

IQ and Economic Success

By Charles Murray

In *The Bell Curve*, the late Richard J. Herrnstein and I described an emerging class society in which the intellectually blessed become ever more rich and powerful and the intellectually deficient find it harder and harder to cope. We proposed that this new form of class division is substantially (though by no means completely) independent of one's socio-economic background.

As evidence for this thesis, we explored trends in college graduation, stratification of intellectual talent within the university system, the growth of occupations screened for high IQ, and the growing dollar premium for brains in the labor market. We also examined the dark side of the picture: the relationship of IQ to outcomes such as poverty, unemployment, welfare reciprocity, and crime. But we never laid out explicitly and in detail the relationship of IQ to one of the most hotly debated topics in contemporary policy studies: income inequality.

One purpose of this article is to fill in that gap. The other purpose is to make use of a powerful method, not employed in *The Bell Curve*, of assessing the importance of IQ independently of all other family background factors.

Income inequality and IQ

Consider the population as divided into the five cognitive classes that Herrnstein and I defined in *The Bell Curve*. Our point of departure is the group in the middle, those with a measured IQ somewhere from 90 through 109, whom we labeled Normal. Fifty percent of the American population falls in this category. Their intelligence easily permits them to be competent in all the core roles of family and community life and to pursue any occupation not requiring a college education. Most of them have difficulty in completing a college education (historically, the mean IQ of college graduates has been about 115), but some do so.

To their immediate right on the bell curve come the Bright, with IQs from 110 through 124, representing the 75th through 94th percentiles of the IQ distribution. Anyone with an IQ this high has the intellectual ability to get through college, though not necessarily in every major. This IQ range includes many of the most successful Americans. The Very Bright have IQs of 125 and above. They represent the top 5 percent of the IQ distribution. Having an IQ this high is not necessary to become a physician, attorney, or business executive, but extra cognitive horsepower gives an edge in any occupation that draws heavily on the verbal and visuospatial skills measured by IQ tests.

As for the left-hand side of the bell curve, those adjoining the Normals are persons with IQs from 75 through 89, whom we labeled Dull (there is no such thing as a normal child). If the IQ score is accurate, persons in this range are unlikely to get

through four years of college without special dispensations. Ordinarily, the Dulls work at anything from low-skill jobs through lower-level white-collar or technical jobs.

At the far left-hand side of the distribution are the bottom 5 percent of the IQ distribution, the Very Dull, with IQs under 75. These include the retarded, but many people with IQs in this range are neither retarded nor incapacitated. They find it difficult to cope with school but can still be productive employees at menial and semi-skilled jobs, and sometimes at skilled jobs as well if their shortfall in intellectual capacity is counterbalanced by other abilities.

Now suppose we take a large longitudinal data base with income data going back to 1978, when the subjects were ages 13 to 21 and mostly too young even to have an income. All have IQ scores. We follow their median earned income from 1978 through 1992. We split the sample according to the five cognitive classes. The resulting picture is shown below.

Through the early 1980s, the medians for all the cognitive classes are low. Especially among the Bright and Very Bright, this reflects the many subjects who are still in school and working part-time or not at all. Then fortunes begin to diverge. The median for the Very Bright, represented by the thick black line, begins to rise rapidly as the college years end and continues to rise thereafter. At the other extreme, represented by the thick gray line, is the median for the Very Dulls. It peaks in 1989 and falls steadily thereafter. By the end of the period shown in the graph, when this group of young adults has reached ages 27 to 35, those in the top cognitive class have a median earned income more than seven times those in the bottom. The other cognitive classes are also clearly separated. By 1992, the Very Brights are earning 33 percent more than the Brights, who in turn make 35 percent more than the Normals, who in turn make 61 percent more than the Dulls, who make 2.5 times more than the Very Dulls.

The graph is a vivid portrait of what Herrnstein and I meant by cognitive stratification. But is IQ per se really the explanation for these results? Many other possibilities come to mind. Perhaps education, not IQ, is the real key: A better education enhances income and IQ score. Perhaps money and influence are the key: Rich parents can procure both good educations and lucrative jobs for their lucky children while poor parents can provide neither. Perhaps more subtle dynamics are at work—for example, whether the child grew up with both parents, whether the child grew up in neighborhoods that encouraged achievement, and so on.

In *The Bell Curve*, we used an index of the parents' socioeconomic status (SES) composed of the classic measures—income, education, and occupation—to capture the socioeconomic background in which the child grew up, and then asked what independent role IQ played. But an SES index may either underestimate or overestimate the role of the alternative explanations. It will underestimate the role of non-IQ factors insofar as important aspects of the child's background are omitted from the index. It will overestimate the role of non-IQ factors insofar as the elements in the SES index are themselves indirect expressions of the parents' IQ.

The sibling sample

There is a way to cut this methodological knot. It controls not just for socioeconomic background but for the entire complex of variables that go into defining the environment in which a child grows up. It lends itself to complex analytic techniques, but, at bottom, it is both simple and intuitively persuasive: Compare siblings who have grown up in the same home, and with the same parents, but who have different IQs. I am indebted to Sanders Korenman of the City University of New York and Christopher Winship of Harvard who brought the possibilities of this approach to my attention and conducted a reanalysis of *The Bell Curve* based on it, to which I will return. Serendipitously, the data base that we used in *The Bell Curve*, the National Longitudinal Study of Youth (NLSY), included in its sample 5,863 subjects who shared the same household with at least one other NLSY subject as brother or sister, thereby enabling researchers to replicate *The Bell Curve*'s analyses without worrying about the ambiguities that arise when different data bases are being compared.

To qualify for the sibling sample I use here, both siblings had to have a valid score on the Armed Forces Qualification Test (AFQT) administered in 1980. To make matching for background as unambiguous as possible, I further limited the sample to pairs of subjects who were full biological siblings and who lived in the same home with both biological parents through at least the younger sibling's seventh year.

The data presented here go through the 1993 interview wave, which means that the most recent calendar year with income and unemployment data is 1992. All dollar figures are stated in 1992 dollars. The measure of IQ is the AFQT, 1989 scoring version, normalized and age-equated to an IQ metric with a mean of 100 and a standard deviation of 15. (Details on the NLSY and the AFQT may be found in *The Bell Curve*, appendices 2 and 3.)

I use earned income, defined as the sum of wages, salaries, and net income from a farm or business, as the most direct measure of economic success owed to one's own efforts. I also look at four variables that directly affect how much earned income one can make—educational attainment, occupation, participation in the labor force, and unemployment.

IQ's independent role

The Normals in the middle of the bell curve, with a measured IQ somewhere from 90 through 109, will serve as our reference group. Many of the Normals' siblings are also Normals, and these pairs will not figure in the computations that follow. For the 1,074 sibling pairs that make up our final sample, one of the siblings was a Normal and the other fell outside that range, being conspicuously brighter or duller, and fit into one of the other four cognitive classes. How did the Normals and their smarter and duller siblings compare in the accomplishments that lead to economic success?

Educational attainment. Variations in educational attainment are routinely ascribed to economics, often accompanied by the assumption that rich parents can more or less ensure that all their children are educated through college no matter how smart they

are. Given that common view, the variation in educational attainment among siblings in the same family may come as a surprise. The Normals had a mean of 13.4 years of education. Meanwhile, their Very Bright siblings had a mean of 16.4 years and their Very Dull siblings a mean of 11.6. The Bright and the Dull fell about halfway in between, with 15.0 and 12.1 years respectively. Children from the same family, whose parents could provide the same emotional and financial support to all, had drastically different educational careers.

The differences in mean years of education translate into wide differences in the percentages getting college degrees. While only 19 percent of the Normals got a degree, 82 percent of their Very Bright siblings did— more than four times the Normals' rate. Fifty percent of the Bright siblings got a degree more than two and one-half times the Normals' rate. Meanwhile, only 3 percent of the Normals' Dull siblings got a college degree, and none of the Normals' Very Dull siblings got one.

Occupations. The amount of education constrains occupational choices, so the overall occupational outcomes for the siblings are not surprising. Only 2 percent of the Normals who listed an occupation as of 1992 were in the professions (law, medicine, college teaching, engineering, accounting, the sciences), compared with 23 percent of their Very Bright siblings, 8 percent of the Brights, 1 percent of the Dulls, and none of the Very Dulls.

But IQ did not shape occupational choices only through its effects on educational attainment. IQ also sorted siblings for jobs that do not require college educations. The table below is restricted to the sample of subjects who had completed 12 years of formal education, no more and no less. This restriction eliminates comparisons involving the Very Brights, only one of whom had exactly 12 years of education, but it leaves interpretable samples for the other four classes. The table divides occupations into three groups: technical and white collar jobs, crafts and skilled labor, and low-skill manual or service jobs.

Years of formal education were identical for everyone in this subsample, but the proportions of people in white-collar or technical jobs ranged from 61 percent for the Bright siblings to 7 percent for the Very Dull siblings. While 27 percent of the Bright siblings with 12 years of education were in low-skill jobs, 84 percent of the Very Dull siblings were. IQ has an important relationship with occupation that is independent not only of family background but of education as well.

Getting and holding a job. People with lower IQs tend to be less attached to the labor force than people with high IQs and are less successful in staying employed. This was as true of siblings as of the general population analyzed in *The Bell Curve*. The Normals were out of the labor force an average of 8.3 weeks in 1992, more than three weeks longer than either their Very Bright or Bright siblings (4.0 and 4.6 weeks respectively). The Dull siblings missed an average of 11.1 weeks in 1992 while the average Very Dull sibling was out of the labor force for 15.1 weeks.

Labor-force participation is complicated by a number of factors—for example, women are less likely than men to be in the labor force full time for reasons having to do with children, and a few members of the sample were still in school as of 1992.

Unemployment is a less equivocal measure, at least in concept: The unemployed person is in the labor force, reporting that he wants to work but cannot find a job. The Normals in this sample had 1.9 weeks of unemployment in calendar 1992. The pattern with labor-force participation repeats itself: The Normals did somewhat worse than their Very Bright siblings and much better than their Very Dull ones. The Very Bright and Bright siblings averaged 0.5 and 1.2 weeks of unemployment respectively while the Dulls and Very Dulls averaged 3.2 and 5.4 weeks respectively.

Annual earnings. The earnings data follow naturally. If brighter siblings get more education, have higher-level occupations, and are employed more of the time, they are going to make more money. They did. In 1992, the median earnings for the Normals was \$20,000. Their Very Bright siblings were already averaging \$33,500 while their Very Dull siblings were making only \$7,500. Once again, the Brights and Dulls each fell about halfway between (\$26,500 and \$14,000 respectively).

These are large differences. Think of them in terms of a family reunion in 1992, with one sibling from each cognitive class, sitting around the dinner table, all in their late twenties to mid thirties, comparing their radically different courses in the world of work. Very few families have five siblings so arranged, of course, but the imaginative exercise serves to emphasize that we are not comparing apples and oranges here—not suburban white children with inner-city black children, not the sons of lawyers with the sons of ditch diggers—but siblings, children of the same parents, who spent their childhoods under the same roof. They just differed in their scores on a paper-and-pencil mental test.

IQ matters

We are now in a position to return to Figure 1 with which I began this article. How different would it look once the competing explanations have been extracted by the use of the sibling sample? The sample sizes for the sibling sample are smaller, so the trendlines are bumpier. But otherwise the two graphs are hard to distinguish from one another. Here are the specific figures for earned income at the right-hand end of the graph, 1992: Taken in pairs, none of the differences in the values is statistically significant except the figure for the Very Dulls. But the range for the sibling sample (\$7,500 to \$33,500) is compressed relative to the range in the full sample (\$5,000 to \$36,000). Perhaps this reflects nothing more than ways in which the sibling subsample is not representative of the full NLSY sample; but a plausible hypothesis is that the earnings range is compressed because variation due to the environment has been extracted. Even if one accepts this hypothesis uncritically, however, the remaining differences are so large that the implications of the opening graph are unaffected.

This has been an expository presentation of data in the sibling sample, not a technical

mentioned earlier, offer a more rigorous point of comparison.² They show the regression coefficient for IQ when the sibling sample is analyzed using The Bell Curve' s index of parental SES as a control variable, and again when the sibling sample is analyzed using each family as its own control. The variables relevant to the ones used here were annual wages of year-round workers, attainment of a bachelors degree, being in a high-IQ occupation, males out of the labor force for more than one month, and males unemployed for more than one month. In the two sets of analyses, the coefficients for IQ were only fractionally different for any of these five outcome variables. None of the differences in the coefficients even approached statistical significance. In explaining economic success, the results using The Bell Curve' s SES index as a control for family background were substantively indistinguishable from results using siblings as a control for family background.

At this juncture, it is well to emphasize that the sibling results do not demonstrate that socioeconomic status, or family background more generally, are unimportant in determining earned income. Whether one grows up in a rich family, whether two parents are in the house, whether one goes to church as a child, whether one' s parents are well-educated—the list could go on—might all have large effects on earnings as adults. The sibling analysis simply gives us a way of pushing these factors out of the picture and asking whether differences in IQ still make a difference among children from the same family. Obviously, they do.

Cognitive stratification

I turn now from the causal issue of IQ and income and focus instead on some facts, causal or not, about the condition of those in different cognitive classes. Economic success among people with different cognitive ability differs for reasons other than income, and they make the overall picture worse, now and into the future. The following figures are nationally representative, computed using sample weights from the full NLSY sample. Consider one of the best routes to economic success among those with low incomes: marry and have a two-income family. As of 1992, only 22 percent of the Very Dulls, with their median earned income of \$5,000, had a spouse with a wage. The Dulls were only slightly better off, with 35 percent having a spouse with an income. Meanwhile, more than 50 percent of the top three cognitive classes had spouses earning wages. Furthermore, the phenomenon known as "assortative mating" multiplies the differences—likes marry likes. As a result, the spouses of the smart make more than the spouses of the not-smart. At the extremes, the spouses of the Very Dulls had a median income of \$15,000 while the spouses of the Very Brights had a median income of \$30,000. The medians for spouses of siblings in the other cognitive classes were dispersed accordingly (\$19,500 for the Dulls, \$25,000 for the Normals, and \$28,000 for the Brights). When it comes to using marriage to augment income, large proportions of the bright get considerably richer while small proportions of the dull get somewhat less poor.

Consider the expense of children, both as an out-of-pocket cost and as an opportunity cost if one parent stays home to care for the child. As of 1992, the Very Dulls had an average of 1.2 children living in the household, compared to only .8 children among

the Very Brights. Compounding the problem, more children existed side-by-side with fewer parents. Here are the figures for households with children: Among the Very Dulls, only 57 percent were headed by a married couple in 1992. Fully 25 percent were headed by women who had never been married. Among the Very Brights, 96 percent were headed by married couples. Only 2 percent were headed by never-married women.

The combination of family structure, children, and spousal income combine to exacerbate the differences in earnings. Looking to the future, these forces will be augmented by the most potent force leading to increased income disparities: The income trajectory for low-skill occupations peaks early while the income trajectory for professionals and senior managers peaks late. The differences in earned income as of 1992, when the NLSY subjects were aged 27 to 35, will get larger. Look again at the declining line for the Very Dulls and the upward-bound line for the Very Brights, and try to imagine what they will look like in the future. The incomes of the most successful in business and the professions must be expected to increase for another two decades. The incomes of those in low-skill jobs cannot continue to decline indefinitely, but neither is there any reason to think that they will increase substantially.

Taking everything together, the prospect is for very large income differences intertwined with systematically different distributions of intelligence at the various income levels—all of which amounts to the kind of cognitive stratification that The Bell Curve described.

Environment or genes

How much difference would it make if, magically, every child in the country could be given the same advantages—greater "equality of opportunity"—as the more fortunate of our children? Putting aside the difficulties of knowing what "more fortunate" might mean (how many readers agree with the statement "the richer the better" when it comes to raising children?), the answer is surely that some narrowing of cognitive differences would occur, along with a narrowing of other factors that lead to differences in economic success.

The controversy over what "some narrowing," means, and the controversy over The Bell Curve itself, is being played out via two very different academic traditions. The first draws from economics and sociology. The Korenman and Winship paper is an example. After the sibling analysis, which yields results very similar to those presented in The Bell Curve, the authors embark on analyses that add many more independent variables to the regression equations, put the data through transformations that the authors consider appropriate, and conclude that socioeconomic background and education are much more important than Herrnstein and I thought. Another example of this tradition is a book recently reviewed in these pages, *Inequality by Design*.³ The happy implication of such analyses is that the right social policies can drastically narrow the variation in social and economic success.

The other major line of inquiry draws from psychometrics and genetics. It assumes that the child's development is a combination of environmental and genetically transmitted characteristics. Thus, for example, it sees high parental income not simply as a socioeconomic characteristic, but also as an expression of parental traits (including IQ) which are part of the child's genetic heritage. Illegitimacy is a less obvious case in point. Illegitimacy helps explain life outcomes independently of the child's IQ. But women who have babies out of wedlock also have IQs that average 15 points lower than women who do not. The effects that sociologists tend to attribute to "being born to an unmarried mother" are, in part, attributable to genetically transmitted characteristics that are not susceptible to manipulation. From this perspective, The Bell Curve's SES index (or any such index) may be criticized for overestimating, not underestimating, the importance of environmental factors.⁴ To add still more independent "environmental" variables that are confounded with genetically transmitted characteristics compounds the error.

This tradition is represented by a large literature on adoption, including the famous studies of identical twins raised apart (and now supplemented by a rapidly growing literature on siblings and half siblings). An analysis bearing directly on The Bell Curve has been conducted by David C. Rowe and his colleagues at the University of Arizona.⁵ It concludes that the greater part of inequality in education and income in the NLSY sibling sample was attributable to genes, with their shared environment playing a subordinate role.

A common policy challenge

I applaud efforts on all sides to achieve greater precision in calibrating how much narrowing in outcomes might theoretically be achieved. Let me suggest, however, that the sibling data already give us ample reason to conclude that no matter how successful the attempts to equalize opportunity might be, American society is going to be left with extremely large inequalities. A rough-and-ready example drawn from the sibling sample will illustrate what I mean.

The sibling sample I have used here is limited by specification to youths who grew up in the same home with both biological parents for at least the first seven years of the younger sibling's life. In other words, it represents a world where illegitimacy is effectively zero and where every marriage lasts more than seven years after the second child in the pair is born. Let us further limit the sample so that we lop off the bottom 25 percent of the income distribution, restricting the sample to households that, in 1978, when the NLSY began, had a family income of more than \$25,000 in 1992 dollars.

In this utopian sample, the best news is that the 1992 median income of the Very Dull siblings was \$10,000, compared to \$5,000 among Very Dulls in the national population (see Table 2). This result is based on only 39 cases and must be regarded cautiously. Even if valid, it applies to only the 5 percent of the population with IQs

utopia then fade. The more numerous subsample of Dulls (n=272) had a median income of \$14,100 compared to \$12,400 in the national population—14 percent higher. The Normals earned only 5 percent more than those in the nation as a whole. The Brights and the Very Brights fared no better than their peers in the national population.

The results come down to this: In a world where no parents are even close to poverty and all children are born into intact families, we find reduced poverty but income inequality that is not qualitatively different from the levels we now observe. What reductions we do observe occur only after simulating utterly unreachable success. In the real world, experience gives no confidence (putting it charitably) that activist social policy can even reduce parental poverty, illegitimacy, and divorce, let alone end them. Experience gives no confidence that social services can counteract the effects of a bad family environment. Less charitably, many of us are convinced that activist social policy makes such problems worse. Reasoning from either perspective, it is hard to see how the existing repertoire of interventions can realistically be expected to narrow income inequality at all.

People of different political viewpoints may legitimately respond to this presentation with policy prescriptions that are in polar opposition. In many ways, the Left has the easier task. These data are tailor-made for the conclusion that a Rawlsian redistributive state is the only answer. For its part, the Right must state forthrightly why it thinks that a free society that tolerates large differences in outcomes is preferable to an authoritarian society that reduces them. But though the answers may be different for those of competing political persuasions, the challenge is common to all. It is time for policy analysts to stop avoiding the reality of natural inequality, a reality that neither equalization of opportunity nor a freer society will circumvent.

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1 The NLSY coding distinguishes between sibling and step sibling or adoptive sibling. As an additional screen, I prepared profiles for each subject based on the question that asks whether the subject was living with his or her parents at various ages, requiring that both members of a sibling pair reported living with their parents at birth and that the older sibling had consistently reported living with both parents in all the years up to and including the birth year of the younger sibling. I used the same profiles of answers to determine whether both siblings had lived together through at least age seven of the younger sibling.

2 Korenman, S. and C Winship, "A Reanalysis of The Bell Curve: Intelligence, Family Background, and Schooling," Harvard University and National Bureau of Economic Research. rev. Aug. 1996. The data reported here are taken from

3 Fischer, C. S., M. Hout, M. S. Jankowski, S. R. Lucas, A. Swidler. K. Voss, *Inequality by Design: Cracking The Bell Curve Myth* (Princeton, N.J.: Princeton University Press, 1996). See Joel Schwartz' s review, "On Inequality and Intelligence," *The Public Interest*, Number 126, Winter 1997.

4 Herrnstein and I were aware of this problem (see *The Bell Curve*, pp. 193-24 and 286-87) and assumed that our estimates of the independent effect of IQ were conservative

5 Rowe, D. C., W. J. Vesterdal, and J. L. Rodgers, "The Bell Curve Revisited: How Genes and Shared Environment Mediate IQ-SES Associations," University of Arizona, 1997.