

Harden, Kathryn Paige. *The Genetic Lottery: Why DNA Matters for Social Equality*. Princeton University Press, 2021. 300 pages. Hardcover, \$29.95.

Social inequalities are conventionally attributed to social factors such as income distribution and educational attainment. *The Genetic Lottery: Why DNA Matters for Social Equality*, challenges this simplistic view and asserts that genetics also play a large role in life outcomes. Distinguishing her stance from eugenics, which she adamantly rallies against, psychologist Kathryn Paige Harden claims that using genetic information to address social inequalities is essential both pragmatically and morally. In creating a new synthesis that neither ignores the role of genetics nor misappropriates it, Harden acknowledges the importance the genetic lottery plays in shaping our life outcomes, while cautioning against misinterpreting the genetically laden differences among people as implying inborn, societal superiority. Harden examines the nascent field of behavioral genetics in an intellectually humble way, by detailing in lay terms the science of genetics and its applicability to differential life outcomes among people, and by incorporating this knowledge to advance social policies and social considerations that limit inequities.

Harden details the science of genetics in the first half of the book, where the metaphor of the genetic lottery is first introduced. Here, she claims that “the fact that you have your specific DNA sequence, out of all the possible DNA sequences that could have resulted from the union of your father and your mother, is pure luck” (p. 31). This captures the inherent randomness in sexual reproduction and implies that we cannot take any credit for the inborn talents that our genetics afford us, since they were randomly assigned. Harden then transitions to detail how genetic effects are empirically considered in genome wide association studies (GWAS) and in constructing polygenic indices. While these concepts may be technical to some readers depending on their backgrounds, Harden effectively employs an analogy to describe the genome

wide association study by exploring which cookbook words are correlated with restaurant quality as measured by average Yelp rating, her self-described cookbook wide association study. She relates this with which individual elements of the genome, commonly SNPs, are correlated with a measurable social characteristic of people, such as educational attainment. Another seemingly complex concept Harden successfully describes is the construction of polygenic indices, which reduces the complexity of correlation values obtained from thousands of SNPs relevant to an outcome to a single value. By using an illustration to show the dependency of polygenic index construction with the aforementioned GWAS, Harden provides a seamless transition among the essential topics without getting the reader lost in technical jargon. Another key contribution of this part of the book is her consideration of what a cause is. Since her thesis is that genetic differences cause different social outcomes, this analysis is warranted. Her definition of a cause is easily articulated and sensible, where it is something that makes a difference and is discernible in relation to a counterfactual, which is the outcome of an event in an alternate reality where the cause does not occur. Similarly, she effectively connects this topic to deterministic versus probabilistic causation, where the former is often ascribed to genetics unlike the latter, which she claims is problematic. Ultimately, Harden's cohesive analysis of complex topics in the first part of the book is admirable.

In the second half, Harden starts by considering alternative possible worlds that could be engendered by breaking inequality-producing causal chains via social mechanisms. She details three different social organizations where integrating genetics could lead to more equitable outcomes. While she opposes the scenario of leveling down, where poor environmental conditions negate the advantage genetics endow onto people, she does not endorse either of the other two scenarios, one which promotes inequality minimization and the other which promotes

performance maximization. While acknowledging that preference for one over the other involves people's values, a deeper analysis on the benefits and detriments of both would have been helpful. Another interesting concept Harden covers is the notion of the free will coefficient, where " e^2 represents differences between people that are not due to differences between them in their DNA or the social circumstances into which they were born" (p. 201). She ultimately concludes that environmental and genetic luck leaves little room for personal accountability. While this is interesting to consider, her simplistic conclusion felt lacking, especially when related to individual decisions that have severe consequences, such as violent crime. This part of the book then wraps up by contrasting three different frameworks to consider genetics in a social context: eugenic, genome-blind, and anti-eugenic. By contrasting her anti-eugenic stance with these alternatives using scientific facts with philosophical considerations, Harden concludes that while some abilities engendered by genetics are more socially valued, genetic differences do not make someone more or less inherently valuable. Second, Harden advocates for an anti-subordination approach to social policy, where appropriate accommodations are afforded to people based on their individual needs. Since all people are different, Harden reasonably acknowledges that some people need more resources to be successful. Unlike the other two stances, the anti-eugenic framework recognizes the importance of genetics in social outcomes and employs the information garnered from it in a socially responsible way.

This book effectively explores the necessity of genetic considerations in social policymaking for advancing social equality. Harden concludes by relating her theme to the COVID-19 pandemic, which felt fitting. Since some people are more genetically susceptible to such an illness, considering genetics in social policymaking is necessary to protect those who are most vulnerable. By examining the role of genetics on life outcomes using scientific facts,

empirical data from various studies in psychology and behavioral genetics, and philosophical considerations, Harden breaks from the inegalitarian basis of eugenics without relinquishing the fact that genetic differences cause meaningful differences among people, biologically and socially. The legacy of eugenics is therefore adequately countervailed.

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