

DIVINING DIFFERENCE (Perils Excerpt)¹

by

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What if the ratio of the black poverty rate to the white poverty rate were suddenly to increase dramatically? Most people, including most social scientists, would probably believe that something bad had happened to black Americans. That would not necessarily be the case, however. In fact, such a change is at least as likely to be a sign that something good had happened to black Americans, just as a decrease in the ratio would likely be a sign that something bad had happened to blacks Americans.

Yet, because most people who talk and write about disparities between demographic groups lack an understanding of certain basic statistical tendencies, in the media, as well as in scholarly journals, quite often good signs are reported as bad and bad signs are reported as good. And, not only is the public misled on a wide range of subjects, but we are greatly hampered in our ability to evaluate the efficacy of measures intended to correct social inequities. Sometimes, too, we are led to select the wrong course in the first place.

The reason that increases in the black-white poverty ratio often will be a good thing and decreases in that ratio often will be a bad thing is that the former almost invariably accompany a

¹ The item is in the nature of an excerpt of "[The Perils of Provocative Statistics](#)," (*Public Interest*, Winter 1991). Shortly after the article was published in January 1991, *The Washington Post* tentatively agreed to publish an excerpt in its (Sunday) Outlook section. But after protracted discussions and a few versions, in April 1993, the *Post* ultimately concluded that the pending version was "too hard going (as well as too long) for our readership." See discussion at pages 175-78 of Michael Lind's [Up from Conservatism](#) (1976) suggesting that the fact that the article was not excerpted in *The Wall Street Journal* reflected a desire of the conservative intelligentsia to cause the article to go unnoticed. Actually, it might well have been excerpted in *The Wall Street Journal* but for the fact that from 1991 to 1993 it was tentatively accepted by the *Post*.

reduction in poverty while the latter almost invariably accompany an increase in poverty. Here's why that happens.

In 1990, for example, 32 percent of blacks compared with 11 percent of whites fell below the poverty line, a ratio of 2.9 to one. But 14 percent of blacks compared with 4 percent of whites lived on incomes below 50 percent of the poverty line, a ratio of 3.5 to one. Thus, if poverty should decline such that everyone between the poverty line and 50 percent of the poverty line is raised from poverty, the black-white poverty ratio would increase.

On the other hand, 39 percent of blacks compared with 15 percent of whites fell below 125 percent of the poverty line, a ratio of 2.6 to one. So if, instead of falling, poverty should rise sufficiently to pull everyone into poverty who had previously been between the poverty line and 125 percent of the poverty line, the ratio of the black poverty rate to the white poverty rate would fall.

There is another feature of such changes that must be appreciated as well. When poverty declines, although the disparity between black and white poverty rates increases, the disparity between black and whites rates of avoiding poverty decreases. For example, in the case where everyone between the poverty line and 50 percent of the poverty line escapes poverty, the black rate of avoiding poverty would rise from 67 percent of the white rate (68 percent over 89 percent) to 90 percent of the white rate (86 percent over 96 percent). And, conversely, with an increase in poverty, the disparity between the black and white rates of avoiding poverty would rise.

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These tendencies are not limited to poverty data. Rather, they apply to every situation where two groups have normal or nearly normal, though somewhat different, distributions of some characteristic, which means that they apply to just about everything under the Sun.

Take test scores, for example. When two groups have different average test scores, the lower the cutoff score the smaller will be the disparity in pass rates while the greater will be the disparity in failure rates. It is noteworthy, however, that lowering of a cutoff score is universally regarded as a way of reducing the discriminatory impact of a test by diminishing the disparity in pass rates, even though the lowering of the cutoff also increases the disparity in failure rates.

This is a manifestly sensible approach for dealing with the curious phenomenon whereby disparities in failing to avoid an undesirable condition and disparities in succeeding in avoiding the condition vary inversely with changes in the prevalence of the condition. But because few understand the statistical tendencies--and perhaps because of the allure of the provocative comparisons that can be made with failure rates especially when an undesirable condition has abated – the analysis of demographic disparities is not invariably so sensible.

Consider the recent attention to racial disparities in mortgage rejection rates. Since 1989, lending institutions have been required to keep records reflecting the race of applicants for home mortgages, and over the last year or so these records have provided the raw data for a number of studies of racial disparities in home lending. The studies have invariably shown that minorities seeking mortgages are rejected much more often than whites, even when the studies have attempted to control for income level of the applicants.

Focusing on the size of the disparities in loan rejection rates, one study even ranked Washington D.C. banks according to the degree of perceived discrimination against black and other minority applicants. And the Office of the Comptroller of the Currency recently indicated that banks where minority rejection rates are twice those for whites would face intense scrutiny.

It hard to know the extent to which these disparities actually reflect discrimination in the sense of banks treating identical loan applicants differently because of race. In any broad income grouping, the poorer group will tend to be disproportionately concentrated at the lower end of the grouping, as suggested by the poverty data cited above. In addition, the disparity in wealth between minorities and whites earning the same income is well-documented. So one would expect studies like those just mentioned to reveal some racial disparities in bank lending practices whether or not similarly situated people are treated differently because of their race. But in measuring the size of such disparities it would seem a mistake to look at rejection rates.

A bank's lending practices operate just like tests. At banks with relatively lenient lending criteria, the black approval rate will be closer to the white approval rate than at other banks, while the disparity in rejection rates will be greater than at other banks. Thus, so long as the focus is on disparities in rejection rates, the banks whose credit "tests" would be deemed to have the least discriminatory effect, as that concept usually is understood, instead will be deemed to have the most discriminatory practices. Moreover, the banks deemed to have the most discriminatory practices will tend to be those at which blacks, like whites, are most likely to get loans.

The force of this tendency is illustrated by the data first released by the Federal Reserve in October 1991, which were divided according to four income groupings. Among applicants for conventional mortgages, the higher the income grouping, the greater was the acceptance rate, and the closer was the black acceptance rate to the white acceptance rate; at the same time, the higher the income, the greater was the racial disparity in rejection rates.

Do these statistical tendencies always predominate? Of course not. Other factors, including such discrimination as a particular institution actually may engage in, often outweigh the tendencies. But the statistical tendencies are essential parts of the picture, and without understanding them, no one can make heads or tails out of the data.

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Among the other areas where the failure to understand the inverse relationship between disparities in success and disparities in failure causes great confusion is the appraisal of racial disparities in discipline rates. Recently, the discipline practices of the Internal Revenue Service were subjected to intense scrutiny because of widely disparate rates at which blacks and whites were disciplined for workplace infractions. No one scrutinizing that subject appeared to consider the tendency for disparities in rates at which blacks and whites in some wise failed at their jobs to increase as the disparities in rates at which blacks and whites succeeded at their jobs declined.

In any event, an extensive report was produced attributing the disparate discipline rates largely to race-neutral factors, and recommending race-neutral proposals to address the situations causing the discipline problems. These are probably sensible proposals, and if they achieve their goals they will reduce the disparity in rates at which blacks and whites avoid discipline problems. At the same time, however, they would be expected to increase further the racial disparities in discipline rates that first attracted attention.

One of the most sensitive areas where misunderstanding of these statistical tendencies has led to conclusions that are often 180 degrees off the mark is mortality. Some years ago, a number of scholars noted with considerable alarm that in 1983 the disparity between black and white infant mortality rates had reached its highest point in history. Yet no one noticed that in that year black and white infant mortality rates each reached its lowest point ever or that the disparity between black and white infant survival rates also reached an all time low.

The failure to understand how various disparities are affected by the prevalence of a condition – and in particular the failure to appreciate how disparities in being affected by an adverse condition increase when the condition abates--creates special confusion when efforts are made to study racial disparities in higher socioeconomic strata. A recent study in the New England Journal of Medicine showed that where both parents are college educated, the ratio of the black infant mortality rate to the white infant mortality rate is only slightly lower than for the nation at large. Several years ago a study in the same journal found that racial disparities in low birth weight are even greater among higher socioeconomic levels than lower socioeconomic levels. Both studies were greeted with surprise and the suggestion that the implications of race on mortality are far less understood than previously believed.

But neither finding is at all surprising. Let's look again at income and poverty data. The median incomes of blacks and whites are much closer for married-couple families than for the rest of the population. Yet, because poverty is so much rarer among married-couple families than the rest of the population, the ratio of the black poverty rate to the white poverty rate is significantly higher for persons in married-couple families than for the rest of the population. In 1990, the ratio was 2.3 to one for married-couple families (14 percent for blacks compared with 6 percent for whites) but only 1.9 to one for the rest of the population (45 percent compared with 24 percent). Racial disparities in avoiding poverty, however, were much smaller among the married-couple families.

Similarly, black and white families where both parents are college educated and much more alike with respect to the factors that affect infant mortality than the nation at large (though even the college-educated are not totally alike). This tends to reduce racial differences in susceptibility to infant mortality. At the same time, however, the fact that infant mortality is rarer where both parents are college educated tends to increase disparities in mortality rates. The combined effects of these countervailing tendencies was to cause the ratio of the black to white infant mortality rates to be slightly lower for infants born to college-educated parents than for the nation at large. For the 1983-1985 period examined in the study, the ratio was 1.89 for the college-educated (10.2 deaths per thousand for blacks compared with 5.4 for whites) and 1.96 for the nation at large (18.2 for blacks compared with 9.3 for whites). But there should have been little cause for surprise even if the ratio had been larger among the college-educated, and very likely the ratio was in fact larger among the college-educated than among the remainder of the population (as opposed to the entire population including the college-educated). And, once again, the ratio of black and white survival rates would be closer among the college-educated.

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Another misunderstood consequence of changes in the prevalence of a condition is that when a condition declines the more susceptible group will make up a larger proportion of the persons who continue to be affected by it. For example, in the hypothetical reduction in poverty whereby everyone between the poverty line and 50 percent of the poverty line is raised from poverty, the proportion blacks make up of the poor would rise from 29 percent to 34 percent.

Despite the usefulness of poverty data for illustrating this point, however, it is probably in descriptions of poverty data that the matter is most commonly misunderstood. The same tendencies observed with regard to blacks operate with regard to any group that is more poverty-prone than the rest of the population, such as female-headed families. Yet the dramatic rise in the proportion of the poor comprised by female-headed families between 1959 and the mid-1970s – the "feminization of poverty" it was termed – was universally regarded as a source of great concern. Practically no one noticed the extent to which this phenomenon resulted from dramatic reductions in poverty during that period, including the poverty of female-headed families. Nor have many noticed the role of the increases in poverty since the mid-1970s in arresting further feminization of poverty in the face of continuing growth in the numbers of female-headed families.

The fact that blacks are not becoming a larger proportion of the poor has recently been noted as an encouraging sign that the black underclass is not increasing in size. Yet, more than anything, that blacks are not comprising a larger proportion of the poor reflects the discouraging fact that poverty is not declining.

This misunderstanding has even found its way into the affirmative action debate. A couple of years ago, a major work arguing the evils of affirmative action around the world would

made a special point of the fact that in one Asian country a disadvantaged ethnic group receiving preferential treatment under governmentally-mandated affirmative action programs actually became a larger proportion of the poor while such programs were in effect. But this occurred during a period of radical decreases in poverty, where one would expect this group to substantially increase its share of the poor. That the proportion the group made up of the poor in fact increased only slightly was powerful evidence that it was especially benefiting from the reduction in poverty. Thus, if the poverty data indicated anything about the success of the affirmative action programs, it showed exactly the opposite of what the author thought it did.

Notice, too, that the hypothetical reduction in poverty set out at the beginning resulted in a smaller percentage decline for blacks, and, just as important, with the rise in poverty, whites experienced a larger percentage increase. Yet how often do we find it reported as if it were news that some undesirable condition is increasing more among the group that so far have been least affected by it? This is not news, for it will happen all or nearly all the time.

None of the things I have said should be read to deprecate the significance of many real differences between various groups with regard to a great range of desirable and undesirable conditions or the importance of correcting those differences. But we cannot fathom those differences much less address them without a firm understanding of the statistical measures we use for evaluating progress. Unfortunately, I have here but scratched the surface of the varied contexts in which the misunderstanding of the tendencies outlined above leads researcher and commentators to reach conclusions that often are not merely imprecise, but are exactly the opposite of the truth. So it may be worth your while to master those tendencies, even though it may be a week or so before you will read something by someone who hasn't.

—The End—