



A new approach for constructing a health care index

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Objectives

Background

Until now, national health care systems have been compared objectively through macro indicators, an approach that might have its shortcomings in assessing the actual benefits that the health care system provides for people. In order to get a full picture of the situation it is **important to include the individual assessment of residents on access to their health care system** when doing evaluations.

Research Questions and Theory

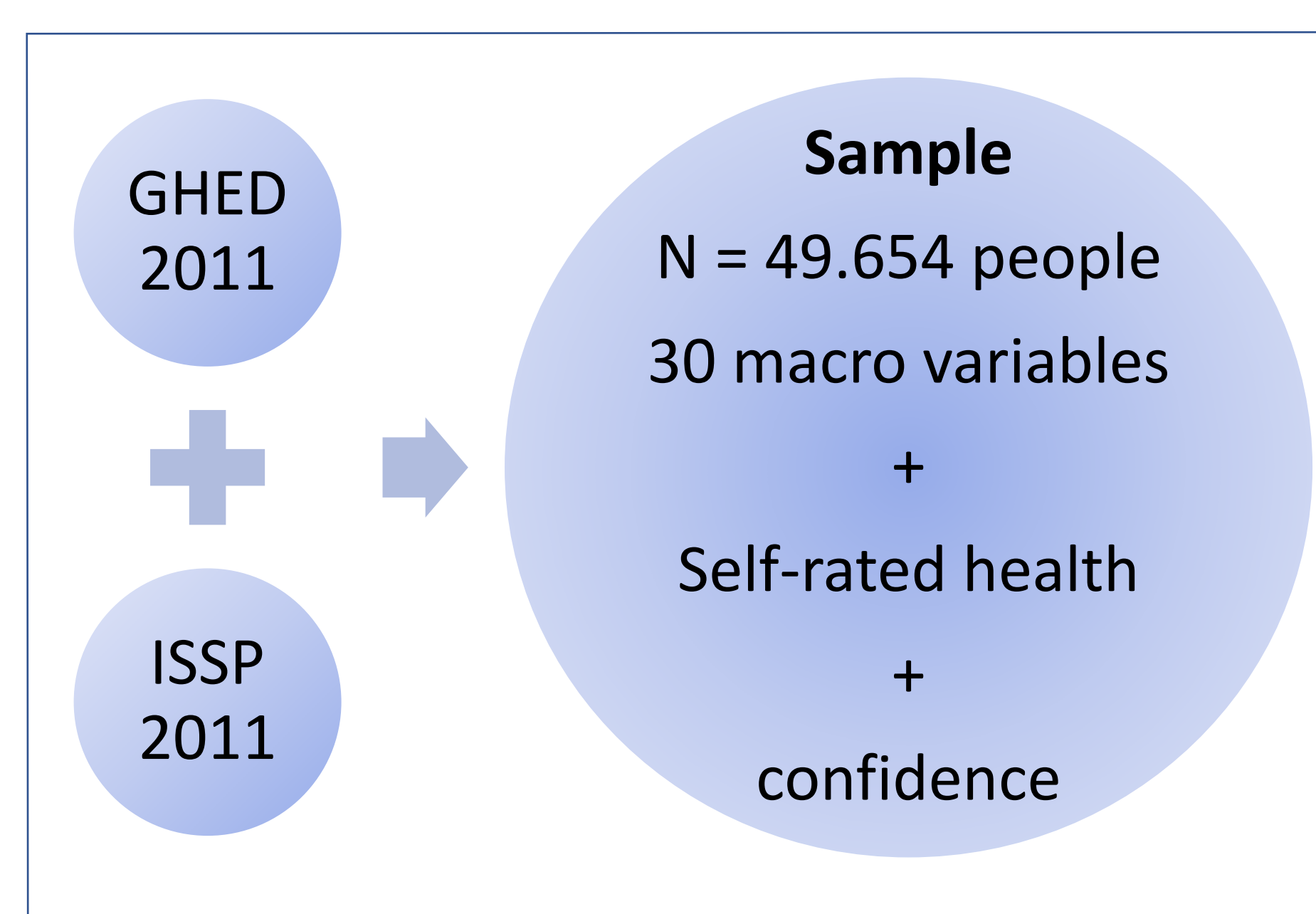
Research Question: How are people actually doing in their country?

Theory: Identify the individual's confidence in his or her own health care system with regards to objective macro criteria of health care systems.

Data and Methods

Surveys

ISSP 2011	GHED
International Social Survey Programme	Global Health Expenditure Database
Details	Details
Individual data	Macro data
- 32 countries	- 192 countries
- 55.081 people	- 19 years
- SRH and confidence	- 270 indicators



Methods

Identify variable importance of each indicator (macro variables)

Causal Forest

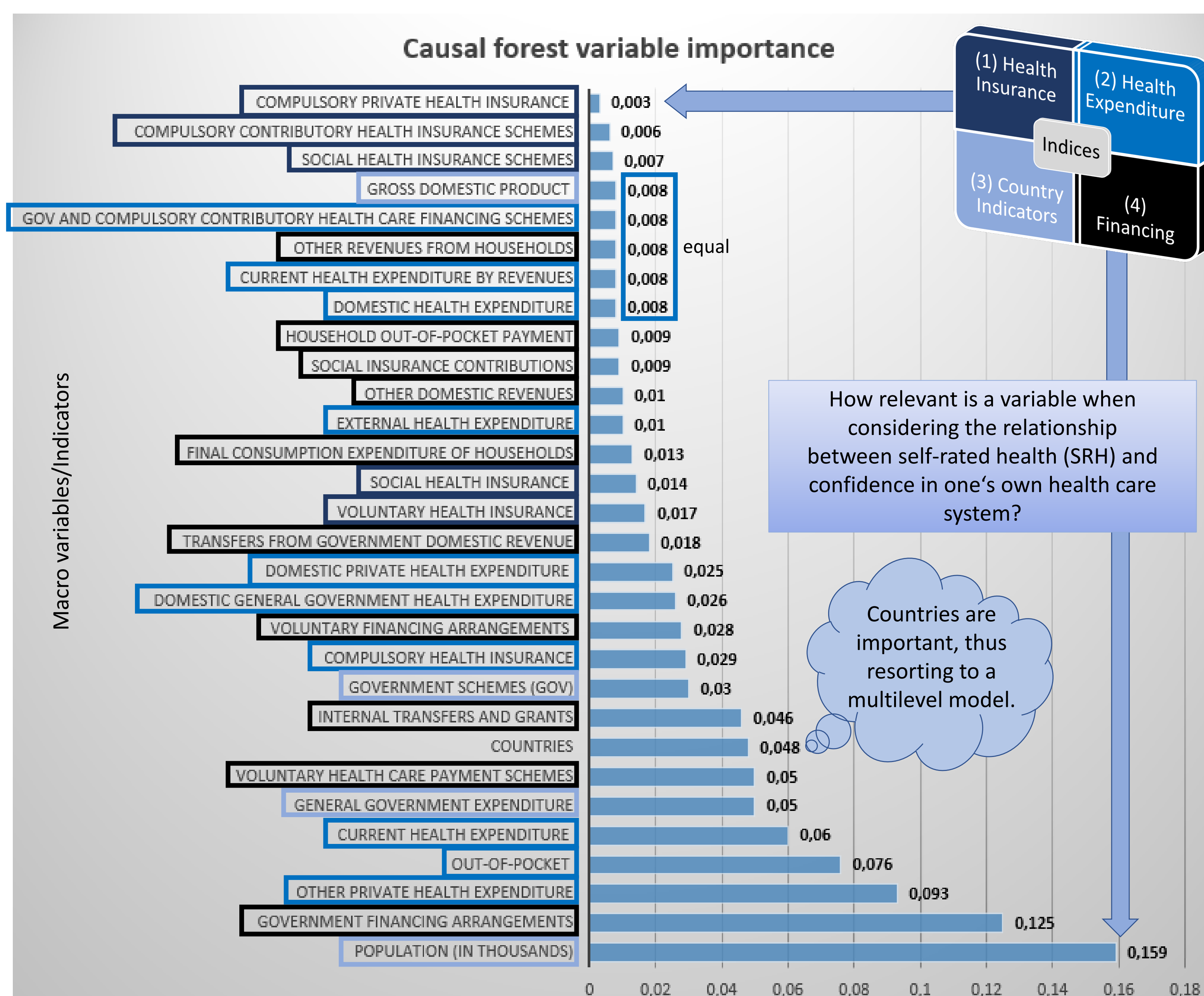
Create indices

Theoretical classification of the indicators + merge variable importance and estimators

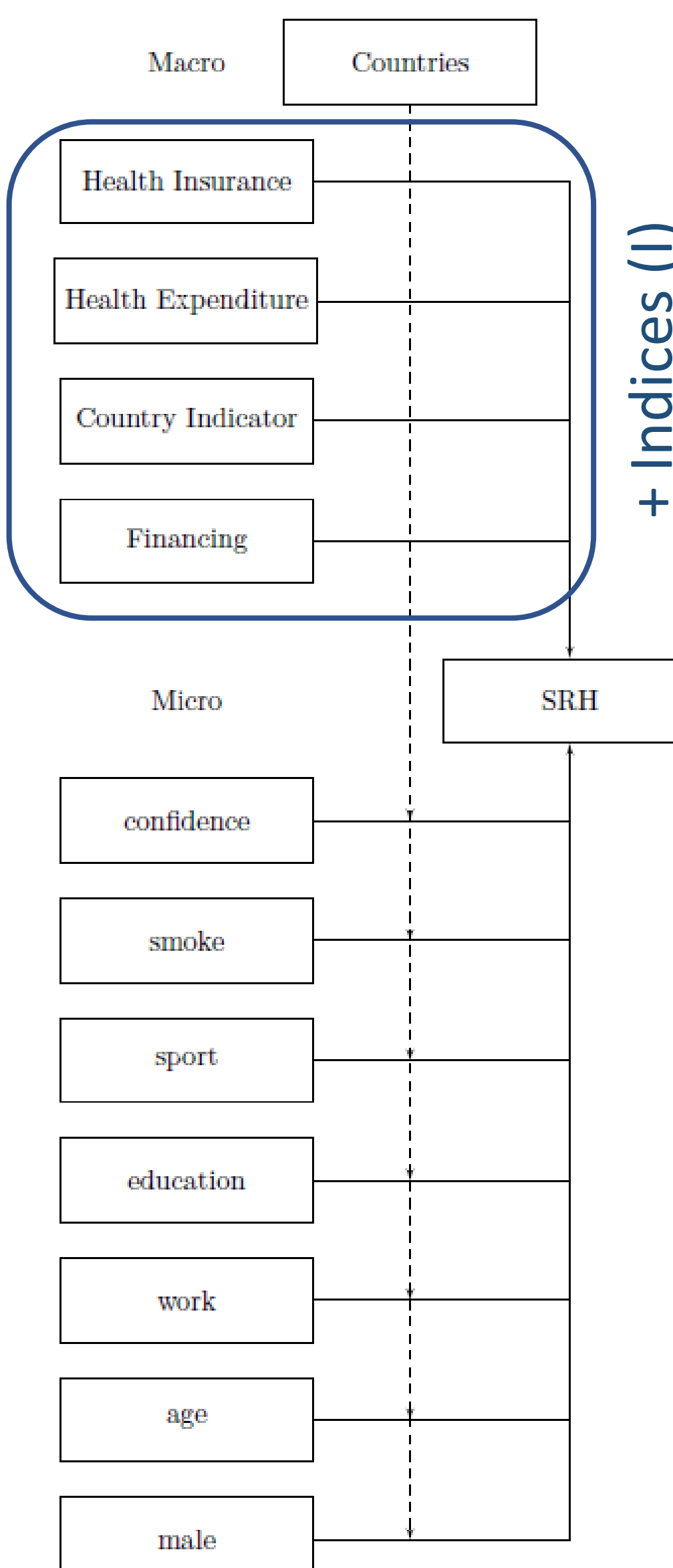
Multilevel regression with and without indices + comparison through model fit

Test indices

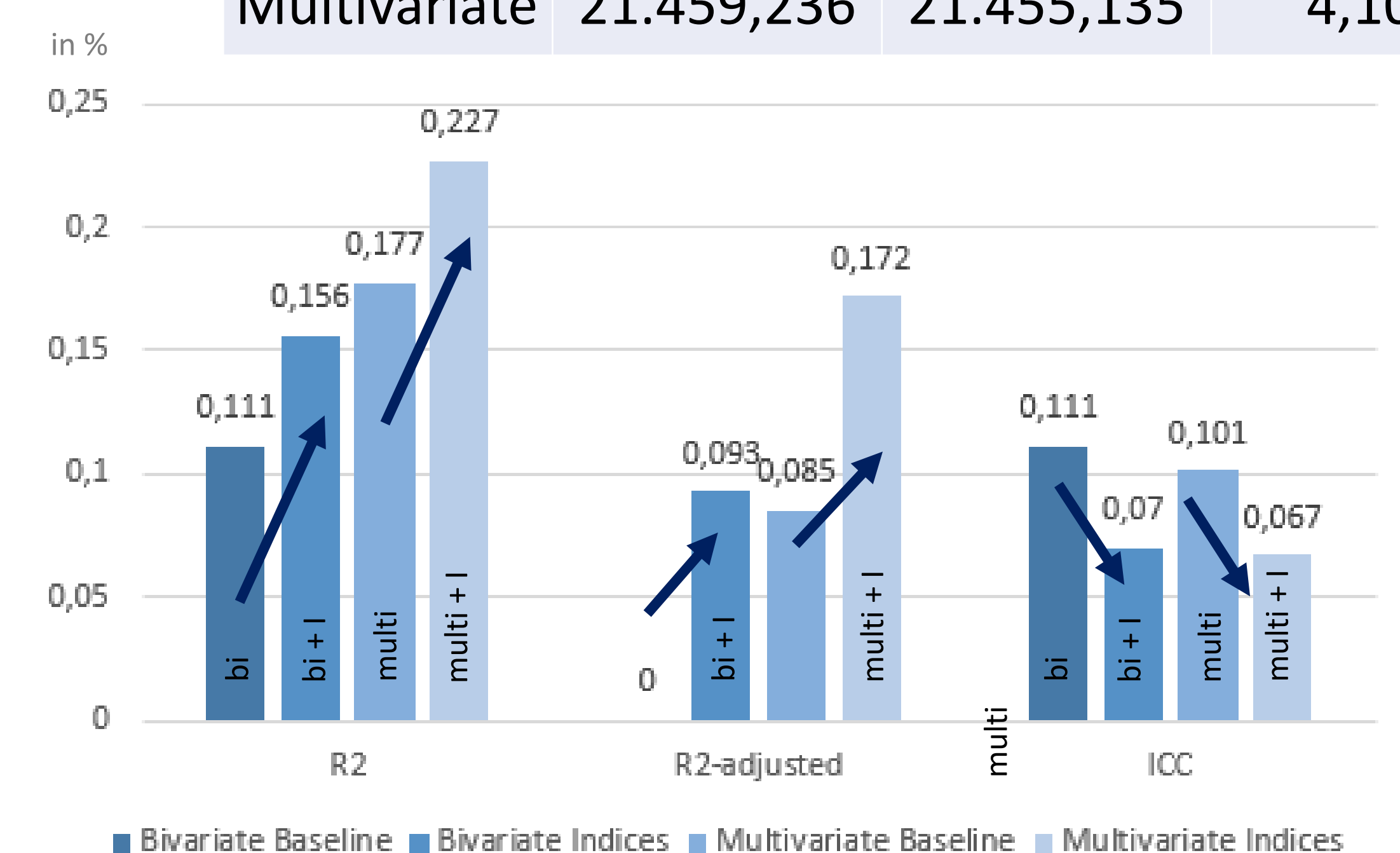
Results



Logistic multilevel models



	AIC	Baseline	+ Indices	Difference
Bivariate		22.497,267	22.491,468	5,799
Multivariate		21.459,236	21.455,135	4,101



- R² always increases when the indices are added
- Interclass correlation (ICC) decreases when indices are added
- Akaike information criterion (AIC) also improves slightly with addition of the indices

Discussion

Theoretical Interpretation

With addition of the indices...

- ✓ R²: ... more variability in self-rated health can be explained
- ✓ ICC: ... the countries lose their importance
- ✓ AIC: ... the model performance increases

Scope for improvement

- More countries would be advantageous
- Factor analysis instead of purely theoretical classification of the indicators
- Additional cross validation of the indices
- Separate testing of indices

References

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- Athey, S., Tibshirani, J. & S. Wagner, 2019: Generalized random forests. *The Annals of Statistics*, 47(2): 1148–1178.
- Wagner, S. & S. Athey, 2017: Estimation and Inference of Heterogeneous Treatment Effects using Random Forests. *Journal of the American Statistical Association*, 113(523): 1228-1242.
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