

Propositions

accompanying the dissertation

Complementarities in Human Capital Production:

The Importance of Gene-Environment Interactions

by

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- I. Random inheritance of genetic endowments across siblings, the arbitrary order of birth within a family, and their interaction, all have important effects on individuals' development (Chapter 2).
- II. Birth order differences in educational attainment are environmental in nature (Chapter 2).
- III. Ranking individuals based on their position in a polygenic score distribution is prone to large uncertainty. Therefore, invasive treatment decisions (e.g., preventive mastectomy or exclusion from educational opportunities) should not be based solely on polygenic scores (Chapter 4).
- IV. Measurement error stemming from limited GWAS sample sizes is the main driver of instability in ranking of individuals based on polygenic scores (Chapter 4).
- V. An environment in which contraception is widely available benefits women with a lower genetic predisposition towards education more than those with a higher predisposition, implying potential reductions in inequalities in education (Chapter 3).
- VI. *"Equal opportunities begin with contraception"* – Martha Bailey (2020) in *Nature*.

- VII. Fully funded parental leave and childcare are important for reducing the child penalty and the burden of unpaid household work on women's career investments.
- VIII. Financial literacy is another key to women's empowerment and independence and should be part of early upbringing.
- IX. To reduce the negative implications of meritocracy on social mobility, we should consistently invest in public goods such as quality education, healthcare, and infrastructure, which would help ensure that all individuals regardless of their circumstances, have access to basic resources and opportunities to lead fulfilling lives (based on Michael Sandel's "*The Tyranny of Merit*").
- X. Understanding the context and the assumptions under which the findings of any empirical research hold should be prioritized over their generalizability.
- XI. Learning to adapt the best project management practices from the private sector to research projects should be part of PhD training.