Expansion of the Current Population Survey Sample Effective July 2001

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Effective with the release of July 2001 data, official labor force estimates from the Bureau of Labor Statistics (BLS) Current Population Survey (CPS) and Local Area Unemployment Statistics (LAUS) program reflect the expansion of the monthly CPS sample from about 50,000 to about 60,000 eligible households. This expansion of the monthly CPS sample was one part of the Census Bureau's plan to meet the requirements of the State Children's Health Insurance Program (SCHIP) legislation. The SCHIP legislation requires the Census Bureau to improve State estimates of the number of children who live in low-income families and lack health insurance. These estimates are obtained from the Annual Demographic Supplement to the CPS.

In September 2000, the Census Bureau began expanding the monthly CPS sample in 31 states and the District of Columbia. The additional 10,000 households were added to the sample over a 3-month period. BLS chose not to include the additional households in the official labor force estimates, however, until it had sufficient time to evaluate the estimates from the 60,000-household sample. This article discusses the impact of the sample expansion on national labor force estimates and on the State and area labor force statistics over the January-June 2001 period.

Effect of the sample expansion on national CPS estimates

At the national level, the estimates (not seasonally adjusted) derived from the 50,000- and 60,000-household samples were virtually the same. In any given month, the 60,000-household sample estimates for the overall labor force participation rate and the employment-population ratio differed by no more than 0.1 percentage point from estimates produced from the 50,000-household sample. The overall unemployment rates were identical in both samples over the period. (See table 1.)

A marginal benefit of the new sample is that it will slightly improve the coefficient of variation on the national unemployment level, from about 1.9 percent to about 1.8 percent, assuming an unemployment rate of 6 percent. (The coefficient of variation, or CV, is defined as the standard error of the estimate divided by the estimate, expressed as a percentage.) The relatively small improvement reflects the allocation of the additional sample to less populous States that have a smaller impact on the national coefficient of variation. A simple across-the-board proportional increase in State sample sizes would have resulted in a larger drop in the CV at the national level.

As shown in table 1, there were only marginal differences in the monthly labor force, employment, and unemployment levels between the two samples. Estimates from both samples were examined for other data series as well, such as occupational employment, full- and part-time employment, and multiple jobholding, and the differences over the January-June period appeared to be insignificant.

Among the major worker groups, labor force estimates from the 50,000- and 60,000-household samples were essentially the same over the January-June period. While differences in the estimates for some population subgroups may appear relatively large, they likely reflect the greater known variance associated with estimates for these groups, such as blacks, Hispanics, and teenagers.

At the national level, previously published monthly labor force estimates for January to June will not be revised, because the differences between the two samples were only minimal. The 2001 annual averages for all labor force series, however, will be calculated using the monthly average (January-December) from the expanded 60,000-household sample.

Effect of the sample expansion on LAUS State estimates

At the State level, the sample expansion was not evenly distributed, but rather concentrated in States (and the District of Columbia) with the least reliable March estimates of children in poverty without health insurance. States were identified for sample supplementation based on the standard error of their March estimate of low-income children without health insurance.

The sample expansion resulted in substantial improvements in the quality of the State CPS data by reducing the coefficient of variation on the monthly and annual average labor force estimates. (See table 2, which provides the current CVs for all States and the resultant CVs for those States

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receiving the additional households.) The SCHIP expansion did not result in systematically higher or lower labor force values across the States.

The monthly State CPS employment and unemployment estimates are not used directly, but instead are inputs to the LAUS estimating models, which provide the "official" estimates of the State levels. For this reason, the impact of the new sample on the model-based estimates also was analyzed. In comparing the old and new estimates, no systematic differences in the levels or in the direction of change were found in either the CPS unemployment rates or the model-based estimates. For the vast majority of monthly comparisons between the old and new State samples, the differences also were not statistically significant. Exceptions included the April unemployment rates for both Colorado and the District of Columbia and the January and March unemployment rates for Connecticut.

While the sample expansion was not designed to reduce error in the unemployment rate estimates, the substantial sample increases in selected States have important implications for the LAUS models. These models are designed to respond to changes in the reliability of the monthly State CPS data. The "noise component" directly incorporates measures of the magnitude (standard deviation) of the CPS sampling error in the estimation process. More reliable CPS data are given more weight in the estimation methodology. When the CPS data are less reliable, the model estimates depend more on historical patterns than on the current monthly CPS data. This property of the LAUS models allows them to exploit the SCHIP sample immediately. The new, lower CPS standard deviations were fed into the models' noise component, resulting in stronger weighting of the combined-sample CPS in the model-based estimates for the 31 States and the District of Columbia.

States not involved directly in the sample expansion may have small changes in their CPS estimates due to the second-stage ratio adjustment procedure used in the CPS. (For more information, see the "Explanatory Notes and Estimates of Error" section in this issue of *Employment and Earnings*.) Because the national sample estimates change slightly due to the SCHIP-related sample expansion, small adjustments to the sample weights in those States with no sample expansion will be made to ensure conformity to national demographic controls. The impact on the CPS data for these States, and on their model-based estimates, is minimal.

The new sample will be the basis for the July 2001 and June 2001 revised estimates for all States, the District of Columbia, New York City, and Los Angeles-Long Beach. The LAUS additivity process forces sub-State employment and unemployment estimates to equal their respective statewide totals. Therefore, beginning with July 2001/June 2001 revised data, sub-State estimates will reflect the new sample through the additivity process. The new sample data for all months of 2001 will be used to calculate the 2001 annual average data that will appear in the 2001 *Geographic Profile of Employment and Unemployment* and in the 2001 benchmarking of State and sub-State labor force estimates.

Table 1. **National labor force estimates using old and new CPS samples, January-June 2001, not seasonally adjusted**

(Numbers in thousands)

Characteristic	January			February			March		
	Old sample	New sample	Difference	Old sample	New sample	Difference	Old sample	New sample	Difference
Civilian labor force									
Total, 16 years and over	141,049	141,178	-129	141,238	141,263	-25	141,751	141,794	-43
16 to 19 years	7,724	7,773	-49	7,765	7,802	-37	7,769	7,808	-39
Men, 20 years and over	71,161	71,225	-64	71,139	71,195	-56	71,251	71,284	-33
Women, 20 years and over	62,164	62,181	-17	62,335	62,266	69	62,731	62,703	28
White	117,622	117,754	-132	117,883	117,952	-69	118,166	118,185	-19
Black	16,577	16,583	-6	16,511	16,485	26	16,699	16,717	-18
Hispanic origin	15,513	15,482	31	15,662	15,605	57	15,820	15,769	51
Participation rate									
Total, 16 years and over	66.9	66.9	.0	66.9	66.9	.0	67.1	67.1	.0
16 to 19 years	48.1	48.4	-0.3	48.2	48.5	-0.3	48.2	48.5	-0.3
Men, 20 years and over	76.4	76.4	.0	76.3	76.4	-.1	76.4	76.4	.0
Women, 20 years and over	61.2	61.2	.0	61.3	61.2	.1	61.6	61.6	.0
White	67.1	67.2	-.1	67.2	67.3	-.1	67.4	67.4	.0
Black	65.3	65.3	.0	65.0	64.9	.1	65.6	65.7	-.1
Hispanic origin	68.1	68.0	.1	68.6	68.4	.2	69.1	68.9	.2
Employed									
Total, 16 years and over	134,462	134,605	-143	134,774	134,833	-59	135,298	135,287	11
16 to 19 years	6,601	6,618	-17	6,655	6,692	-37	6,680	6,711	-31
Men, 20 years and over	68,101	68,174	-73	68,114	68,163	-49	68,171	68,152	19
Women, 20 years and over	59,760	59,813	-53	60,005	59,978	27	60,447	60,424	23
White	112,768	112,925	-157	113,029	113,108	-79	113,445	113,420	25
Black	15,170	15,158	12	15,192	15,190	2	15,264	15,277	-13
Hispanic origin	14,525	14,490	35	14,629	14,569	60	14,737	14,680	57
Part time for economic reasons	3,693	3,793	-100	3,424	3,496	-72	3,338	3,290	48
Employment-population ratio									
Total, 16 years and over	63.8	63.8	.0	63.9	63.9	.0	64.1	64.1	.0
16 to 19 years	41.1	41.2	-0.1	41.3	41.6	-0.3	41.5	41.6	-0.1
Men, 20 years and over	73.1	73.2	-.1	73.1	73.1	.0	73.1	73.1	.0
Women, 20 years and over	58.8	58.8	.0	59.0	59.0	.0	59.4	59.4	.0
White	64.3	64.4	-.1	64.5	64.5	.0	64.7	64.7	.0
Black	59.8	59.7	.1	59.8	59.8	.0	60.0	60.0	.0
Hispanic origin	63.8	63.6	.2	64.1	63.8	.3	64.4	64.1	.3
Unemployed									
Total, 16 years and over	6,587	6,573	14	6,464	6,430	34	6,453	6,507	-54
16 to 19 years	1,123	1,155	-32	1,110	1,110	0	1,088	1,097	-9
Men, 20 years and over	3,060	3,050	10	3,025	3,032	-7	3,080	3,132	-52
Women, 20 years and over	2,404	2,367	37	2,329	2,288	41	2,285	2,278	7
White	4,854	4,829	25	4,853	4,844	9	4,721	4,766	-45
Black	1,407	1,425	-18	1,319	1,294	25	1,435	1,439	-4
Hispanic origin	989	991	-2	1,034	1,036	-2	1,083	1,089	-6
Unemployment rate									
Total, 16 years and over	4.7	4.7	.0	4.6	4.6	.0	4.6	4.6	.0
16 to 19 years	14.5	14.9	-0.4	14.3	14.2	0.1	14.0	14.1	-0.1
Men, 20 years and over	4.3	4.3	.0	4.3	4.3	.0	4.3	4.4	-.1
Women, 20 years and over	3.9	3.8	.1	3.7	3.7	.0	3.6	3.6	.0
White	4.1	4.1	.0	4.1	4.1	.0	4.0	4.0	.0
Black	8.5	8.6	-.1	8.0	7.9	.1	8.6	8.6	.0
Hispanic origin	6.4	6.4	.0	6.6	6.6	.0	6.8	6.9	-.1

See note at end of table.

Table 1. **National labor force estimates using old and new CPS samples, January-June 2001, not seasonally adjusted—Continued**

(Numbers in thousands)

Characteristic	April			May			June		
	Old sample	New sample	Difference	Old sample	New sample	Difference	Old sample	New sample	Difference
Civilian labor force									
Total, 16 years and over	141,073	141,132	-59	141,048	141,192	-144	142,684	142,770	-86
16 to 19 years	7,573	7,629	-56	7,639	7,710	-71	9,351	9,414	-63
Men, 20 years and over	71,409	71,424	-15	71,360	71,480	-120	71,627	71,696	-69
Women, 20 years and over	62,091	62,078	13	62,049	62,003	46	61,707	61,661	46
White	117,572	117,678	-106	117,491	117,637	-146	118,859	118,938	-79
Black	16,576	16,540	36	16,608	16,610	-2	16,897	16,886	11
Hispanic origin	15,712	15,682	30	15,592	15,579	13	15,669	15,662	7
Participation rate									
Total, 16 years and over	66.7	66.8	-0.1	66.7	66.7	.0	67.4	67.4	.0
16 to 19 years	47.1	47.4	-.3	47.6	48.0	-0.4	58.1	58.5	-0.4
Men, 20 years and over	76.4	76.5	-.1	76.3	76.4	-.1	76.5	76.6	-.1
Women, 20 years and over	61.0	60.9	.1	60.9	60.8	.1	60.5	60.4	.1
White	67.0	67.0	.0	66.9	67.0	-.1	67.6	67.7	-.1
Black	65.1	64.9	.2	65.1	65.1	.0	66.2	66.1	.1
Hispanic origin	68.4	68.3	.1	67.7	67.7	.0	67.9	67.8	.1
Employed									
Total, 16 years and over	135,122	135,151	-29	135,202	135,340	-138	135,923	136,005	-82
16 to 19 years	6,563	6,624	-61	6,627	6,683	-56	7,797	7,833	-36
Men, 20 years and over	68,644	68,624	20	68,772	68,884	-112	68,910	68,974	-64
Women, 20 years and over	59,915	59,903	12	59,804	59,773	31	59,215	59,198	17
White	113,162	113,249	-87	113,261	113,408	-147	113,926	114,005	-79
Black	15,334	15,296	38	15,314	15,321	-7	15,434	15,436	-2
Hispanic origin	14,761	14,732	29	14,707	14,693	14	14,640	14,636	4
Part time for economic reasons	3,108	3,165	-57	3,270	3,237	33	3,924	3,964	-40
Employment-population ratio									
Total, 16 years and over	63.9	63.9	.0	63.9	64.0	-0.1	64.2	64.2	.0
16 to 19 years	40.8	41.1	-0.3	41.3	41.6	-.3	48.5	48.6	-0.1
Men, 20 years and over	73.5	73.5	.0	73.5	73.6	-.1	73.6	73.7	-.1
Women, 20 years and over	58.8	58.8	.0	58.7	58.6	.1	58.0	58.0	.0
White	64.5	64.5	.0	64.5	64.6	-.1	64.8	64.9	-.1
Black	60.2	60.1	.1	60.1	60.1	.0	60.4	60.5	-.1
Hispanic origin	64.3	64.2	.1	63.9	63.8	.1	63.4	63.4	.0
Unemployed									
Total, 16 years and over	5,951	5,982	-31	5,846	5,852	-6	6,762	6,765	-3
16 to 19 years	1,010	1,005	5	1,013	1,027	-14	1,554	1,581	-27
Men, 20 years and over	2,765	2,801	-36	2,588	2,595	-7	2,716	2,721	-5
Women, 20 years and over	2,175	2,176	-1	2,245	2,229	16	2,492	2,462	30
White	4,410	4,429	-19	4,230	4,229	1	4,932	4,933	-1
Black	1,242	1,244	-2	1,294	1,289	5	1,463	1,450	13
Hispanic origin	951	950	1	885	886	-1	1,029	1,026	3
Unemployment rate									
Total, 16 years and over	4.2	4.2	.0	4.1	4.1	.0	4.7	4.7	.0
16 to 19 years	13.3	13.2	0.1	13.3	13.3	.0	16.6	16.8	-0.2
Men, 20 years and over	3.9	3.9	.0	3.6	3.6	.0	3.8	3.8	.0
Women, 20 years and over	3.5	3.5	.0	3.6	3.6	.0	4.0	4.0	.0
White	3.8	3.8	.0	3.6	3.6	.0	4.1	4.1	.0
Black	7.5	7.5	.0	7.8	7.8	.0	8.7	8.6	.1
Hispanic origin	6.1	6.1	.0	5.7	5.7	.0	6.6	6.6	.0

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" group are not presented and Hispanics are included in both the white and black population groups.

Table 2. **Old and new CPS sample size by State, and coefficients of variation on the annual average level of unemployment**

State	Number of households			CV using old sample[1] (percent)	Expected CV using new sample[1] (percent)	Percent change in CV
	Old CPS sample size	Additional CPS sample size	New CPS sample size			
Alabama	910	210	1,120	7.221	6.544	-9.4
Alaska	880	270	1,150	7.414	6.503	-12.3
Arizona	820	0	820	6.952	6.952	.0
Arkansas	920	0	920	7.214	7.214	.0
California	4,260	0	4,260	2.930	2.930	.0
Colorado	820	550	1,370	7.020	5.821	-17.1
Connecticut	600	600	1,200	7.658	5.415	-29.3
Delaware	700	260	960	7.364	6.280	-14.7
District of Columbia	780	190	970	7.993	7.149	-10.6
Florida	3,180	0	3,180	3.711	3.711	.0
Georgia	970	0	970	6.255	6.255	.0
Hawaii	540	290	830	7.760	6.411	-17.4
Idaho	1,040	0	1,040	6.827	6.827	.0
Illinois	2,320	0	2,320	4.186	4.186	.0
Indiana	830	500	1,330	6.972	5.701	-18.2
Iowa	780	400	1,180	7.245	6.208	-14.3
Kansas	870	450	1,320	7.325	6.249	-14.7
Kentucky	820	190	1,010	7.203	6.533	-9.3
Louisiana	850	0	850	7.028	7.028	.0
Maine	780	660	1,440	7.592	5.682	-25.2
Maryland	770	510	1,280	7.146	5.688	-20.4
Massachusetts	1,330	0	1,330	5.012	5.012	.0
Michigan	1,980	0	1,980	4.471	4.471	.0
Minnesota	860	450	1,310	7.281	6.348	-12.8
Mississippi	770	0	770	7.327	7.327	.0
Missouri	790	360	1,150	7.111	5.896	-17.1
Montana	900	0	900	7.206	7.206	.0
Nebraska	790	350	1,140	7.151	6.300	-11.9
Nevada	890	400	1,290	7.034	5.839	-17.0
New Hampshire	660	660	1,320	7.531	5.325	-29.3
New Jersey	1,690	0	1,690	4.431	4.431	.0
New Mexico	830	0	830	7.215	7.215	.0
New York	3,730	0	3,730	3.240	3.240	.0
North Carolina	1,650	0	1,650	5.588	5.588	.0
North Dakota	880	360	1,240	7.417	6.512	-12.2
Ohio	2,170	0	2,170	4.397	4.397	.0
Oklahoma	960	120	1,080	7.426	7.100	-4.4
Oregon	750	380	1,130	7.319	6.125	-16.3
Pennsylvania	2,620	0	2,620	4.134	4.134	.0
Rhode Island	620	630	1,250	7.752	5.482	-29.3
South Carolina	720	280	1,000	7.406	6.396	-13.6
South Dakota	870	380	1,250	7.108	6.295	-11.4
Tennessee	850	90	940	7.011	6.636	-5.3
Texas	2,680	0	2,680	3.615	3.615	.0
Utah	690	90	780	7.113	6.803	-4.4
Vermont	770	650	1,420	7.331	5.353	-27.0
Virginia	950	240	1,190	6.833	6.236	-8.7
Washington	740	510	1,250	7.582	6.317	-16.7
West Virginia	970	220	1,190	7.068	6.365	-9.9
Wisconsin	900	550	1,450	7.392	6.301	-14.8
Wyoming	890	220	1,110	7.294	6.699	-8.2

[1] Coefficient of variation for the annual average estimated level of unemployment, assuming a 6 percent unemployment rate.