

RACE, GENETICS, AND IQ¹

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The question of whether IQ differences between blacks and whites have a genetic basis goes back at least a thousand years, to the time when the Moors invaded Europe. The Moors speculated that Europeans might be congenitally incapable of abstract thought [ref].² But by the 19th century most Europeans probably believed that they were congenitally superior to Africans in intellectual skills. The IQ test, developed early in the 20th century, re-enforced this view, since whites scored higher than blacks. (Northern Europeans also outscored southern and eastern Europeans, as well as Jews.) Many psychologists assumed that these group differences were genetic in origin. Some U. S. psychologists also argued that continued immigration by low-scoring groups posed severe economic and social risks. Yet by the last quarter of the twentieth

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² Southern Europeans long had had their doubts about northern Europeans -- Cicero warned the Romans not to purchase the British as slaves because they were so difficult to train (Sowell, 1994, p. 156); though Caesar did feel they "had a certain value for rough work," (Churchill, 1974, p. 2.)

century Jews and many of the other European groups initially found wanting in intelligence had higher average IQ scores and higher average incomes than northern Europeans in the United States.

Unlike the differences among European ethnic groups, the IQ difference between European and African Americans persisted throughout the twentieth century, and many Americans continue to believe that a substantial portion of the difference is genetic in origin. For decades, whites scored about 15 points higher than blacks on IQ test. If such a difference were wholly or substantially genetic in origin, the implications for American society would be dire. It would mean that even if the environmental playing field were leveled, a much higher proportion of blacks than whites would have trouble supporting themselves, and a much lower proportion of blacks than whites would be professionals and successful business people. A recent example of this claim can be found in the phenomenally successful book The Bell Curve (1994), by Richard Herrnstein and Charles Murray.

In this chapter I review the evidence on whether the black-white IQ difference (which I refer to as the B/W IQ gap) is wholly or in substantial part due to genetic factors (other than obvious ones like skin color, which affect the way Americans treat each other.) Because The Bell Curve has played such a central role in recent discussions of this issue, I often focus on its claims. For this purpose I will accept the mainstream view on IQ tests and their correlates, including the following assumptions.

- 1) IQ tests measure something real about intelligence as defined in the modern West.
- 2) Children's IQ scores predict important life outcomes such as success in school, delinquency and crime, and productive economic behavior. This relationship persists even when

we control family background and other social correlates of IQ.

3) Among whites, variation in IQ is to some extent heritable. That is to say, IQ scores vary independently of environmental conditions. Expert estimates suggest that anywhere between 30 and 80 percent of the variation in IQ scores is determined by genetic factors, with 50 to 60 percent being the most commonly accepted range.

4) Estimates of heritability within a given population tell us nothing about the degree to which differences between populations are genetically determined. The classic example is an experiment in which a random mix of wheat seeds is grown on two different plots of land. Within either plot, the environment is kept uniform, so the height of the different plants is largely or entirely genetically-determined. Yet the average difference between the two plots is still entirely environmental, because the mix of genotypes in each plot is identical. (For a particularly lucid account of heritability and genetic determination in relation to IQ, see Block, 1995).

Despite the fact that the heritability of a characteristic within a population has no necessary relationship to the heritability of differences between populations, many people believe that the large IQ difference between blacks and whites "must" be partly genetic in origin. They argue that if the heritability of IQ within populations is high (especially if it is as high as .8), and if the B/W IQ gap is as large as one standard deviation, the one must assume implausibly large environmental differences between blacks and whites to explain the B/W IQ gap in exclusively environmental terms.

Evidence bearing on the heritability of the B/W IQ gap is of two broad types.

1) Studies of African Americans that correlate their IQ scores with the percentage of their genes that are "European". These are by far the most relevant studies. They are also

relatively easy to do in the United States because America classifies individuals as "black" even when they have a very large percentage of "white" ancestors. As much as 30 percent of the "black" American gene pool consists of "European" genes. The conventional genetic hypothesis is that blacks with more European genes should have higher IQ scores. Of course, such a correlation could also arise for environmental reasons. ABlacks@with lighter skins and more Caucasian features might have social and economic advantages that would make it more likely that they would have high IQs. As a consequence, if there were to be very weak associations between degree of Europeanness and IQ, this would be particularly damaging to the genetic hypothesis.

2) Studies examining the effect of the family environment in which black children are raised. The conventional genetic hypothesis is that rearing blacks in family environments like those of whites should result in little or no gain for blacks. (Of course, even when black children reared in white homes they would be subject to other cultural and social influences that might well depress their IQ scores.)

Despite the assertions of some scholars, including Herrnstein and Murray, a review of the evidence in each of these areas provides almost no support for genetic explanations of the B/W gap.

Studies Directly Assessing Heritability

Five types of studies can make some claim to studying heritability directly. Three types estimate the Europeanness of the genetic heritage of individual blacks -- by assessing skin color, by examining blood groups, and by simply asking individuals about their parents and grandparents.

Studies of skin color. Studies relating darkness of skin color and IQ are easy to do and many have been reported over the years. This literature consistently shows that the correlation of IQ with skin color in the black population is quite low. Even Audrey Shuey (1966), one of the most vehement supporters of the view that the B/W IQ gap is genetic in origin, reached the conclusion that IQ is only weakly associated with skin color. Typical correlations are in the range of .15 (and are even less with degree to which facial features are rated as "Negroid"). Even if we ignore the advantages that might accrue to "blacks" with light skin, a correlation of 0.15 does not suggest that European ancestry exerts a strong genetic influence on IQ. On the other hand, many of the studies reviewed by Shuey had small samples and dubious sampling procedures, and moreover the .15 estimate could be low due to error of measurement. Both skin color and IQ are measured with high reliability, but a major problem with these studies is that while skin color may seem to be a straightforward indicator of degree of European ancestry, it is not. Skin color varies substantially in Sub-Saharan African populations. As a result, some Africans have relatively light skin for reasons that have nothing to do with European ancestry. A strong test of the "European ancestry" hypothesis therefore requires a more reliable indicator.

Studies measuring European ancestry via blood group indicators. Fortunately there are data available that reinforce the null implications of the skin color studies. The frequency of different blood groups varies by race. Under the genetic hypothesis, blacks with more "European" blood types should have more European genes and hence higher IQs. But Sandra Scarr and her colleagues (Scarr, Pakstis, Katz, & Barker, 1977) found that the correlation between IQ and "European" heritage among blacks was only 0.05 in a sample of 144 black adolescent twin pairs. When skin color and socio-economic status were controlled, the correlation dropped slightly to -

.02. Importantly, although they found the typical correlation of .15 between skin color and IQ, suggesting that the comparable correlations in other studies are due not to Europeaness of genes but to some other factor associated with skin color in the black population.

Loehlin and colleagues (1973) also correlated the estimated Europeaness of blood groups (rather than the Europeaness of individuals, estimated from their blood groups) with IQ in two different small samples of blacks. They found a .01 correlation in one sample and a nonsignificant -.38 correlation in the other sample, with the more African blood groups having higher IQ.

Reported white ancestry. A third approach to estimating blacks' white ancestry is to ask them. Imagine a 15 point B/W IQ difference that is fully genetic in origin. Then think of two groups of blacks: one has only African genes and one has 30 percent European genes. According to the pure genetic model, the first group would be expected to have an IQ 4.5 points lower than the second. If we singled out everyone who had an extremely high IQ -- say of 140 -- we would expect to find several times as many individuals in the group with 30 percent European genes as in the pure-African gene group.

A study by Witty and Jenkins (1934) identified 63 children in a sample of black Chicago schoolchildren with IQs of 125 or above and 28 with IQs of 140 or above. On the basis of their self reports about ancestry, the investigators classified the children into several categories of Europeaness. The children with IQs of 125 or above, as well as those with IQs of 140 or above, had slightly less European ancestry than the best estimate for the American black population at the time. This study is not ideal. It would have been better to compare the degree of European ancestry of high IQ Chicago children to that of other black Chicago children rather than to the

entire black population. But once again, the results are consistent with a model of zero genetic contribution to the B/W gap or, perhaps, a slight genetic advantage for Africans.

Children born to black and white American soldiers in World War II. Eyferth (1961) [ADD UMLAUT TO FURS] examined the IQs of several hundred German children fathered by black American GIs during the post-1945 occupation were compared to those fathered by white GIs. The children fathered by black GIs had an average IQ of 96.5 and the children fathered by white GIs had an average IQ of 97. Inasmuch as the (phenotypic) B/W gap in the military as a whole was close to that in the general population, these data imply that the B/W gap in the U.S. population as a whole is not genetic in origin (Flynn, 1980, pp. 87-88). Note also that the children of the two groups of GIs had similar IQs even though common sense would suggest that environmental conditions were probably inferior for black children.

Mixed race children born to white vs. black mothers. If the black-white IQ gap is entirely genetic, children of mixed parentage should have the same average IQ regardless of which parent was black. If mothers are more important than fathers to the intellectual socialization of their children, and if the socialization practices of whites favor the acquisition of skills that result in high IQ scores, children of white mothers and black fathers should score higher than children of black mothers and white fathers. In fact, [(Willerman et al., 1974) children of white mothers and black fathers have a nine point IQ advantage over those with black mothers and white fathers. This result suggests that most, but perhaps not all of the B/W IQ gap is environmental.

All of these studies are subject to alternative interpretations. Most importantly, whites who mate with blacks may have lower IQs than whites in general. Blacks who mate with whites may have higher IQs than blacks in general. If whites who mate with blacks were substantially

less intelligent than whites in general, for example, their European genes would convey relatively little IQ advantage. Yet the degree of self-selection would have to be extreme to produce no phenotypic difference at all between children of purely African heritage and those of partially European origin. Self-selection by IQ was probably not very great during slavery; it is unlikely, for example, that the white males who mated with black females had lower IQs than other white males. Indeed, if such unions mostly involved male slave owners, and if economic status was positively related to IQ (as it is now), these whites probably had above average IQs. But even if self-selection were substantial in the 18th and 19th centuries, the effects of regression toward the population mean would reveal genetic differences if they were present. Flynn's (1980) also shows that self-selection is a highly unlikely explanation of IQ pavity between children of black and white GIs. (p. 94) and that the assumption of zero heritability of the U. S. B/W IQ gap best fits the data. Flynn's analysis of mixed race children also suggests that the IQ difference between black versus white mothers cannot be accounted for by an reasonable assumptions about selective mating and parental IQ (p. 180).

Studies Examining the Effect of Family Environment

Experiments or quasi-experiments that place black children in different environments avoid the self-selection problem to some degree.

Random assignment of black children to black vs. white adoptive families. In one true experiment, Moore (19[xx]) randomly assigned black children to be raised in adoptive families that were either black or white. Under the assumption that black families would be less likely to instill the orientations that would lead to the sorts of skills that IQ tests tap, she predicted that children raised by white adoptive parents would have higher IQs than those raised by black

adoptive parents. This was indeed the case. [more more more]

Rearing of black and white infants in the same environment. An experiment by Tizard and colleagues compared black and white orphans who had all been raised in the same highly enriched institutional environment. At four or five years of age, white children had IQs of 103, black children had IQs of 108, and children of mixed race had IQs of 106. On their face, these results are most compatible with the assumption of a slight genetic advantage for blacks. The black children in this experiment were West Indian and the white children were English. While it is possible that the black parents had unusually high IQs, Flynn (1980) argues that selective migration of West Indians to Britain could not have raised IQ scores by more than a few points.

Adoption of black and white infants into white families. A well-known adoption study by Sandra Scarr, Richard Weinburg and their colleagues (1983) compared the IQs of adopted children from different racial backgrounds. Some of the adopted children had two white biological parents, some had two black biological parents, and some had one black and one white biological parent. Under the simplest model of pure genetic determination of the B/W IQ gap, the white adoptees should have had IQs 15 points or so higher than the black adoptees. Mixed race adoptees should fall in the middle. When the children were about seven years old, their IQs were most consistent with a model of partial genetic contribution to the gap. When they were adolescents, their IQs suggested a larger genetic contribution.

Scarr and Weinberg identified several factors that they thought made it a weak test of the genetic hypothesis. First, the number of children they studied was small (only 25 white children, 29 black children, and xx mixed-race children); Second, agencies may have engaged in selective

placement, which would...; Third, the adoptive families were recruited on a voluntary basis, which could have introduced a "self-selection" problem into the sample if...; Fourth, since the natural parents' IQs were not known, it is possible that the white parents could have had higher (genotypic) IQs than the black parents, which by itself could explain why the white adoptees had higher IQs than the black adoptees; Fifth, the black children were adopted at a substantially later age than the white children (although the mixed-race children were adopted earlier than either the black or white children). Consequently, the authors caution against any conclusion at all with respect to the role of heredity.

Suppose we simply look at all the available evidence -- the many different types of evidence and the dozens of different studies -- on their face. The Scarr and Weinberg evidence is consistent with a large genetic contribution to the B/W IQ gap. But all of the other evidence is most consistent with a zero or near-zero genetic contribution to the gap. The skin color, facial feature, and blood group studies, the European heritage study, the study of World War II children fathered by black vs. white soldiers, the study of mixed-race children born either to black or to white mothers, the experiment assigning black children to black vs. white adoptive families, and the study of the orphanage with an enriched environment all suggest genetic equality between the races or very small genetic differences.

Advocates of the genetic hypothesis can always invent the equivalent of Ptolemaic "epicycles" to explain these results. But there would have to be a good many such convolutions to make much headway. It would have to be the case either that whites in the past who contributed European genes to the contemporary Ablack@ gene pool had extremely low IQs or that blacks who mated with whites in the past had extremely high IQs and that either the black GIs who

mated with German women in World War II had extremely high IQs or the white GIs had extremely low IQs or both and that, in the study of children born to unions of blacks and whites, either the white mothers had IQs much higher than the black mothers or the black fathers had much higher IQs than the white fathers and that, in the study of the enriched orphanage environment, the black Caribbean children had unusually high IQs while or the white English children had unusually low ones, or both. That this would be a heroic effort has been demonstrated by Flynn=s (1980) analysis that systematically showed that most of these alternative explanations are highly implausible each one taken by itself, let alone trying to weave a coherent theory for the ensemble of alternatives. theories could be correct. But all these explanations are conjectural.

Herrnstein and Murray (1994), it is important to note, made no serious effort to propound any alternative explanations for the near total absence of positive direct evidence for the genetic hypothesis. What they do instead is to spend a great deal of time discussing the single study that is consistent with a strong genetic interpretation favoring whites -- the Scarr and Weinberg study -- and then mention only a few of the negative studies, dismissing them with ad hoc self-selection explanations without any mention of the fact that the Scarr and Weinberg study is subject to at least as severe reservations as any of the studies having negative findings that they choose to mention. They also ignore the most comprehensive and sophisticated treatment of the genetic explanation for the B/W gap and alternatives -- that of Flynn (1980). By conventional academic standards, the Herrnstein and Murray review of the evidence on the heritability of the B/W gap is shockingly incomplete and biased.

Indirect Arguments for Genetic Determination of the B/W Difference in IQ

If my summary of the direct genetic evidence is correct, why does anyone pay any attention to the possibility of genetic determination of the B/W gap? There are three main reasons in my view (and in Herrnstein and Murray's view as well, judging by the amount of space they devote to them).

(1) Blacks at every level of socioeconomic status (SES) have lower IQs than whites of the same status. Hence it is difficult to argue that poor socioeconomic conditions alone account for black's low scores.

(2) Blacks and whites have different ability profiles. Low-SES whites with an overall IQ score of, say, 105, show the same average ability pattern as high-SES whites with scores of 105. But this is not the case for blacks (cites). For example, blacks at a given IQ level are likely to have relatively high ability to recall digit strings but relatively low ability to solve mazes as compared to whites with the same IQ.

(3) Blacks and whites differ most on the "g-loaded" tasks. "G" is the term for the general intelligence factor that some psychologists believe permeates all abilities, but some more than others. Blacks do as well or better than whites on tasks involving simple memory or reaction-time. Blacks are slower than whites on tasks involving complex memory or reaction-time. These latter tasks are more "g-loaded" in that they predict overall IQ scores better.

Let us consider each of these points in turn.

(1) Blacks have lower IQs at every socioeconomic level. On its face, this finding is hard to reconcile with the notion that it is merely poor opportunity that causes blacks to have lower IQs. It is somewhat misleading, however, to compare the IQs of blacks in the higher socioeconomic ranges with those of whites. A white in the top socioeconomic quintile based on

income has more than twice the wealth of a black in the top quintile (Smith, in press). More importantly, statistically equating blacks and whites on measures of the environment that include not only traditional indicators of SES but also measures of family and neighborhood quality virtually eliminates the B/W IQ gap (Brooks-Gunn & colleagues, in chapter xx). Such a result could simply mean that less intelligent parents provide their children with less intellectually stimulating environments. Yet, statistically equating mother's IQs does not change these results. Thus, the data are more consistent with a purely environmental interpretation of the B/W gap than with a genetic one.

(2) Blacks and whites have different ability profiles. Such differences hardly seem a strong argument for genetic determination of overall IQ. Systematic differences in the socialization of black and white children begin in the cradle (e.g., Heath, 1983). If such difference affect overall scores, one would expect them to affect some test more than others. We know that purely social factors can indeed affect ability patterns. A natural experiment produced by World War II illustrates the potential affect of socialization on ability patterns. During the war, fathers in the Armed Forces were absent at different points in their childrens' lives for differing periods of time. Harvard students whose fathers had been in the Army for a long time when they were quite young had verbal Scholastic Aptitude Test (SAT) scores that were dramatically higher than average (Carlsmith, 1983).

(3) Blacks and whites differ most on the most "g-loaded" tests. Jensen and others have argued that the black-white gap on complex reaction-time tasks, can not be explained by motivational differences between blacks and whites. But this is merely a hypothesis. In informal work conducted many years ago, I found that white college students with high achievement

motivation had faster complex reaction times, but not faster simple reaction times, than those with low achievement motivation. Consequently, I do not regard the motivation hypothesis as at all improbable.

Jensen's "g-loading" point also obtains for tasks that we think of as genuinely intellectual ones. For skills such as spatial reasoning and form perception, the g-loading is relatively low and the B/W gap relatively low. For the even more important and general skills of reading comprehension, mathematics, vocabulary and information tests, the g-loading is high and the B/W gap is high.

One would assume that these more important, and more "g-loaded," skills are the most modifiable. Are they?

Conclusion

The studies most directly relevant to the question of whether the B/W IQ gap is genetic in origin provide no evidence for a correlation between IQ and African (rather than European) ancestry. A few older studies of skin color are consistent with European superiority but most are not. The best modern study indicates little relation between skin color and IQ. One modern study of blood types weakly suggests African superiority; the other two suggest no difference between the races.

Of the studies that control for home environment, all indicate strong environmental effects. One of these studies is consistent with moderate African genetic superiority and one is consistent with substantial European genetic superiority. Thus, the most relevant studies provide no evidence for genetic superiority for one race or the other while providing strong evidence for a substantial environmental contribution to the B/W IQ gap. Almost equally important, rigorous

interventions effect IQ and cognitive skills at every stage of the life course, and the evidence on convergence clearly shows that the B/W IQ gap has narrowed in recent decades.³

The question "What portion of the 15 point IQ difference between blacks and whites is genetic?" simply makes no sense. To begin with, the empirical gap is currently substantially less than that. Moreover, with the exception of Herrnstein and Murray, few investigators have ever suggested that the entire gap might be genetic in nature. Jensen, one of the best-known proponents of the view of European genetic superiority, estimates that the genetic gap is about seven points [ref.]. As Block (1995) has suggested, the reference point should not be a gap of 15 points or any other specific figure. Rather, it makes more sense to ask how far, and in what direction, the genetically-based difference between the races differs from zero.

If in fact it makes sense to ask the genetic question at all. All evidence points to two extraordinarily important conclusions. First, if there are genetically-determined differences between the races in IQ, they are not sufficiently large to show up with any regularity in studies with a wide range of methodologies. Second, interventions designed to reduce the difference between blacks and whites are effective at every age level. Surely research efforts are best directed at improving these interventions rather than trying to wring blood from a genetic turnip.

³It is important to note, however, that there is evidence that the convergence began stalling out in the late 1980s or early 1990s. It is possible that this stalling out is related to a reduction in black economic gains beginning in the late 1970s.

Suppose