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European  
Integration &  
European Politics

UNIVERSITÄT  
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ESSEN

*Open-Minded*

## ***Impact of Unequal Turnout on European Election Results Evaluation of Traditional and New Applications***

19.07.2019 – Stefan Haußner, M.A.

8th ESRA-Conference – Zagreb

- **Socio-economic status is highly correlated to participation in elections**  
(Smets/van Ham 2013, Blais et al 2006, 2007)
  - Education
  - Income
  - Employment Status
  - ...
- General belief:  
**Parties of the centre-left would benefit from higher turnout rates**
  - „low SES voters traditionally voted for left wing socialist and social democratic parties“ (Lutz/Marsh 2007)
  - “conventional wisdom that higher turnout yields a considerably higher vote share for parties that supposedly appeal to the working class and socio-economically disadvantaged groups” (Toka 2004)

# What's the puzzle?

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	Aggregate data / official statistics	Survey data
Changes in the results likely	<ul style="list-style-type: none"><li>• Pacek und Radcliff (1995)</li><li>• Hansford and Gomez (2010)</li><li>• Schäfer (2012)</li><li>• Bechtel et al. (2016)</li></ul>	<ul style="list-style-type: none"><li>• Remer-Bollow et al (2019)</li></ul>
Change in the results unlikely	<ul style="list-style-type: none"><li>• DeNardo (1980)</li><li>• Highton and Wolfinger (2001)</li><li>• Fisher (2007)</li></ul>	<ul style="list-style-type: none"><li>• Citrin et al. (2003)</li><li>• Brunell and DiNardo (2004)</li><li>• Tóka (2004)</li><li>• Bernhagen and Marsh (2007)</li><li>• van der Eijk and van Egmond (2007)</li><li>• van der Eijk et al. (2010)</li><li>• Kohler (2011)</li><li>• Bernhagen and Rose (2012)</li><li>• Bernhagen and Remer-Bollow (2019)</li></ul>

*Why were empirical attempts not been able to prove an effect of turnout on the election result?*

Theory is wrong

The methods  
(or its application)  
are wrong

The focus on  
the partisan-  
bias-effect is  
wrong

Many of the articles using some „imputation approach“ e.g. multiple imputation

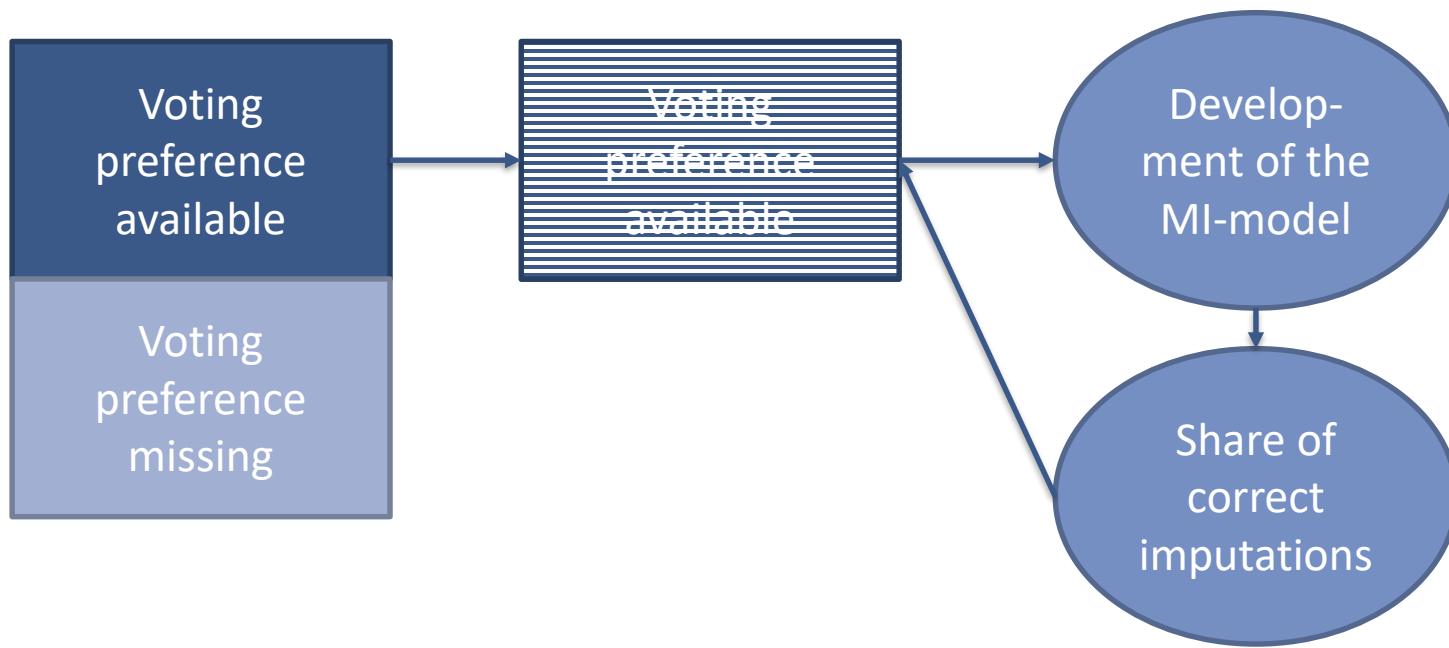
- „*state-of-the-art missing data technique[s] that methodologists currently recommend*“ (Enders 2010)
- Proposed for voting preferences by King et al. 2001
- “Pre-Analysis-Questions”
  - MAR or MNAR
  - Transferability of the voters-model to nonvoters

## Transferability of the voters-model to nonvoters

interaction	identification	interests	issues
social class	religious denomination	education	Economic evaluation
union membership	ideological self-assessment	Income	Attitude towards the EU
	party identification	employment status	Attitude towards immigration
		Sex	
		age	

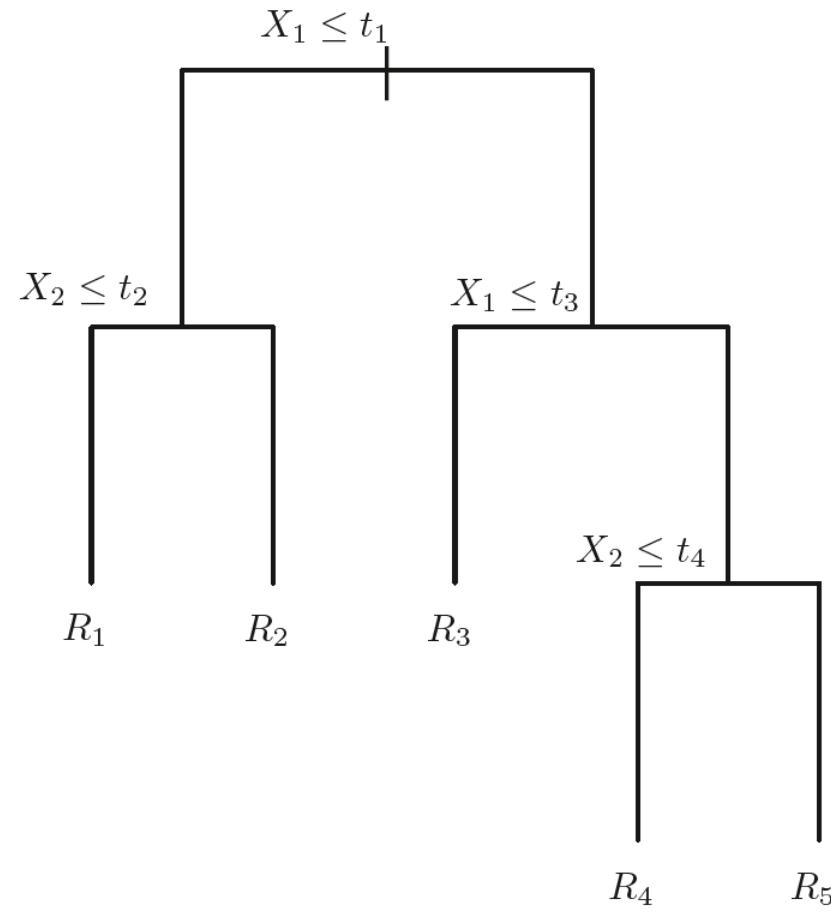
Debus 2010; Kohler 2002; Bernhagen/Rose 2012

## Evaluation Design



- **I do not want to interpret. I just want to classify.**
  - → I don't need a regression table
  - → Procedures that are more difficult to interpret, but more flexible (fewer assumptions)





James et al. 2013

- **Random Forests as enhancement of Regression/Classification Trees**
  - Decision Trees are often unstable
  - Stabilisation through many trees = one forest
  - Averaging over  $B$  trees where only a certain number of predictors may be used per split
- **Statistical learning algorithms relatively new to political science; only rare applications**
  - Montgomery & Olivella (2016)
  - Rusch et al. (2013)
  - Sampath & Teng (2014)
  - Gründler/Krieger (2015)

- European Social Survey (Wave 8)
- All available countries that are members of the European Union
- Only complete cases
- Multiple Imputation based on multinomial regression models
  - 50 iterations which 20 imputations each
  - Separately for each country
- Random Forests
  - 5000 trees
  - Default number of variables at each split, minimum size of terminal nodes
- Using R as language and packages „mice“ and „randomForest“ for modeling

# Results – Multiple imputation

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country	accuracy_mi	significant from no-information-rate
AT	0,46	0,00106
BE	0,19	0,99986
CZ	0,38	0,00000
DE	0,35	0,99957
EE	0,25	1,00000
ES	0,45	0,00000
FI	0,31	0,00000
FR	0,39	0,00000
GB	0,43	0,61510
HU	0,62	0,00872
SE	0,40	0,00000
IE	0,32	0,01027
IT	0,42	0,86990
NL	0,28	0,00001
PL	0,51	0,00000
PT	0,46	0,00003
SI	0,31	1,00000

# The Rae index of party fragmentation

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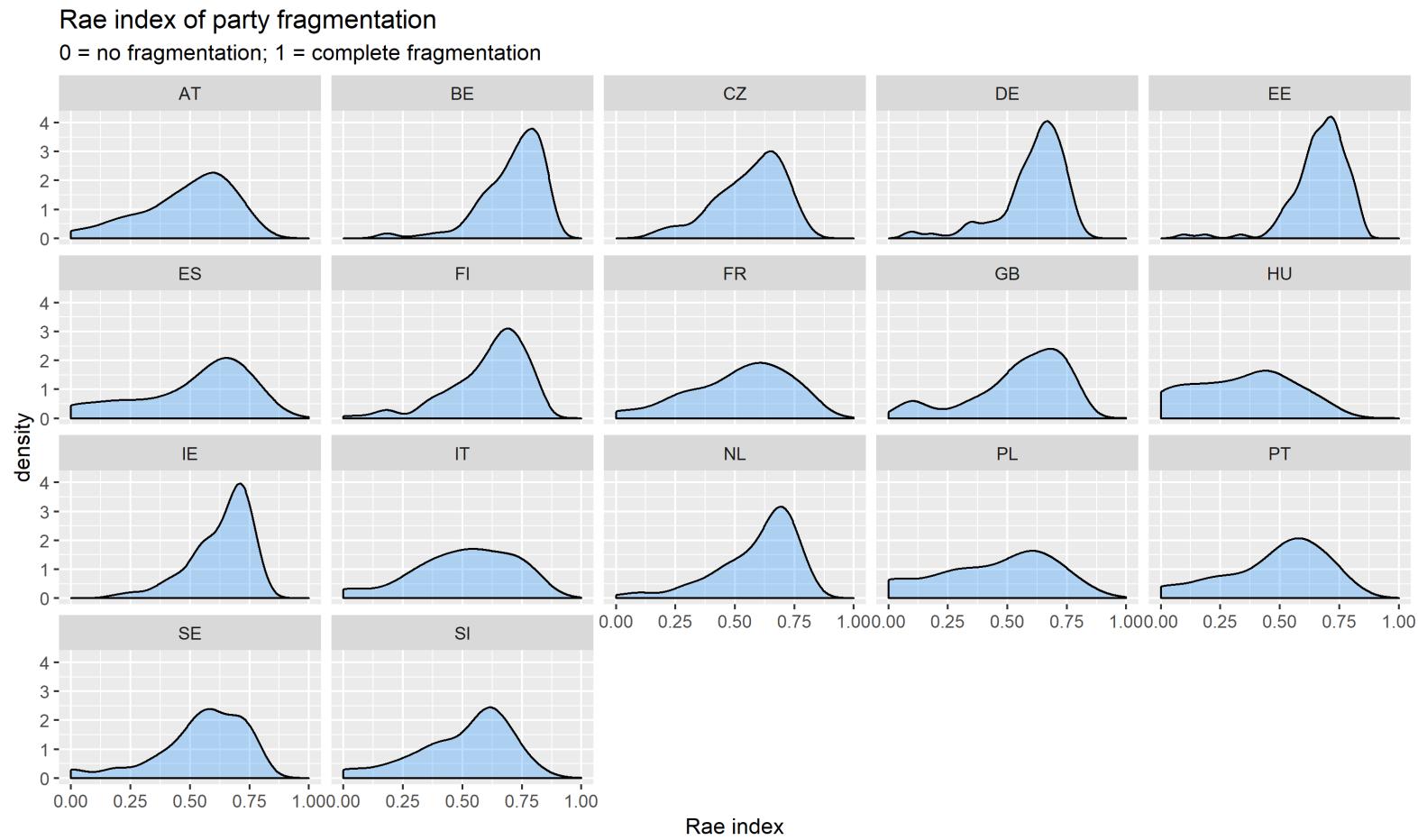
rowid	1 <chr>	2 <fctr>	3 <fctr>	4 <fctr>
47	The National Coalition Party	The National Coalition Party	The National Coalition Party	The National Coalition Party
174	Pirate Party	The National Coalition Party	The National Coalition Party	True Finns
207	The National Coalition Party	The National Coalition Party	The National Coalition Party	The National Coalition Party
281	The National Coalition Party	The National Coalition Party	True Finns	The National Coalition Party
470	True Finns	True Finns	True Finns	True Finns
541	The National Coalition Party	The National Coalition Party	The Swedish People's Party (SPP)	Christian Democrats
677	Green League	Green League	Green League	Green League
778	The Centre Party	True Finns	True Finns	True Finns
821	The Swedish People's Party (SPP)	The Swedish People's Party (SPP)	Pirate Party	Pirate Party
1053	Pirate Party	The Centre Party	Pirate Party	Green League

10 rows | 1-7 of 21 columns

rowid	Christian Democrats	Freedom Party	Green League	Left Alliance	Pirate Party	Social Democratic Party	The Centre Party	The tio Coalition Party	The Swedish People's Party (SPP)	True Finns	rae_index
470										1	0
677			0,95							0,05	0,095
778							0,1			0,9	0,18
207		0,05					0,05	0,9			0,185
281						0,05		0,9		0,05	0,185
47							0,05	0,9	0,05		0,185
1053	0,05		0,25		0,15	0,05	0,1	0,05	0,05	0,3	0,805
821			0,15	0,05	0,25	0,15				0,25	0,15
174			0,15	0,05	0,05		0,1	0,2	0,15	0,3	0,81
541	0,1			0,05		0,2	0,1	0,25	0,25	0,05	0,81
488			0,3	0,1	0,1	0,2	0,15	0,05		0,1	0,815
43	0,1	0,05	0,3	0,05	0,1		0,15	0,1		0,15	0,83

# Results – multiple imputation

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country	accuracy_RF	significant from no-information-rate
AT	0,59	0,00000
BE	0,33	1,00000
CZ	0,49	0,00001
DE	0,47	1,00000
EE	0,41	1,00000
ES	0,57	0,00000
FI	0,45	0,00000
FR	0,60	0,00000
GB	0,55	0,10884
HU	0,79	0,08382
IE	0,40	0,99995
IT	0,54	0,87673
NL	0,39	0,00015
PL	0,58	0,00137
PT	0,61	0,00000
SE	0,54	0,00032
SI	0,47	1,00000

country	sig for MI	sig for RF
AT	x	x
BE		
CZ	x	x
DE		
EE		
ES	x	x
FI	x	x
FR	x	x
GB		
HU	x	
IE	x	
IT		
NL	x	x
PL	x	x
PT	x	x
SE	x	x
SI		

- **Multiple Imputation as well as Random Forests are not really convincing in predicting party preferences (even for those who actually voted)**
- **Sometimes the models have an added value compared to the no-information rate, but too little to answer the question of a benefit for one specific party**
- **Research using especially multiple imputation for estimating turnout effects on election results, might be flawed**

- **Extending the analysis**
  - on more machine learning algorithms
  - on more waves of the ESS
  - on the European Election Study
- **Dig deeper into the evaluation of the new algorithms**
- **Working out under which circumstances which algorithm produces the best results**
  - Datawise
  - Context of party system, electoral system, polarisation etc.

# Thank you for your attention

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