



WORKERS' COMPENSATION RESEARCH BRIEF

INDUSTRY AND OCCUPATION IN THE BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS): A DATA COMPARISON

In 2012, Montana added the industry and occupation module to the annual Behavioral Risk Factor Surveillance System (BRFSS) survey, the nation's largest ongoing telephone survey of public health. An initial analysis of the data compares characteristic survey items with other major national data collections.

BRFSS participants were questioned regarding their employment status during the last year (i.e. employed or self-employed currently or at some point during the year). Respondents, who met one of these qualifiers, were asked for the occupation and industry in which they work. Responses were coded to 2000 Standard Occupational Classification (SOC) and 2007 North American Industry Classification System (NAICS) codes using the NIOSH Industry and Occupation Computerized Coding System, as well as trained coding staff.

Out of the 8,679 Montanans who participated in BRFSS in 2012, 4,749 responded that they had been employed in the last year. Of the recently employed, 4,466 provided industry and occupation responses that could be coded.

The Workplace and Health

Workplaces have the potential to influence health outcomes both directly and indirectly, making employment information a valuable addition to the survey. The workplace can directly expose workers to health risks, while other related factors such as work environment, income and benefits can influence a person's decision making, lifestyle, and access to healthcare. With the newly added industry and occupation module, the BRFSS becomes a new way to monitor occupational health in Montana. However, it is important to first be sure that the BRFSS provides a representative sample of workers in the state based on a comparison of some commonly used data sources. An estimation of labor force participation and industry and occupation distribution will be used to assess the BRFSS.

Labor Force Participation

The Labor Force Participation Rate (LFPR) describes the percentage of working age civilians in the labor force. A person is considered to be in the labor force if they are either employed or unemployed. People who are not actively searching for work, such as students, homemakers, or retirees, are not considered unemployed therefore not in the labor force. The Bureau of Labor Statistics (BLS) regularly reports labor force participation. In doing so, unemployment is defined as being out of work and having actively looked for work in the last four weeks. The BLS reported that in 2012 the annual average LFPR in Montana was 63.8%.

**MONTANA'S
WORKFORCE IS WELL
REPRESENTED
WITHIN BRFSS**

Comparing industry and occupation distributions of the BRFSS and other data sources reveals the BRFSS is a good representation of Montana's labor force. BRFSS data will be viable and valuable for future studies on occupational health and safety.

The BRFSS employment survey question cannot measure unemployment exactly like the BLS, but an estimation of labor force participation can be used to see if the BRFSS LFPR is reasonably similar. The following formula was used to calculate LFPR within BRFSS respondents:

$$\text{Labor Force Participation Rate} = \frac{(\# \text{ Employed for wages}) + (\# \text{ Self Employed}) + (\# \text{ out of work} < 1 \text{ yr})}{\# \text{ Responses Excluding Refusals}}$$

Using this, labor force participation was 62.16% among BRFSS respondents, slightly less than the BLS reported 63.8%.

Industry and Occupation Distribution

BRFSS industry and occupation distribution can be compared to alternative data sources. The Bureau of Labor Statistics’ Quarterly Census of Employment and Wages (QCEW) collects employment counts by industry. A second source, the U.S. Census Bureau’s American Community Survey (ACS), gathers, among other things, industry and occupation information. To compare these to the BRFSS, both the NAICS and SOC codes are grouped into 21 and 23 major categories, respectively. The industry and occupation groups, and the distribution of respondents in each, can be seen in the following two tables.

2007 NAICS Major Industry Groups	BRFSS (2012)	QCEW (2012)	ACS (2012)
	Response %	Response %	Response %
Agriculture, Forestry, Fishing & Hunting	6.6	1.1	6*
Mining, Quarrying, & Oil & Gas Extraction	2.5	2.04*	1.8
Utilities	1	.77*	0.8*
Construction	10	5.9	8.7
Manufacturing	5.5	4.1	5*
Wholesale Trade	1.6	3.8	2.1*
Retail Trade	9.1	12.9	11.5
Transportation & Warehousing	3.8	3.3*	3.6*
Information	1.7	1.6*	1.5*
Finance & Insurance	3.5	3.4*	3.1*
Real Estate, Rental, & Leasing	1.6	1.2*	1.4*
Professional, Scientific, & Technical Services	4.5	4.6*	4.4*
Management of Companies & Enterprises	0.1	.5	0
Administrative, Support, Waste Management, & Remediation Services	3.4	4.5	3.5*
Educational Services	7.4	9.1	8.6
Health Care & Social Assistance	14.5	15.2*	12.8
Arts, Entertainment, & Recreation	1.8	2.6	3.1
Accommodation & Food Services	6.2	11	9.6
Other Services (except Public Administration)	5.5	3.8	4.6*
Public Administration	7.6	8.6*	7.2*
Not Otherwise Classified	2.2	.04	0.9

* QCEW/ACS percentage falls within 95% confidence interval for BRFSS percentage

2000 SOC Major Occupation Groups	BRFSS (2012)	ACS (2012)
	Response %	Response %
Management	14.3	11.7
Business and Financial Operations	4	3.6*
Computer and Mathematical	1.8	1.5*
Architecture and Engineering	2.3	1.1
Life, Physical, and Social Science	1.7	1.6*
Community and Social Services	1.9	1.9*
Legal	0.9	0.8*
Education, Training, and Library	4.8	5.4*
Arts, Design, Entertainment, Sports, and Media	1.3	1.6*
Healthcare Practitioners and Technical	5.8	4.2
Healthcare Support	2.2	2.1*
Protective Service	1.8	2.1*
Food Preparation and Serving Related	4	7.5
Building and Grounds Cleaning and Maintenance	4.7	5.6*
Personal Care and Service	3.9	3.9*
Sales and Related	9.7	8.9*
Office and Administrative Support	10.3	12.6
Farming, Fishing, and Forestry	1.3	1.7*
Construction and Extraction	8.5	7.9*
Installation, Maintenance, and Repair	4.1	3.4*
Production	4.1	4*
Transportation and Materials Moving	6.1	6.6*
Military	0.4	0.3*

* ACS percentage falls within 95% confidence interval for BRFSS percentage

Industry distribution differs somewhat between the BRFSS and the other data sources. The most notable differences are between BRFSS and QCEW for the Agriculture, Forestry, Fishing and Hunting; Construction; and Accommodation and Food Service major groups. Since QCEW is a census of employed workers at establishments in the U.S., it excludes self-employed workers and those who are employed under informal circumstances. In contrast, BRFSS surveys all people and collects industry and occupation data from the entire labor force, including those who may not be actively employed. These differences could explain the divergence between the two sources. For the QCEW, only 8 of the 20 major NAICS groups fall within the BRFSS 95% confidence interval. However, other than the three aforementioned groups, most estimates fall within 3 percentage points of each other. BRFSS has more consistent results with the ACS for industry distribution; this reflects the more similar methods of sampling. For the ACS estimates, 12 of the 20 major NAICS groups fall within the 95% confidence interval of BRFSS.

In contrast, the distribution of occupation within the BRFSS and ACS are very similar. All but two of the 23 major groups fall within two percentage points of each other, while 18 of the 23 group's percentages from the ACS fall into the 95% confidence interval of BRFSS estimates.

Conclusion

Comparison of an estimated LFPR from BRFSS to the BLS reported rate showed that labor force participation in the BRFSS sample is consistent with reported rates. While the distribution of industry seems to differ between BRFSS and QCEW, this can most likely be

explained by differences in how the information is gathered, especially considering that the ACS industry distribution is closer to the BRFSS' and these have similar methodologies. Occupationally, distributions of the BRFSS and ACS closely follow each other. These results suggest that BRFSS provides a viable representation of Montana's working population. Validation of the sample quality is important, as it allows for BRFSS data to be used for analysis of occupational health trends and to supplement analyses using other information sources, such as data from the workers' compensation industry.

Sources

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