

IQ and Income Inequality in a Sample of Sibling Pairs from Advantaged Family Backgrounds

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The Bell Curve (Richard Herrnstein and Murray, 1994) presented data on the independent effect of IQ on a wide variety of social and economic outcomes for members of the National Longitudinal Survey of Youth (NLSY). To control for socioeconomic background, we constructed an index using the standard three indicators: parental education, occupation, and income. Among the many threads in the response to *The Bell Curve*, the following question arose: How much would the independent effect of IQ have been attenuated if a broader set of family background variables had been used as controls? To test this, Sanders Korenman and Christopher Winship conducted a fixed-effects analysis of the large number of siblings within the NLSY, in effect controlling not just for socioeconomic status, but for everything in the shared environment of the family. The results were that “[w]ith a few exceptions, the fixed-effects estimates for AFQT [the cognitive test used in the NLSY] are remarkably similar to the standard OLS and logit estimates” (Korenman and Winship, 2000 p. 146). The independent effect of IQ is robust across methods.

I subsequently conducted my own analysis of the NLSY siblings for a publication on income inequality and IQ (Murray, 1998). In the course of that work, another aspect of sibling analysis struck me. The procedure, which is used in this paper as well, begins by identifying every sibling pair in which one sibling had scored in the normal range, defined as a tested IQ of 90–109, and the other member of the pair had scored somewhere outside that range. Those in the normal range were used as the reference group against which sibling outcomes were compared. I then limited the sample to full biological siblings, to take genetics out of the picture, and further limited the sample to sibling pairs in

which the siblings had lived with both biological parents for at least seven years after birth, to minimize differential family backgrounds arising from divorce and remarriage. Both limits on the sample were essential to preserve the virtues of the sibling comparison. But notice what had been done in the process. In applying those conditions, the sibling sample represented a population in which all parents were wed when the child was born (zero illegitimacy) and all young children were brought up by both biological parents during their most formative years (zero early divorce).

Such a population is one that has achieved much of what we ideally want to achieve through social policy. The thought occurred to me: why not complete the process? Having already created a sample without illegitimacy and early divorce, why not slay as well the great beast of social policy, poverty? To achieve that, I lopped off the sibling pairs whose parents were anywhere in the bottom 25 percent of the income distribution as of 1978–1979, when the NLSY began. This produced a sample of 733 sibling pairs who grew up in households which, by 1978–1979, had a median parental family income of \$64,586 and a minimum income of \$30,486 (expressed in 2000 dollars). For practical purposes, I had by this process nearly achieved the utopia of income distribution as defined by many, one in which the lowest income is half the median income.

I hereby dub these 733 pairs the *utopian sample*. It is utopian not just because it has virtually no illegitimacy, divorce, and poverty. The way it has been selected has also necessarily effected drastic improvements in the neighborhoods, peers, and educational systems which the youths attended. The members of the utopian sample had a big edge in their potential access to college, both economically and because the sample is highly selected for the kind of parents who actively encourage their children to continue their educations. The same selection factors mean that I have created a sample in

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which the incidence of good health care, childhood nutrition, and nurturing home environments are all high compared to the population at large.

I will use the utopian sample to address the following policy question: How much difference would it make to income inequality if, magically, every child in the country could be given the same advantages as the more fortunate of our children? This is a highly charged political issue, so perhaps I should begin with common ground. No one doubts that some narrowing of inequalities would occur. The environment in which a child is raised does make a difference. The question is not *whether*, but *how much*.

The controversy in estimates about how much narrowing would occur is being played out via two very different academic traditions. The first is the economics/sociology tradition. The Korenman and Winship paper I cited earlier 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 (e.g., family arrangement when the child was 14 years old, whether the respondent's family had a library card, number of siblings, and age of mother at the child's birth), put the data through transformations that the authors consider appropriate, and conclude that environmental background variables are much more important than Herrnstein and I thought.

The other major line of inquiry draws from psychometrics, which approaches the interpretation of such a regression equation much differently. Take parental income as an example. Whereas an econometric analysis of social and economic outcomes among offspring is likely to treat parental income as exogenous, a psychometrician will see it as partly an expression of parental traits. These traits may be transmitted directly to the child through genetics, but also indirectly. The same personal qualities that enable the parents to hold a steady, well-paying job, be they IQ or qualities such as industriousness and interpersonal skills, also affect the likelihood that the parents will raise a child differently from people who lack the characteristics necessary to hold a steady, well-paying job.

From this perspective, any index intended to capture family background variables may be criticized for soaking up variance that is, for example, not just "the effects of having money in the house," but also "the effects of having parents capable of making money," and so on. Any socioeconomic status (SES) index, no matter how basic, must cope with this problem. To augment the basic SES variables with a laundry list of additional independent variables that are in part the result of parental individual differences only compounds the confounding. Psychometricians attack this problem with a set of techniques designed to partition both the environmental and genetic components of the personal characteristics and their contribution to the observed social and economic outcomes. Unlike the econometricians, they have tended to conclude that the shared environment for siblings (such things as parental income, the neighborhood, and school) constitutes a small proportion of environmental influences, which instead are dominated by the nonshared environment (i.e., a host of subtle ways in which children experience the same environment with opposite effects, or have different formative experiences despite living in the same family) (see e.g., Joseph Lee Rodgers and David C. Rowe, 1985; D. A. Grayson, 1989; Robert Plomin and C. S. Bergman, 1991; Rowe, 1994).

I applaud efforts from both traditions to calibrate how much narrowing in outcomes might theoretically be achieved by different policy options. However, my proposition is that the sibling data suggest that the current levels of income inequality are likely to persist or, if temporarily reduced, to rebound under any policies short of the Swedish model. The utopian sample offers a way of thinking about why this will be so. Two of the usual suspects, poverty and single parenthood, have been stripped away. How much difference should this change make to the income distribution in the next generation? In the one after that?

First, I will provide some basic information about the data. The measure of IQ is the Armed Forces Qualification Test, a highly *g*-loaded paper-and-pencil test designed for administration to teenage students (*g* is the general factor in mental tests). In the NLSY, the average correlation of the AFQT with classic full-scale IQ tests administered to the NLSY sample when

TABLE 1—CHARACTERISTICS OF THE SIBLING SAMPLES

Characteristic	Complete sample (1,808 pairs)	Utopian subsample (733 pairs)	Everybody else (1,075 pairs)
Ethnicity (percentages)			
Non-Latino white	54	65	47
Black	26	19	31
Latino	15	13	17
Other	4	3	5
Median parental income (in \$2000)	\$44,941	\$64,586	\$25,858
Fathers with 16+ years of education (percentage)	14	19	10
Mean parental Duncan score for occupation	33	42	19
Parental Duncan score (percentage) ≥ 80 (white collar or professional)	5	8	3
No father at birth (percentage)	7	0	13
Broken home before age 8 (percentage)	18	0	32

Source: Author's analysis, National Longitudinal Survey of Youth.

they were younger was 0.81, somewhat higher than the usually observed correlations of those IQ tests with each other. The AFQT scores used in the analysis have been normalized separately for each year's birth cohort to a mean of 100 and a standard deviation of 15. In all, the NLSY contains 1,808 unique pairs of subjects who were part of the same household (siblings, half-siblings, or unrelated), of whom 733 pairs qualified for the utopian sample.

Table 1 shows some of the basic characteristics of the full 1,808 pairs, with the numbers shown for two subgroups, the utopian sample, and "everybody else," meaning the 1,075 sibling pairs who failed one or more of the tests for getting into the utopian sample.

The contrast between the utopian sample and everybody else is marked on all the variables. Note that one cannot think of the full 1,808-pair sample as being representative of the national population. The NLSY oversampled a number of groups, and this is reflected in the ethnic breakdown, in which blacks and Latinos are substantially overrepresented. The bias this introduces, comparing the utopian sample with one that is more disadvantaged than a nationally representative one would be, will tend to exaggerate differences between the full sample and the utopian sample, not understate them, and

TABLE 2—MEDIAN FAMILY INCOME (IN \$2000)

IQ group	Complete sample (1,808 pairs)	Utopian subsample (733 pairs)	Everybody else (1,075 pairs)
Very bright siblings (120+)	\$68,300	\$70,700	\$65,100
Bright siblings (110–119)	\$60,200	\$60,500	\$59,900
Reference group (90–109)	\$46,000	\$52,700	\$41,600
Dull siblings (80–89)	\$34,200	\$39,400	\$31,300
Very dull siblings (<80)	\$22,000	\$23,600	\$18,400

Note: Income represents the average for the NLSY survey years of 1993 and 1995.

Source: Author's analysis, National Longitudinal Survey of Youth.

thereby will tend to mask evidence for my proposition rather than inflate it.

Table 2 shows median income of the adult sibling pairs, ages 30–38 when these data were collected, broken down by what Herrnstein and I called "cognitive classes." In Table 2 and the subsequent tables, cell sizes are typically in the hundreds. I note cells for which samples are smaller than 50. The row labeled "reference group" gives the data for the member of each sibling pair who had an IQ between 90 and 109. The other rows show the results for the siblings of the reference subjects, grouped by their IQs. Thus, for example, Table 2 says that, in the utopian sample, the reference subjects, all of whom had IQs between 90 and 109, had a median family income of \$52,700. The siblings of those reference subjects who had IQs of 120 or higher had a median family income of \$70,700.

I should note that the results presented in these tables have been checked for fallacies arising from aggregation by IQ groups, using a variable that contrasts the reference and comparison sibling on a pairwise basis, and have been cleared of that possibility.

Returning to the data on median income, these results offer a nice example of how the policy debate can hinge on what comparison one chooses to focus on. Advocates for expanded income programs can legitimately point to the sizable difference between the median incomes of the utopian sample and the "everybody else" sample, especially in the lower cognitive classes. However, if one is asking how much difference it would make if poverty and illegitimacy were driven to near zero, the answer implied by these data is "not that much." The column of numbers for the utopian sample

TABLE 3—MARRIAGE (PERCENTAGES) AMONG SUBJECTS WITH CHILDREN

IQ group	Complete sample (881 pairs)	Utopian subsample (469 pairs)	Everybody else (412 pairs)
Very bright siblings (120+)	86	87	82
Bright siblings (110–119)	88	91	83
Reference group (90–109)	69	78	62
Dull siblings (80–89)	53	63	48
Very dull siblings (<80)	40	43	39

Source: Author's analysis, National Longitudinal Survey of Youth.

makes it obvious that the dispersion even among these fortunate children grown to adulthood is extremely large. Moreover, that dispersion across cognitive classes is likely to increase in years to come, even for this first generation. The lower cognitive classes are in predominantly low-skill jobs, and the higher ones in white-collar and professional jobs. The income trajectory for low-skill occupations peaks early at a fairly low wage, while the income trajectory for professionals and senior managers peaks late at much higher wages. The differences in earned income as of 1995, when the NLSY subjects were aged 30–38, must be expected to increase substantially.

The income results from the utopian sample lead to an obvious question: If the below-average IQ offspring of intact, nonpoor families fall so far short of their parents' economic success, what happens in the second generation? It does not require sophisticated modeling to see that the return to the original level of inequality is likely to be rapid. One might reach this conclusion simply by extrapolating from the dispersion observed in the first generation. It is possible to do better than that, however, by examining collateral indicators involving family structure, which in turn are related to earning power as an adult.

Table 3 limits the samples to those who had children as of 1996 and shows the percentage who were married as of then. As in Table 2, the data indicate that environment does count, to some degree, but the range even within the

TABLE 4—WOMEN WHO HAVE GIVEN BIRTH OUT OF WEDLOCK (PERCENTAGES)

IQ group	Complete sample (594 pairs)	Utopian subsample (291 pairs)	Everybody else (303 pairs)
Very bright siblings (120+)	4	2 ($n = 47$)	10 ($n = 10$)
Bright siblings (110–119)	9	10	7 ($n = 46$)
Reference group (90–109)	24	17	30
Dull siblings (80–89)	37	33	40
Very dull siblings (<80)	62	44 ($n = 27$)	69

Source: Author's analysis, National Longitudinal Survey of Youth.

utopian sample is great. Being smart is associated with very high levels of marriage among those with children, and being dumb is associated with very big drop-offs, even for comparisons with siblings in the utopian sample.

Table 4 shows the percentage of female siblings who have ever borne a child out of wedlock. I have noted the sample sizes for the "very bright" siblings, only three out of 57 of whom had a child out of wedlock, but the inverse relationship between IQ and nonmarital child-bearing is one that has been well-documented, and it is not simply a matter of smart girls having more abortions (Carolyn T. Halpern et al., 2000). The steep rise in the percentage of siblings having nonmarital births as one moves down the cognitive classes is striking, especially if one likes to think that growing up in a stable two-parent household has positive socializing effects.

Taking everything together, the image conveyed by the utopian sample is for very large income and family-structure differences intertwined with systematically different distributions of intelligence—all of which amounts to the kind of cognitive stratification that was the topic of *The Bell Curve*. And these are levels of inequality produced by the offspring of a population more advantaged in income and family structure than even the most optimistic social reformer can hope to achieve in the real world. The difference between the siblings that produced these inequalities is not race, birth order, poverty, parental social status, parental marital

status, or any other systematic difference in family background. The sibling analysis combined with the utopian selection criteria takes all of those explanations out of the equation, plus many others. The one thing that differs systematically about these siblings is their scores on a paper-and-pencil test, which in turn is a valid and reliable measure of differences in cognitive functioning. Whatever the source of those differences in cognitive functioning, genes or environment, they have proved remarkably resistant to efforts to narrow them (for a literature review of attempts to raise IQ, see Herrnstein and Murray [1994 pp. 389–416]).

People of different political viewpoints may reasonably respond to the data on the utopian sample with policy prescriptions that are in polar opposition. In many ways, the left has the easier task. No one earns a high IQ. It is a gift. These data are tailor-made for the conclusion that a Rawlsian redistributive state is the only answer to unfair personal inequalities. The right, for its part, must state forthrightly why it thinks that a free society that tolerates large differences in income, significantly caused by unfair inequalities, is preferable to a more highly regulated society that reduces those differences.

In the meantime, it seems fair to conclude from these data that, though the answers may be different for those of competing political persuasions, the challenge is common to all. We all want a society in which everyone can find a valued place. But in trying to develop policies to achieve that goal, too many scholars who deal in policy have pretended they live in a Lake Wobegon world where everyone can be above average. It is time to face the reality of human

inequality in abilities as a driving force behind inequality in the distribution of social and economic goods.

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