

**Union Membership and Coverage Database from the
Current Population Survey: Note**

Barry T. Hirsch
Department of Economics
Trinity University
715 Stadium Drive
San Antonio, Texas 78212-7200
Voice: (210)999-8112
Fax: (210)999-7255
e-mail: bhirsch@trinity.edu
homepage: <http://www.trinity.edu/bhirsch/>

David A. Macpherson
Department of Economics
Florida State University
Tallahassee, Florida 32306-2045
Voice: (850)644-3586
Fax: (850)644-4535
e-mail: dmacpher@mailers.fsu.edu
homepage: <http://garnet.acns.fsu.edu/~dmacpher/>

September 2002

Abstract

This note describes the construction and provision of an Internet database providing private and public sector union membership, coverage, and density estimates compiled from the Current Population Survey (CPS). Economy-wide estimates are provided beginning in 1973, estimates by state, detailed industry, and detailed occupation begin in 1983, and estimates by metropolitan area begin in 1986. The database is updated annually and can be accessed at <http://www.unionstats.com/>.

We thank Amy Hathaway of Trinity University for help in the construction of the *Database* web site.

The Current Population Survey (CPS) is the principal data source from which researchers compile and obtain information on union membership and coverage for states, metropolitan areas, industries, and occupations. This note provides information on the *Union Membership and Coverage Database*, which provides historical and current compilations of CPS estimates of unionization based on data and methods identical to those used by the Bureau of Labor Statistics (BLS). The *Database* is posted on the Internet and will be updated annually. It should prove to be a convenient and valuable resource for industrial relations and other social science researchers.

Background

Since the CPS began collecting individual union membership information on a regular basis, in May 1973, the *Review* has published articles providing compilations of union density at a disaggregate level.¹ Freeman and Medoff (1979) provided union membership density figures for *private* sector workers ages 14 and over based on the combined 1973-75 May CPS. Kokkelenberg and Sockell (1985) compiled membership densities among all (i.e., private and public) wage and salary workers ages 14 and over using the 1973-81 May CPS. They provided annual data for states (or state groups during 1973-76) and metropolitan areas (SMSAs). For detailed occupations and industries they provided three-year moving averages for May 1973-75 through May 1979-81. Their industry figures excluded employees in CPS occupations where workers were least likely to be organizable (i.e., covered by the NLRA).

Beginning in January 1983, the CPS began asking the union membership and coverage questions each month to a quarter sample (the outgoing rotation groups or ORG). Curme et al. (1993) provided disaggregated union figures based on wage and salary workers ages 16 and over from the 1986-88 CPS-ORG files, in addition to more limited data from the 1983-85 May/June CPS. The paper included figures on union coverage as well as membership (a coverage question for nonmembers was added in 1977), compiled occupation and industry figures using 1980 rather than 1970 Census codes, provided data at the state level broken down by private and public sector employment, and provided data for 1986-88 on 202 metropolitan areas (CMSAs and MSAs), a substantial increase beyond the 44 SMSAs previously available.

¹ BLS is reluctant to publish disaggregated union statistics owing to small sample sizes in some cells. BLS began publishing economy-wide figures in 1983, broken down by *broad* industry, occupation, and demographic group.

A note by Hirsch and Macpherson (1993) described an updated and more comprehensive union database compiled from the 1983-91 CPS-ORG files.² Since 1994, the Bureau of National Affairs (BNA) has published a data book by Hirsch and Macpherson (annual) providing disaggregated union data (among other information) compiled from the CPS. These data have not been readily accessible to researchers or available in electronic form.³

The *Database* and web site described in this note make freely available to the research community disaggregated union data in electronic form. Union figures can be readily matched to individual observations in the CPS based on Census codes for state, metropolitan area, industry, and occupation. The *Database* will be updated each year, following the release by BLS of the full-year CPS-ORG.

Data and Method

Union data are constructed from the 1973-81 May CPS and, beginning in January 1983, the CPS-ORG monthly earnings files. During 1973-80, the May CPS administered the union questions to the full monthly samples (all rotation groups); only a quarter sample was asked union status questions in May 1981. There are no union questions in the 1982 CPS. Beginning in 1983, union (and earnings) questions are asked each month to a quarter sample – the outgoing rotation groups – each month. Although the CPS monthly household surveys vary in size over time, sample sizes, shown subsequently, are roughly one-third the size in 1973-80 as compared to years beginning in 1983 (one full sample versus twelve quarter samples) and in 1981 roughly one-twelfth the size (one quarter sample versus twelve quarter samples).

The universe for whom union membership figures are compiled (by BLS and by us) is all employed civilian wage and salary workers, ages 16 and over. Not included are employed 14-15 year olds, self-employed workers, or a small number of unpaid family workers. Our calculations from the 2001 CPS ORG files indicate that self-employed workers (incorporated as well as not incorporated) constitute 10.5

² Hirsch, Macpherson, and Vroman (2001) describe a database providing a historical series from 1964 to the present of union membership density by state for the nonagricultural economy (including the public sector). The series integrates the now discontinued BLS biennial publication, *Directory of National Unions and Employee Associations*, based on labor union reports to the Department of Labor, with more current information from the CPS. Time consistency is achieved (approximately) based on data from overlapping years of the BLS *Directories* and the CPS.

³ Each *Data Book* provides data for three years – the most recent available and those five and ten years prior to that year. Also provided are disaggregated data on union and nonunion earnings and workforce characteristics (e.g., %female, %part-time, %nonprofit, %public, etc.). Small occupations and industries are collapsed into larger categories. Thus, matching to CPS individual records is not straightforward.

percent of total civilian employment (14.2 million of the total 135.0 million employed).⁴

Since 1977, the CPS has included the same two questions related to union status. Workers are counted as union *members* if they respond *yes* to the following question, asked to employed wage and salary workers about their principal job: *On this job, is ___ a member of a labor union or of an employee association similar to a union?* Workers who answer *no* to the union membership question above are then asked, *On this job, is ___ covered by a union or employee association contract?* Workers are counted as *covered* by a collective bargaining agreement if they are union members or if they are not members but say they are covered by a union contract.

Union status information available in the May 1973-76 CPS differs from that described above. First, the membership question did not include the phrase “*or employee association similar to a union.*” Second, there was no union *coverage* question. And third, not all states were uniquely identified, with some workers having their residence assigned to state *groups* rather than to a unique state (see Kokkelenberg and Sockell, 1985). The addition in 1977 of the phrase “employee association” appears to have increased overall union membership density by roughly 2 percentage points (from a base of about 22 percent), with relatively small effects in the private sector and large effects in the public sector.

Estimates of union membership and coverage for the *Database* follow exactly the methodology used by the BLS to calculate published estimates at the *national* level.⁵ *Employment* is calculated as the sum of the CPS sample weights among individuals in sector *j* (where sector is state, metropolitan area, industry, or occupation). Letting w_{ij} represent the (annualized) sample weight for individual *i* in sector *j*, employment for sector or group *j* is:

$$Employment_j = \sum w_{ij}$$

Union membership (*Members*) and union coverage (*Covered*) in sector *j* is calculated as follows. Letting $M_i = 1$ if individual *i* is a union member and 0 otherwise, and, likewise, $C_i = 1$ if individual *i* is covered,

⁴ The percentage of self-employed among men in 2001 is 12.9 percent, and among women is 7.7 percent. Included as self-employed are those workers whose businesses are incorporated and those not incorporated, since the CPS does not report earnings or union status for either group. BLS *employment* reports count as self-employed those not in incorporated businesses, but include the incorporated self-employed as wage and salary workers. By this standard definition, 7.3 percent of all employees in 2001 are self-employed.

⁵ BLS publishes national estimates from the CPS each January. See U.S. Bureau of Labor Statistics (annual).

then

$$Members_j = \sum w_{ij} M_{ij}$$

$$Covered_j = \sum w_{ij} C_{ij}.$$

That is, union membership and coverage for sector j is simply the sum of sample weights among workers who are union members or covered, respectively.

Union membership and coverage density figures measure the percentage of employees who are members or covered, respectively. These are defined as membership (or coverage) divided by employment, times 100. That is:

$$\%Mem_j = (w_{ij} M_{ij} / w_{ij}) 100 = (Members_{ij} / Employment_{ij}) 100, \text{ and}$$

$$\%Cov_j = (w_{ij} C_{ij} / w_{ij}) 100 = (Covered_{ij} / Employment_{ij}) 100.$$

Table 1 provides estimates of union membership, coverage, and density among all U.S. wage and salary employees during 1973-2001. The *Union Membership and Coverage Database* described in this note is based on this universe, which is then disaggregated by sector (state, industry, etc.). Our figures match exactly the national figures published by BLS, beginning in 1983.⁶ Because trends in national unionization are well known, no summary of Table 1 is necessary. Worth noting are a discontinuity in the membership series between 1976-77 owing to the addition of “*or employee association similar to a union*” and changes over time in the mean employment weight of a worker in the CPS. The ORG average annual sample weight, seen by dividing employment by the sample size, increased from an initial 508 in 1983 to a high of 750 in 2000, and was 704 in 2001. That is, each worker sampled in 2001 represents 704 employees in the population or, equivalently, each wage and salary worker had roughly one chance in 700 of being included in the CPS-ORG during January-December 2001.

⁶ There are two exceptions – 1994 and 2001. In 1994, published BLS figures were based on CPS files that contained a weighting error in one of the monthly files. This error was corrected in data released to the public but, in order to avoid confusion, BLS chose not to issue corrected union figures (differences were trivial). Beginning July 2001, the CPS expanded the survey from approximately 50,000 to 60,000 households each month (see Helwig, Ig, and Mason, 2001). During the first half of 2001, BLS collected data from expanded *experimental* samples with 60,000 households. Monthly employment figures released by BLS during the first half of the year were based on the 50,000 samples. The annual union figures published by BLS were based on the expanded 60,000 samples over the *entire* year. The experimental samples for the first half of the year, however, are not included in the public release version of the CPS and have not been made publicly available. Hence, union statistics published by BLS for 2001 cannot be replicated, so figures compiled from the public-release version differ slightly from figures published by BLS.

Union Membership and Coverage Database: Description

The *Database* includes tables by sector and year. Each table includes the same information as seen in Table 1 – the CPS sample size and estimates of employment, membership, coverage, and density.⁷

The *Database* consists of the following sets of tables. The words in italics provide shorthand names for the tables.

- I. U.S. *Historical* Tables: Union Membership, Coverage, Density and Employment, 1973-Present
 - A. All Wage & Salary Workers
 - B. Private Sector
 - C. Private Nonagricultural
 - D. Private Construction
 - E. Private Manufacturing
 - F. Public Sector
 - G. Federal (non-postal), Postal, State, & Local (since 1983)
- II. *State*: Union Membership, Coverage, Density, and Employment by State and Sector, 1983- Present
- III. *Metropolitan Area*: Union Membership, Coverage, Density, and Employment by CMSA, MSA PMSA, and Sector, 1986- Present
- IV. *Industry*: Union Membership, Coverage, Density, and Employment by Industry, 1983- Present
- V. *Occupation*: Union Membership, Coverage, Density, and Employment by Occupation, 1983- Present

The titles are largely self-explanatory. *Historical* Table A is identical to Table 1 shown in this note. *Historical* Tables B through F are set up similarly; Table G begins with 1983. The *State* tables provide for each state and urban area separate figures for all workers, private, public, private construction, and private manufacturing workers. The *Metro* tables present data for all CMSAs, plus their component PMSAs and standalone MSAs. For the CMSAs, data are provided for all workers, private, public, private construction, and private manufacturing. For the PMSAs and MSAs, data are provided for all workers, private, and public. The included metropolitan areas and their definitions (geographic boundaries) differ between 1986-94 (when based on June 1984 Census definitions) and 1995 forward (when based on June 1993 definitions). The “1995” table is based on data from September 1995 (the first month with the new identifiers) through August 1996.

⁷ Table 1 and other historical tables present employment, membership, and coverage rounded to the nearest hundredth person. There is no rounding in the state, metropolitan area, industry, and occupations tables, thus facilitating, where desired, an exact merging of cells within and across years.

The *Industry* and *Occupation* tables provide union membership, coverage, and density information (identical in format to Table 1) using Census detailed industry (CIC) and detailed occupation (COC) codes, 1980 Census codes for the 1983-91 CPS and 1990 codes for the CPS since 1992.

The web site includes documentation files that provide Census/CPS state, metropolitan area, industry, and occupation codes, making it straightforward for researchers to match the union density figures in the *Database* to individual records in the CPS.

Data Access

The *Union Membership and Coverage Database* described in this note is available on the Internet (for access, go to <http://www.unionstats.com>). Each “Table” is provided in html and spreadsheet formats, the latter allowing easy download and data manipulation. The *Database* will be updated annually following public release of the full-year CPS. For the foreseeable future, the *Database* should provide IR researchers and others with convenient access to disaggregate union membership and coverage estimates compiled from the CPS.

References

- Curme, Michael A., Barry T. Hirsch, and David A. Macpherson. 1990. "Union Membership and Contract Coverage in the United States, 1983-1988," *Industrial and Labor Relations Review*, Vol. 44, No. 1, (October), pp. 5-33.
- Freeman, Richard B. and James L. Medoff. 1979. "New Estimates of Private Sector Unionism in the United States." *Industrial and Labor Relations Review*, Vol. 32, No. 2 (January), pp. 143-74.
- Hirsch, Barry T. and David A. Macpherson. 1993. "Union Membership and Coverage Files from the Current Population Surveys: Note." *Industrial and Labor Relations Review*, Vol. 46, No. 3 (April), pp. 574-78.
- _____. Annual. *Union Membership and Earnings Data Book: Compilations from the Current Population Survey*. Washington, D.C.: The Bureau of National Affairs.
- Hirsch, Barry T., David A. Macpherson, and Wayne G. Vroman, 2001. "Estimates of Union Density by State," *Monthly Labor Review*, Vol. 124, No. 7 (July), pp. 51-55.
- Helwig, Ryan T., Randy E. Ilg, and Sandra L. Mason. 2001. "Expansion of the Current Population Survey Sample Effective July 2001." *Employment and Earnings*, Vol. 48, No. 8 (August), pp. 3-7.
- Kokkelenberg, Edward C. and Donna R. Sockell. 1985. "Union Membership in the United States, 1973-1981." *Industrial and Labor Relations Review*, Vol. 38, No. 4 (July), pp. 497-543.
- U.S. Bureau of Labor Statistics. Annual. *Employment and Earnings*. Washington, D.C.: U.S. Government Printing Office, January.

**Table 1: Union Membership, Coverage, Density, and Employment
Among All Wage and Salary Workers, 1973-2001**

Year	Obs	Employment	Members	Covered	%Mem	%Cov
1973	49,095	75,519.3	18,088.6	–	24.0	–
1974	48,245	77,101.1	18,176.5	–	23.6	–
1975	46,488	75,703.9	16,778.3	–	22.2	–
1976	47,648	78,776.9	17,403.0	–	22.1	–
1977	57,191	81,334.1	19,335.1	21,534.6	23.8	26.5
1978	57,322	84,967.6	19,548.4	21,897.5	23.0	25.8
1979	58,080	87,116.6	20,986.1	23,540.1	24.1	27.0
1980	68,594	87,479.5	20,095.3	22,493.4	23.0	25.7
1981	15,433	89,518.2	19,123.4	21,434.4	21.4	23.9
1982	–	–	–	–	–	–
1983	173,932	88,289.5	17,717.4	20,532.1	20.1	23.3
1984	177,248	92,194.2	17,339.8	19,931.5	18.8	21.6
1985	180,232	94,520.5	16,996.1	19,358.1	18.0	20.5
1986	179,147	96,902.6	16,975.2	19,277.8	17.5	19.9
1987	180,434	99,302.7	16,913.1	19,051.0	17.0	19.2
1988	173,118	101,407.4	17,001.7	19,241.3	16.8	19.0
1989	176,411	103,479.6	16,960.5	19,197.6	16.4	18.6
1990	185,030	103,904.8	16,739.8	19,057.8	16.1	18.3
1991	179,560	102,786.3	16,568.4	18,733.8	16.1	18.2
1992	176,846	103,688.3	16,390.3	18,540.1	15.8	17.9
1993	174,595	105,067.4	16,598.1	18,646.4	15.8	17.7
1994	170,804	107,987.7	16,740.3	18,842.5	15.5	17.4
1995	170,307	110,038.1	16,359.6	18,346.3	14.9	16.7
1996	152,188	111,959.7	16,269.4	18,158.1	14.5	16.2
1997	154,955	114,533.0	16,109.9	17,923.0	14.1	15.6
1998	156,990	116,729.9	16,211.4	17,918.3	13.9	15.4
1999	159,378	118,963.5	16,476.7	18,182.3	13.9	15.3
2000	161,126	120,785.6	16,258.2	17,944.1	13.5	14.9
2001	171,533	120,707.6	16,288.8	17,878.1	13.5	14.8

Data sources: For the years 1973-81, estimates are compiled from the May Current Population Survey (CPS). For 1983-2001, the data source is the CPS Outgoing Rotation Group (ORG) Earnings Files. There were no union questions in the 1982 CPS. The sample includes employed wage and salary workers, ages 16 and over. Variable definitions are: Obs=CPS sample size; Employment=employment in thousands, Members=union membership in thousands, Covered=workers covered by a collective bargaining agreement in thousands; %Mem=percent of wage and salary workers who are union members; %Cov= percent of wage and salary workers who are covered by a collective bargaining agreement. The definition of union membership was expanded in 1977 to include the phrase “employee associations similar to a union”.