

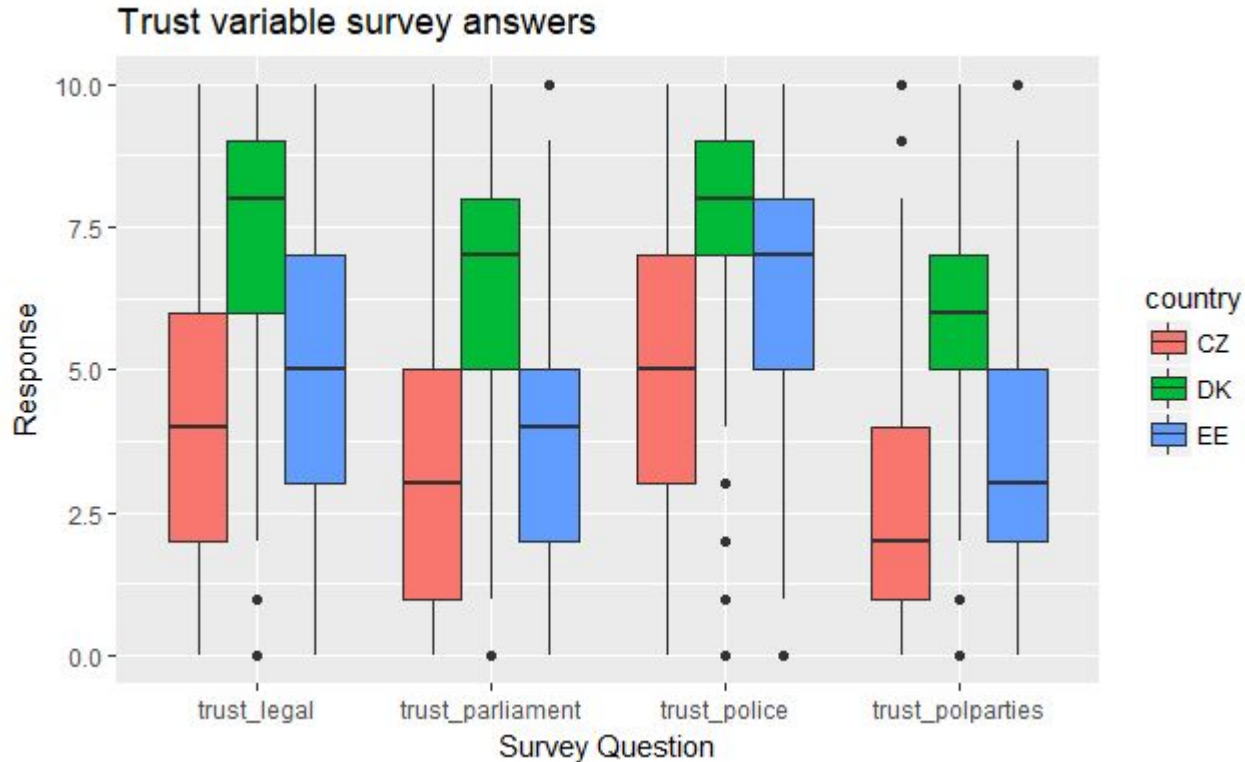
European Social Survey analysis

Bose Falk

Question of interest

- “How is media consumption related to trust in government institutions?”
- Not directly asked, instead several survey questions in the same ‘group’ were asked
- Modelled using Structured Equations Modeling (SEM) method
 - Useful for latent, hidden variables
- Survey responses used to construct latent, hidden variable
 - ‘Trust in government institutions’ variable constructed from four survey questions:
 - How much you trust the parliament?
 - ... the legal system?
 - ... the police?
 - ... political parties?
- Mix of latent and observed variables used in regression model
 - Simultaneously solve this system of equations to estimate regression coefficients

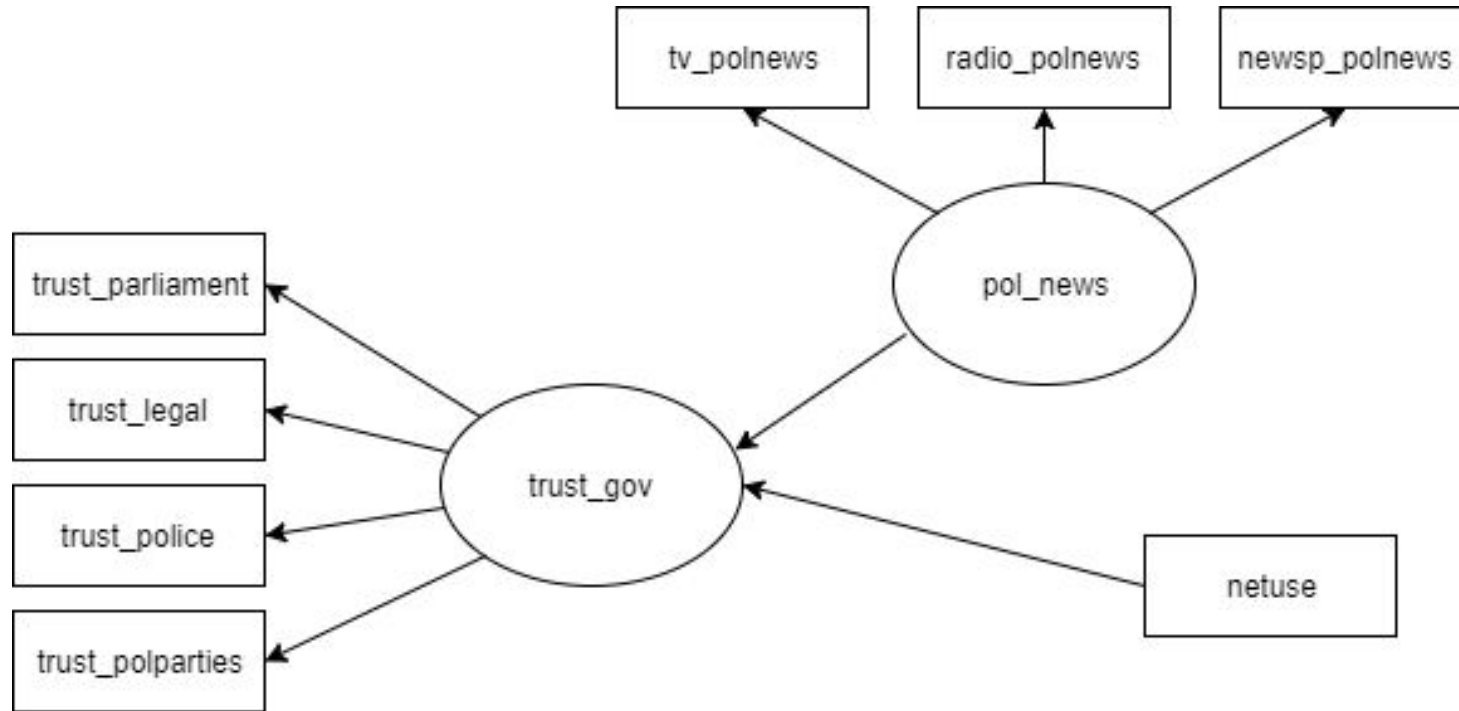
Spread of government trust responses



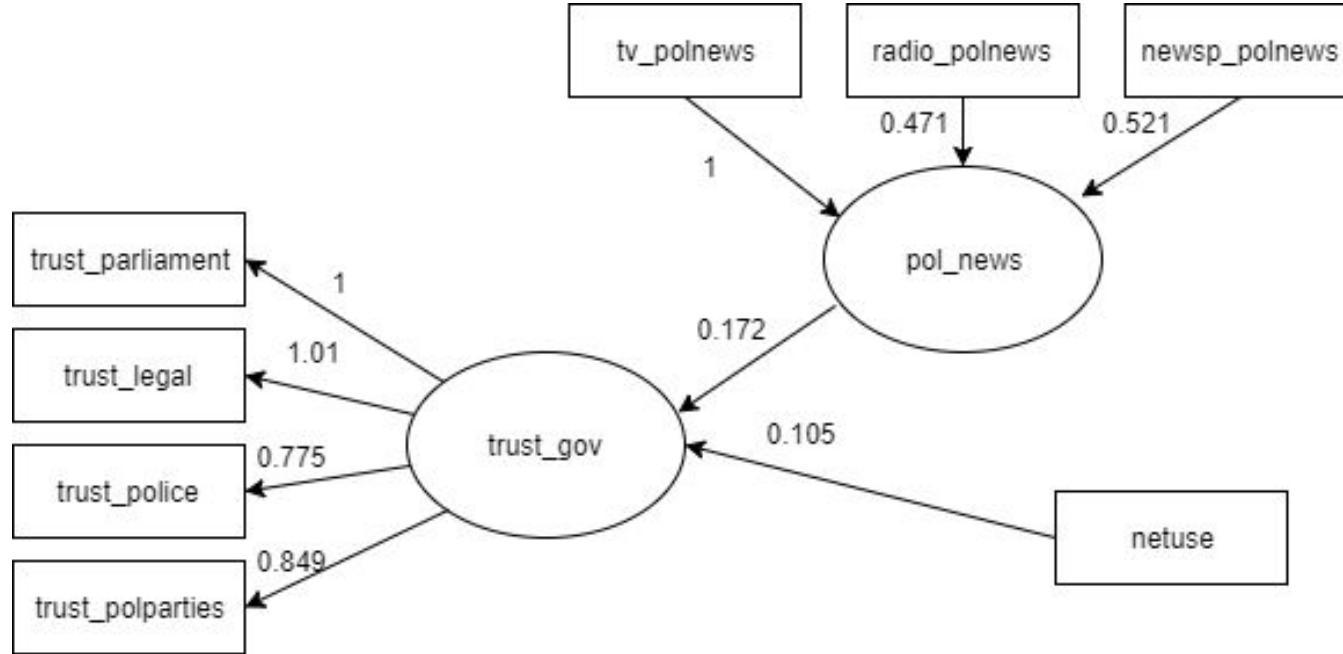
Structured Equations Modeling

- Model-driven graphical analysis
- Define model as connections between observed and latent variables, based on theory
- ‘Connections’ are regression models
- Solves system of equations to best fit the data
- Diagnostics to investigate overall fit of the proposed model, and coefficients for regression model

Proposed Model (simple)



Proposed model (simple)



Regression Models:

$$tv_polnews = 1 * pol_news$$

$$radio_polnews = 0.471 * pol_news$$

$$newsp_polnews = 0.521 * pol_news$$

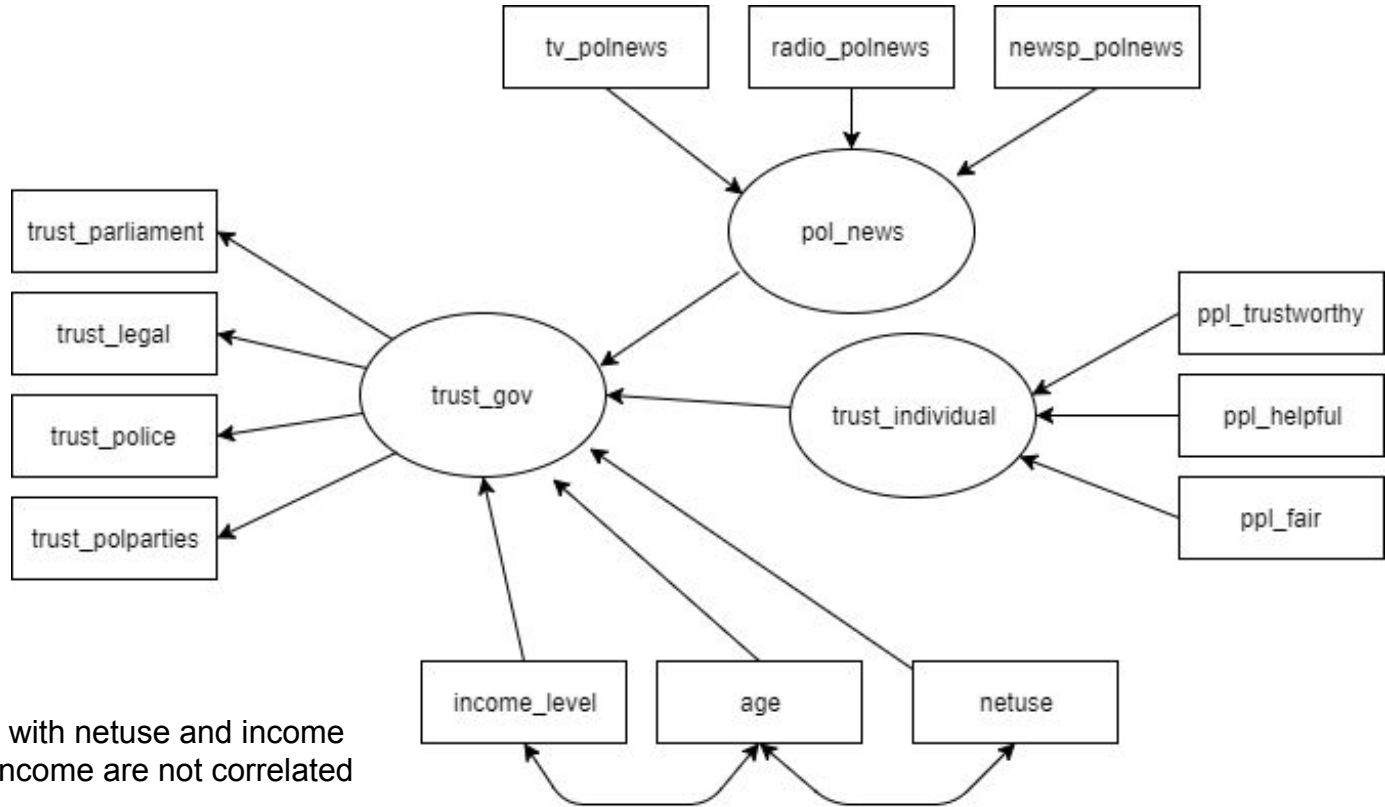
...

$$trust_gov = 0.172 * pol_news + 0.105 * netuse$$

Proposed Model (full)

Regression Model:

$$\text{trust_gov} = \text{pol_news} + \text{netuse} + \text{trust_individual} + \text{age} + \text{income_level}$$

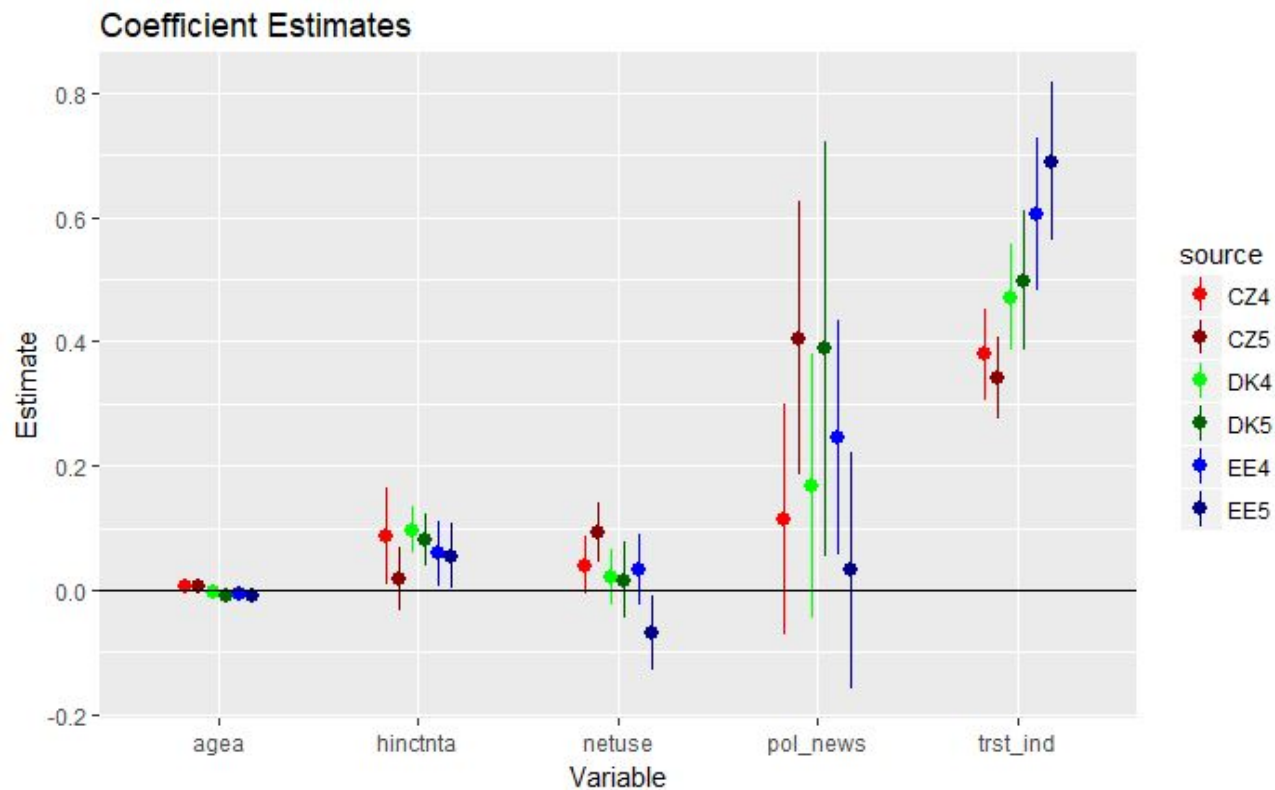


Age is correlated with netuse and income (but netuse and income are not correlated with each other)

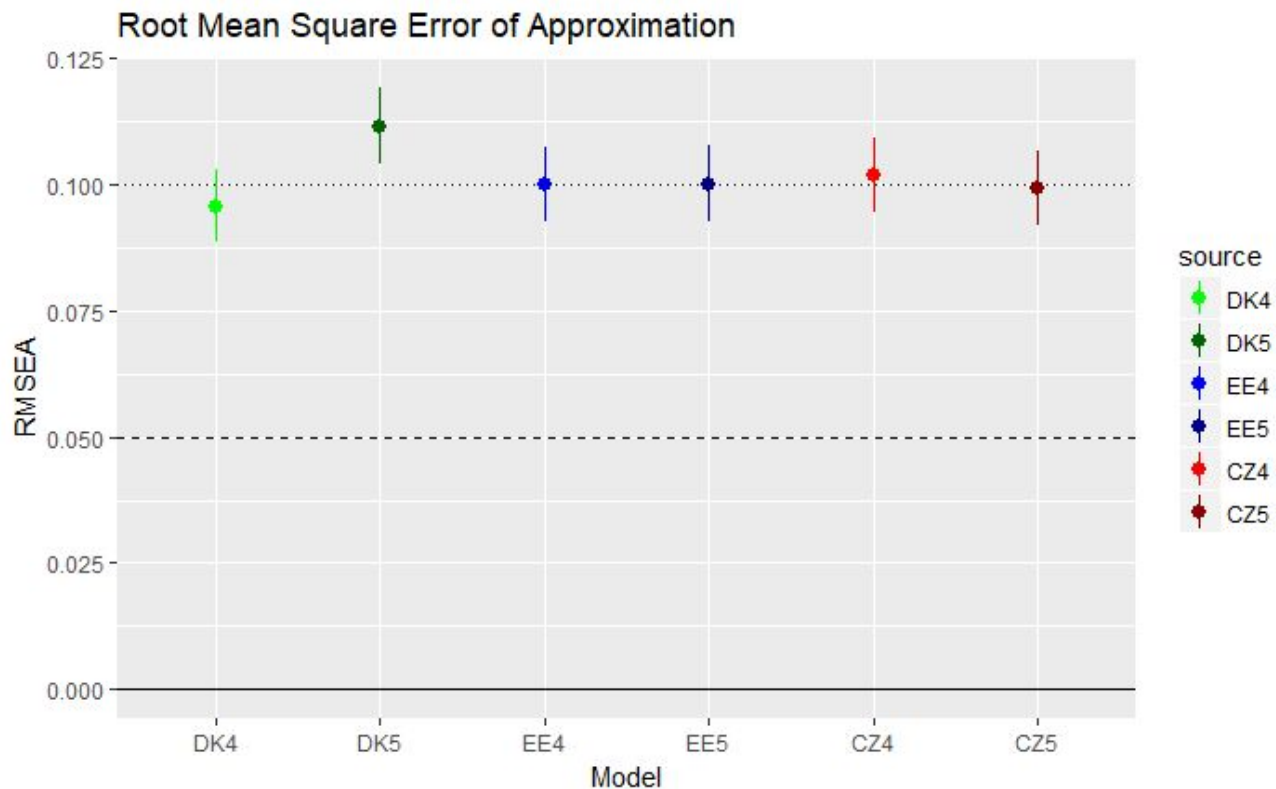
Analysis

- Using lavaan package in R
- Fit model separately on each country & survey year
 - Three countries (Denmark, Estonia, Czech Republic)
 - Two survey years (round 4 & 5)
- Expect similar coefficients and p-values if model generally holds true
- Other slightly modified models tested, this had best model diagnostic scores & interpretability
 - Root Mean Square Error of Approximation (RMSEA)
 - AIC
- Interestingly, interaction effect between pol_news and netuse was not important

Analysis - coefficients



Analysis - model fit



Conclusion

- Appears to be same basic drivers of government trust across the three countries
- High trust in individuals and high income levels correlated with high trust in government
- Some evidence of higher political news consumption with high trust in government, but internet use had no effect
- This model has room for improvement
 - Input from domain expert / researcher

Other approaches

- Bayesian inference on same model
- Bin government trust responses into ordinal categories, and use decision-tree based model (Random Forest) with survey questions directly
- Instead of creating latent variables, use means of survey questions to create new summarized variable and use in regression
- Analyze over-time change in attitude (data allows tracking of individual respondent over time)