

Coordinating Harmonized Phenotyping

Daniel J. Benjamin

Economics Department
Cornell University

2nd SSGAC Workshop • 29 October 2011

The Case for New Phenotyping

- Challenge: Get a large sample that contains both GWAS data and phenotype data.
 - Solution #1: Conduct genome-wide scan on individuals who have already been phenotyped.
 - Solution #2: Conduct new phenotyping on individuals who have already been genome-wide scanned.
- We are happy with both, but we can help with #2:
 - It is much cheaper, and we may be able to obtain funding.
 - Especially low cost if new surveys are already being planned.
 - Harnessing the social science expertise in SSGAC, we will write draft instruments that can be drawn on to facilitate harmonized survey instruments.
- We recognize that new phenotyping may be impossible for some cohorts.
- Will take several years for large enough sample, but these can be novel and interesting phenotypes for GWAS and other analyses.

Criteria for an Ideal Phenotype

- Interesting to researchers in the relevant domain.
- Widely-measured in GWAS cohorts.
- Measured consistently and reliably across cohorts.
- Biologically proximate.
- For new surveys, also want the question battery to be brief and inexpensive to administer.

Some Easy-to-Measure New Phenotypes

- Risk aversion.
- Time discounting.
- Concern for fairness.
- Optimism.
- Trust.
- Subjective well-being.
- Personality?
- Cognitive abilities?
- Political attitudes?

How SSGAC Can Help

- We have extensive experience designing social-science survey measures.
 - E.g., WLS, SALTY, RS.
- Working Group on New Phenotyping:
 - will create template measure for a variety of phenotypes.
 - will work with cohorts to help prioritize, adjust, and implement these measures.
- We would like to offset costs for cohorts who would like help with funding social science questions on new surveys.
 - Appropriate grant mechanisms?