

UNDEREMPLOYMENT IN APPALACHIA AND THE REST OF THE UNITED STATES, 1996-2004

by

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Keystone Research Center, 2005

Prepared for
the Appalachian Regional Commission
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Conventional unemployment rates provide an incomplete measure of local labor market conditions, especially in poor rural regions. Unemployment, for example, does not include involuntary part-time workers; nor does it include discouraged workers who stop seeking work because they cannot find jobs. To get a more complete picture of labor markets in Appalachia, this data brief contains estimates of underemployment in Appalachia by state and by demographic group for each year from 1996 to 2004. These estimates are derived from the Current Population Survey. Although Appalachia per se is not identified in the CPS (and DWS), we construct a CPS sub-sample that approximates the Appalachian region of each state using the metropolitan geographic identifiers that are available.¹

As defined here, the underemployed includes three other categories in addition to unemployed workers (unemployed workers are out of work and have looked for work in the last two weeks):

- those working part-time but who want to work full time (“involuntary part-time workers”),
- those who want to work but have been discouraged from searching by their lack of success (“discouraged workers”), and
- others who are neither working nor seeking work at the moment but who indicate that they want and are available to work and have looked for a job in the last 12 months.²

¹For more detail on the CPS sub-sample used here and how it was constructed, see Herzenberg, Price, and Wial 2005. The methodology used to estimate underemployment here is different than that used to estimate underemployment in each county of Appalachia from 1993 to 1998 (Bradley, Herzenberg, and Wial 2001). The earlier estimates relied on regressions of the relationship between underemployment and demographic, educational attainment, and industrial composition variables. These regressions were estimated using state-level cross-sectional data and then the regression coefficients were combined with county-level demographic, educational attainment, and industrial composition variables to produce underemployment estimates. In sum, in the earlier work we imputed underemployment for each county and then were able to aggregate counties into the Appalachian region of each state and the entire Appalachian region. In this work, we imputed the Appalachian region but then directly observed underemployment for this region. The earlier source remains the only one available with information on underemployment in individual Appalachian counties. The main difference between the two sources is that the earlier source finds that underemployment is still somewhat higher in Appalachia as a whole (e.g., 10 percent in 1998 in Appalachia versus 8.6 percent in the United States as a whole) while the present source finds that underemployment has converged in the region and the rest of the nation.

² Some other researchers add low-income workers into underemployment (see, for example, Jenson, Findeis, and Wang 1999). We do not. Underemployment here is the same as labor underutilization measure U-6 defined by the Bureau of Labor Statistics, which consists of “[t]otal unemployed, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers.” (Marginally attached workers include discouraged workers and other marginally attached workers.)

Tables 1 to 5 present annual data for 1996 through 2004 (each table except the last one contains two years). Tables 6 to 14 present annual data for 1996 through 2004 in metropolitan and rural areas. The main findings include the following.

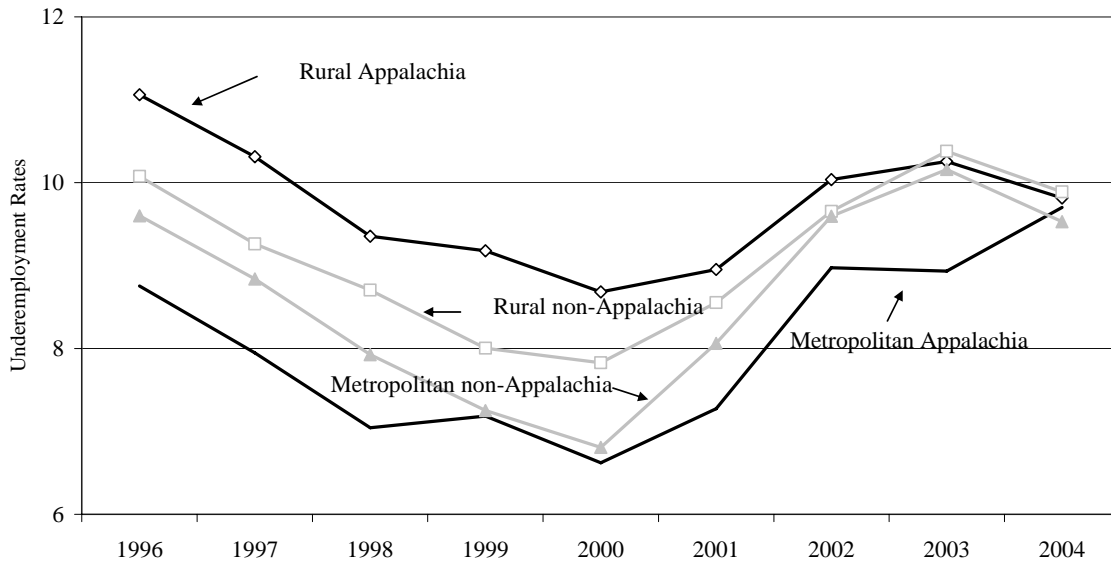
- In both Appalachia and the United States, underemployment is well above unemployment. In every year, underemployment in Appalachia and in the rest of the United States ranges between 7 and 10.2 percent, whereas U.S. unemployment in this period ranged from 4 to 6 percent.
- In most years, the overall Appalachian underemployment rate is similar to the underemployment rate for the non-Appalachian United States. In 2004, for example, the Appalachian underemployment rate was 9.8 percent and the non-Appalachian underemployment rate was 9.5 percent.
- As with unemployment, underemployment rates fell with the economic expansion of the second half of the 1990s to a low of 7.5 percent in Appalachia in 2000 and 7 percent in the non-Appalachian United States.
- In most years, underemployment in metropolitan Appalachia is somewhat below underemployment in metropolitan non-Appalachia.³ Between 1996 and 2000 underemployment in rural Appalachia was somewhat above underemployment in rural non-Appalachia.⁴ By 2004, underemployment rates in rural and metropolitan Appalachia and non-Appalachian had all converged (see Figure 1).
- Comparing the Appalachian portions of each state, between 1996 and 2000 there were statistically significant declines in underemployment rates in nine states (see Figure 2).⁵ During this period the highest underemployment rates were in West Virginia with other central or northern states ordinarily second or third (e.g., New York, Pennsylvania, Kentucky, and Tennessee).
- By 2002-04, underemployment rates were above the Appalachian average in West Virginia, Kentucky, South Carolina and North Carolina.
- Between 1996 and 2004 there were statistically significant declines in underemployment rates in the Appalachian portions of Pennsylvania and West Virginia. Compared to 1996 underemployment rates were much higher in the Carolina's (see Figure 3). Underemployment rates were below regional averages throughout the entire period in Virginia and Georgia.

³ The difference between underemployment rates in Metropolitan Appalachia and non-Appalachia is significant at a 90-percent confidence level in 1996-1998 and 2001-2003.

⁴ The difference between underemployment rates in Rural Appalachia and non-Appalachia is significant at a 90-percent confidence level in 1996-2000.

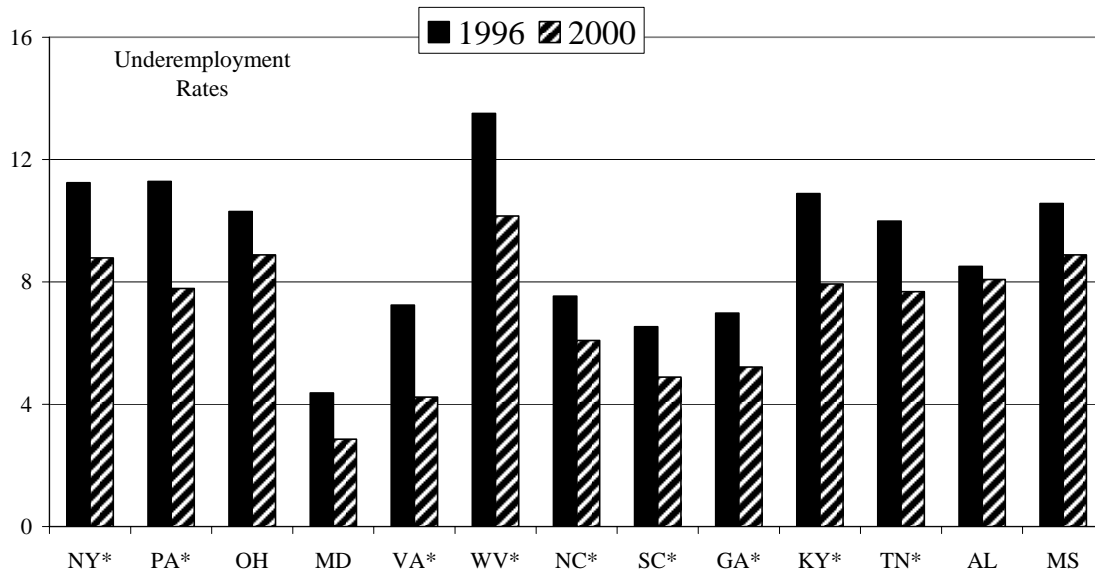
⁵ The difference between underemployment rates in 1996 and 2000 in New York, Pennsylvania, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Kentucky and Tennessee is significant at a 90-percent confidence level.

Figure 1. Rural and Metropolitan Underemployment Rates in Appalachia and the non-Appalachian U.S.



Source: Source Tables 6 through 14.

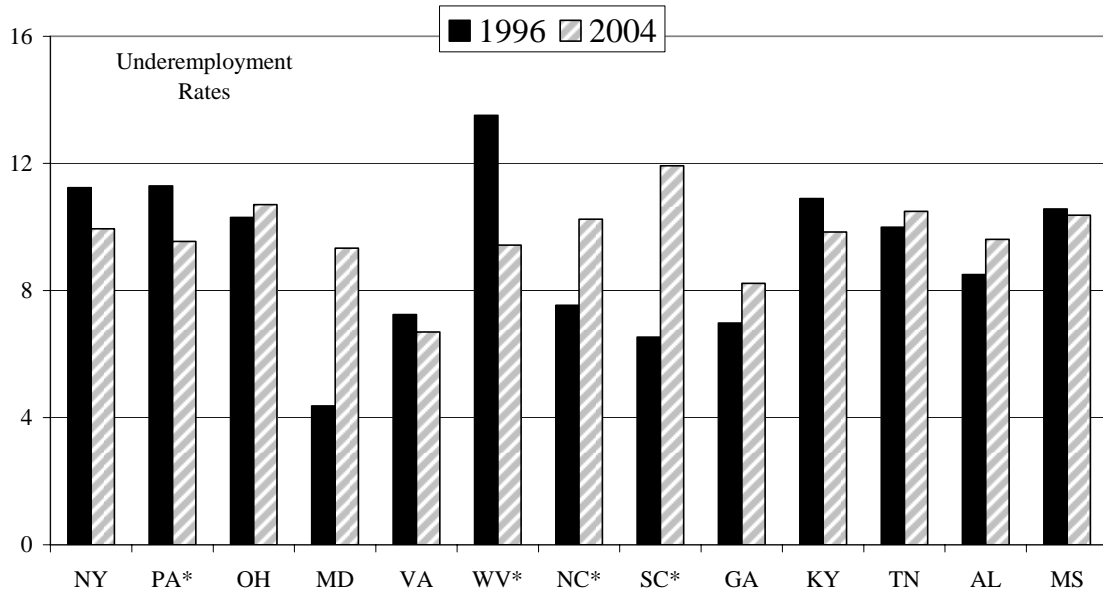
Figure 2. Underemployment Rates in Appalachia by State



Note: *The difference in the underemployment rate between 1996 and 2000 is significant at a 90-percent confidence level.

Source: Tables 1 and 3.

Figure 3. Underemployment Rates in Appalachia by State



Note: *The difference in the underemployment rate between 1996 and 2004 is significant at a 90-percent confidence level.

Source: Tables 1 and 5.

Table 1. Underemployment Rates in Appalachia, 1996-1997								
1996					1997			
	United States				United States			
	All		All		All		All	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	13,138,544	9.7			12,290,159	8.9		
	Appalachia		Non-Appalachia		Appalachia		Non-Appalachia	
Overall	1,088,167	9.7	12,050,377	9.7	1,012,114	8.9	11,278,045	8.9
All Appalachian states	1,088,167	9.7	3,178,094	9.7	1,012,114	8.9	3,092,352	8.9
NY	64,957	11.2	886,062	10.8	55,944	9.5	934,526	11.1
PA	288,199	11.3	318,078	9.2	269,317	10.3	303,219	8.8
OH	69,952	10.3	425,392	8.4	59,767	8.7	405,024	7.9
MD	5,722	4.4	239,686	8.9	6,287	5.2	246,970	9.2
VA	31,054	7.2	267,869	8.9	27,173	6.5	228,783	7.5
WV	111,178	13.5			103,984	12.7		
NC	57,876	7.5	235,749	7.7	52,523	6.9	218,144	7.0
SC	34,621	6.5	149,789	11.1	20,594	3.8	132,681	9.5
GA	65,558	7.0	248,747	8.7	62,950	6.5	236,519	7.9
KY	52,814	10.9	127,299	9.0	51,781	10.5	117,334	8.0
TN	120,322	10.0	131,600	8.3	126,828	10.7	136,401	8.6
AL	140,226	8.5	57,659	12.3	133,270	7.8	50,798	10.7
MS	45,688	10.6	90,163	10.6	41,695	9.7	81,954	9.6
White	885,198	8.9	8,941,500	8.6	830,142	8.2	8,230,002	7.8
Non-white	202,968	16.9	3,108,877	15.4	181,971	15.3	3,048,043	14.6
Male	550,463	9.1	6,178,961	9.2	514,985	8.4	5,744,771	8.5
Female	537,704	10.4	5,871,416	10.2	497,128	9.5	5,533,274	9.4
Less than high school	326,441	18.6	3,645,888	20.8	308,159	18.1	3,500,330	19.6
High school diploma	467,652	10.5	4,180,066	10.6	421,837	9.4	3,939,212	9.7
Some college	197,500	7.0	2,783,220	7.8	199,018	7.0	2,542,832	7.1
College degree	71,318	4.8	1,057,384	4.9	60,023	3.9	932,067	4.2
Postgraduate education	25,256	3.5	383,819	3.7	23,077	3.1	363,604	3.4
Age 16-19	176,862	24.7	1,890,323	25.3	179,401	24.5	1,832,128	24.2
Age 20-34	449,613	11.9	4,943,601	11.2	410,706	10.9	4,529,409	10.4
Age 35-54	370,151	7.0	4,160,234	7.2	344,130	6.4	3,939,121	6.6
Age 55+	91,540	6.4	1,056,219	7.1	77,876	5.3	977,387	6.4

Source: KRC analysis of CPS Basic Monthly Data.

Table 2. Underemployment Rates in Appalachia, 1998

	1998				1999			
	United States				United States			
	All		All		All		All	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	11,185,012	8.0			10,437,121	7.4		
	Appalachia		Non-Appalachia		Appalachia		Non-Appalachia	
Overall	897,913	8.0	10,287,099	8.1	904,831	8.0	9,532,290	7.4
All Appalachian states	897,913	8.0	2,714,947	8.1	904,831	8.0	2,543,159	7.4
NY	56,592	9.6	807,781	9.7	59,489	9.7	738,399	8.8
PA	215,180	8.4	278,229	8.1	223,800	8.8	256,643	7.4
OH	54,755	8.6	359,563	7.0	52,893	8.3	352,544	6.9
MD	5,893	5.7	205,877	7.7	5,067	4.2	183,001	6.8
VA	20,752	5.1	177,577	5.7	17,055	4.4	165,322	5.2
WV	91,704	11.3			101,931	12.2		
NC	48,495	6.3	192,458	6.3	40,865	5.2	184,275	5.9
SC	19,610	3.7	116,394	8.1	20,039	4.0	118,984	8.1
GA	63,566	6.3	224,323	7.4	59,190	5.9	219,363	7.0
KY	52,327	10.9	113,982	7.7	45,673	9.7	116,094	7.7
TN	103,828	8.5	109,652	7.0	104,634	8.1	93,085	6.0
AL	122,943	7.3	47,321	9.6	137,288	8.2	38,802	8.1
MS	42,267	9.9	81,791	9.5	36,907	8.6	76,646	8.9
White	729,794	7.3	7,524,046	7.1	741,226	7.4	6,948,101	6.5
Non-white	168,119	13.9	2,763,053	12.9	163,605	13.2	2,584,189	11.7
Male	450,396	7.5	5,236,363	7.6	458,784	7.5	4,812,820	7.0
Female	447,517	8.6	5,050,736	8.5	446,047	8.6	4,719,470	7.8
Less than high school	261,210	16.0	3,163,312	17.6	265,568	16.7	2,873,844	16.4
High school diploma	380,277	8.5	3,636,676	9.1	375,778	8.5	3,289,782	8.2
Some college	189,414	6.5	2,287,961	6.4	184,532	6.2	2,166,748	5.9
College degree	48,804	3.2	868,453	3.8	59,749	3.8	862,603	3.7
Postgraduate education	18,208	2.5	330,696	3.0	19,204	2.5	339,313	3.0
Age 16-19	144,468	20.9	1,707,897	21.7	160,367	22.9	1,623,939	20.5
Age 20-34	365,061	10.0	4,089,673	9.5	354,404	9.6	3,710,599	8.7
Age 35-54	313,472	5.8	3,574,756	5.9	313,724	5.8	3,292,352	5.3
Age 55+	74,913	5.1	914,773	5.8	76,335	5.1	905,400	5.5

Source: KRC analysis of CPS Basic Monthly Data.

Table 3. Underemployment Rates in Appalachia, 2000-2001

	2000				2001			
	United States				United States			
	All		All		All		All	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	10,075,995	7.0			11,781,048	8.1		
	Appalachia		Non-Appalachia		Appalachia		Non-Appalachia	
Overall	859,300	7.5	9,216,695	7.0	918,650	8.0	10,862,398	8.1
All Appalachian states	859,300	7.5	2,411,479	7.0	918,650	8.0	2,791,430	8.1
NY	55,027	8.8	674,192	7.8	46,820	7.6	723,897	8.4
PA	202,122	7.8	243,316	6.9	233,550	8.7	273,255	7.6
OH	57,775	8.9	338,106	6.5	49,109	7.5	393,536	7.4
MD	3,521	2.9	156,081	5.8	10,075	7.3	185,744	6.9
VA	17,328	4.2	134,471	4.2	23,832	6.0	186,115	5.7
WV	83,031	10.2			75,152	9.1		
NC	51,337	6.1	206,750	6.2	73,872	8.7	306,488	9.2
SC	26,391	4.9	106,112	7.4	33,377	6.2	118,193	8.4
GA	55,365	5.2	202,950	6.3	58,077	5.4	205,170	6.5
KY	38,582	7.9	99,199	6.6	46,504	9.6	112,081	7.6
TN	94,541	7.7	119,112	7.3	94,865	7.9	149,094	9.0
AL	134,178	8.1	42,875	8.8	133,466	8.2	52,068	10.6
MS	40,102	8.9	88,315	9.9	39,950	8.9	85,789	10.0
White	695,050	6.8	6,736,924	6.2	756,495	7.3	8,012,223	7.3
Non-white	164,250	13.3	2,479,772	10.7	162,155	13.6	2,850,175	12.1
Male	431,012	7.0	4,711,797	6.7	478,958	7.8	5,739,173	8.0
Female	428,288	8.0	4,504,899	7.3	439,692	8.1	5,123,225	8.3
Less than high school	255,283	15.6	2,832,464	15.7	250,450	16.0	3,167,168	17.5
High school diploma	359,622	8.1	3,171,916	7.8	391,150	8.9	3,709,948	9.2
Some college	168,986	5.6	2,077,374	5.5	197,692	6.3	2,492,009	6.6
College degree	55,161	3.4	825,875	3.4	60,196	3.7	1,097,795	4.4
Postgraduate education	20,248	2.5	309,066	2.6	19,163	2.3	395,478	3.3
Age 16-19	143,982	19.9	1,525,210	19.5	138,395	21.2	1,662,015	22.1
Age 20-34	328,036	9.0	3,568,702	8.2	334,825	9.4	4,301,640	9.8
Age 35-54	308,562	5.5	3,225,969	5.1	351,422	6.2	3,851,669	6.0
Age 55+	78,721	5.0	896,814	5.2	94,008	5.7	1,047,073	5.8

Source: KRC analysis of CPS Basic Monthly Data.

Table 4. Underemployment Rates in Appalachia, 2002-2003

	2002				2003			
	United States				United States			
	All		All		All		All	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	14,029,947	9.6			15,005,933	10.1		
	Appalachia		Non-Appalachia		Appalachia		Non-Appalachia	
Overall	1,082,843	9.4	12,947,105	9.6	1,089,704	9.5	13,916,229	10.2
All Appalachian states	1,082,843	9.4	3,338,853	9.6	1,089,704	9.5	3,535,254	10.2
NY	59,438	9.5	861,967	9.8	58,763	9.5	922,202	10.3
PA	263,683	9.9	334,797	9.0	243,788	9.4	332,402	9.1
OH	59,650	9.0	505,208	9.4	71,416	10.7	553,180	10.4
MD	14,061	8.5	194,761	7.2	11,388	8.2	211,066	7.6
VA	25,600	6.6	234,916	7.1	24,523	6.3	232,298	6.8
WV	80,647	10.0			84,666	10.7		
NC	89,375	11.0	386,579	11.6	84,935	10.5	389,369	11.3
SC	51,337	9.9	130,018	9.1	55,792	10.2	170,124	11.4
GA	75,920	7.1	276,207	8.6	83,708	7.8	264,449	7.9
KY	48,270	10.5	126,695	8.6	55,923	11.6	147,786	9.7
TN	106,287	8.6	150,183	8.8	109,555	9.1	168,546	9.8
AL	159,915	9.7	39,362	9.0	156,571	9.0	43,536	9.8
MS	48,659	10.8	98,161	11.6	48,676	10.8	100,296	11.3
White	873,982	8.5	9,619,273	8.7	869,323	8.5	10,221,909	9.2
Non-white	208,861	16.4	3,327,832	13.9	220,380	16.7	3,694,320	14.7
Male	553,694	9.0	6,957,422	9.7	571,054	9.3	7,561,272	10.4
Female	529,148	9.9	5,989,682	9.6	518,650	9.6	6,354,957	10.0
Less than high school	286,020	18.8	3,461,096	19.4	276,540	18.4	3,596,481	20.3
High school diploma	467,997	10.5	4,425,284	10.9	459,064	10.5	4,717,401	11.6
Some college	234,474	7.7	3,168,248	8.3	244,769	8.0	3,479,387	9.0
College degree	70,448	4.3	1,376,586	5.4	85,284	5.0	1,551,512	5.9
Postgraduate education	23,904	2.8	515,891	4.1	24,047	2.8	571,448	4.4
Age 16-19	141,681	23.7	1,798,037	24.6	140,531	23.2	1,788,434	26.0
Age 20-34	427,599	12.2	5,075,369	11.5	445,284	12.2	5,451,249	12.3
Age 35-54	397,529	7.1	4,744,219	7.4	383,414	7.0	5,126,001	7.9
Age 55+	116,033	6.5	1,329,480	6.9	120,474	6.8	1,550,545	7.5

Source: KRC analysis of CPS Basic Monthly Data.

Table 5. Underemployment Rates in Appalachia, 2004				
	United States			
	All		All	
	Number	Rate	Number	Rate
Overall	14,289,753	9.6		
	Appalachia		Non-Appalachia	
Overall	744,450	9.8	13,545,303	9.6
All Appalachian states	744,450	9.8	3,749,079	9.6
NY	47,772	9.9	877,755	9.7
PA	143,413	9.5	432,393	9.0
OH	58,175	10.7	573,846	10.6
MD	3,777	9.3	204,283	7.1
VA	20,844	6.7	243,517	7.0
WV	75,656	9.4		
NC	54,658	10.2	366,637	9.8
SC	47,997	11.9	196,933	11.6
GA	41,231	8.2	315,359	8.0
KY	43,760	9.8	133,907	8.7
TN	77,769	10.5	189,767	8.7
AL	85,762	9.6	113,998	8.8
MS	43,636	10.4	100,683	10.9
White	605,671	8.9	9,909,080	8.6
Non-white	138,779	17.1	3,636,223	14.0
Male	391,482	9.6	7,228,387	9.5
Female	352,968	9.9	6,316,916	9.6
Less than high school	205,393	18.8	3,531,327	19.8
High school diploma	311,651	10.4	4,582,049	10.9
Some college	161,213	8.1	3,383,536	8.4
College degree	51,584	5.1	1,487,249	5.4
Postgraduate education	14,610	2.9	561,141	4.1
Age 16-19	103,272	24.5	1,761,751	25.2
Age 20-34	297,081	12.5	5,324,924	11.7
Age 35-54	259,804	7.2	4,899,948	7.3
Age 55+	84,293	6.9	1,558,680	7.1
Source: KRC analysis of CPS Basic Monthly Data.				

Table 6. Underemployment Rates in Rural and Metropolitan Appalachia, 1996

	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	10,523,054	9.6	2,615,490	10.3				
	Appalachia				Non-Appalachia			
Overall	571,684	8.8	516,483	11.1	9,951,370	9.6	2,099,007	10.1
All Appalachian states	571,684	8.8	516,483	11.1	2,617,808	9.6	560,285	11.1
NY	27,418	11.1	37,539	11.4	826,081	10.8	59,980	11.9
PA	199,907	10.9	88,292	12.2	304,853	9.1	13,225	11.9
OH	22,566	8.9	47,386	11.2	369,918	8.2	55,475	10.2
MD	5,722	4.4			239,686	8.9		
VA	2,720	4.1	28,334	7.8	223,794	8.9	44,075	8.8
WV	48,528	10.8	62,650	16.9				
NC	27,883	7.0	29,992	8.1	164,094	7.0	71,656	10.0
SC	34,621	6.5			72,054	8.2	77,735	16.5
GA	40,189	5.8	25,369	10.4	162,795	7.9	85,952	11.0
KY	1,887	5.7	50,927	11.3	70,798	8.3	56,502	10.0
TN	67,231	9.4	53,091	10.8	101,604	7.8	29,996	10.6
AL	93,011	7.9	47,215	10.1	40,735	12.9	16,924	11.0
MS			45,688	10.6	41,398	9.0	48,765	12.5
White	451,179	7.8	434,019	10.3	7,258,469	8.5	1,683,031	9.0
Non-white	120,505	16.1	82,463	18.2	2,692,901	14.8	415,976	20.3
Male	294,400	8.4	256,063	10.1	5,164,708	9.3	1,014,253	9.0
Female	277,284	9.2	260,420	12.3	4,786,663	10.0	1,084,754	11.3
Less than high school	149,428	18.0	177,012	19.2	2,983,543	21.2	662,345	18.9
High school diploma	237,962	9.7	229,689	11.5	3,344,457	10.7	835,609	10.0
Some college	120,504	6.8	76,996	7.3	2,331,586	7.8	451,634	7.9
College degree	47,518	4.7	23,800	5.1	937,714	4.9	119,670	5.2
Postgraduate education	16,271	3.4	8,985	3.8	354,070	3.8	29,749	3.1
Age 16-19	96,089	24.0	80,773	25.6	1,528,446	25.7	361,877	23.9
Age 20-34	238,731	10.8	210,882	13.5	4,092,301	11.0	851,300	12.6
Age 35-54	192,427	6.2	177,724	8.2	3,456,411	7.1	703,824	7.3
Age 55+	44,437	5.6	47,103	7.6	874,212	7.3	182,007	6.3

Source: KRC analysis of CPS Basic Monthly Data.

Table 7. Underemployment Rates in Rural and Metropolitan Appalachia, 1997								
	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	9,857,428	8.8	2,432,730	9.5				
	Appalachia				Non-Appalachia			
Overall	524,816	7.9	487,298	10.3	9,332,613	8.8	1,945,432	9.3
All Appalachian states	524,816	7.9	487,298	10.3	2,581,309	8.8	511,043	9.9
NY	26,763	9.9	29,181	9.1	889,641	11.3	44,886	9.2
PA	186,570	10.0	82,747	11.1	290,892	8.7	12,327	10.8
OH	17,484	6.8	42,283	9.7	356,105	7.8	48,919	8.9
MD	6,287	5.2			246,970	9.2		
VA	1,886	2.8	25,287	7.2	190,539	7.5	38,244	8.0
WV	43,537	9.9	60,447	15.9				
NC	25,707	6.6	26,816	7.2	154,010	6.5	64,134	8.4
SC	20,594	3.8			66,155	7.8	66,526	12.3
GA	39,338	5.5	23,611	9.1	153,557	7.2	82,962	9.7
KY	1,436	4.3	50,345	11.0	60,715	6.8	56,618	10.0
TN	69,557	9.8	57,272	12.2	102,373	7.8	34,028	12.6
AL	85,656	7.1	47,614	9.5	34,368	11.0	16,430	10.0
MS			41,695	9.7	35,985	7.8	45,969	11.7
White	424,121	7.2	406,022	9.5	6,654,612	7.7	1,575,390	8.3
Non-white	100,695	14.0	81,276	17.4	2,678,001	14.3	370,042	17.3
Male	273,165	7.7	241,820	9.5	4,778,777	8.4	965,994	8.5
Female	251,650	8.3	245,478	11.3	4,553,836	9.3	979,438	10.1
Less than high school	144,655	17.2	163,503	18.9	2,873,397	20.1	626,933	17.8
High school diploma	213,544	8.6	208,293	10.3	3,156,201	9.8	783,011	9.3
Some college	114,529	6.6	84,489	7.6	2,143,542	7.2	399,290	6.9
College degree	37,499	3.5	22,524	4.7	827,203	4.2	104,865	4.5
Postgraduate education	14,589	3.0	8,488	3.5	332,271	3.5	31,333	3.1
Age 16-19	90,837	22.5	88,564	27.1	1,492,502	24.5	339,626	23.1
Age 20-34	213,666	9.8	197,039	12.4	3,797,809	10.3	731,600	10.9
Age 35-54	178,496	5.6	165,635	7.5	3,248,941	6.5	690,179	7.0
Age 55+	41,816	5.0	36,060	5.9	793,361	6.4	184,027	6.2

Source: KRC analysis of CPS Basic Monthly Data.

Table 8. Underemployment Rates in Rural and Metropolitan Appalachia, 1998

	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	8,940,933	7.9	2,244,078	8.8				
	Appalachia				Non-Appalachia			
Overall	464,016	7.0	433,897	9.4	8,476,917	7.9	1,810,182	8.7
All Appalachian states	464,016	7.0	433,897	9.4	2,227,822	7.9	487,125	9.4
NY	21,792	8.2	34,800	10.7	753,194	9.6	54,587	10.9
PA	151,720	8.5	63,460	8.4	268,640	8.1	9,589	8.3
OH	17,842	7.6	36,913	9.2	315,525	6.9	44,037	8.6
MD	5,893	5.7			205,877	7.7		
VA	5,218	6.3	15,534	4.8	155,261	5.8	22,316	5.1
WV	37,802	8.7	53,902	14.3				
NC	27,194	6.4	21,301	6.2	134,748	5.8	57,710	8.0
SC	19,610	3.7			52,667	6.3	63,727	10.7
GA	38,751	5.2	24,816	9.4	132,878	6.2	91,445	10.2
KY	1,293	3.5	51,034	11.5	56,242	6.0	57,739	10.4
TN	62,576	8.4	41,252	8.8	85,825	6.6	23,828	8.8
AL	74,326	6.2	48,617	9.7	29,953	9.1	17,368	10.7
MS			42,267	9.9	37,012	7.9	44,779	11.4
White	370,659	6.4	359,135	8.6	6,064,909	6.9	1,459,137	7.8
Non-white	93,357	12.4	74,761	16.4	2,412,008	12.5	351,045	16.0
Male	236,136	6.7	214,260	8.5	4,344,701	7.6	891,662	8.0
Female	227,880	7.4	219,637	10.4	4,132,216	8.3	918,520	9.5
Less than high school	118,955	15.0	142,255	17.0	2,604,424	17.9	558,888	16.2
High school diploma	192,071	7.8	188,206	9.5	2,898,314	9.1	738,363	9.0
Some college	113,037	6.3	76,378	7.0	1,909,103	6.4	378,857	6.6
College degree	30,172	2.9	18,632	3.9	764,463	3.7	103,991	4.4
Postgraduate education	9,782	2.0	8,426	3.6	300,614	3.0	30,083	3.0
Age 16-19	75,358	19.7	69,110	22.3	1,407,315	21.9	300,583	20.8
Age 20-34	181,608	8.4	183,453	12.3	3,387,589	9.2	702,084	10.9
Age 35-54	164,004	5.2	149,468	6.7	2,934,195	5.8	640,561	6.5
Age 55+	43,047	5.0	31,865	5.2	747,819	5.9	166,954	5.6

Source: KRC analysis of CPS Basic Monthly Data.

Table 9. Underemployment Rates in Rural and Metropolitan Appalachia, 1999

	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	8,343,569	7.2	2,093,552	8.2				
	Appalachia				Non-Appalachia			
Overall	476,960	7.2	427,871	9.2	7,866,609	7.3	1,665,681	8.0
All Appalachian states	476,960	7.2	427,871	9.2	2,085,410	7.3	457,748	8.9
NY	26,053	9.5	33,436	9.9	684,504	8.7	53,895	10.4
PA	147,915	8.4	75,885	9.7	245,192	7.3	11,452	9.5
OH	15,334	6.4	37,559	9.4	308,189	6.7	44,355	8.7
MD	5,067	4.2			183,001	6.8		
VA	4,948	6.0	12,107	4.0	145,591	5.3	19,731	4.8
WV	49,937	10.8	51,994	14.1				
NC	22,904	5.1	17,961	5.4	134,820	5.6	49,455	7.0
SC	20,039	4.0			56,573	6.3	62,411	10.8
GA	36,732	4.9	22,459	8.7	138,345	6.1	81,017	9.4
KY	1,141	3.4	44,532	10.2	64,478	6.8	51,616	9.3
TN	59,634	8.0	45,000	8.4	66,180	5.3	26,905	8.7
AL	87,255	7.2	50,033	10.7	20,456	6.4	18,346	11.9
MS			36,907	8.6	38,081	8.1	38,565	9.9
White	390,049	6.7	351,177	8.3	5,631,992	6.4	1,316,108	7.1
Non-white	86,911	11.0	76,694	17.3	2,234,617	11.2	349,573	16.1
Male	246,668	6.9	212,116	8.4	3,972,320	6.9	840,499	7.6
Female	230,292	7.5	215,755	10.1	3,894,288	7.7	825,182	8.5
Less than high school	125,783	15.9	139,786	17.5	2,381,312	16.6	492,532	15.5
High school diploma	193,706	7.9	182,071	9.2	2,601,491	8.1	688,291	8.4
Some college	104,619	5.7	79,913	7.1	1,801,566	5.9	365,182	6.1
College degree	37,694	3.5	22,055	4.3	772,232	3.7	90,371	3.7
Postgraduate education	15,157	2.9	4,047	1.7	310,008	3.0	29,305	2.8
Age 16-19	82,584	21.2	77,783	25.1	1,329,680	20.6	294,260	20.3
Age 20-34	186,872	8.5	167,532	11.4	3,094,797	8.5	615,802	9.9
Age 35-54	166,442	5.2	147,282	6.5	2,710,839	5.2	581,513	5.8
Age 55+	41,062	4.7	35,274	5.7	731,294	5.5	174,106	5.7

Source: KRC analysis of CPS Basic Monthly Data.

Table 10. Underemployment Rates in Rural and Metropolitan Appalachia, 2000								
	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	8,015,286	6.8	2,060,709	8.0				
	Appalachia				Non-Appalachia			
Overall	447,811	6.6	411,489	8.7	7,567,475	6.8	1,649,220	7.8
All Appalachian states	447,811	6.6	411,489	8.7	1,955,646	6.8	455,833	8.8
NY	24,215	8.5	30,812	9.0	624,113	7.7	50,079	9.5
PA	137,330	7.7	64,792	8.1	233,568	6.8	9,748	7.9
OH	16,526	6.7	41,249	10.2	288,900	6.2	49,206	9.6
MD	3,521	2.9			156,081	5.8		
VA	3,272	3.1	14,056	4.6	113,164	4.0	21,306	5.2
WV	41,495	8.8	41,536	12.0				
NC	24,909	5.4	26,428	6.9	138,387	5.5	68,363	8.5
SC	26,391	4.9			52,423	5.8	53,689	10.0
GA	34,856	4.3	20,509	8.2	130,520	5.5	72,430	8.8
KY	1,513	4.9	37,069	8.1	55,312	6.0	43,887	7.5
TN	47,234	6.9	47,306	8.7	91,281	6.9	27,831	9.0
AL	86,549	7.2	47,628	10.5	25,851	7.7	17,025	11.2
MS			40,102	8.9	46,046	9.5	42,269	10.4
White	356,040	6.0	339,010	7.9	5,428,091	6.0	1,308,833	6.9
Non-white	91,771	11.7	72,479	16.1	2,139,385	10.2	340,387	15.5
Male	227,068	6.3	203,944	8.1	3,890,506	6.5	821,290	7.3
Female	220,743	7.0	207,544	9.4	3,676,969	7.1	827,930	8.4
Less than high school	117,360	14.4	137,923	16.8	2,327,079	15.8	505,385	15.6
High school diploma	183,861	7.5	175,761	8.9	2,499,610	7.7	672,306	8.2
Some college	96,688	5.2	72,297	6.2	1,726,474	5.5	350,900	5.9
College degree	36,620	3.4	18,540	3.5	730,433	3.3	95,442	3.8
Postgraduate education	13,281	2.5	6,967	2.6	283,879	2.6	25,187	2.3
Age 16-19	69,883	17.0	74,099	23.6	1,258,351	19.7	266,859	18.7
Age 20-34	173,196	7.9	154,840	10.9	2,955,374	7.9	613,329	9.9
Age 35-54	163,415	5.0	145,147	6.2	2,645,621	5.0	580,348	5.7
Age 55+	41,318	4.6	37,403	5.5	708,129	5.1	188,685	5.7

Source: KRC analysis of CPS Basic Monthly Data.

Table 11. Underemployment Rates in Rural and Metropolitan Appalachia, 2001

	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	9,573,077	8.0	2,207,971	8.6				
	Appalachia				Non-Appalachia			
Overall	500,470	7.3	418,180	9.0	9,072,607	8.1	1,789,791	8.6
All Appalachian states	500,470	7.3	418,180	9.0	2,303,234	8.1	488,197	9.7
NY	16,864	6.0	29,957	8.8	675,710	8.4	48,187	9.2
PA	165,743	8.8	67,807	8.5	262,968	7.6	10,287	8.4
OH	17,958	7.2	31,151	7.7	356,376	7.4	37,160	7.2
MD	10,075	7.3			185,744	6.9		
VA	5,068	5.6	18,765	6.0	152,399	5.4	33,716	7.9
WV	41,248	8.8	33,904	9.6				
NC	38,143	8.4	35,730	8.9	210,417	8.4	96,071	11.5
SC	33,377	6.2			58,759	6.3	59,434	12.6
GA	38,332	4.6	19,745	8.4	137,751	5.8	67,419	8.9
KY	2,285	7.6	44,219	9.7	63,170	7.0	48,911	8.4
TN	46,840	6.4	48,025	10.2	121,740	8.7	27,355	10.2
AL	84,538	7.2	48,927	10.9	34,463	10.1	17,604	11.8
MS			39,950	8.9	43,736	9.6	42,053	10.4
White	411,395	6.7	345,100	8.1	6,579,336	7.2	1,432,887	7.6
Non-white	89,076	11.7	73,080	17.0	2,493,271	11.7	356,903	16.5
Male	262,344	7.2	216,614	8.6	4,796,690	8.0	942,483	8.5
Female	238,127	7.4	201,565	9.3	4,275,917	8.2	847,308	8.6
Less than high school	120,920	15.2	129,530	16.8	2,631,333	17.6	535,835	17.2
High school diploma	206,720	8.5	184,430	9.3	2,969,596	9.2	740,352	9.1
Some college	118,118	6.0	79,574	6.9	2,097,768	6.6	394,240	6.5
College degree	41,108	3.7	19,087	3.9	1,005,344	4.5	92,451	3.6
Postgraduate education	13,604	2.4	5,558	2.0	368,566	3.3	26,912	2.4
Age 16-19	71,538	19.3	66,857	23.6	1,377,025	22.2	284,989	21.4
Age 20-34	179,505	8.3	155,320	11.1	3,623,319	9.6	678,322	11.0
Age 35-54	196,119	5.8	155,303	6.7	3,215,027	5.9	636,642	6.3
Age 55+	53,308	5.5	40,700	5.9	857,236	5.9	189,837	5.7

Source: KRC analysis of CPS Basic Monthly Data.

Table 12. Underemployment Rates in Rural and Metropolitan Appalachia, 2002								
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
	Overall	11,525,908	9.6	2,504,039	9.7			
	Appalachia				Non-Appalachia			
Overall	615,601	9.0	467,242	10.0	10,910,307	9.6	2,036,797	9.7
All Appalachian states	615,601	9.0	467,242	10.0	2,790,547	9.6	548,306	10.9
NY	24,148	8.3	35,290	10.5	806,900	9.8	55,067	10.7
PA	179,411	9.6	84,272	10.5	322,344	8.9	12,453	10.1
OH	26,189	9.7	33,461	8.6	465,162	9.5	40,046	8.0
MD	14,061	8.5			194,761	7.2		
VA	5,343	7.2	20,257	6.5	195,394	6.8	39,522	9.2
WV	39,809	9.0	40,838	11.3				
NC	47,216	11.0	42,159	11.0	281,501	11.2	105,077	12.9
SC	51,337	9.9			68,275	7.1	61,743	13.4
GA	51,798	6.4	24,122	9.6	189,147	7.9	87,060	10.7
KY	2,287	7.0	45,983	10.8	72,762	7.9	53,934	9.7
TN	58,299	7.9	47,989	9.6	122,821	8.7	27,362	9.6
AL	115,703	9.5	44,211	10.0	24,743	8.4	14,619	10.4
MS			48,659	10.8	46,738	10.7	51,422	12.5
White	481,376	8.0	392,606	9.3	7,976,128	8.7	1,643,145	8.7
Non-white	134,225	15.8	74,636	17.8	2,934,179	13.6	393,652	17.5
Male	307,756	8.4	245,938	9.8	5,848,673	9.6	1,108,749	9.8
Female	307,844	9.6	221,304	10.3	5,061,634	9.6	928,048	9.5
Less than high school	142,503	18.5	143,517	19.1	2,889,674	19.6	571,422	18.5
High school diploma	255,870	10.5	212,127	10.5	3,562,664	11.0	862,620	10.4
Some college	147,780	7.7	86,694	7.7	2,714,373	8.4	453,875	7.5
College degree	52,659	4.5	17,789	3.7	1,264,952	5.5	111,634	4.3
Postgraduate education	16,790	2.9	7,114	2.5	478,645	4.2	37,246	3.3
Age 16-19	77,932	22.7	63,749	25.1	1,506,294	25.0	291,744	22.7
Age 20-34	241,201	11.3	186,398	13.6	4,317,213	11.4	758,156	12.4
Age 35-54	228,754	6.9	168,775	7.4	3,983,070	7.4	761,149	7.4
Age 55+	67,714	6.5	48,319	6.6	1,103,730	7.0	225,749	6.5

Source: KRC analysis of CPS Basic Monthly Data.

Table 13. Underemployment Rates in Rural and Metropolitan Appalachia, 2003

	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	12,324,184	10.1	2,681,749	10.4				
	Appalachia				Non-Appalachia			
Overall	612,415	8.9	477,289	10.3	11,711,770	10.2	2,204,460	10.4
All Appalachian states	612,415	8.9	477,289	10.3	2,944,541	10.2	590,714	11.6
NY	22,569	7.7	36,194	11.2	865,717	10.2	56,485	11.3
PA	166,413	9.2	77,376	9.8	320,778	9.1	11,624	9.6
OH	28,420	9.9	42,996	11.2	501,650	10.4	51,530	10.5
MD	11,388	8.2			211,066	7.6		
VA	4,499	6.6	20,023	6.2	192,781	6.5	39,517	9.2
WV	40,940	9.4	43,726	12.3				
NC	43,436	9.8	41,499	11.5	286,553	10.6	102,816	13.7
SC	55,792	10.2			88,896	9.3	81,229	15.2
GA	57,438	7.1	26,270	9.7	173,037	7.0	91,412	10.5
KY	2,365	7.0	53,559	12.0	83,388	8.8	64,398	11.1
TN	67,583	9.7	41,972	8.3	144,332	10.1	24,214	8.3
AL	111,573	8.6	44,998	10.3	27,668	9.2	15,868	11.1
MS			48,676	10.8	48,675	10.1	51,622	12.7
White	480,154	8.0	389,169	9.2	8,474,126	9.2	1,747,783	9.3
Non-white	132,261	14.9	88,120	20.4	3,237,643	14.2	456,677	19.0
Male	318,763	8.8	252,291	10.0	6,351,854	10.3	1,209,418	10.6
Female	293,652	9.0	224,998	10.6	5,359,915	10.0	995,042	10.1
Less than high school	138,547	18.1	137,993	18.7	3,004,404	20.5	592,077	19.1
High school diploma	252,715	10.5	206,349	10.4	3,780,180	11.6	937,221	11.6
Some college	141,899	7.6	102,871	8.7	2,966,044	9.1	513,343	8.2
College degree	63,517	5.2	21,767	4.4	1,425,969	6.0	125,542	4.8
Postgraduate education	15,737	2.6	8,310	3.1	535,172	4.5	36,276	3.2
Age 16-19	73,859	20.7	66,672	26.6	1,494,253	26.4	294,181	24.3
Age 20-34	264,120	11.6	181,164	13.1	4,610,279	12.1	840,970	13.6
Age 35-54	210,034	6.5	173,380	7.7	4,316,230	7.9	809,771	7.9
Age 55+	64,401	6.4	56,073	7.4	1,291,008	7.6	259,538	7.1

Source: KRC analysis of CPS Basic Monthly Data.

Table 14. Underemployment Rates in Rural and Metropolitan Appalachia, 2004								
	United States							
	Metropolitan		Rural		Metropolitan		Rural	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Overall	11,788,770	9.6	2,500,983	9.9				
	Appalachia				Non-Appalachia			
Overall	278,034	9.7	466,416	9.8	11,510,736	9.5	2,034,567	9.9
All Appalachian states	278,034	9.7	466,416	9.8	3,175,180	9.5	573,899	11.1
NY	14,282	9.5	33,489	10.2	825,035	9.6	52,720	10.4
PA	64,431	10.2	78,982	9.1	420,563	9.0	11,830	8.9
OH	9,223	10.6	48,952	10.7	515,072	10.7	58,774	10.1
MD	3,777	9.3			202,738	7.1	1,545	4.4
VA	2,258	11.3	18,586	6.4	212,894	6.9	30,623	7.8
WV	42,671	9.5	32,985	9.4				
NC	14,850	10.2	39,808	10.3	263,839	9.0	102,797	12.7
SC	47,997	11.9			106,576	9.5	90,357	15.6
GA	18,343	6.8	22,889	9.9	237,810	7.4	77,549	10.5
KY	1,641	13.3	42,118	9.7	81,402	8.3	52,504	9.4
TN	20,719	8.9	57,050	11.2	156,835	8.3	32,932	11.3
AL	37,842	8.9	47,921	10.2	96,583	8.5	17,415	11.1
MS			43,636	10.4	55,832	10.4	44,851	11.7
White	224,164	8.9	381,507	8.9	8,280,522	8.5	1,628,559	8.9
Non-white	53,870	15.1	84,909	18.6	3,230,214	13.6	406,009	17.6
Male	141,719	9.4	249,763	9.8	6,142,671	9.5	1,085,716	9.9
Female	136,315	10.1	216,653	9.8	5,368,065	9.6	948,851	9.9
Less than high school	64,397	19.6	140,996	18.4	2,960,937	19.8	570,390	19.9
High school diploma	114,404	11.5	197,247	9.9	3,757,255	11.0	824,794	10.5
Some college	63,418	8.0	97,795	8.1	2,898,341	8.5	485,195	7.9
College degree	27,660	5.5	23,924	4.6	1,372,548	5.5	114,701	4.4
Postgraduate education	8,155	3.3	6,454	2.5	521,655	4.1	39,486	3.5
Age 16-19	33,158	20.9	70,115	26.7	1,495,152	25.5	266,599	23.6
Age 20-34	113,715	12.4	183,366	12.6	4,548,931	11.5	775,993	13.0
Age 35-54	99,335	7.3	160,469	7.2	4,154,395	7.3	745,553	7.7
Age 55+	31,825	7.4	52,467	6.6	1,312,258	7.2	246,422	6.6

Source: KRC analysis of CPS Basic Monthly Data.

TECHNICAL APPENDIX

The major challenge in using the Current Population Survey (CPS) is to identify observations from Appalachia. The CPS contains information about each respondent's state of residence and whether the respondent lives in a metropolitan or rural (i.e., nonmetropolitan) area. A limited number of metropolitan areas and metropolitan counties are also identified. The CPS includes state and metropolitan area geographic identifiers that make it possible to identify regions that account for about half the labor force of Appalachia.

To analyze displacement in the rest of Appalachia it is necessary to consider CPS observations that cannot with certainty be included in or excluded from Appalachia. There are two types of such observations: those from metropolitan areas that are partly in and partly outside Appalachia and those from non-metropolitan portions of Appalachian states other than West Virginia.

The 2000 Census 5 Percent Public Use Microdata Sample (IPUMS) was used to assign a rural or unidentified metropolitan observation in an Appalachian state a probability of being in the Appalachian region.

The IPUMS data were used to estimate a logit equation of the form

$$\ln [P/(1-P)] = Xb + e$$

where P is a variable that indicates whether or not a person lives in a 2000 Census public use microdata area (PUMA) that is entirely or partly in Appalachia, X is a vector of socioeconomic characteristics that are common to the Census and CPS (age, race, sex interacted with marital status, and educational attainment), b is a vector of coefficients, and e is an error term. Such a model was estimated separately for each PUMA or combination of PUMAs that covers either (a) a metropolitan area that includes both Appalachian and non-Appalachian counties or (b) the rural portion of each Appalachian state. The estimated coefficients were then applied to the estimated coefficients to the CPS data to produce a predicted Appalachian probability for each CPS observation (whether displaced worker or not) for which Appalachian residence is uncertain based on the CPS alone.

Using this method two observations were then created from each CPS observation in a rural or unidentified metropolitan area of an Appalachian state. One, coded as an Appalachian observation, has a weight equal to WP and one, coded as a non-Appalachian observation, has a weight equal to W(1-P), where W is the appropriate CPS sample weight for the observation and P is the observation's predicted probability of being in Appalachia. The Appalachian observations were used to estimate displacement statistics for Appalachia, its demographic groups, and its geographic areas as outlined above.

In determining whether differences – between regions or within a region over time --

were statistically significant this study followed procedures recommended by the Bureau of Labor Statistics for determining statistically significant differences between national estimates (e.g, national estimates of a variable for two demographic groups at one point in time or for a variable at two points in time for one group).

References

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