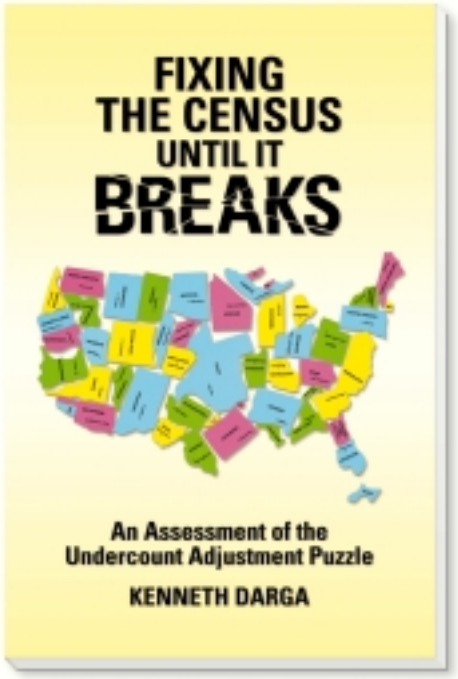
What are the Strengths and Limitations of Census 2000?

(And why do adjustments for undercount make census data worse?)



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This book makes a compelling case that adjustments for undercount would have decreased the accuracy of the 1990 Census, and that they can be expected to decrease the accuracy of the 2000 Census as well.

Dr. Philip B. Stark
Professor of Statistics, University of California at Berkeley

The power of these simple logical arguments is refreshing in this era of statistical 'spin' and politically motivated "science."

Dr. Jerry Coffey
Mathematical Statistician, U.S. Office of Management and Budget (retired)

An excellent critique of a controversial issue. Readers—whether lay persons or technicians—can gain a deeper understanding of the issues involved in this controversy.

Charles Jones
Associate Director of the U.S. Census Bureau, 1987-1994

Regardless of where you live or which party you support, this report will give you many sound reasons for questioning adjusted census data. It is essential reading for anyone who uses information from the United States Census.

For the past decade, advocates of adjusting for undercount have argued that "traditional" census-taking methods cannot succeed. However, the low rate of undercount achieved by Census 2000 will require many social scientists and data users to reassess their understanding of this controversial issue.

This book explains the strengths and weaknesses of the census and demonstrates that the current approach to adjusting for undercount is subject to large errors. Because these errors are unpredictable in both size and direction, they invalidate comparisons between areas and between population groups. Even more important, they invalidate comparisons between points in time. Some of the differences from one adjusted census to another reflect variations in the size and direction of adjustment error, but no one can know which differences are spurious and which are not. The adjustments thus destroy much of the value and credibility of the census.

The sample survey upon which the adjustments are based must contend with the very same obstacles as the census itself. In fact, most of those obstacles are more problematic for the enormously difficult task of measuring undercount than for the far simpler task of counting the population. The survey therefore fails to reach many of the people who were missed by the census, and it mistakenly identifies others as missed even though they really were counted. Instead of just telling us where mistakes occur in the *census*, the results of the adjustment methodology primarily tell us where mistakes take place in conducting and analyzing the subsequent *survey*.

In addition to summarizing the case against the adjustment methodology, chapter 1 explains a simple statistical phe-

nomenon through which even small rates of error in the survey for measuring undercount can cause large errors in the adjustments. Evidence of such errors—including evidence in the Census Bureau's evaluation reports on the 1990 undercount survey—has often been ignored because it seems inconsistent with the high degree of skill and care with which the surveys are conducted. This statistical phenomenon provides the key to understanding not only why large errors are possible, but why they are virtually inevitable.

Chapter two examines seventeen obstacles to an accurate census that have been cited as arguments in favor of adjusting for undercount. This chapter explains how the census addresses each of those obstacles, and it demonstrates that at least fifteen of them have more serious effects upon the sample survey than upon the census itself. The survey to measure undercount proves to have more difficulty reaching the hard-to-count population than the census, as well as serious problems with residential mobility, proxy interviews, and other sources of error.

If the survey is subject to all the sources of error discussed in chapter two, and if it is as sensitive to such errors as suggested by chapter one, then it should be possible to find serious inaccuracies in the adjustments that were calculated for the 1990 Census. Chapter three documents several such inaccuracies.

Chapter four demonstrates the magnitude and pervasiveness of adjustment errors in 1990 and shows how they affect growth measurements for states, comparisons between decades, and other analyses based on adjusted census data.

Chapter five addresses one of the paradoxes of the census debate: despite the statistical and operational obstacles faced by the adjustment methodology, some of its results seem quite reasonable. The explanation for this paradox is that the adjustments are subject to contamination by expectations about undercount. They can be affected by the desires and expectations of respondents, of interviewers, and of the staff who match survey responses with census forms. Moreover, the methodology provides for direct modification of results to make them more consistent with expectations. The results that are most consistent with expectations prove to be the ones that are most subject to contamination by expectations; the results that are less subject to such contamination tend to be less plausible.

Chapter six examines the statistical model that underlies the adjustments to show that it is not designed to correct for the statistical and operational problems discussed in prior chapters. On the contrary, those problems are violations of the basic assumptions upon which the model depends for its validity.

Although this book serves primarily as a defense of the census and a warning against faulty adjustments for undercount, the census remains subject to improvement. Appendix A suggests forty potential improvements in the census that address all of the obstacles discussed in preceding chapters.

Readers may find it difficult to accept the case against the adjustments while the trenches on the opposite side of the census debate are filled with so many experts with impressive credentials and experience. Appendix B therefore explores how science, bureaucracy, politics, and the law interact with respect to the census. That interaction explains a major flaw in many assessments of the undercount adjustment issue: important evidence and issues have often been overlooked. The legal, political, and scientific realms must work together to fix the census without breaking it.

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