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Agriculture: occupational employment and wages

Since the founding of the Occupational Employment Statistics (OES) program, almost all the agriculture, forestry, fishing, and hunting sector was out of scope for the OES survey. This study uses special tabulations of data collected as part of the Green Goods and Services Occupations survey combined with OES data to analyze the agricultural sector as a whole. Data showed that two of three states with the most employment in the sector had mean wages below average. The two largest occupations, farmworkers and laborers, crop, nursery, and greenhouse; and farmworkers, farm, ranch, and aquacultural animals, which directly relate to the major economic activity of the sector, dominated employment in the agricultural sector, thus affecting its mean, median, and percentile wages.

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Since the dawn of history, as people learned how to cultivate and grow their first grains, agriculture has been a powerful instrument that is vital in the growth and prosperity of every village, city, and country. Its intricate and complex relationship with our daily lives frequently draws attention from policymakers, scholars, investors, and media. A great number of economic factors continuously contribute to price fluctuations of agricultural products, and one of them, undoubtedly, is wages of the people employed in the agricultural industries. In 2011, employment in the agricultural sector was more than one million,[1] with most of employment concentrated in two occupations directly related to the major economic activity of the sector: (1) farmworkers and laborers working in crop, nursery, and greenhouse establishments; and (2) farmworkers working with farm, ranch, and aquacultural animals.[2] These two occupations represented over half the sector employment and vastly influenced the overall wage composition of the sector.

Methodology

This study uses special tabulations of data collected as part of the short-term Green Goods and Services Occupations (GGS-OCC) program[3] to analyze employment and wages in the agricultural sector as a whole. The GGS-OCC program estimates combined data from two U.S. Bureau of Labor Statistics (BLS) surveys: Occupational Employment Statistics (OES) and Green Goods and Services (GGS). Because the OES program has limited coverage of the agricultural sector, a supplement to the OES survey was used to collect data from agricultural establishments specifically to produce GGS-OCC estimates. In the GGS-OCC survey, 333 industries

potentially produced GGS. Of those industries, 63, or nearly a fifth, were in the agriculture, forestry, fishing, and hunting sector.

Both the GGS and OES programs are establishment-based surveys. The purpose behind the GGS was to identify how much revenue came from the sale of green goods and services, whereas the annual OES survey collects occupational employment and wage data for nonfarm establishments.

The employment and wage definitions of the OES survey were applied to the supplement. Self-employed workers, volunteers, owners and partners in unincorporated firms, private household workers, and unpaid family workers were excluded from the GGS-OCC estimates. In determining wages, base rate, cost-of-living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and production bonuses), and tips were included in the calculations. And back pay, jury duty pay, overtime pay, severance pay, shift differentials, nonproduction bonuses, and tuition reimbursements were excluded.

The GGS-OCC estimates include data collected in six semiannual panels over 3 years from May 2009 to November 2011. To represent total employment for the reference period, the GGS-OCC data were benchmarked to the average of May 2011 and November 2011 employment from the BLS Quarterly Census of Employment and Wages (QCEW).[4]

Both the OES and GGS-OCC programs used the Standard Occupational Classification (SOC) system to categorize employees and their jobs into occupational groups. Since the SOC system released a revision during GGS-OCC panel collection, the GGS-OCC estimates were based on microdata collected with the use of both the 2000 SOC and the revised 2010 SOC systems. A hybrid occupational classification system was developed that combined data collected under two different systems. Most of the occupations in the hybrid classification system were matched to the 2010 SOC; however, if a match was not available, a temporary, hybrid occupational code was used.[5]

Scope of coverage

This study reviewed data collected under the short-term GGS-OCC program in which occupational employment and wage data were collected from agricultural establishments using the supplement to the OES survey. The OES program regularly produces employment and wage estimates annually for more than 800 occupations in nonfarm industries for the nation, states, and metropolitan and nonmetropolitan areas and for specific North American Industry Classification System (NAICS) sectors, three-, four-, and selected five- and six-digit industries at the national level. However, because only about a third of the agricultural employment of the sector is in scope for the regular OES survey, the annual OES data for this sector are limited. The November 2011 supplement to the OES survey expanded the scope of coverage to approximately 85 percent of the agricultural sector employment. Employment numbers reflected in the data include part-time and full-time workers who are paid a wage or salary. As mentioned earlier, self-employed workers, owners and partners in unincorporated firms, household workers, or unpaid family workers were excluded from the survey. Seasonally adjusted 2011 data from the Current Population Survey at the BLS estimated approximately 40 percent of workers in the agricultural sector were either self-employed or worked for unincorporated firms.[6] Because of the scope of survey coverage, these workers were excluded from this analysis. Additionally, of the 1.16 million jobs[7] in the agricultural sector, this study excludes over 179,000 jobs in horses and other equine production (NAICS 11292); fishing, hunting, and trapping (NAICS 114); cotton ginning (NAICS 115111); and farm labor contractors and crew leaders (NAICS 115115). The first three

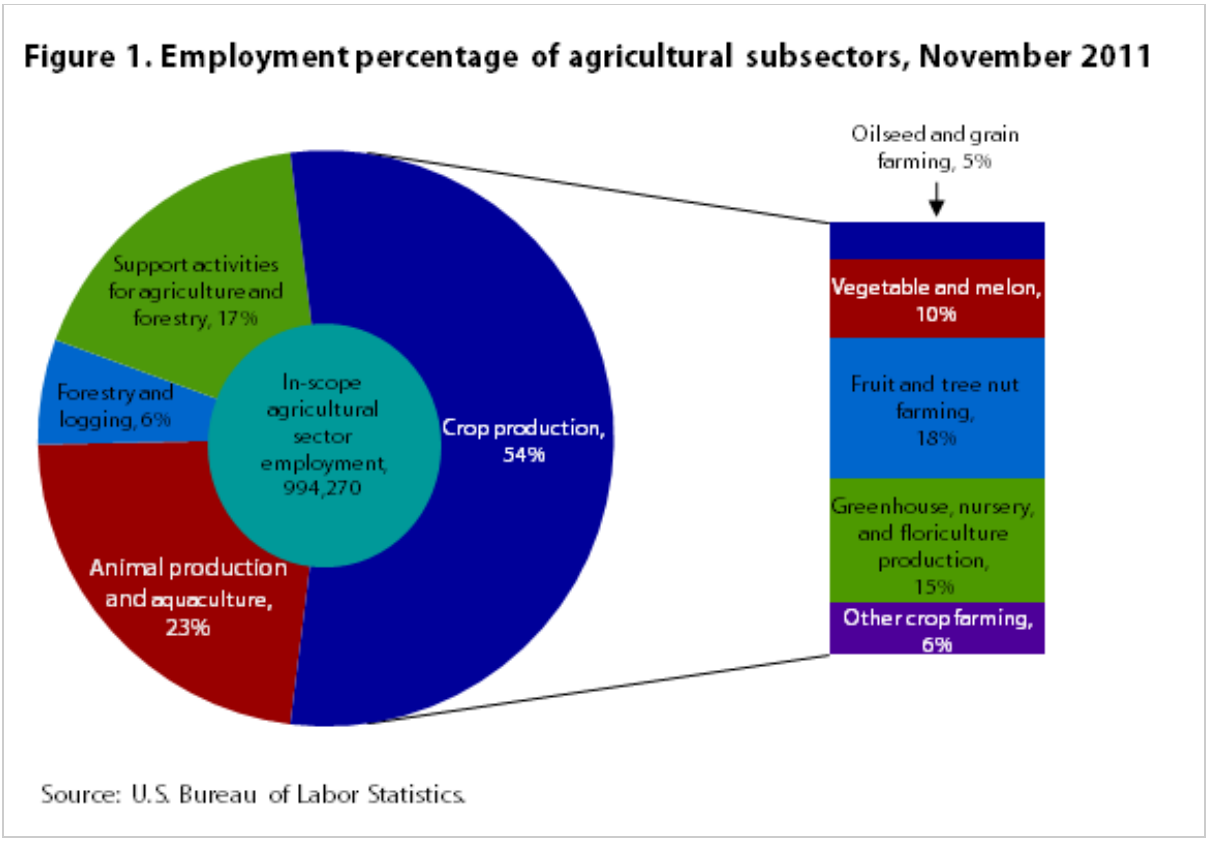
industries excluded have between 6,000 and 8,300 employees each. The last excluded industry (farm labor contractors and crew leaders) accounts for over 157,000 jobs or 13 percent of agriculture employment.[8] Data for this industry are not part of this analysis but are available from the OES survey.

This article discusses findings for the four agricultural subsectors that fall within the scope of coverage of the OES supplement: crop production, animal production and aquaculture, forestry and logging, and remaining industries within support activities for agriculture and forestry. For the purpose of this article, this extent of combined coverage of these four subsectors will be referred to as the agricultural sector.

Agricultural sector industries and their percent of sector employment

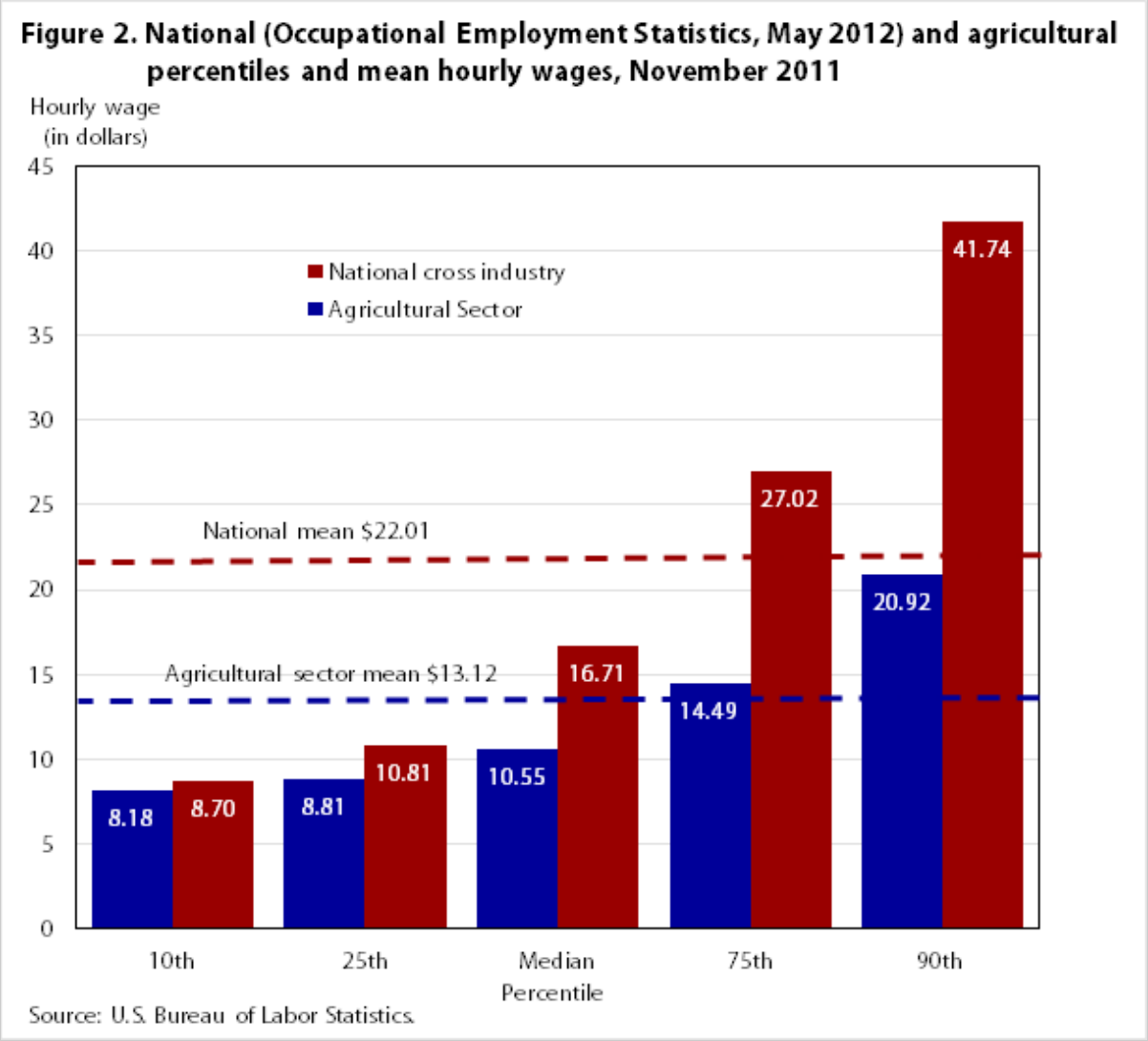
The NAICS defines the agriculture, forestry, fishing, and hunting sector as comprising “establishments primarily engaged in growing crops, raising animals, harvesting timber, and harvesting fish and other animals from a farm, ranch, or their natural habitats.” In 2011, nearly 90,000 establishments in the covered industries[9] had combined employment 994,270[10]. The four agricultural subsectors just listed can then be divided into industries.

Crop production represented the largest slice of the nation’s agricultural sector at nearly 54 percent of the sector employment. And with employment over 175,000, the fruit and tree nut farming industry had the most employment within crop production. In fact, this industry also had the highest employment within the agricultural sector overall, representing about 18 percent of the total sector employment. Of the remaining three subsectors, *animal production and aquaculture*[11] was the second largest subsector in the nation’s agricultural arena, with nearly 23 percent of national agricultural employment. Most of the employment in the animal production and aquaculture subsector was in the cattle ranching and farming industry, with an estimated employment of 138,000. The *forestry and logging* and *support activities for agriculture and forestry* subsectors combined represented about 23 percent of sector employment. The logging industry dominated the forestry and logging subsector with 82 percent of its employment. In the support activities subsector, support activities for crop production was the largest covered industry, with employment of nearly 132,000 (figure 1).



Wages in the agricultural sector

The overall mean hourly wage in the agricultural sector was $13.12, and the median wage (50th percentile) was $10.55, indicating half the workers in the sector earned wages below $10.55 and half earned more. The 10th and 90th percentile wages were $8.18 and $20.92 per hour, respectively. The 10th percentile wages in the agricultural sector were slightly below the national 10th percentile for all OES in-scope industries of $8.70.[12] However, at higher percentiles, the differences were more pronounced. In fact, at the 75th and 90th percentiles, the wages for the agricultural sector were approximately half the national cross-industry wages.[13] (See figure 2.) Wage differences occur partly because of differences in occupational composition between agriculture and the rest of the economy and partly because of different wages for the same occupations. The agricultural sector has a higher share of its employment in low-paying occupations, and for many occupations, the sector had lower wages; for example, the mean hourly wage for advertising and promotions managers in the agricultural sector was $35.47, while the average in other industries was $51.47.



Employment and wages by occupation

In general, occupational wages in the agricultural sector were lower than or similar to wages for workers in the same occupations in other industries. In some cases, differences were quite large. For example, the mean hourly wage in management occupations was $38.88 in the agricultural sector, lower than the U.S. average of $52.20. And in the protective service occupational group, the mean hourly wage of the agricultural sector was $13.57 compared with $20.70 across all industries. Again, these differences are due largely to the composition of the groups. Nevertheless, in lower paying major groups—healthcare support, food preparation and serving related, and building and grounds cleaning and maintenance—the mean wages were slightly higher than national averages (table 1).

Table 1. Agricultural sector (November 2011) and national cross-industry (May 2012) mean wages for major occupational groups

Major occupational group	Agricultural sector mean wage	National cross-industry mean wage

See footnotes at end of table.

Table 1. Agricultural sector (November 2011) and national cross-industry (May 2012) mean wages for major occupational groups

Major occupational group	Agricultural sector mean wage	National cross-industry mean wage
Management	$38.88	$52.20
Business and financial operations	25.61	33.44
Computer and mathematical	31.06	38.55
Architecture and engineering	23.67	37.98
Life, physical, and social science	22.04	32.87
Arts, design, entertainment, sports, and media	13.81	26.20
Healthcare practitioners and technical	29.61	35.35
Healthcare support	**16.05**[(1)]	**13.36**
Protective service	13.57	20.70
Food preparation and serving related	**11.65**[(1)]	**10.28**
Building and grounds cleaning and maintenance	**13.10**[(1)]	**12.34**
Sales and related	17.88	18.26
Office and administrative support	15.00	16.54
Construction and extraction	18.00	21.61
Installation, maintenance, and repair	16.92	21.09
Production	12.39	16.59
Transportation and material moving	13.11	16.15

Notes:

[(1)] The wage is statistically significantly higher in the agricultural sector.

Note: The farming, fishing, and forestry occupational group is excluded from the analysis (overlapping with Occupational Employment Statistics data). The overall mean hourly wage in the agricultural sector was $13.12.

Source: U.S. Bureau of Labor Statistics.

Most of the detailed occupations in the healthcare support group are not found in agricultural industries. However, this group includes veterinary occupations, such as veterinary technologists and technicians, and veterinary assistants and laboratory animal caretakers. These occupations relate to the major economic activities of the sector. The hourly mean wage for veterinary assistants and laboratory animal caretakers in the agricultural sector was $15.94, higher than the average wage in other industries ($11.90).

Similarly, some occupations in the building and grounds cleaning and maintenance occupational group had higher mean hourly wages in the agricultural sector than in the nation across all in-scope industries. For instance, in the agricultural sector, the mean hourly wage for maids and housekeeping cleaners was $12.79, and in other industries, it was $10.49.

The comparison of wages of major groups shows that higher paying groups such as managerial and computer and mathematical occupations had lower wages in the agricultural sector than in the rest of the economy. Additionally, those occupational groups that earn higher wages were in lower paying groups, in which, although the difference in pay was statistically significant, it was economically insignificant (see table 1).

Wages and industries of largest occupations

Where some industries have a diversified occupational composition, agricultural sector employment is heavily concentrated in a few occupations directly related to its economic activity. In particular, two occupations, farmworkers and laborers, crop, nursery, and greenhouse; and farmworkers, farm, ranch, and aquacultural animals, dominated the agricultural sector with combined share of sector employment of nearly 56 percent. With employment of 405,900, the occupation farmworkers and laborers, crop, nursery, and greenhouse was the largest in the sector, accounting for 41 percent of sector employment. The mean hourly wage for these workers was $9.88, below the sector average of $13.12 per hour. Over 86 percent of employment in this occupation was in the crop production industries. Nearly a third of these jobs were in the fruit and tree nut farming industry, which employed 134,790 farmworkers and laborers, crop, nursery, and greenhouse occupation and had an average hourly wage of $9.57. Approximately 23 percent of farmworkers and laborers, crop, nursery, and greenhouse occupation were employed in the greenhouse, nursery, and floriculture production industry, in which their hourly wage averaged $9.73. The highest mean wage for workers in this occupation was $12.58 per hour, in the hog and pig farming industry. Half of these workers in this industry earned wages above $12.06 per hour.

Farmworkers, farm, ranch, and aquacultural animals was the second largest occupation in the sector, with employment of 147,510 accounting for 15 percent of agricultural employment. Even though the mean wage of $11.65 per hour for this occupation was slightly higher than the mean wage for the farmworkers and laborers, crop, nursery, and greenhouse occupation, it was still below the average wage of the sector. Approximately 63 percent of these jobs were found in the cattle ranching and farming industry (see table 2), in which their average hourly wage was $11.71. Of the workers in this occupation, 11 percent were employed in the poultry and egg production industry, in which their average wage was $11.13 per hour. Although the majority of the jobs in the farmworkers, farm, ranch, and aquacultural animals occupation were in animal production and its support activities, about 3,000 of these jobs were found in industries within crop production and its supporting industries. In the oilseed and grain farming industry, in which employment for this occupation was 950, their average hourly wage was the highest at $13.14.

Table 2. Percent distribution of industry employment for the two largest occupations in the agricultural sector, November 2011

Agricultural industries	Farmworkers and laborers, crop, nursery, and greenhouse	Farmworkers, farm, ranch, and aquacultural animals
Oilseed and grain farming	5.7	0.6
Vegetable and melon farming	15.4	.2
Fruit and tree nut farming	**33.2**	.4
Greenhouse, nursery, and floriculture production	**23.3**	—
Other crop farming	8.6	.5
Cattle ranching and farming	1.7	**62.5**
Hog and pig farming	.2	10.8
Poultry and egg production	.2	11.0
Sheep and goat farming	—	.7
Aquaculture	—	1.7
Other animal production	.2	4.0
Timber tract operations	<.1	—

See footnotes at end of table.

Table 2. Percent distribution of industry employment for the two largest occupations in the agricultural sector, November 2011

Agricultural industries	Farmworkers and laborers, crop, nursery, and greenhouse	Farmworkers, farm, ranch, and aquacultural animals
Forest nurseries and gathering of forest products	.4	—
Support activities for crop production	10.8	.3
Support activities for animal production	.1	7.3
Support activities for forestry	.3	—

Note: Dash indicates data not available. Data in bold represent industries with largest employment.

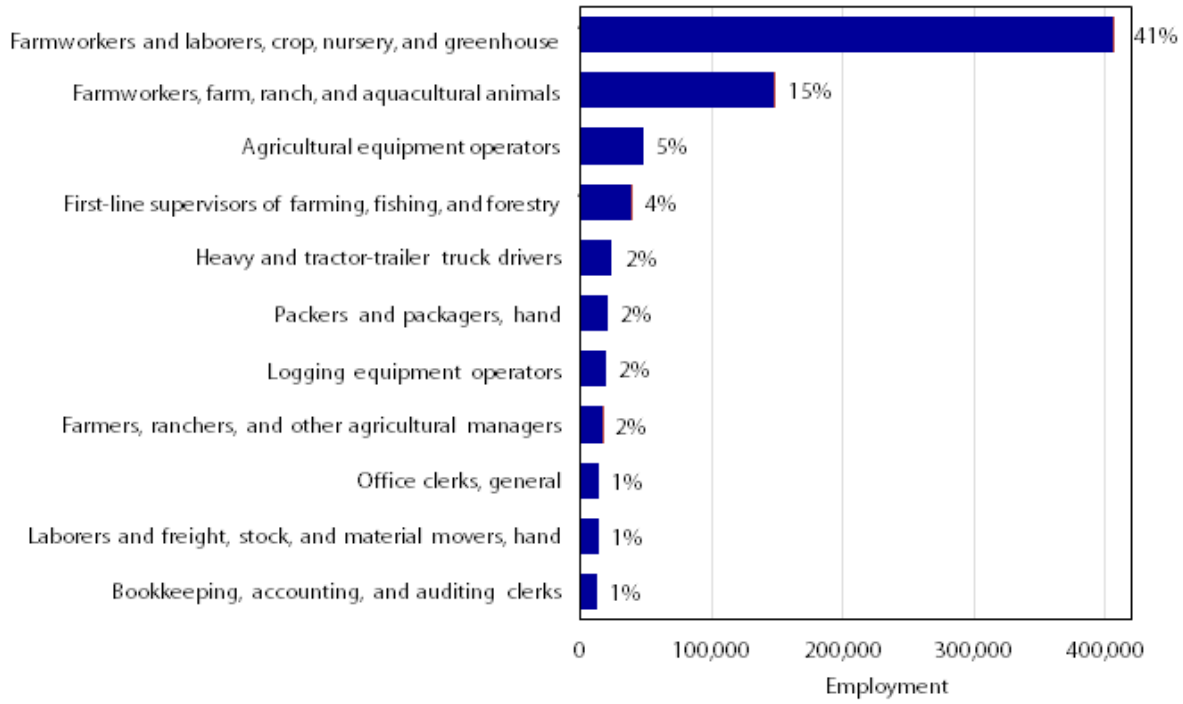
Source: U.S. Bureau of Labor Statistics.

Data showed that the highest wage ($12.58) for farmworkers and laborers, crop, nursery, and greenhouse (an occupation that is prevalent in crop production industries) was found in an industry associated with animal production (hog and pig farming). And an occupation directly related to animal production—farmworkers, farm, ranch, and aquacultural animals—earned the highest mean wage ($13.14) in one of the crop production industries (oil seed and grain farming). Both of these occupations are in the major group farming, fishing, and forestry, which accounted for 709,550 jobs, or 71 percent of the total agricultural sector employment. The mean hourly wage in this occupational group was $11.29.

With employment of approximately 79,000, the major occupational group transportation and material moving was the second largest occupational group in the sector. Heavy and tractor-trailer truck drivers was the largest occupation in the group, with employment of 24,020 and an average wage of $16.22 per hour. Thirty-five percent of heavy and tractor-trailer truck drivers were employed in the logging industry.

The second largest occupation in the transportation and material moving occupational group was packers and packagers, hand, with a nationwide sector employment of 20,300. With an average hourly wage of $9.38, it was also one of the lowest paying occupations in the agricultural sector, in which 50 percent of workers earned wages below $8.96. Nearly half the jobs in this occupation were found in the support activities for crop production industry, about 17 percent in vegetable and melon farming, and 11 percent in the greenhouse, nursery, and floriculture production industry.

Figure 3. Percentage of agricultural sector employment for the largest occupations, November 2011

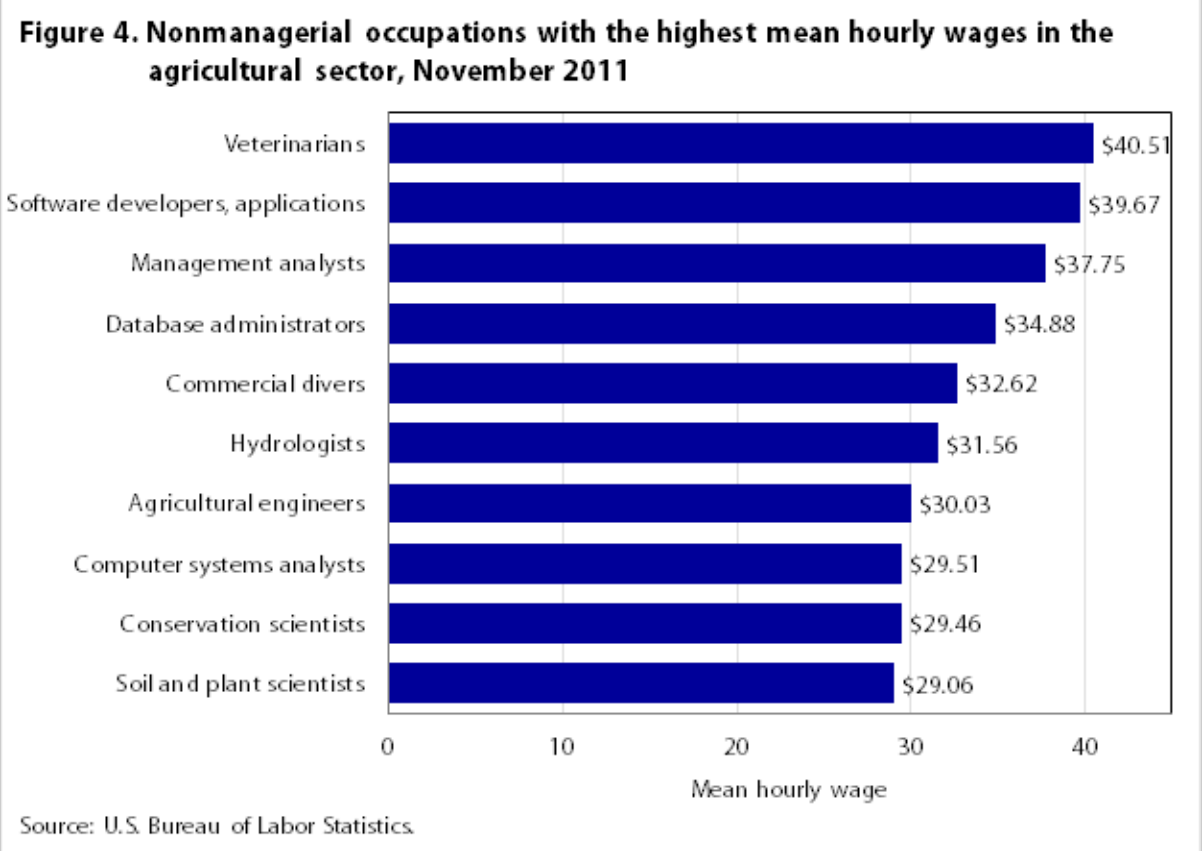


Note: Total employment in the agricultural sector was 994,270.
Source: U.S. Bureau of Labor Statistics.

Two occupations from the office and administrative support occupational group—general office clerks and bookkeeping, accounting, and auditing clerks—were among the largest in the sector with employment of 13,850 and 12,370, respectively (figure 3). Sectorwide, hourly average wages for these occupations were $12.87 for general office clerks and $16.41 for bookkeeping, accounting, and auditing clerks (not shown in figure). The majority of employment in both of these occupations was in the greenhouse, nursery, and floriculture production industry. Note that most of the occupations shown in figure 3 had mean wages below the sector's average wage of $13.12 per hour.

Occupations with the highest wages

In the agricultural sector, 7 of the 10 highest paid occupations were managerial occupations. Chief executives earned on average $160,000 per year, and for sales, financial, and general and operations managers, average wages ranged from $96,410 to $105,850 per year. However, high wages were not exclusive to managerial occupations alone. Commercial divers, an occupation that requires special skills, averaged $67,850 per year ($32.62 per hour), and occupations such as veterinarians and applications software developers that require a bachelor's degree or higher had annual average wages of $84,250 ($40.51 per hour) and $82,520 ($39.67 per hour), respectively (figure 4). About 25 percent of workers in the agricultural sector earned wages above the sector average of $27,290 per year.



Occupational composition and its influence on industry wages

To show how occupational composition affects wages of a sector, two agricultural industries with mean wages on opposite sides of the wage spectrum offer additional insight. The fruit and tree nut farming industry with a mean hourly wage of $10.93 was the lowest paying industry in the sector. Ninety percent of the workers in this industry earned wages below the sector hourly average of $13.12. The timber tract operations industry with a mean hourly wage of $22.47 had the highest average wage. Only 2 percent of workers in this industry earned wages below the sector average. The difference in occupational composition in these two industries is the predominant reason for the different wages. The fruit and tree nut farming industry was dominated by a low-paying occupation, farmworkers and laborers, crop, nursery, and greenhouse, which accounted for nearly 77 percent of employment and had a mean hourly wage of $9.57 (see table 3). In the timber tract operations industry, more employment was in higher paying occupations, including forest and conservation technicians, with 43 percent of industry employment and an average wage of $17.80. The largest four occupations in the timber tract operations industry are from the life, physical, and social science occupational group. And the largest three occupations in the fruit and tree nut farming industry are from the farming, fishing, and forestry occupational group.

Table 3. Occupational composition and percentage of industry's employment in the agricultural industries with the highest and lowest mean wages, November 2011

Timber tract operations industry (hourly mean wage $22.47)	Fruit and tree nut farming industry (hourly mean wage $10.93)

See footnotes at end of table.

Table 3. Occupational composition and percentage of industry's employment in the agricultural industries with the highest and lowest mean wages, November 2011

Timber tract operations industry (hourly mean wage $22.47)			Fruit and tree nut farming industry (hourly mean wage $10.93)		
Occupation	Industry employment (percent)	Mean wage	Occupation	Industry employment (percent)	Mean wage
Forest and conservation technicians	43.3	$17.80	Farmworkers and laborers, crop, nursery, and greenhouse	76.9	$9.57
Biological technicians	4.5	16.39	Agricultural equipment operators	5.3	11.45
Biological scientists, all other	4.2	25.73	First-line supervisors of farming, fishing, and forestry workers	3.5	18.55
Foresters	3.8	28.80	Farmers, ranchers, and other agricultural managers	1.3	31.23
Business operations specialists, all other (1)	3.7	33.41	Packers and packagers, hand	1.0	8.77

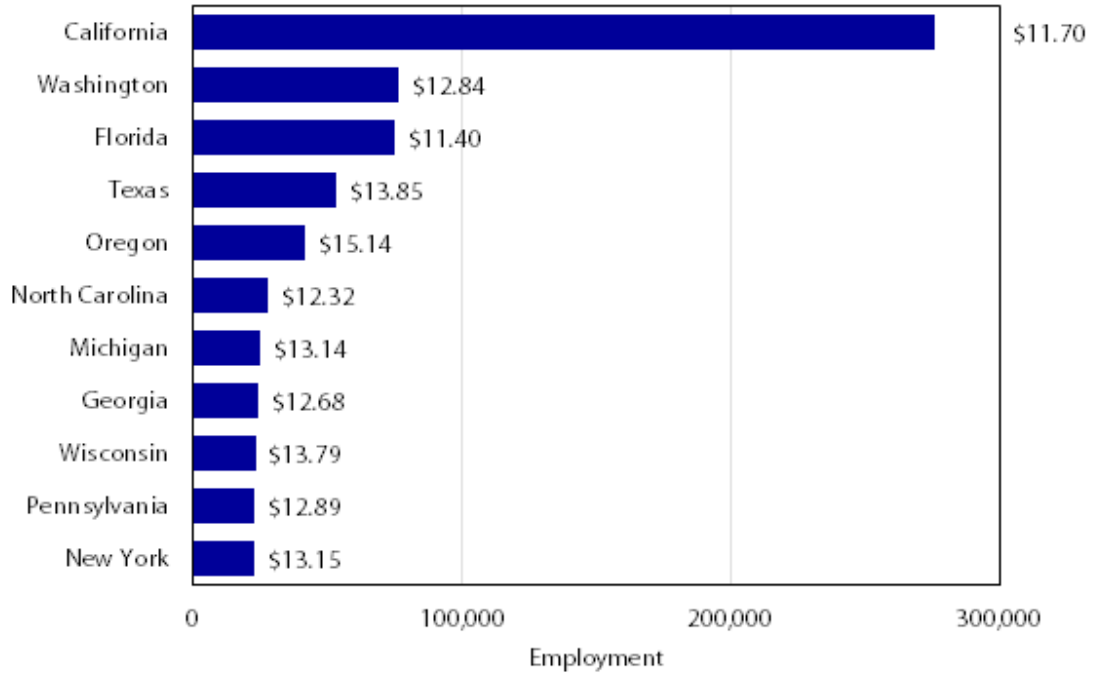
Note: (1) This occupation has the same title, but not necessarily the same content, as the 2010 Standard Occupational Classification occupation.

Source: U.S. Bureau of Labor Statistics.

Occupational composition by geography

In its most recent analysis, the Agricultural Research Service of the United States Department of Agriculture identified 13 plant hardiness zones in the country.[14] In an average winter, each zone is 10 °F colder (or warmer) than the bordering zone and, therefore, favorable to a particular agricultural activity or activities, which may affect the composition of agricultural industries and also the occupational structure of these industries.

Figure 5. Mean hourly wages of states with the largest employment in the agricultural sector, November 2011



Note: The national hourly wage in the agricultural sector was $13.12.
Source: U.S. Bureau of Labor Statistics.

With the climate of California resembling the climate of the Mediterranean region and favorable to most agricultural activities, its agricultural establishments yield over 400 agricultural products.[15] The state accounted for the largest slice of the agricultural sector employment, nearly 28 percent or 275,830 jobs (see table 4). Additionally, California accounted for over half the national employment in fruit and tree nut farming as well as in the support activities for crop production industries. Occupational employment numbers were also higher in California than in other states. For example, of the nation's agricultural sector, nearly 60 percent of packaging and filling machine operators and tenders were employed in California's agricultural sector, in which their hourly wage averaged $9.14. California also accounted for 40 percent of the largest occupation—farmworkers and laborers, crop, nursery, and greenhouse—in the agricultural sector (table 4), in which they earned an average wage of $9.50 per hour. Agricultural equipment operators in California accounted for 30 percent (see table 4) of their national employment numbers in an agricultural sector. The hourly wage for this occupation was $11.67. Although employment numbers in California's agricultural sector were higher than in other states, the state's average hourly wage of $11.70 was below the sector national average of $13.12 (see figure 5), making the state the second lowest paying in the agricultural sector in the country.

Table 4. Total employment of largest occupations in agricultural sector and percentage of occupational employment by selected western and eastern states, November 2011

Largest occupations in agricultural sector	National Employment	Western states			Eastern states with largest sector employment				
		California 275,830	Washington 76,270	Oregon 41,680	Florida 75,280	North Carolina 27,630	Georgia 24,620	Pennsylvania 22,930	New York 22,800
		Percent of occupational employment							
Farmworkers and laborers, crop, nursery, and greenhouse	405,900	**40.2**	**10.8**	2.8	**10.1**	2.1	2.1	**2.4**	2.0
Farmworkers, farm, ranch, and aquacultural animals	147,510	14.0	2.1	1.6	2.4	**4.0**	1.1	2.0	**3.4**
Agricultural equipment operators	47,780	30.0	**8.3**	**7.0**	5.5	2.4	1.9	0.6	2.4
First-line supervisors of farming, fishing, and forestry workers	39,020	22.7	5.9	2.0	8.4	**5.0**	1.7	**2.8**	1.5
Heavy and tractor-trailer truck drivers	24,020	11.0	5.3	3.7	3.8	2.1	0.3	1.5	1.0
Packers and packagers, hand	20,300	**30.6**	**18.1**	2.0	**11.1**	2.3	1.7	**6.3**	**3.7**
Logging equipment operators	18,950	4.8	**8.5**	6.2	3.2	**4.9**	**10.4**	1.3	2.3
Farmers, ranchers, and other agricultural managers	16,270	19.6	6.3	**8.1**	2.8	**2.8**	2.9	1.3	0.6
Office clerks, general	13,850	13.7	4.3	**6.4**	7.0	2.6	**4.0**	2.2	0.9
Laborers and freight, stock, and material movers, hand	13,560	20.9	4.6	**7.0**	5.5	—	3.1	**6.0**	1.6
Bookkeeping, accounting, and auditing clerks	12,370	19.3	3.8	4.8	6.8	2.2	3.0	1.2	**3.2**
Maintenance and repair workers, general	9,350	16.4	3.9	4.5	9.2	2.2	—	1.7	2.0
General and operations managers	9,320	21.2	4.2	4.3	4.2	2.0	3.8	1.9	**2.8**
Packaging and filling machine operators and tenders	8,940	**56.2**	5.6	1.8	6.5	—	—	—	—
Secretaries and administrative assistants, except legal, medical, and executive	8,700	6.4	2.3	0.9	**14.3**	**6.2**	**5.6**	**2.4**	**3.1**
Farm equipment mechanics and service technicians	8,100	30.4	6.0	**6.5**	5.6	1.0	2.3	1.6	—
Industrial truck and tractor operators	6,810	**32.5**	**13.1**	3.5	**16.4**	0.7	**5.7**	1.0	1.0

See footnotes at end of table.

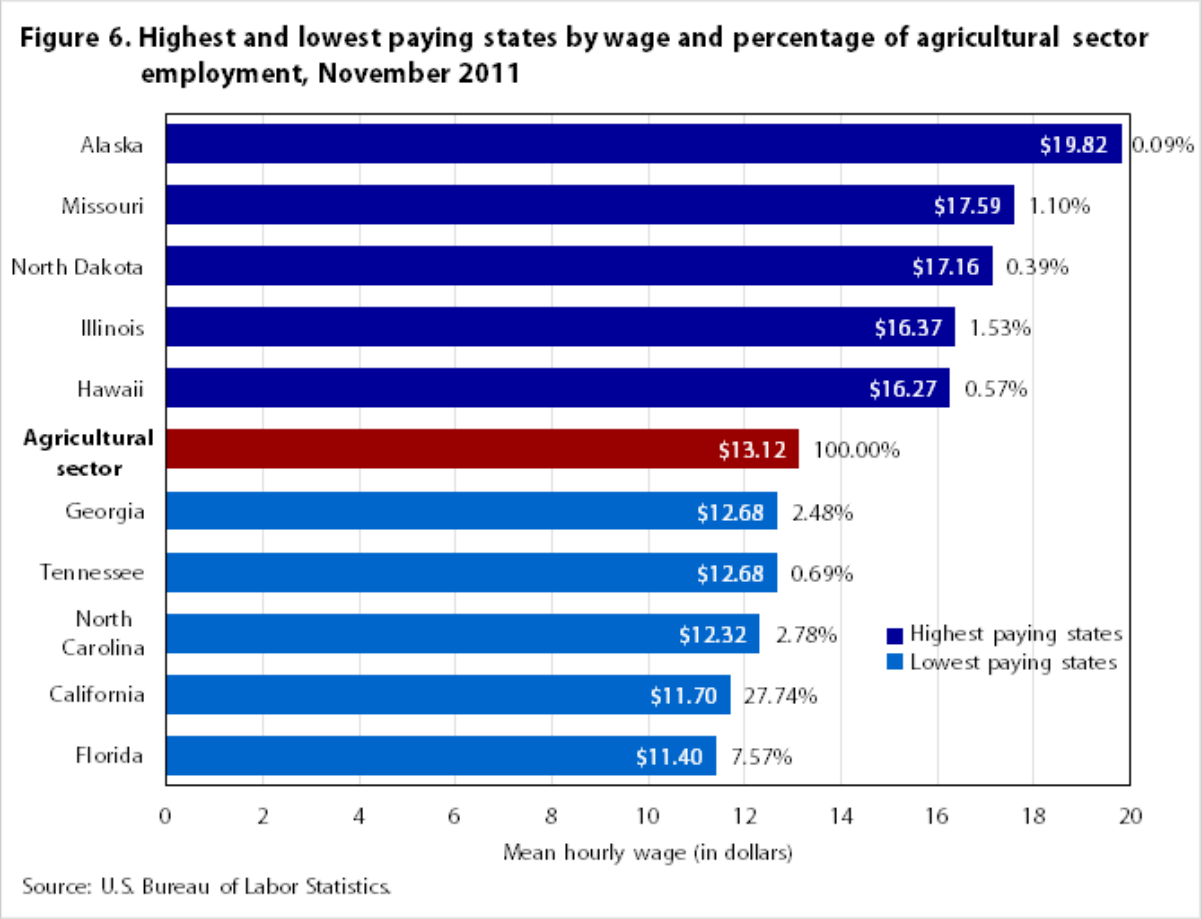
Note: Percentages in bold represent largest occupations in agricultural sector in the state. Total employment in agricultural sector equals 994,270.

Source: U.S. Bureau of Labor Statistics.

With employment of 76,270, Washington was one of the states with the largest employment in the agricultural sector in the country (see table 4). On average, agricultural workers in the state earned a wage of $12.84 per hour (see figure 5). As with California, the two predominant agricultural industries were fruit and tree nut farming and support activities for crop production, which accounted for 21 percent and 8 percent, respectively, of the national employment in these industries. Major agricultural commodities in Washington are sweet cherries, raspberries, and apples. According to Washington's Department of Agriculture, in 2011, Washington was responsible for 60 percent of all U.S. apple production,[16] making it the most predominant and profitable agricultural commodity of the state. All of the apples grown in the state are handpicked, which explains why farmworkers and laborers, crop, nursery, and greenhouse was the largest occupation, with employment of nearly 44,000. The average wage for this occupation in Washington was $10.45 per hour. Nearly 4,000 agricultural equipment operators earned wages in Washington, where their hourly wage was $11.56. Out of 20,300 hand packers and packagers employed in the country, 3,670 of them were employed in the state of Washington, where their hourly wage was $9.71. (For more employment data for other states, see table 4 and figure 5.)

On the opposite side of the country, where oranges are the most essential agricultural product and sugarcane production is the largest in the country,[17] Florida, with its mean hourly wage of $11.40 (see figure 5), was the lowest paying state in the agricultural sector in the nation. However, with employment of 75,280 (see table 4), Florida's agricultural employment was among the top three states. Two industries, greenhouse, nursery, and floriculture production; and vegetable and melon farming, are prevalent in the state, with combined employment of 33,540. The fruit and tree nut farming and support activities for crop production industries had a combined employment of 25,620. The farmworkers and laborers, crop, nursery and greenhouse occupation was the largest in the state's agricultural sector, with employment of 40,870. The average wage in this occupation was $8.72 per hour. All other occupations in the agricultural sector in the state had employment below 4,000.

Some other states in which average wages in the agricultural sector were below the sector average of $13.12 were North Carolina ($12.32), Tennessee ($12.68), and Georgia ($12.68). Rhode Island, Alaska, Delaware, West Virginia, and New Hampshire were some of the states in which the agricultural sector had small employment, each showing employment below 2,000. However, hourly mean wages in the agricultural sector among these states ranged from $12.72 in West Virginia to $19.82 in Alaska. This average wage of $19.82 made Alaska one of the states with the highest average wages in the agricultural sector in the country. Although greenhouse and nursery products were identified as the highest agricultural revenue generators[18] in Alaska, aquaculture and logging were the two industries with the most employment. On an occupational level, Alaska's farmworkers, farm, ranch, and aquacultural animals occupation earned on average $12.78 per hour, which was only slightly higher than the national average for this occupation of $11.65 per hour. However, what appears to be driving the mean wage in Alaska is the logging equipment operators occupation with a mean hourly wage of $21.20. In the agricultural sector, the national mean wage for this occupation was $16.56 per hour (see figure 6).



SINCE THE FOUNDING OF THE OES PROGRAM, most of the agriculture, forestry, fishing, and hunting sector was out of scope for the OES survey. With the expansion of occupational data collection as part of the OES supplement, estimating occupational employment and wages in new industries in the agricultural sector became feasible for the first time. Data showed that two of three states with the most employment in the sector had mean wages below average. The agricultural occupational composition of the sector also affected wages, with a high number of jobs in low-wage occupations. Furthermore, occupational employment numbers for occupations with the highest wages were small. The two largest occupations (farmworkers and laborers, crop, nursery, and greenhouse; and farmworkers, farm, ranch, and aquacultural animals), which directly relate to the major economic activity of the sector, dominated employment in the agricultural sector, affecting its mean, median, and percentile wages.

For data used in this article, please go to the Agricultural Sector's Estimates, November 2011.

SUGGESTED CITATION

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NOTES

1 Data are current as of time of publication; U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages program, https://www.bls.gov/cew/.

2 Occupational titles referenced in the article are as defined by the Standard Occupational Classification (SOC) system, https://www.bls.gov/soc/, used by federal statistical agencies. The SOC is used to classify workers and jobs into occupational categories.

3 Because of the sequestration required by the Balanced Budget and Emergency Deficit Control Act, the Green Goods and Services Occupations (GGS-OCC) program was eliminated on March 1, 2013. GGS-OCC data are available for the November 2011 reference period only. For more information, visit https://www.bls.gov/ggsocc/.

4 For a thorough discussion of the survey methodology, see "Green goods and services occupations: survey methods and reliability statement for occupational employment and wages in Green Goods and Services" (U.S. Bureau of Labor Statistics, October 3, 2012), https://www.bls.gov/ggsocc/survey_methods.htm.

5 This analysis is based on data collected using the 2000 and 2010 SOC systems. Whenever possible, the 2010 occupation was used in estimation. However, in several cases, occupations from the two structures had to be combined into a hybrid occupation. For more information, see Occupational Employment Statistics (OES) Frequently Asked Questions, section F, "Other important information about OES data," question 8, "How were the occupations in the May 2010 and May 2011 estimates created from data based on the 2000 and 2010 SOC codes?" https://www.bls.gov/oes/oes_ques.htm.

6 For more information, see "Labor force statistics from the Current Population Survey," (U.S. Bureau of Labor Statistics, Mar. 21, 2014), https://www.bls.gov/cps/home.htm.

7 U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages program, https://www.bls.gov/cew/.

8 Ibid.

9 Ibid.

10 Total employment in the agricultural sector as is reflected by the OES supplemental survey.

11 "Aquaculture, also known as aquafarming, is the farming of aquatic organisms, such as fish, crustaceans, mollusks, and aquatic plants. Aquaculture involves cultivating freshwater and saltwater populations under controlled conditions and can be contrasted with commercial fishing, which is the harvesting of wild fish." See *Wikipedia: The Free Encyclopedia*, "Aquaculture," March 2014, http://en.wikipedia.or g/wiki/Aquaculture.

12 The comparisons for the wages are based on the closest reference periods available. Wage data for the agricultural sector are for November 2011, and wage data for all other industries are for the May 2012 reference period. Both groups in the comparison include the industry in which the scopes overlap: logging, support activities for animal production, and selected industries in support activities for crop production.

13 A percentile wage shows the percentage of workers in an occupation that earn less than a given wage and the percentage that earn more.

14 For more information, see "USDA plant hardiness zone map" (U.S. Department of Agriculture, Agricultural Research Service, 2012), http://planthardine ss.ars.usda.gov/PHZMWeb/.

15 For more information on California's agricultural products, see "California agricultural production statistics" (California Department of Food and Agriculture, August 2013), http://www.cdfa.ca.gov/statistics/.

16 For more information on Washington's agricultural products, see "Agriculture: a cornerstone of Washington's economy" (Washington State Department of Agriculture, August 2013), http://agr.wa.gov/AgInWa/.

17 See "Florida economy" (Netstate, August 1, 2013), http://www.netst ate.com/economy/fl_economy.htm.

18 For more information on Alaska, see "Alaska economy" (Netstate, August 1, 2013), http://www.netst ate.com/economy/ak_economy.htm.

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