

**Requirement of Census Population Controls
in Labor Force Statistics Programs**

**Thomas J. Nardone
Assistant Commissioner for
Current Employment Analysis
Bureau of Labor Statistics
U.S. Department of Labor**

The Census Bureau population controls are a key input into the national and state employment and unemployment estimates produced by the Bureau of Labor Statistics (BLS). The controls affect both the levels of the labor market estimates as well as the change in estimates over time. For this reason, BLS wants population estimates that are as accurate, timely, and understandable as possible.

This paper highlights several instances when the population controls complicated the analysis of labor market estimates. The goal is not to suggest that there are fundamental flaws with the controls. Rather, the examples are meant to illustrate areas in need of possible improvements. The instances considered are 1) the contribution to the discrepancy between employment growth as measured by the CPS and the Current Employment Statistics survey (CES), 2) the breaks in labor market series caused by the annual revision of the population controls, 3) unusual movements in individual demographic and state population series, and 4) the need to react to unusual circumstances such as Hurricane Katrina. (Population controls used in BLS surveys are for the civilian noninstitutional population only.)

CPS-CES discrepancy

The most desirable characteristic for the population controls is, of course, accuracy. This also is one of the most difficult goals to achieve, particularly as the estimates get further from the anchor of the decennial census. Complicating the goal even further has been the increasing importance of immigration in population growth. If the estimates of population growth are too low or too high, the trend in employment and unemployment as estimated from the CPS will be under or over stated.¹ (For a description of the use of population controls in the CPS, see Appendix 1.) The impact will be more pronounced on employment, since a far greater proportion of the population is employment than unemployment.²

Each month, BLS relies on two sample surveys to develop a picture of the labor market—the CPS and the CES. During the 1990s, these two monthly employment surveys showed substantially different trends in employment. The CPS is a monthly survey of 60,000 households and, as mentioned earlier, the CPS estimates use the population controls produced by the Census Bureau. The CES survey is a survey of 400,000 business establishments. The CES is generally considered the more accurate measure of employment growth

¹ For a discussion of the use of population controls in the CPS see, Current Population Survey, Technical Paper 63RV, Design and Methodology, Issued March 2002, Appendices D and E. The publication is available through the Census Bureau website at <http://www.census.gov/apsd/techdoc/cps/cps-main.html>

² In 2005, for example, 62.7 percent of the civilian noninstitutional population age 16 and over was employed compared to 3.4 percent that was unemployed. The latter figure is not the same as the unemployment rate which is defined as the number of unemployed divided by the labor force rather than the population.

because of its larger sample and because it is annually benchmarked to a near universe count of the payroll employment obtained from the Unemployment Insurance system. During the 1990s, employment growth as measured by the CPS was lower than growth as measured by the CES, even after accounting for differences in the concept of employment used by the two surveys. Moreover, the difference in growth expanded as the decade continued. From 1994 to 2000, employment as measured by the CPS increased by 12.1 million, while employment as measured by the CES increased by 17.4 million³

BLS and other analysts expected that this discrepancy probably was due, in part, an underestimate of population growth, as reflected in the population controls used in the CPS. Underlying this belief was the assumption that the strong economic growth during the decade led to great immigration and hence population growth than was reflected in the CPS controls. This contention was shown to be correct when the population controls were updated to reflect the results from Census 2000. That update raised the estimated level of civilian noninstitutional population age 16 and over in 2000 by 2.9 million to 212.6 million. As a result, the estimate level of CPS employment by 1.7 million.

³ For a more complete description of the differences between the CPS and CES and the discrepancies between the two, see Mary Bowler and Teresa Morisi, "Understanding employment measures from the establishment and household surveys," Monthly Labor Review, February 2006 (Volume 129, Number 2), pp 23-38.

Hence a substantial proportion of the discrepancy between the two employment surveys did, in fact, reflected an underestimate of population growth.

A reverse of this situation may have occurred during the early part of this decade as the CPS indicated a stronger employment trend than the CES. It is possible that the recession of 2001 and the relatively weak job market that followed caused some slowdown in immigration. It is worth noting that even small inaccuracies in population estimates can result in substantial overstatements of CPS employment growth given time. Consider if monthly population growth was estimated be 200,000 a month rather than 150,000, a very small difference given the size of the population (about 229,000,000 in June 2006), a 60 percent employment-population ratio would result in 30,000 extra employed people a month. Over the course of 12 months, employment would be 360,000 higher just because of the extra population growth—in 3 years 720,000 higher.

In one sense, this is not a great difference given the level of total employment.⁴ However, for a time early in the decade an overstatement of that amount would have been the difference between an economy that was adding jobs, albeit slowly, and an economy with no job growth.

Issues with the annual update The importance of keeping the population estimates as accurate as possible highlights the usefulness of the annual review and update of those estimates. Obviously, we want the intercensal estimate to reflect current data to the greatest extent possible. However, those update can create their own issues for those conducting labor market analysis. For example, in January 2003, the Census Bureau increased the estimated population level by 943,000. This resulted in an increase in the estimated level of employment of 540,000. Anyone attempting to understand the trend in employment before and after this update needed to remember to account for the extra employment resulting from the higher population.

For the next update in January 2004, Census lowered the estimated level of population by 560,000 resulting in decrease in the level of employment of 409,000. Thus, people trying to analyze the trend in employment or labor force over the period from 2002 through 2004 had to contend with two substantial breaks that tended to move employment in opposite directions.⁵

⁴ In June 2006, total employment as measured by the CPS was 144.4 million; nonfarm wage and salary employment as measured by the CES was 135.3 million.

⁵ Mary Bowler, Randy Ilg, Stephen Miller, Ed Robison, and Anne Polivka, "Revisions to the Current Population Survey Effective in January 2003," *Employment and Earnings*, February 2003 (Volume 50, Number 2), pp. 4-23 and "Adjustment to Household Survey Population Estimates in January 2004," *Employment and Earnings*, February 2004 (Volume 51, Number 2), pp.3-4.

Eventually, BLS decided to smooth the employment and labor force series to accommodate comparisons over this period.⁶ The limitation of the BLS approach is that it assumes the revisions to population took place smoothly over the post censal period. Thus, the approach does not necessarily reflect real world developments such as the pick up or slow down of economic activity. In addition, the smoothed estimates are not directly reproducible from the CPS microdata file. One of the strengths of the CPS program is the transparency gained from having the estimates reproducible through publicly available microdata; the creation of the smoothed series broke this link. Finally, the smoothing of labor force and employment created a disconnect with other labor market data such as unemployment and its related measures. Because of their small size these measures generally are only slightly affected by even large population revisions and little is gained by smoothing them.⁷

Of course, an alternative to the straightforward smoothing of the labor force and employment series would be to use the new vintage estimates for the entire time period. For the national employment and unemployment data, this is a massive effort since it requires reweighting all the CPS files back to the Census year and then rerunning all the published and

⁶ See Marisa DiNatale, "Creating Comparability in CPS Employment Series" at <http://www.bls.gov/cps/cpscomp.pdf>

⁷ See DiNatale

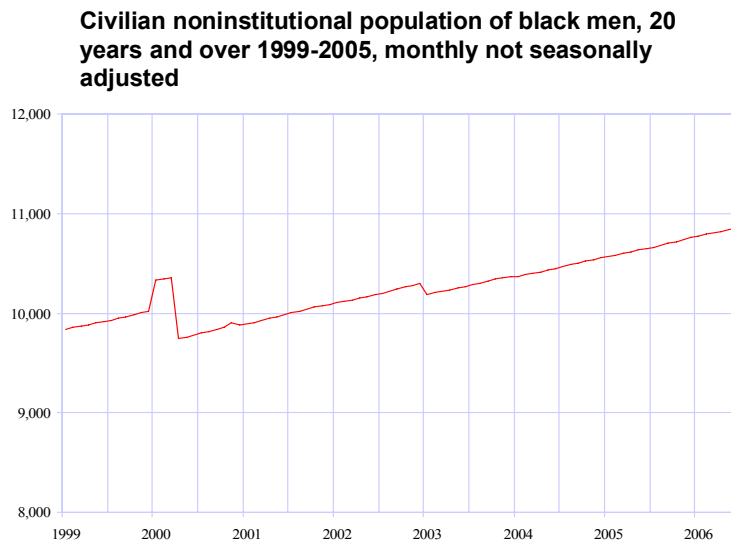
unpublished series using the new weights. This effort generally carries the substantial chance of introducing an error into the time series during the process of recalculation. Finally, the population updates are received only a week or two prior to the introduction of the updated controls, as a result there is not sufficient time to carry out the work. For all these reasons, full scale revision of the national labor market time series to reflect new population controls tends to be limited to the period immediately following the decennial census.

In contrast, state labor market series typically are revised back to the prior census year as part of the annual population update. This is also a massive effort. It is possible because only employment and unemployment are revised.

Issues with revised data series Experience with the annual state and less frequent national revisions of labor market estimates suggest that using the full new vintage of population estimates is no panacea. Often, the new vintages contain odd and inexplicable movements in population that translate into similarly odd movements in labor market measures.

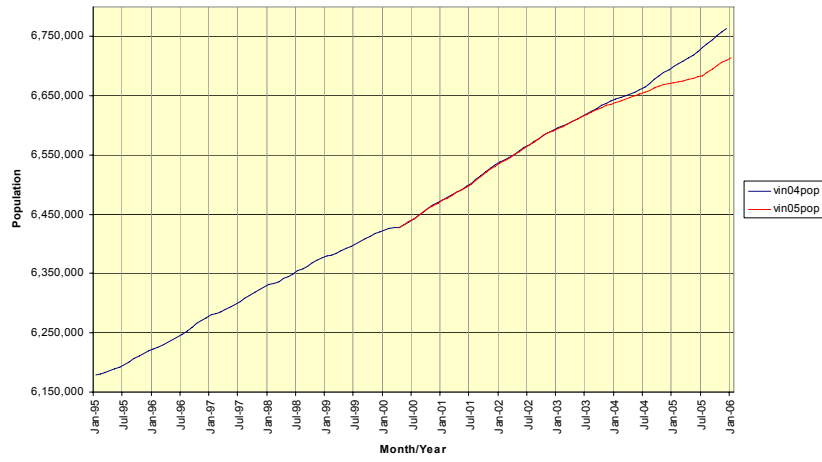
For example, chart 1 shows the movement in the population of black men age 20 and over using the revised population

controls generated after Census 2000. Note the sharp movement in 2000. The estimated labor force for the groups shows a similar spike at that point.

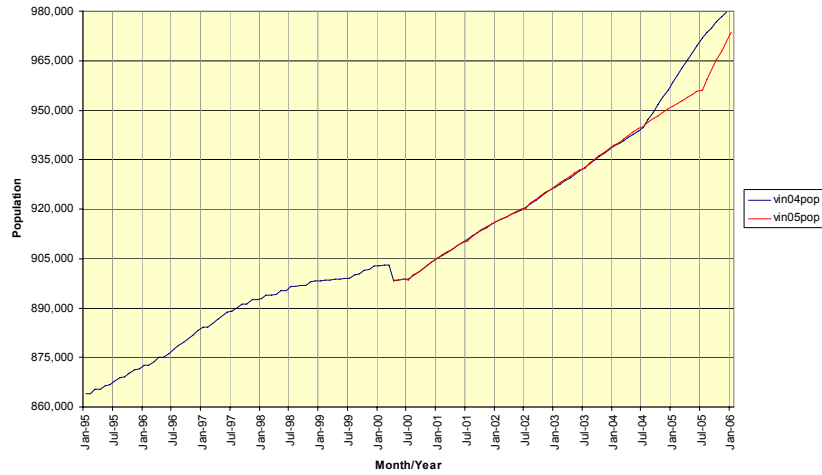


The population controls from the states show many similar anomalous movements as shown in the following series of charts that compare the Vintage 04 and Vintage 05 estimates for the states. For New Jersey, Hawaii, and Rhode Island, the revised series show very different trends than the original series. For New York, the revised estimates shows population diverting from the old trend, only to return to it, and for West Virginia, the revised estimates shows a short dip in population growth that was not evident in the original estimates.

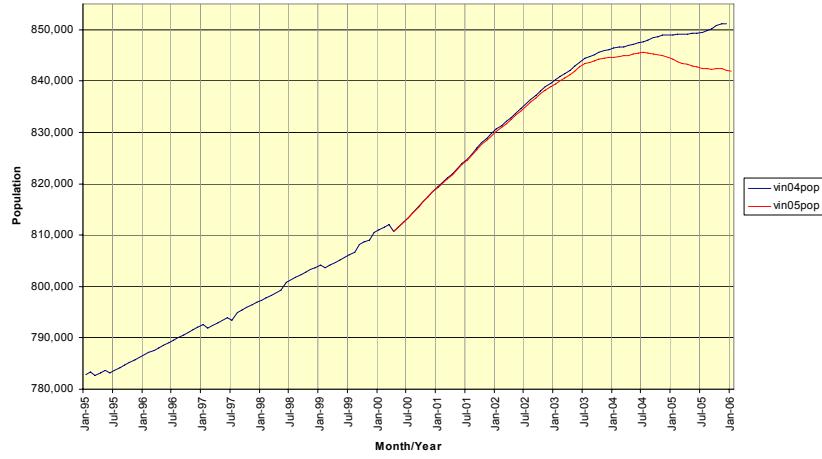
Comparison of vintage '04 and '05 population estimates for New Jersey, 2000-2005



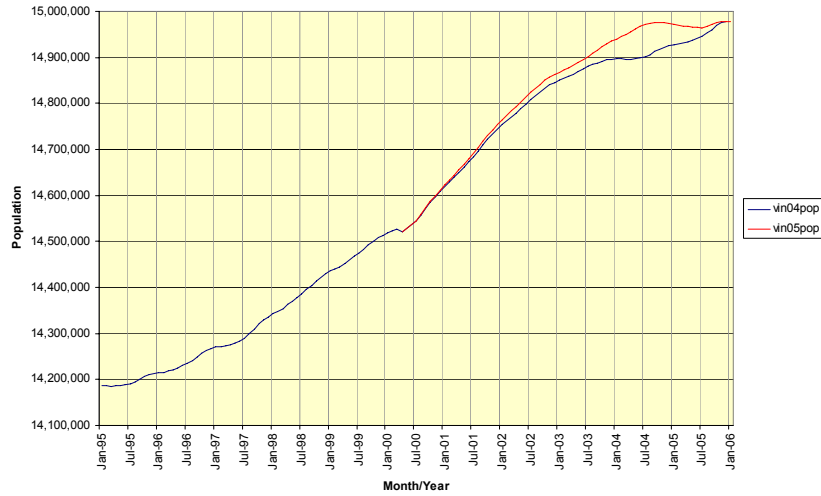
Comparison of vintage '04 and '05 population estimates for Hawaii, 2000-2005

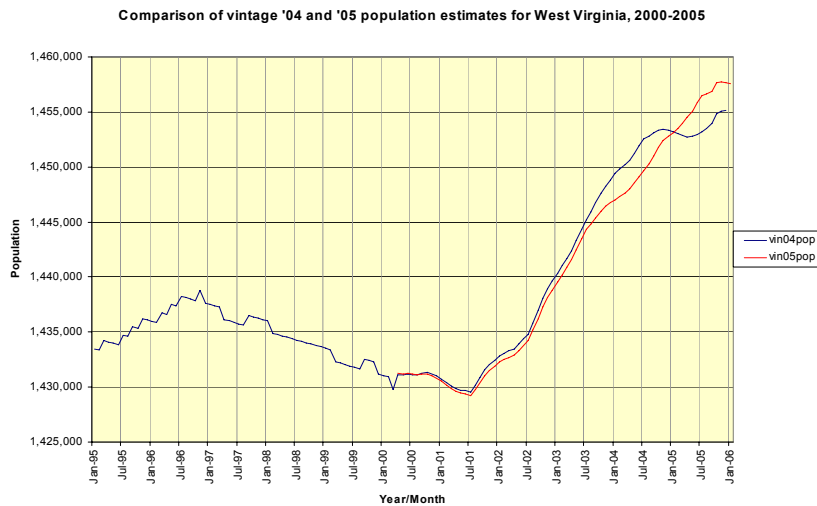


Comparison of vintage '04 and '05 population estimates for Rhode Island, 2000-2005



Comparison of vintage '04 and '05 population estimates for New York, 2000-2005





Such changes to the estimates of population will impact the labor force and employment trends for the states affected, typically causing consternation among users. Users, of course, will want justifications for why the new trends are behaving as they are, justifications that are analytically sound and understandable to even non technical data users.

Issue with unusual events The final area related to labor market data that deserves consideration is the ability to adjust population estimates in response to unusual events. The most obvious example of such an event, and one that was a clear success for the Census Bureau, was the readjustment of state population controls following Hurricane Katrina. Katrina resulted in the very unusual circumstance when the population of a major metropolitan area was dislocated with

substantial portions of that population going out of the state. Unless the state population controls could be adjusted, the employment and unemployment estimates would be fundamentally flawed just when policy makers needed the best information available to assess the impact of the disaster. In this case, the Census Bureau was able in a relatively short time frame, about a month, to devise a method for adjusting the state population controls using change of address information from the Postal Service. Going forward, worthwhile avenues for research would be an evaluation of the method to determine how well it reflected reality as well as developing plans for handling similar or other impacts in the future.

In summary, estimates of population are a key input to employment and unemployment data at the national, state, and local level. Thus, they play a crucial, albeit indirect, role in the labor market decisions made by individuals, businesses, and governments. For this reason, the population estimates should be as timely, accurate, and consistent as the Census Bureau can make them.