Regional Analysis of Niche Diversity and Personality Structure

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Background

- The structure of personality traits seems to vary across populations [1-3]
- The *niche diversity hypothesis* [4, 5] attempts to explain variation in trait structure. If:
    1. individuals occupy niches (e.g., occupations, social groups);
    2. niches incentivize different trait profiles [6-8];
    3. traits can change somewhat over time in response to niche incentive structures (e.g., specialization) [9-11]; and
    4. the number of unique niches on offer varies across populations [4, 12]
    - Then, populations containing more distinct niches should exhibit:
        P1. Less overlap between traits [4, 5]
        P2. Wider distributions within traits [5]
- Using country-level Big 5 data and economic complexity [13] as proxy for niche diversity, support for *P1* [1, 4] but mixed support for *P2* [1, 5]
- But country-level analyses using internet respondents pose many challenges (e.g., language, attention, self selection)
- Regional level data can alleviate some of these issues to probe the robustness of the effects and boundary conditions (e.g., artifact of FFM?)

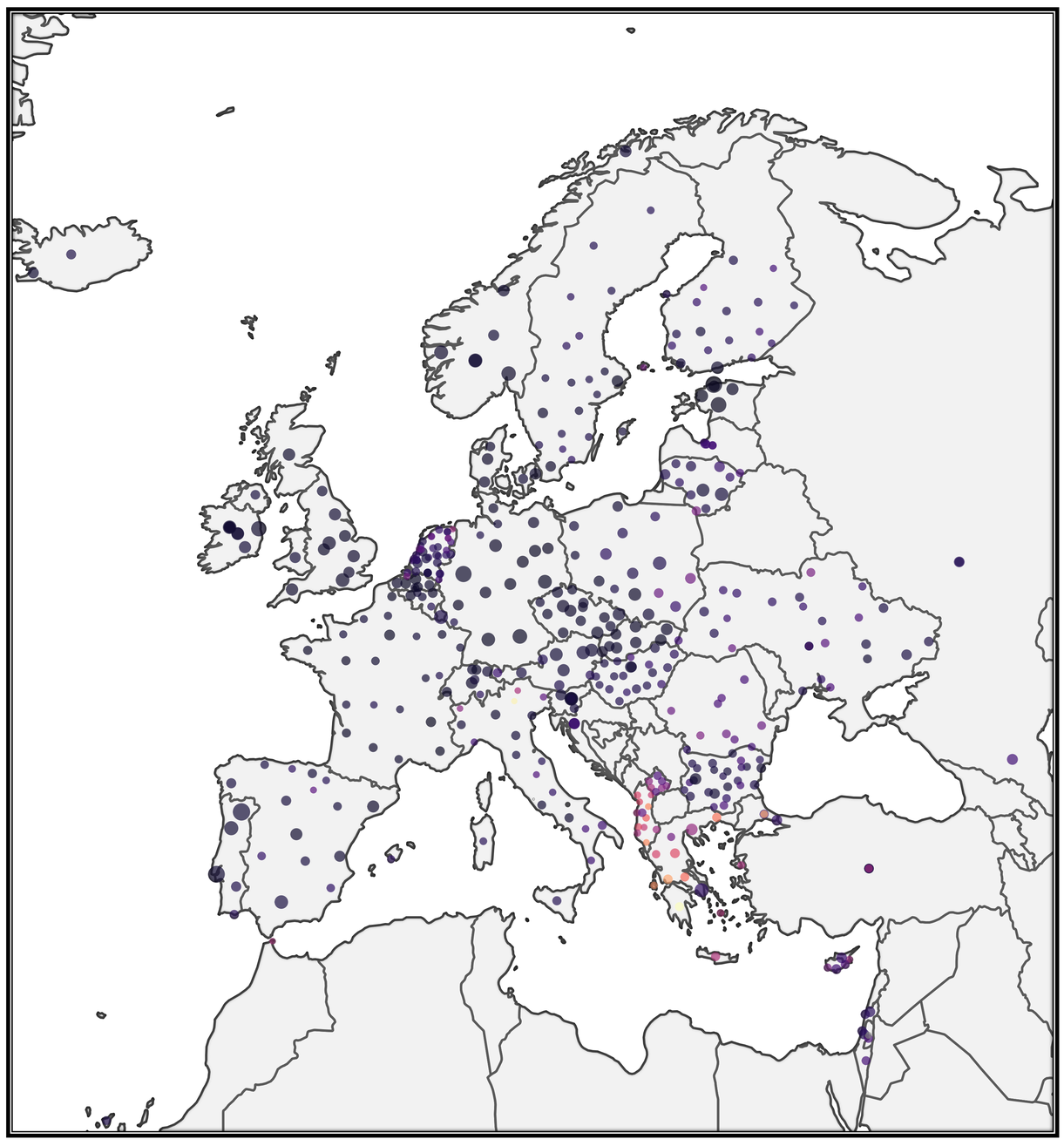

Figure 1. Map depicting coverage of trait structure data from the ESS. Dot size corresponds to the size of the sample for each region, and color corresponds to occupational concentration (darker = more diversity)

Data, method, and results

- Data from European Social Survey, waves 1-8 (2002 – 2016)
- 430 regions; Md *N* = 592 (SD = 628, 100-4394)
- Focal predictor: Herfindahl Index of reported ISCO occupations as proxy for niche diversity (rev. scored so lower values = more diversity)
- Focal outcomes: Structure of Human Values Survey (HVS) [14]
    - Inter-factor correlation and intra-factor variance estimates based on sampling weights provided by ESS
- Robust regression models adding sets of control variables

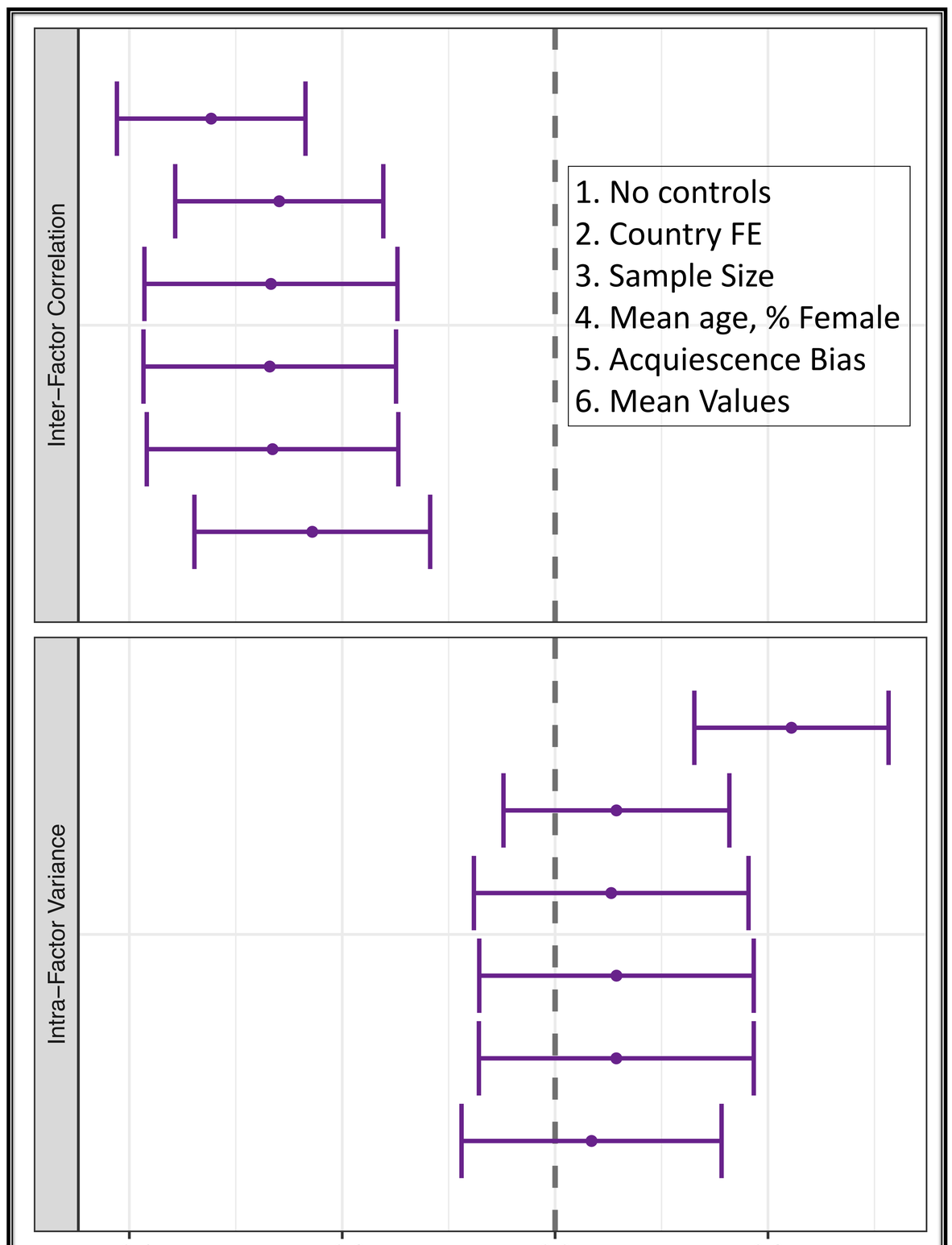

Figure 2. Coefficient plot depicting standardized associations and 95% confidence intervals for the associations between occupational diversity and indices of trait structure under increasing sets of controls.

Discussion

- Small but reliable association with proxy of niche diversity and human values inter-factor correlations, but no reliable association with intra-factor variance
- Extends support for niche diversity hypothesis to region level and more representative sample than previous tests
- Suggests variance prediction derived from agent-based model [5] needs re-thinking/modeling

Limitations and Future Directions

- Occupational diversity only small part of niche diversity
- Measurement (non)invariance not directly addressed, but previous research establishes approximate measurement invariance of HVS across countries [15] (and structural non-invariance is part of hyp.)
- No causal identification (but may be possible with IV? [16, 17])
- Incorporate economic complexity index at regional level for more direct comparison to country-level analyses

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