

Hans Eysenck and the First Wave of Socio-Political Genetics

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Note: This is the accepted version of the manuscript submitted to Personality and Individual Differences.

Abstract

Hans Eysenck was a pioneer in many fields of psychological science and is widely recognised for his many outstanding achievements. One field, however, in which Eysenck contributed the important initial flagstones, although remains largely forgotten, is that of socio-political genetics. In this essay I outline Eysenck's early work (c. 1950s) on the structure of political attitudes, detail how Eysenck used the classical twin design in order to examine whether genetic factors contributed to individual differences in social and political attitudes, as well as discuss the challenges of publishing such provocative findings amidst a 1970s scientific culture that tended to favour purely environmental explanations of human behaviour. Finally, I provide an overview of the development of the field of socio-political genetics over the last 40 years and briefly note some of the challenges that lie ahead for the field.

Keywords: Eysenck; political attitudes; twin study; genetics; radicalism; tough-mindedness

Hans Eysenck is rightly celebrated in many fields of psychology – he was a pioneer in the use of factor analysis for personality research (Eysenck, 1944), he vigorously challenged the clinical efficacy of psychoanalysis (Eysenck, 1952), he advocated for biological studies of intelligence (Eysenck, 1986), and he even wrote popular science books on topics as diverse as the psychology of sex (Eysenck & Wilson, 1979) and astrology (Eysenck & Nias, 1982). However, a field of research that many do not readily associate with Eysenck, although one in which he helped to provide the initial flagstones (Eaves & Eysenck, 1974), is that of socio-political genetics. My goal in this brief essay is to describe this early work, to set it in the context of the times, and to reflect on the progress that the field of socio-political genetics has made in the subsequent years.

Inevitably Political?

Eysenck began his professional life as a psychologist amidst turbulent political times. Hitler's Nazi vision had persuaded Eysenck at the tender age of 18 that his future was best served outside his homeland of Germany and so it was that he turned to Britain, a country he had visited on several occasions and of which he had become fond (Corr, 2016). There can be little question that many difficult challenges faced Eysenck in these early years. However, these experiences fuelled his desire, as they did for many others at the time (e.g., Adorno, Frenkel-Brunswik, Levinson & Sanford, 1950; Milgram, 1974), to understand the structure and origins of social and political attitudes, themes that he pursued throughout his career.

Much of Eysenck's key thinking on this topic is contained in his 1954 book, *The Psychology of Politics*. One cannot do justice to the scope of this book in a brief essay such as this, but some key arguments and observations are of special note. Firstly, Eysenck was intrigued by the dimensionality of socio-political attitudes: did a single left-right dimension with 'Socialists...to the left of Liberals, Liberals to the left of Conservatives...[and]

Communists and Fascists, respectively, constituting the extreme left and the extreme right' (Eysenck, 1954, p. 109) best explain the nature of political sentiment? In contrast to this formulation, Eysenck noted that Communists and Fascists were often suggested to both possess similar psychological characteristics and so perhaps a model placing Communists and Fascists together at one end of a continuum and Liberals at the other end better reflected reality. Eysenck recognised that both of these models appeared to contain something of value, but that clearly neither of the one-dimensional models could adequately accommodate both perspectives. And so the early bases of a two-dimensional model were formed.

Subsequent research using factor analysis provided consistent support for two dissociable dimensions. Eysenck labelled these factors Radicalism (vs Conservatism: the R-factor) and Tough-mindedness (vs. Tender-mindedness: the T-factor). The R-factor – defined by items concerning issues including socialism, capital punishment, and national security – was noted to discriminate powerfully between UK Conservative and Labour/Socialist political party supporters and so Eysenck interpreted this dimension as a fundamental component of social attitudes. The T-factor – defined by items concerning issues including religion/God, compassion for the weak and vulnerable, and sex norms – was interpreted less as a component of social attitudes per se but instead as a broader construct more akin to a personality trait: The T-factor is “essentially...a *projection* on to the field of social attitudes of certain fundamental personality traits, in the sense that a person's social attitude (Radical, Conservative, or intermediate) would seek expression in terms of the fundamental personality variables so closely connected with the T-factor” (Eysenck, 1954, p. 266: italics in original). Under this model Communists and Fascists were placed at opposite ends of the R-factor, but both placed high on the T-factor. Eysenck also observed that the T-factor was positively associated with trait extraversion, as well as related constructs such as aggression and dominance. This model was provocative in its support for the unpopular notion that specific

factions of the political Left and Right were psychologically closer than they might otherwise have liked to believe and it also provided a strong platform for future research¹.

Eysenck, though, was as concerned with the origins of such attitudes as much their structure. Unlike many of his contemporaries (e.g., Adorno *et al.*, 1950), however, Eysenck was acutely aware that while research showing parent-child correlations for political attitudes was consistent with a model of environmental transmission it was also plausible that genetic inheritance could explain such links: Eysenck, while clearly cognizant of the fact that the critical studies were yet to be performed, notes that ‘we certainly cannot dismiss outright the hereditary hypothesis, as is done so frequently by writers of the psychoanalytic school’ (Eysenck, 1954, p. 197).

The First Wave of Political Genetics

So the scene was set for an empirical study of the underlying aetiology of individual differences in social and political attitudes. However, all was not so simple: biological accounts of social behaviour and attitudes were deeply unfashionable in the 1960s and 1970s (Segerstråle, 2000). To understand the animosity that faced researchers who were interested in exploring the role that genetics played in the formation of social and political attitudes consider the following sentiments from William McGuire, himself one of the leading social psychologists of the time (Jost & Banaji, 2008): ‘A man of this writer’s generation considers the possibility that there may be a genetic component in attitude determination only with trepidation. Any deviation from a radical environmentalism raises the spectre of a *laissez-faire* political program which countenanced the perpetuation of the *status quo* with all its social and economic inequities, and even with the vicious oppression of minorities that has eventuated in our time in genocide’ (McGuire, 1968, p. 161, italics in original). In fairness to

¹ Although it is noteworthy that the structure of social attitudes is still disputed (see useful reviews from Feldman & Johnston, 2014; Jost, Federico & Napier, 2009).

McGuire, he was not impressed with the dogmatism of the time: '[T]here is wisdom in accepting (rather than rejecting) a doubtful causal factor as a working hypothesis, for the heuristic reason that it is easier to disprove an incorrect hypothesis than to discover a neglected one' (p. 161). In fact, McGuire noted that rather than genetic influences on attitude determination being a doubtful working hypothesis, such a model of social attitudes might even be plausible. For example, speaking on the topic of xenophobia he noted that 'it appears possible for specific attitudes of hostility to be transmitted genetically in such a way that hostility is directed towards strangers of one's own species to a greater extent than towards familiars of one's own species' (p. 163).

And so it was into this prevailing wind of peer condemnation, but with the hint that important discoveries lay ahead, that the first quantitative genetic study of social attitudes was published (Eaves & Eysenck, 1974). Although political psychology and behaviour genetics had long been of interest to Eysenck, it is of some note that he co-authored this paper with a young Lindon Eaves, who is now widely recognised as a pioneer in behavioural and psychiatric genetics (Kendler & Neale, 2014; Martin, 2014) and has since published many studies on the genetic and environmental influences underpinning social attitudes (e.g. Eaves, Hatemi, Prom-Womley & Murrelle, 2008; Eaves *et al.*, 1997).

The core features of this landmark study were as follows. A classical twin design was used with a sample of 708 same-sex adult twin pairs: 451 monozygotic pairs and 257 dizygotic pairs. The twins completed a battery of questionnaires tapping radicalism, tough-mindedness, and a measure of 'emphasis' (i.e., the tendency to adopt extreme opinions), alongside the personality traits extraversion, neuroticism, and psychoticism. Anyone familiar with the 'three laws' of behaviour genetics – the first law notes that 'all human behavioural traits are heritable' (Turkheimer, 2000) – may not be surprised to hear that all of the measures under examination showed substantial heritable influences (h^2 ranged from .35 - .65: these

values reflect proportion of total phenotypic variance attributable to heritable factors). But this was certainly news at the time in part illustrated by the fact that the findings were published in the prestigious journal *Nature*. Moreover, Eaves and Eysenck reported, as expected, that the heritable influences on tough-mindedness were correlated with the heritable influences on both extraversion and psychoticism: in other, words tough-mindedness was shown to possess a shared underlying biology with extraversion and psychoticism. In contrast, radicalism was unrelated – phenotypically and genetically – to any of the personality variables.

Given the prickly reception that findings from the field of behaviour genetics have often experienced over the last 50 years or so it is pleasing to see the careful tone and sophisticated interpretation of the findings alongside the clear lack of hyperbole for what was clearly a highly provocative set of results. For example Eaves and Eysenck dutifully noted that the twins reared-apart design would provide more powerful insights into heritable influences and the relative lack of power of their study design (laying the groundwork for future twins reared-apart studies: e.g., Bouchard, Lykken, McGue, Segal & Tellegen, 1990). They also noted the possible bias engendered by the presence of gene-environment interaction and gene-environment correlation. And they made clear of the importance of not generalizing the findings beyond the population from which the sample was drawn because, ‘they are almost certain to differ with respect to the relative importance of different determinants of variation’ (Eaves & Eysenck, 1974, p. 289).

Despite these cautious interpretations, the heterodox and provocative findings of Eaves and Eysenck were bound to lead to criticism. For example, a letter to *Nature* published shortly after the publication of the Eaves and Eysenck article was unequivocally dismissive, ‘[M]onozygotic twins are more similar than dizygotic twins [with regards to social attitudes]. Eaves and Eysenck simply assume this extra similarity is genetic... They have assumed that

monozygotic twins, who look alike and are regularly confused for each other, receive the same treatment as dizygotic twins’; (Schwartz & Schwartz, 1975, p. 429). This attack on the validity of the assumption of equal environments has been a longstanding criticism of the classical twin design and is certainly *prima facie* plausible (more on this below). But it is also clear from the tone of the commentary that William McGuire’s prophecy of pariah-like status indeed followed those who deemed to argue that social attitudes had a genetic component, ‘The conclusions are unwarranted and misleading. They reflect only the assumptions of the authors and assume the very results they are trying to prove’ (p. 429).

Despite such criticism, given the prominence across the scientific community afforded to articles published in *Nature* – such papers tend to garner a significant number of citations in the subsequent years – and given the novel and perspective-shifting nature of Eaves and Eysenck’s results, one might have expected a ground-swell of interest to have emerged across a range of disciplines. Sadly, this was not to be. In fact, the citation count for the article was remarkably low. To date, this landmark article has been cited just 174 times² (see Figure 1 for further details), with most of the citations being self-citations or from a small collection of individuals professionally close to Eaves and Eysenck³. Indeed, what I have termed above as the First Wave of Political Genetics might actually be better thought of as a trickle!

It is, of course, hard to interpret this pattern of citations: the scientific community at large may not have had the infrastructure in place to build upon such work (large scale twin registries only became a mainstay of psychological research some years later), maybe social and behavioural scientists were not regular readers of *Nature*⁴, or perhaps the results were simply too counterintuitive or politically and professionally untenable for researchers to take them seriously.

² As of November 2015; citation count drawn from Google Scholar

³ For example, in the first decade since publication 16 of 42 cites were self-citations, with a sizeable proportion of the other cites from a relatively small circle of behavioural geneticists, for example, Robert Plomin, John Defries, Nancy Pedersen, John Philippe Rushton and David Fulker.

⁴ Tom Bouchard suggested this might serve as a possible explanation.

Political Genetics 2.0

As the powerful insights into the underlying aetiology of individual differences afforded by the classical twin design (and other genetically informative study designs) began to filter through psychology, a large number of studies began to be published exploring genetic and environmental contributions to psychological traits. It took another 11 years, however, before another major paper on the genetics of social and political attitudes emerged (Martin *et al.*, 1986)⁵. Eysenck and Eaves both contributed to this paper (with Nicholas Martin, Eaves's former PhD student, serving as lead author), published in the *Proceedings of the National Academy of Sciences*, USA. This article again found heritable effects on radicalism and tough-mindedness in a UK sample, as well as extending these results by showing similar effects in a large sample of Australian twins who had completed the Wilson-Patterson conservatism scale (Wilson & Patterson, 1968). Of side interest, the handling editor for this article was E.O. Wilson who, much like Eysenck, has suffered from those who were opposed to human social behaviour being studied from a biological perspective (e.g. Allen *et al.*, 1975).

The citations to this paper were healthy enough with 61 citations over the subsequent decade; but again this was not quite yet the landmark moment that one might expect from such findings. Nonetheless, the tide appeared to be turning. Indeed, equivalent battles were being fought and (to some degree) won by evolutionary psychologists who, while typically interested in different sorts of questions to those of behaviour geneticists, were cognizant of the broader notion that human social behaviour powerfully reflects our biological inheritance (Wilson, 1975; Barkow, Tooby & Cosmides, 1992). And so in the years that followed a steady drip of papers in prominent journals emerged from a number of independent groups all

⁵ Although of note, Scarr and Weinberg (1981) reported that authoritarianism was more highly correlated among biologically related vs adoptive family members, consistent with the presence of heritable influences.

emphasising the fact that heritable factors underpinned individual differences in a range of social traits such as prosociality (Rushton *et al.*, 1986)⁶, attitudes (Olson, Vernon, Harris & Jang, 2001), and religiosity (Waller, Kojetin, Bouchard, Lykken & Tellegen, 1990).

The Time is Now

The dam waters finally burst with a 2005 publication in the prestigious *American Political Science Review* by three political scientists: John Alford, Carolyn Funk and John Hibbing. As can be seen in Figure 1, the citations to Alford, Funk, and Hibbing (2005) have outstripped that of Eaves and Eysenck (1974) and Martin *et al.* (1986) by quite some margin.

----- Insert Figure 1 here -----

Indeed, in its first year following publication Alford *et al.* (2005) received more citations per year than Eaves and Eysenck (1974) and Martin *et al.* (1986). Just a decade on this article has received 650 citations⁷. Moreover, this interest in political genetics spread far beyond the scientific community: many major news outlets ran stories on these findings and a range of scholars in both psychology and political science took up the mantle to develop knowledge in this field (e.g., Benjamin *et al.*, 2012a; Ebstein, Israel, Chew, Zhong & Knafo, 2010; Fowler & Schreiber, 2008; Hatemi & McDermott, 2012). What is of special interest here is that Alford, Funk, and Hibbing's article is essentially very similar in scope to Martin *et al.* (1986): Alford *et al.* (2005) report on responses to the Wilson-Patterson conservatism scale from participants in the US-based Virginia 30,000 twin registry, alongside a re-reporting of the results from Martin *et al.* (1986). The article is certainly well-written and informative (in

⁶ Eysenck was a co-author of this article.

⁷ As of November 2015; citation count drawn from Google Scholar

particular, it provides a useful, non-technical introduction to behaviour genetic theory); but the secret of this paper's success seems to have been as much in its timing as in the message.

The Current Lay of the Land

As most will be aware, psychological science (as well as science more generally) has recently experienced a crisis of reproducibility (Open Science Collaboration, 2015). As such, it is particularly noteworthy that evidence for heritable effects on social and political attitudes has been reported in virtually every study reported⁸. In a range of countries using many different samples of twins heritable effects have been noted for social attitudes as varied as in-group favouritism (Lewis & Bates, 2010), prejudice (Lewis, Kandler & Riemann, 2014), religiosity (D'Onofrio, Eaves, Murrelle, Maes & Spilka, 1999), values (Kandler, Gottschling & Spinath, 2016), and economic attitudes (Wallace, Cesarini, Lichtenstein & Johannesson, 2007). Criticism of the classical twin design – such as perceived violations of the equal environment assumption – has largely been silenced by the use of complementary methods, such as the extended twin design and the adoption design: in both cases, convergent evidence of genetic influences on individual differences in socio-political attitudes has been observed (e.g., Bouchard *et al.*, 1990; Hatemi *et al.*, 2010; Kandler, Bleidorn, & Riemann, 2012). In short, the evidence base in support of a genetic contribution to differences in social and political attitudes is perhaps as strong as for any claim in psychological science.

Eysenck would likely not have rested his interests in the origins of political attitudes with such knowledge in the bank. The underlying neural and molecular genetic bases would surely have provided new vistas for exploration. These domains are currently hot topics in social and political psychology (Jost, Nam & Amodio, 2014; Benjamin *et al.*, 2012a) with a range of research programmes beginning to shed light on the underlying neurobiology of social and

⁸ Important exceptions are religious affiliation (D'Onofrio, Eaves, Murrelle, Maes, & Spilka, 1999) and political party affiliation (Hatemi, Alford, Hibbing, Martin, & Eaves, 2008).

political attitudes (e.g., Aoki *et al.*, 2014; Amodio, Jost, Master & Yee, 2007; Lewis, Kanai, Bates & Rees, 2012; Kanai, Feilden, Firth & Rees, 2010; Westen, Blagov, Harenski, Kilts & Hamann, 2006; Zamboni *et al.*, 2009).

Less promising to date has been the search for specific gene variants that contribute to the heritable influences on social attitudes, with the relatively small number of reported findings largely unreplicated (see Munafo & Flint, 2011, for a relevant review in the domain of personality). However, the advent of large-scale molecular genetic consortia (e.g., Benjamin *et al.*, 2012b) seeking to accrue adequately powered samples (i.e., $N > 100,000$) is currently the most promising avenue for exploration with this approach starting to bear fruit in the fields of cognition (Rietveld *et al.*, 2014) and mental health (Schizophrenia Working Group of the Psychiatric Genomics Consortium, 2014).

I never had the pleasure of meeting with Hans Eysenck, much less working with him on questions of this kind. However, I am sure that he would have absolutely relished the challenges that the field currently faces, particularly with the ever increasing emphasis on the use of multiple methods and the desire to probe multiple levels of analysis. The contributions to the field would surely have been rich in return.

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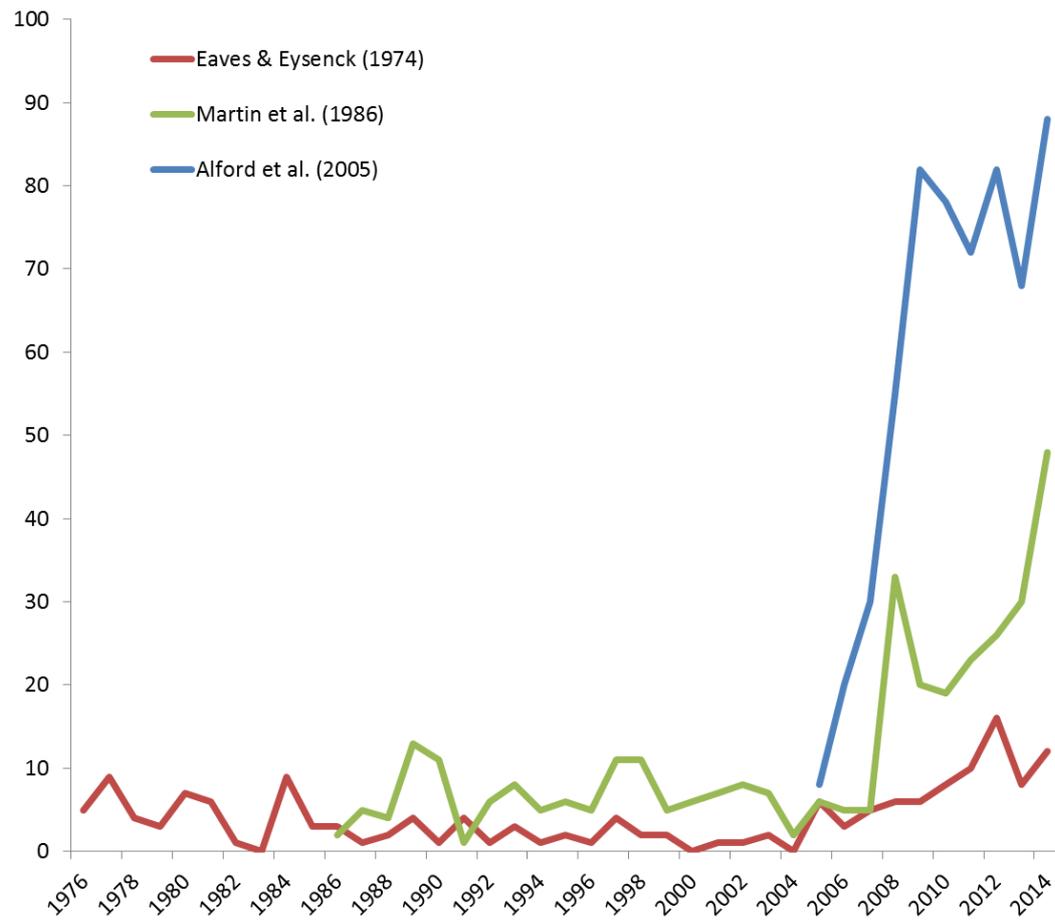
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Figure 1. Annual citation counts for three landmark papers in socio-political genetics



Note. These citation counts were drawn from Google Scholar in November 2015.