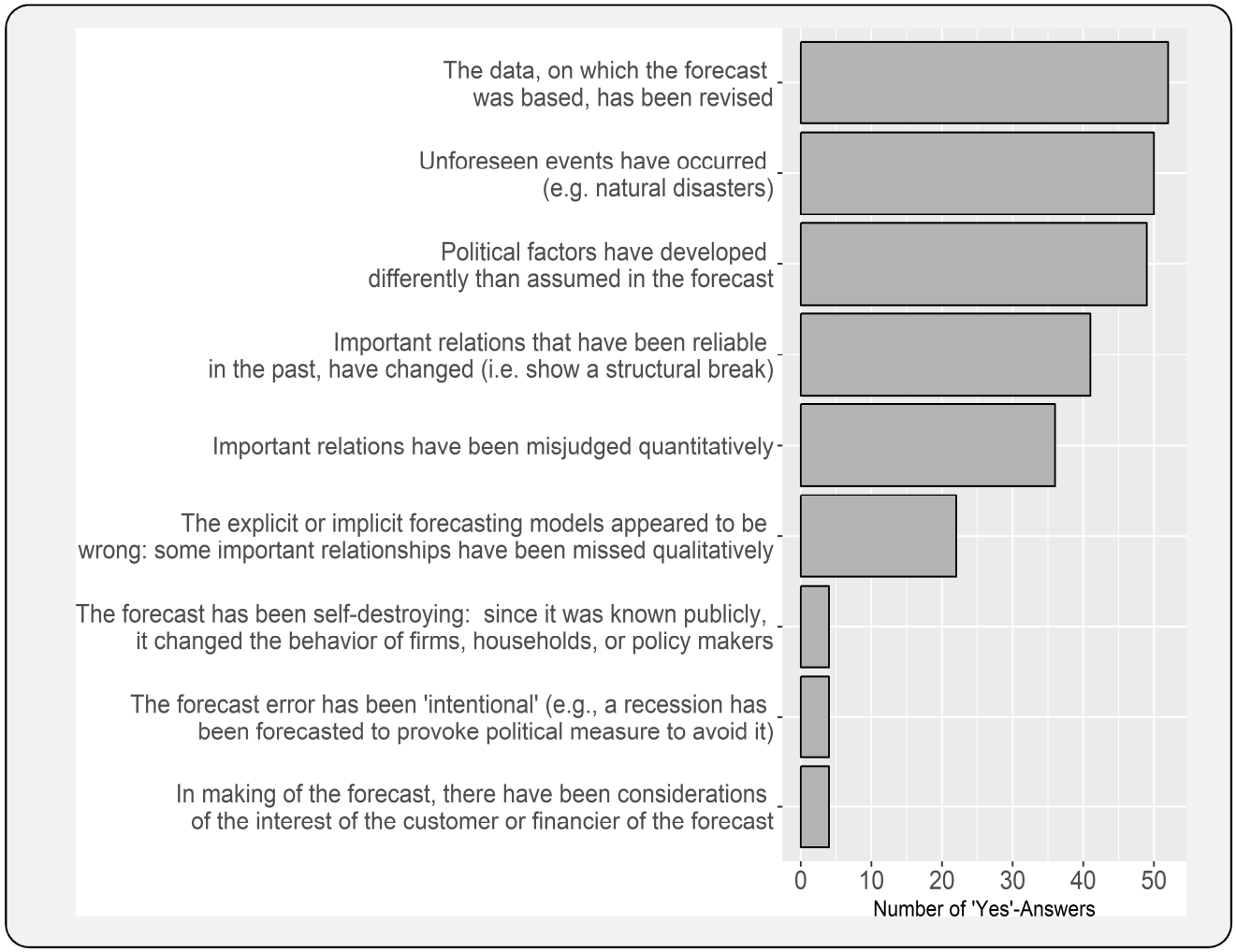
Results: Reasons for forecasting errors

Which of the following do you view as sources of forecasting errors?



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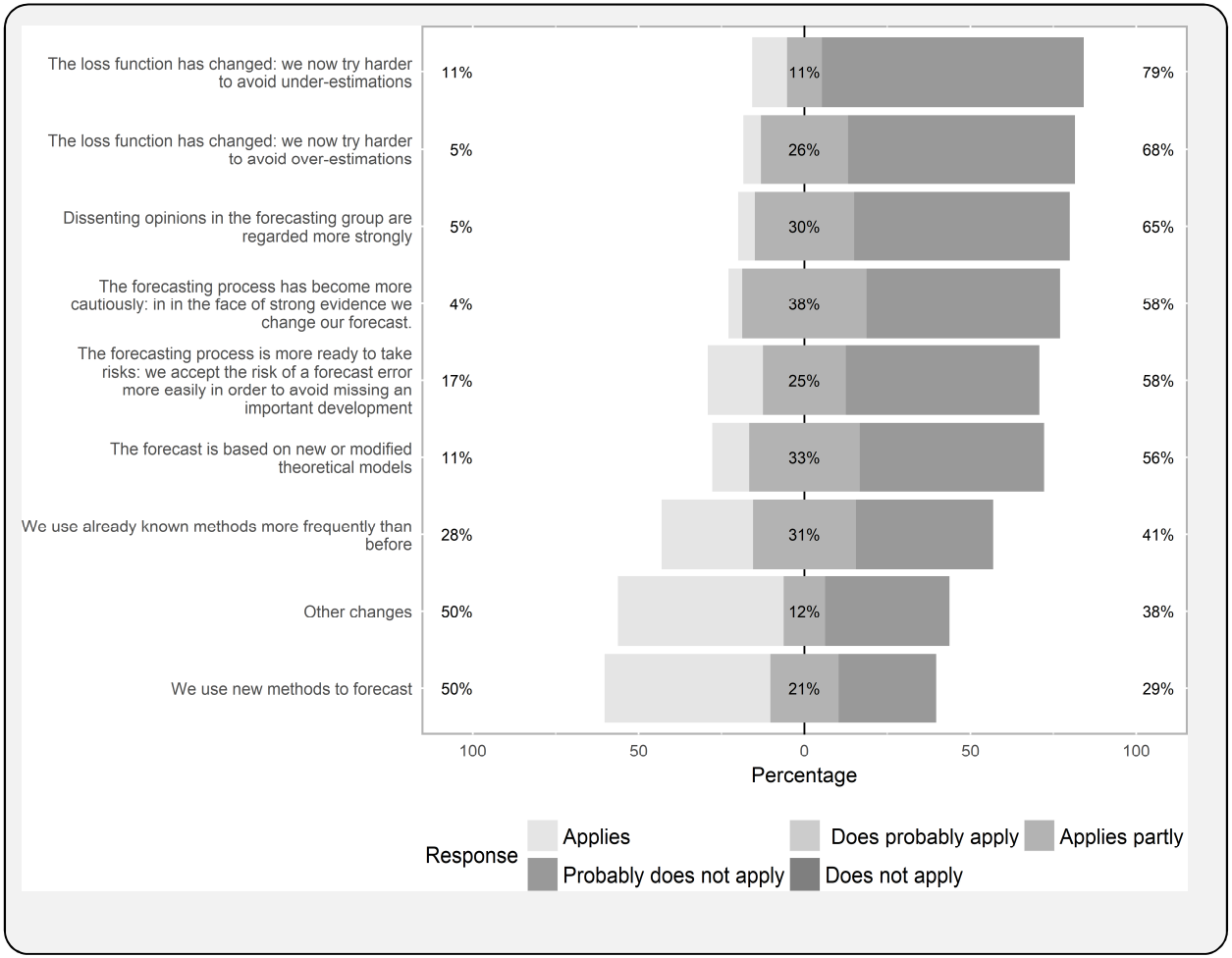
Results: Measures taken due to the great recession (huge forecasting error)

In the aftermath of the financial crisis 2008/09, economic forecasts have been criticized (again). This leads to the possibility that your institution may have changed ist forecasting process. Which statements apply to your institution?

Interestingly, the subjective elements of the forecasting process have not been addressed since the financial crisis, despite of their significance for the whole process.



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