Tutorial 7

Research Methods for Political Science - PO3110

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12 & 13 November 2019

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Table of contents

About HMW3

Systematic and Random Measurement Errors

Systematic:

- Consistently overestimate values for certain types of units (e.g. students always over-reporting their income)
- Biased inferences
- Examples: quantitative text analysis; misreporting/consistent misunderstanding; sample selection bias

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Random:

- Random fluctuations without a clear pattern
- More uncertainty in results, only sometimes biased inferences
- Examples: human coding (if not depending on codebook)

Other measures of association: λ and γ

Lambda - λ

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- Lambda is a PRE measure and its value has fairly direct interpretation.
- **PRE** stands for *Proportional Reduction in Error*
- Lambda tells us the improvement in predicting Y while taking X into account.
- $0 \leq \lambda \leq 1$
- Useful to compare the strength of bi-variate relationships.

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- E_1 = (N – the largest row total)
- E_2 = (For each column, subtract the largest cell frequency from its column total and then add the differences together)

Practical Example [1]

Efficiency/Authoritarianism	Low	High	Total
Low	10	12	22
High	17	5	22
Total	27	17	44

[1] From Professor Patricia Pakvis material

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- $\lambda = \frac{22-15}{22} = 0.32$
- Error reduced by 32%

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Practice in SPSS

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- Calculate Lambda

Gamma

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- Find number of discordant pairs, N_d

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$N_c = 10 \times 20 = 200$

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Discordant pairs

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$N_c = 10 \times 20 = 200$ $N_d = 6 = 30$

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- $\gamma = \frac{N_c - N_d}{N_c + N_d}$

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- $N_d = 6 = 30$
- $\gamma = \frac{N_c - N_d}{N_c + N_d}$
- $\gamma = \frac{200 - 30}{200 + 30} = 0.73$

Furthering your project

Team up and discuss (some of) the following aspects:

1. Research question + relevance
2. Theoretical argument + hypothesis
3. Type of data + operationalisation of variables
4. Ways of analysing your data

I am available for further questions/feedback!