Revisions in the Current Population Survey Effective January 1998

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Effective with the release of January 1998 data, BLS implemented a new composite estimation procedure for the Current Population Survey (CPS). The new procedure simplifies processing of the monthly labor force data, allows optimization of compositing coefficients for different labor force categories, and enables microdata users to develop composite estimates more easily. This article discusses the old and new composite estimation procedures and the effect of the new procedure on major labor force series. The effect of new population controls, which also were introduced in January, also is briefly discussed.

New Compositing Procedure

Overview

The national unemployment rate is among the most closely watched economic indicators produced by the Federal statistical system. Bureau of the Census interviewers collect data used to estimate the rate, as well as a wealth of other labor force statistics, through the CPS, a monthly survey of about 50,000 households, sponsored by the Bureau of Labor Statistics. The target population of the CPS is the civilian noninstitutional population of the United States. For estimation purposes, a separate weight for each *person* in the sample is computed. The base weight for a CPS sample person—the inverse of the probability of selection—is ratio adjusted through a sequence of weighting steps to account for sample households not interviewed and for coverage error relative to independently derived population estimates for specific demographic groups. After the ratio adjustments are applied to CPS person weights, the sum of the weights of sample persons in any one of these demographic control groups closely approximates the independent population estimate. These adjustments are followed by a composite estimation step that improves the accuracy of current estimates by incorporating information gathered in previous months, taking advantage of the fact that 75 percent of sample households are common in each pair of consecutive months.

Under the old procedure, composite estimation was per-

formed at the "macro" level. The composite estimator for each tabulated cell was a function of aggregated weights for sample persons contributing to that cell in current and prior months. The different months of data were combined using compositing coefficients. Thus microdata users needed several months of CPS data to compute composite estimates. To ensure consistency, the same coefficients had to be used for all estimates. The values of the coefficients selected were much closer to optimal for unemployment than for employment or labor force totals.

The new composite weighting method involves two steps. The first step involves computation of composite estimates for the main labor force categories, classified by important demographic characteristics. The second adjusts person weights, through a series of ratio adjustments, to agree with the composite estimates, thus incorporating the effect of composite estimation into the person weights. Under this procedure, the sum of the "composite weights" of all sample persons in a particular labor force category equals the composite estimate of the level for that category. To produce a composite estimate for a particular month, a data user may simply access the microdata file for that month and compute a weighted sum. The new composite weighting approach also allows us to improve the accuracy of labor force estimates by using different compositing coefficients for different labor force categories. The weighting adjustment method assures additivity while allowing this variation in compositing coefficients.

Composite estimation in the CPS

The CPS employs a "four-eight-four" sample rotation scheme. Each sample household entering the CPS remains in sample for 4 months, leaves the sample for 8 months, and then reenters for an additional 4 months—the same 4 calendar months it spent in the sample a year earlier. Eight panels or "rotation groups," approximately equal in size, make up each monthly CPS sample. The eight rotation groups in sample for a given month also can be considered "month-in-sample" groups: One group is in sample for the first time, another for the second time, etc. Due to the four-eight-four rotation pattern, six of these groups—three quarters of the sample—continue in sample the following month and half of the households in a given month's sample will be back in the sample for the same calendar month 1 year later. The sample overlap improves estimates of change over time.

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Through composite estimation, the positive correlation among CPS estimators for different months is increased. This increase in correlation improves the accuracy of monthly labor force estimates.

Let $S = \{2,3,4,6,7,8\}$, the set of indicators of the month-in-sample groups in the CPS sample for a given month h that also was in sample in month h-1. The CPS "AK" composite estimator for a labor force statistic (e.g., the number of persons unemployed) in month h is given by

$$Y_h^{''} = (1-K)Y_h + K\left(Y_{h-1}^{''} + \Delta_h\right) + A\beta_h,$$

where

$x_{h,i}$ is the ratio estimator for month h; based on data from persons completing their ith monthly interview in month h;

$$Y_h = \frac{1}{8}\sum_{i=1}^{8} x_{h,i};$$

$Y_{h-1}^{''}$ is the previous month's composite estimator

$$\Delta_h = \frac{1}{6}\sum_{i \in S}\left(x_{h,i} - x_{h-1,i-1}\right);$$

$$\beta_h = \frac{1}{8}\left\{\sum_{i \in S} x_{h,i} - \frac{1}{3}\sum_{i \in S} x_{h,i}\right\};$$

$K = 0.4;$ and

$A = 0.2.$

The values given above for the constant coefficients A and K are close to optimal—with respect to variance—for monthly estimates of unemployment level. The coefficient K determines the weight, in the weighted average, of each of two estimators for the current month: (1) the current month's ratio estimator Y_h (given a weight of 1-K) and (2) the sum of the previous month's composite estimator and an estimator of the change since the previous month. The estimate of change is based on data from sample households common to months h and h-1. The coefficient A determines the weight of β_h, an adjustment term that reduces both the variance of the composite estimator and the bias associated with time in sample. (See Breau and Ernst[1], Bailar.[2])

Under the old methodology, the composite estimator, with the above values of K and A, was used to produce all CPS estimates. Optimal values of the coefficients, however, depend on the correlation structure of the characteristic to be estimated. Research has shown, for example, that higher values of K and A result in more reliable estimates for

[1] Breau, P. and Ernst, L. (1983). "Alternative Estimators to the Current Composite Estimator." *Proceedings of the Section on Survey Research Methods*, American Statistical Association, 397-402.
[2] Bailar, B. (1975). "The Effects of Rotation Group Bias on Estimates from Panel Surveys." *Journal of the American Statistical Association*, 70, 23-30.

employment levels because the ratio estimators for employment are more strongly correlated across time than are those for unemployment. But, the same coefficients were used for all characteristics in order to ensure additivity of estimates and maintain consistency with independently derived population estimates. The new composite weighting approach allows variation in compositing coefficients, thus improving the accuracy of labor force estimates, while ensuring the additivity of estimates.

Computing composite weights

Composite weights are produced only for sample persons age 16 or older. The CPS estimation process begins with the computation of a "base weight" for each adult in the survey.

The base weight—the inverse of the probability of selection—is adjusted for nonresponse, and two successive stages of ratio adjustments to population controls are applied. The final or "second stage" raking procedure is performed independently for each of the eight sample rotation groups. This ensures that sample weights add to independent controls for States (51 totals, including the District of Columbia), as well as for 9 age/sex/ethnicity groups, and 66 age/sex/race groups, specified at the national level. The new method of computing composite weights for the CPS imitates the "second stage" ratio adjustment: Sample person weights are raked to force their sums to equal population totals. However, composite labor force estimates are used in place of independent population estimates, and the raking process is performed separately within each of the three major labor force categories: Employed, unemployed, and those not in the labor force.

Adjustment of person weights to the composite estimates for each labor force category proceeds as follows. For simplicity, the method for estimating the number of people unemployed (UE) is described; analogous procedures are used to estimate the number of people employed and the number not in the labor force. Data from all eight rotation groups are combined for the purpose of computing composite weights.

1.   For each State j, the direct (optimal) composite estimate of UE, comp(UE$_j$), is computed as described above. Similarly, direct composite estimates of UE are computed for each age/sex/ethnicity group and each age/sex/race group.

2.   Sample records are classified by State. Within each State j, a simple estimate of UE, simp(UE$_j$), is computed by adding the weights of all unemployed sample persons in the State.

3.   Within each State j, the weight of each unemployed sample person in the State is multiplied by the following ratio: comp(UE$_j$) / simp(UE$_j$).

4.   Sample records are cross-classified by age, sex, and ethnicity. Within each cross-classification cell, a

simple estimate of UE is computed by adding the weights of all unemployed sample persons in the cell.

5. Weights are adjusted within each age/sex/ethnicity cell in a manner analogous to step 3.

6. Steps 4 and 5 are repeated for age/sex/race cells.

7. Steps 2-6 are repeated five more times—a total of six iterations.

Note that, when applying this procedure to estimate the number of people employed, different optimal coefficients are used in step 1 to compute the direct composite estimate. Then, for a given State, the composite estimate of the number not in the labor force is obtained as the residual from the State population control total. The demographic group cells are treated similarly. During computation of composite weights for persons who are unemployed, some further collapsing of cells is needed where cells contain insufficient sample.

Optimal compositing parameters

The new method of computing composite weights allows the assigning of different pairs of K,A compositing parameters for measuring different characteristics. The parameters chosen are still a compromise selection since they must produce variances and biases that are acceptably small for several types of estimates. A K,A pair that works well for estimating a monthly level may not perform as well for month-to-month change or annual averages. Researchers from the BLS and Bureau of the Census selected and studied coefficients designed to meet certain optimality criteria and selected those that were optimal with respect to variance. The (K,A) parameters selected were (.4,.3) for unemployed and (.7,.4) for employed. For a more detailed description of the selection of compositing parameters. (See Lent et al.[3])

[3] Lent, J., Miller, S., and Cantwell, P., Duff, M. (1997). "Effect of Composite Weights on Some Estimates from the Current Population Survey." Submitted: *Journal of the American Statistical Association.*

Differences in the estimates

Table 1, displays major labor force estimates for all months of 1997, as published and as computed using the new composite estimation procedure. The official estimates for 1997 and earlier years were not revised. Generally, the new parameters cause slight increases in unemployment estimates; the difference for total unemployment are considered to be statistically significant. The standard errors of the unemployment estimates are essentially the same under the old and new methods. For estimates of employment and civilian labor force levels, the new parameters provide gains in reliability while decreasing the estimated totals. The average drop in the total estimated employment level is about 0.2 percent, which is statistically significant. Data users must therefore expect a slight break in the time series for employment and civilian labor force due to the implementation of the new composite estimator.

New Population Controls

Also effective with the release of January 1998 data, minor revisions were introduced into the population projections that are used as population controls in CPS estimation. (CPS estimates prior to January 1998 are unaffected.) Such revisions are periodically introduced into the CPS controls to incorporate the latest information available on population growth trends. The new population projections reflect new estimates of legal immigration to the U.S. and a change in the method for projecting the emigration of foreign-born legal residents. The revisions were generally small compared to those experienced in recent years. The civilian noninstitutional population 16 years of age and older was essentially unchanged. However, there was a decrease of about 51,000 in the Asian and Pacific Islander population and an increase of about 57,000 in the Hispanic-origin population. Although published 1997 CPS estimates of the civilian noninstitutional population, employment, etc. would change slightly if they were reestimated using revised population controls, estimates of most unemployment rates and other ratios and proportions would be unaffected.

5

Table 1. Labor force estimates using old and new composite weights, January-December 1997, not seasonally adjusted

(Numbers in thousands)

Characteristic	January Old weights	January New weights	January Differ-ence	February Old weights	February New weights	February Differ-ence	March Old weights	March New weights	March Differ-ence	April Old weights	April New weights	April Differ-ence
Civilian labor force												
Total, 16 years and over	134,317	134,226	-91	134,535	134,443	-92	135,524	135,384	-140	135,181	135,000	-181
16 to 19 years	7,251	7,243	-8	7,368	7,359	-9	7,428	7,413	-15	7,453	7,428	-25
20 to 24 years	13,229	13,276	47	13,232	13,241	9	13,338	13,298	-40	13,273	13,244	-29
25 to 54 years	97,636	97,623	-13	97,709	97,698	-11	98,102	98,080	-22	97,972	97,964	-8
55 years and over	16,202	16,084	-118	16,225	16,146	-79	16,657	16,593	-64	16,483	16,364	-119
Men, 16 years and over	72,117	72,112	-5	72,214	72,220	6	72,731	72,712	-19	72,755	72,625	-130
20 years and over	68,429	68,423	-6	68,447	68,461	14	68,937	68,920	-17	68,933	68,811	-122
Women, 16 years and over	62,200	62,113	-87	62,321	62,224	-97	62,794	62,671	-123	62,426	62,375	-51
20 years and over	58,637	58,560	-77	58,720	58,624	-96	59,160	59,051	-109	58,794	58,761	-33
White	113,338	113,194	-144	113,484	113,358	-126	114,135	113,983	-152	113,867	113,704	-163
Black	15,141	15,167	26	15,170	15,200	30	15,325	15,344	19	15,265	15,256	-9
Hispanic origin	13,600	13,585	-15	13,529	13,530	1	13,620	13,623	3	13,427	13,459	32
Employed												
Total, 16 years and over	126,384	126,249	-135	126,887	126,778	-109	128,125	127,961	-164	128,629	128,414	-215
16 to 19 years	5,952	5,929	-23	6,032	6,015	-17	6,182	6,159	-23	6,285	6,247	-38
20 to 24 years	11,833	11,876	43	11,979	11,983	4	12,094	12,048	-46	12,156	12,112	-44
25 to 54 years	92,955	92,920	-35	93,170	93,153	-17	93,774	93,748	-26	94,174	94,161	-13
55 years and over	15,644	15,523	-121	15,706	15,628	-78	16,076	16,006	-70	16,014	15,893	-121
Men, 16 years and over	67,640	67,612	-28	67,981	67,975	-6	68,573	68,543	-30	69,105	68,966	-139
20 years and over	64,693	64,668	-25	64,923	64,928	5	65,502	65,476	-26	65,957	65,830	-127
Women, 16 years and over	58,744	58,637	-107	58,906	58,802	-104	59,552	59,418	-134	59,525	59,448	-77
20 years and over	55,739	55,651	-88	55,931	55,835	-96	56,442	56,326	-116	56,388	56,336	-52
White	107,425	107,254	-171	107,863	107,728	-135	108,745	108,575	-170	109,177	108,990	-187
Black	13,474	13,485	11	13,465	13,490	25	13,677	13,692	15	13,801	13,786	-15
Hispanic origin	12,349	12,325	-24	12,337	12,337	0	12,381	12,380	-1	12,358	12,384	26
Multiple jobholders	7,572	7,708	136	7,869	7,994	125	7,862	8,002	140	7,874	8,105	231
Unemployed												
Total, 16 years and over	7,933	7,977	44	7,647	7,666	19	7,399	7,423	24	6,551	6,586	35
16 to 19 years	1,299	1,313	14	1,336	1,345	9	1,246	1,254	8	1,169	1,180	11
20 to 24 years	1,395	1,400	5	1,253	1,258	5	1,244	1,251	7	1,117	1,131	14
25 to 54 years	4,681	4,703	22	4,540	4,545	5	4,328	4,332	4	3,797	3,803	6
55 years and over	558	561	3	519	518	-1	581	586	5	468	472	4
Men, 16 years and over	4,477	4,501	24	4,233	4,244	11	4,158	4,169	11	3,650	3,659	9
20 years and over	3,736	3,755	19	3,523	3,533	10	3,435	3,444	9	2,976	2,981	5
Women, 16 years and over	3,457	3,476	19	3,415	3,421	6	3,241	3,254	13	2,901	2,927	26
20 years and over	2,898	2,909	11	2,788	2,788	0	2,718	2,725	7	2,406	2,425	19
White	5,913	5,940	27	5,621	5,630	9	5,389	5,408	19	4,690	4,715	25
Black	1,667	1,682	15	1,705	1,710	5	1,649	1,652	3	1,463	1,470	7
Hispanic origin	1,251	1,260	9	1,192	1,192	0	1,239	1,244	5	1,069	1,075	6
Less than 5 weeks	3,352	3,421	69	2,440	2,522	82	2,313	2,406	93	2,131	2,231	100
5 to 14 weeks	2,329	2,320	-9	2,902	2,856	-46	2,663	2,630	-33	1,981	1,957	-24
15 weeks and over	2,252	2,236	-16	2,305	2,287	-18	2,423	2,386	-37	2,439	2,398	-41
Unemployment rate												
Total, 16 years and over	5.9	5.9	0	5.7	5.7	0	5.5	5.5	0	4.8	4.9	0.1
16 to 19 years	17.9	18.1	0.2	18.1	18.3	0.2	16.8	16.9	0.1	15.7	15.9	.2
20 to 24 years	10.5	10.5	0	9.5	9.5	0	9.3	9.4	.1	8.4	8.5	.1
25 to 54 years	4.8	4.8	0	4.6	4.7	.1	4.4	4.4	0	3.9	3.9	0
55 years and over	3.4	3.5	.1	3.2	3.2	0	3.5	3.5	0	2.8	2.9	.1
Men, 16 years and over	6.2	6.2	0	5.9	5.9	0	5.7	5.7	0	5.0	5.0	0
20 years and over	5.5	5.5	0	5.1	5.2	.1	5.0	5.0	0	4.3	4.3	0
Women, 16 years and over	5.6	5.6	0	5.5	5.5	0	5.2	5.2	0	4.6	4.7	.1
20 years and over	4.9	5.0	.1	4.7	4.8	.1	4.6	4.6	0	4.1	4.1	0
White	5.2	5.2	0	5.0	5.0	0	4.7	4.7	0	4.1	4.1	0
Black	11.0	11.1	.1	11.2	11.3	.1	10.8	10.8	0	9.6	9.6	0
Hispanic origin	9.2	9.3	.1	8.8	8.8	0	9.1	9.1	0	8.0	8.0	0

See note at end of table.

6

(Numbers in thousands)

Characteristic	May			June			July			August		
	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence
Civilian labor force												
Total, 16 years and over	135,963	135,727	-236	137,557	137,332	-225	138,331	138,117	-214	137,460	137,157	-303
16 to 19 years	7,832	7,799	-33	9,100	9,019	-81	9,764	9,631	-133	8,765	8,617	-148
20 to 24 years	13,564	13,552	-12	14,020	14,041	21	14,167	14,173	6	13,761	13,722	-39
25 to 54 years	97,974	97,965	-9	98,130	98,097	-33	98,211	98,172	-39	98,518	98,439	-79
55 years and over	16,592	16,412	-180	16,308	16,175	-133	16,189	16,141	-48	16,415	16,378	-37
Men, 16 years and over	73,191	73,017	-174	74,312	74,130	-182	74,674	74,481	-193	74,149	73,969	-180
20 years and over	69,146	68,994	-152	69,549	69,419	-130	69,614	69,512	-102	69,571	69,485	-86
Women, 16 years and over	62,772	62,710	-62	63,245	63,202	-43	63,656	63,636	-20	63,311	63,188	-123
20 years and over	58,984	58,935	-49	58,908	58,894	-14	58,952	58,974	22	59,123	59,055	-68
White	114,486	114,331	-155	115,832	115,689	-143	116,265	116,094	-171	115,365	115,149	-216
Black	15,370	15,316	-54	15,605	15,532	-73	15,877	15,822	-55	15,953	15,871	-82
Hispanic origin	13,630	13,690	60	13,839	13,867	28	14,057	14,044	-13	14,028	13,999	-29
Employed												
Total, 16 years and over	129,565	129,305	-260	130,463	130,217	-246	131,350	131,113	-237	130,865	130,544	-321
16 to 19 years	6,537	6,494	-43	7,372	7,288	-84	8,145	8,008	-137	7,554	7,405	-149
20 to 24 years	12,426	12,402	-24	12,832	12,848	16	13,052	13,054	2	12,654	12,613	-41
25 to 54 years	94,485	94,468	-17	94,447	94,399	-48	94,476	94,422	-54	94,777	94,680	-97
55 years and over	16,118	15,941	-177	15,812	15,682	-130	15,677	15,630	-47	15,882	15,846	-36
Men, 16 years and over	69,968	69,786	-182	70,619	70,428	-191	71,157	70,953	-204	70,890	70,705	-185
20 years and over	66,564	66,407	-157	66,828	66,692	-136	66,962	66,855	-107	67,000	66,908	-92
Women, 16 years and over	59,597	59,519	-78	59,843	59,789	-54	60,193	60,160	-33	59,976	59,839	-137
20 years and over	56,464	56,404	-60	56,263	56,237	-26	56,243	56,250	7	56,311	56,231	-80
White	110,004	109,821	-183	110,839	110,677	-162	111,323	111,133	-190	110,654	110,419	-235
Black	13,825	13,773	-52	13,854	13,778	-76	14,218	14,158	-60	14,409	14,328	-81
Hispanic origin	12,666	12,724	58	12,820	12,845	25	12,909	12,885	-24	13,014	12,977	-37
Multiple jobholders	8,197	8,502	305	8,214	8,481	267	8,053	8,252	199	7,583	7,754	171
Unemployed												
Total, 16 years and over	6,398	6,422	24	7,094	7,116	22	6,981	7,004	23	6,594	6,612	18
16 to 19 years	1,296	1,305	9	1,728	1,731	3	1,620	1,623	3	1,212	1,211	-1
20 to 24 years	1,139	1,150	11	1,188	1,194	6	1,115	1,120	5	1,108	1,110	2
25 to 54 years	3,489	3,497	8	3,683	3,698	15	3,735	3,750	15	3,741	3,759	18
55 years and over	475	471	-4	495	493	-2	511	511	0	534	532	-2
Men, 16 years and over	3,223	3,231	8	3,693	3,703	10	3,517	3,528	11	3,259	3,264	5
20 years and over	2,582	2,586	4	2,721	2,728	7	2,653	2,657	4	2,571	2,577	6
Women, 16 years and over	3,175	3,191	16	3,401	3,413	12	3,463	3,476	13	3,335	3,348	13
20 years and over	2,520	2,531	11	2,645	2,657	12	2,708	2,723	15	2,811	2,824	13
White	4,481	4,510	29	4,994	5,013	19	4,942	4,961	19	4,711	4,730	19
Black	1,545	1,543	-2	1,751	1,754	3	1,659	1,664	5	1,544	1,543	-1
Hispanic origin	964	967	3	1,019	1,023	4	1,149	1,159	10	1,014	1,021	7
Less than 5 weeks	2,535	2,650	115	3,210	3,352	142	2,643	2,750	107	2,409	2,519	110
5 to 14 weeks	1,691	1,677	-14	1,895	1,858	-37	2,284	2,271	-13	2,322	2,279	-43
15 weeks and over	2,172	2,095	-77	1,989	1,905	-84	2,053	1,983	-70	1,863	1,813	-50
Unemployment rate												
Total, 16 years and over	4.7	4.7	0	5.2	5.2	0	5.0	5.1	0.1	4.8	4.8	0
16 to 19 years	16.5	16.7	0.2	19.0	19.2	0.2	16.6	16.9	.3	13.8	14.1	0.3
20 to 24 years	8.4	8.5	.1	8.5	8.5	0	7.9	7.9	0	8.0	8.1	.1
25 to 54 years	3.6	3.6	0	3.8	3.8	0	3.8	3.8	0	3.8	3.8	0
55 years and over	2.9	2.9	0	3.0	3.1	.1	3.2	3.2	0	3.3	3.2	-.1
Men, 16 years and over	4.4	4.4	0	5.0	5.0	0	4.7	4.7	0	4.4	4.4	0
20 years and over	3.7	3.7	0	3.9	3.9	0	3.8	3.8	0	3.7	3.7	0
Women, 16 years and over	5.1	5.1	0	5.4	5.4	0	5.4	5.5	.1	5.3	5.3	0
20 years and over	4.3	4.3	0	4.5	4.5	0	4.6	4.6	0	4.8	4.8	0
White	3.9	3.9	0	4.3	4.3	0	4.3	4.3	0	4.1	4.1	0
Black	10.0	10.1	.1	11.2	11.3	.1	10.4	10.5	.1	9.7	9.7	0
Hispanic origin	7.1	7.1	0	7.4	7.4	0	8.2	8.3	.1	7.2	7.3	.1

See note at end of table.

(Numbers in thousands)

Characteristic	September			October			November			December		
	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence	Old weights	New weights	Differ-ence
Civilian labor force												
Total, 16 years and over	136,375	136,074	-301	136,665	136,329	-336	136,912	136,588	-324	136,742	136,443	-299
16 to 19 years	7,466	7,337	-129	7,528	7,443	-85	7,670	7,618	-52	7,558	7,542	-16
20 to 24 years	13,395	13,366	-29	13,401	13,339	-62	13,499	13,435	-64	13,505	13,474	-31
25 to 54 years	98,887	98,807	-80	98,890	98,811	-79	98,671	98,638	-33	98,664	98,618	-46
55 years and over	16,627	16,564	-63	16,846	16,736	-110	17,072	16,897	-175	17,015	16,810	-205
Men 16 years and over	73,068	72,946	-122	73,345	73,271	-74	73,426	73,308	-118	73,153	73,025	-128
20 years and over	69,204	69,161	-43	69,361	69,328	-33	69,455	69,368	-87	69,350	69,226	-124
Women, 16 years and over	63,307	63,128	-179	63,321	63,058	-263	63,486	63,280	-206	63,589	63,418	-171
20 years and over	59,705	59,576	-129	59,777	59,558	-219	59,787	59,602	-185	59,834	59,675	-159
White	114,614	114,365	-249	114,963	114,707	-256	115,098	114,810	-288	114,867	114,575	-292
Black	15,706	15,651	-55	15,624	15,538	-86	15,627	15,604	-23	15,685	15,669	-16
Hispanic origin	13,864	13,833	-31	14,002	13,986	-16	13,964	13,942	-22	13,986	13,979	-7
Employed												
Total, 16 years and over	129,972	129,645	-327	130,671	130,310	-361	130,999	130,639	-360	130,785	130,452	-333
16 to 19 years	6,285	6,151	-134	6,419	6,337	-82	6,552	6,489	-63	6,614	6,582	-32
20 to 24 years	12,293	12,261	-32	12,345	12,275	-70	12,431	12,360	-71	12,461	12,427	-34
25 to 54 years	95,258	95,163	-95	95,494	95,397	-97	95,398	95,345	-53	95,122	95,064	-58
55 years and over	16,135	16,070	-65	16,412	16,301	-111	16,618	16,445	-173	16,588	16,379	-209
Men, 16 years and over	69,890	69,753	-137	70,215	70,127	-88	70,328	70,192	-136	69,849	69,704	-145
20 years and over	66,648	66,591	-57	66,855	66,804	-51	66,951	66,849	-102	66,524	66,391	-133
Women, 16 years and over	60,082	59,892	-190	60,456	60,183	-273	60,670	60,447	-223	60,936	60,748	-188
20 years and over	57,038	56,903	-135	57,397	57,169	-228	57,495	57,302	-193	57,647	57,479	-168
White	110,018	109,753	-265	110,653	110,387	-266	110,913	110,602	-311	110,662	110,339	-323
Black	14,220	14,156	-64	14,208	14,112	-96	14,232	14,198	-34	14,248	14,230	-18
Hispanic origin	12,882	12,844	-38	12,953	12,935	-18	13,050	13,024	-26	12,998	12,977	-21
Multiple jobholders	7,838	8,031	193	8,139	8,332	193	8,156	8,428	272	8,108	8,379	271
Unemployed												
Total, 16 years and over	6,403	6,429	26	5,995	6,019	24	5,914	5,949	35	5,957	5,991	34
16 to 19 years	1,181	1,186	5	1,108	1,107	-1	1,118	1,129	11	944	959	15
20 to 24 years	1,102	1,105	3	1,057	1,064	7	1,068	1,075	7	1,044	1,047	3
25 to 54 years	3,628	3,644	16	3,396	3,414	18	3,273	3,293	20	3,542	3,554	12
55 years and over	492	494	2	433	434	1	454	452	-2	427	431	4
Men, 16 years and over	3,178	3,193	15	3,130	3,144	14	3,098	3,115	17	3,304	3,321	17
20 years and over	2,556	2,570	14	2,506	2,523	17	2,504	2,520	16	2,826	2,835	9
Women, 16 years and over	3,225	3,236	11	2,865	2,875	10	2,816	2,833	17	2,653	2,670	17
20 years and over	2,666	2,673	7	2,380	2,389	9	2,292	2,300	8	2,187	2,196	9
White	4,596	4,611	15	4,309	4,320	11	4,186	4,208	22	4,205	4,235	30
Black	1,487	1,495	8	1,416	1,427	11	1,395	1,406	11	1,437	1,438	1
Hispanic origin	982	989	7	1,049	1,051	2	914	918	4	987	1,002	15
Less than 5 weeks	2,525	2,629	104	2,362	2,457	95	2,295	2,409	114	2,243	2,327	84
5 to 14 weeks	1,896	1,885	-11	1,802	1,781	-21	1,943	1,922	-21	1,949	1,950	1
15 weeks and over	1,982	1,915	-67	1,830	1,781	-49	1,675	1,618	-57	1,765	1,713	-52
Unemployment rate												
Total, 16 years and over	4.7	4.7	0	4.4	4.4	0	4.3	4.4	0.1	4.4	4.4	0
16 to 19 years	15.8	16.2	0.4	14.7	14.9	0.2	14.6	14.8	.2	12.5	12.7	0.2
20 to 24 years	8.2	8.3	.1	7.9	8.0	.1	7.9	8.0	.1	7.7	7.8	.1
25 to 54 years	3.7	3.7	0	3.4	3.5	.1	3.3	3.3	0	3.6	3.6	0
55 years and over	3.0	3.0	0	2.6	2.6	0	2.7	2.7	0	2.5	2.6	.1
Men, 16 years and over	4.3	4.4	.1	4.3	4.3	0	4.2	4.2	0	4.5	4.5	0
20 years and over	3.7	3.7	0	3.6	3.6	0	3.6	3.6	0	4.1	4.1	0
Women, 16 years and over.	5.1	5.1	0	4.5	4.6	.1	4.4	4.5	.1	4.2	4.2	0
20 years and over	4.5	4.5	0	4.0	4.0	0	3.8	3.9	.1	3.7	3.7	0
White	4.0	4.0	0	3.7	3.8	.1	3.6	3.7	.1	3.7	3.7	0
Black	9.5	9.6	.1	9.1	9.2	.1	8.9	9.0	.1	9.2	9.2	0
Hispanic origin	7.1	7.1	0	7.5	7.5	0	6.5	6.6	.1	7.1	7.2	.1

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. Detail may not sum to totals due to rounding.