



Utah Job Quality Report 2020¹

September 2020

Introduction and Summary of Results

The conventional wisdom about Utah's economy in recent decades has been that we have been better at quantity than quality of jobs, but is that still the case? Voices for Utah Children has been tracking trends in both quantity and quality of jobs, and this report follows up on previous research with a focus on job quality.

This report is organized in two parts:

- I. **Wage trends** for Utah, neighboring states, and the nation at different income levels 2010-2018 by two different methodologies:

Methodology #1: Real (inflation-adjusted) wage trends as measured by the federal government's employer survey (the Occupational Employment Statistics (OES) program of the federal Bureau of Labor Statistics (BLS) for Utah, Colorado, Idaho, Nevada, and the nation as a whole:

This methodology finds that Utah was the only geography (of those four states and the nation) that saw real wage increases for every quintile over the time period studied, with the largest wage growth accruing to the top quintile of Utah wage earners.

Methodology #2: Real (inflation-adjusted) hourly wage trends as measured by the Census Bureau's Current Population Survey (CPS):

Methodology 2 find that Utahns at nearly every income level outperformed the nation for wage increases from 2010 to 2018. Utah, Colorado, and the nation saw a U-shaped distribution of wage growth, with real wage growth for every decile, but with the largest wage growth at the bottom and the top of the income distribution. Idaho and Nevada also saw real wage growth at nearly every decile of the income distribution, but with no clear pattern of how those wage increases were distributed.

- II. **Job Quality Index**: This is the most innovative section of this report, creating the first attempt at a comprehensive job quality index for Utah and benchmarking Utah against neighboring states (Colorado, Idaho, and Nevada) and the nation as a whole.
Our overall finding is that Utah ranks behind Colorado but ahead of the nation, Idaho, and Nevada in our Job Quality Index.

The timing of this report, coming as it does during the coronavirus pandemic and recession that began in the first quarter of 2020, means that this report covers nearly the full economic cycle that ran from 2009-2019 (trough to peak).

¹ This report was authored by Connor Hill, a graduate student, and Matthew Gordon, an undergraduate student, both in the Economics Department of the University of Utah, under the supervision of Matthew Weinstein, State Priorities Partnership Director at Voices for Utah Children.

PART I: WAGES AT DIFFERENT INCOME LEVELS BY TWO METHODS

Methodology #1: BLS OES Occupational Wages by Quintile

For this methodology, we replicated that used by the National Employment Law Project in a 2015 study², analyzing data from the Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) program³ for the years of 2010 and 2018 at both the state and national levels. For each year, we ranked all occupations by their hourly median wages and separated them into quintiles by the number of employees. Then we took the average of the median wages for each quintile, weighted for employment levels within each job category. We are calling this result for each quintile the “average median wage” for that quintile. (All figures are expressed in terms of 2018 dollars, adjusted by CPI-U.)

Figure 1 shows that between 2010 and 2018 the United States economy saw growth in the average median wages for the bottom two quintiles: 4.24% in the lowest quintile and 0.29% in the next-to-lowest quintile. However, the top three quintiles had yet to recover to their 2010 average median wage levels by 2018, seeing their wage levels change by -0.48%, -0.29%, and -0.98% over that time period.

Figure 1: Comparing National Real Wages: 2010-2018



For Figure 2 we replicated NELP’s methodology at the state level. We compared Utah, Colorado, Idaho, and Nevada for wage recovery since the 2008-2009 Great Recession.

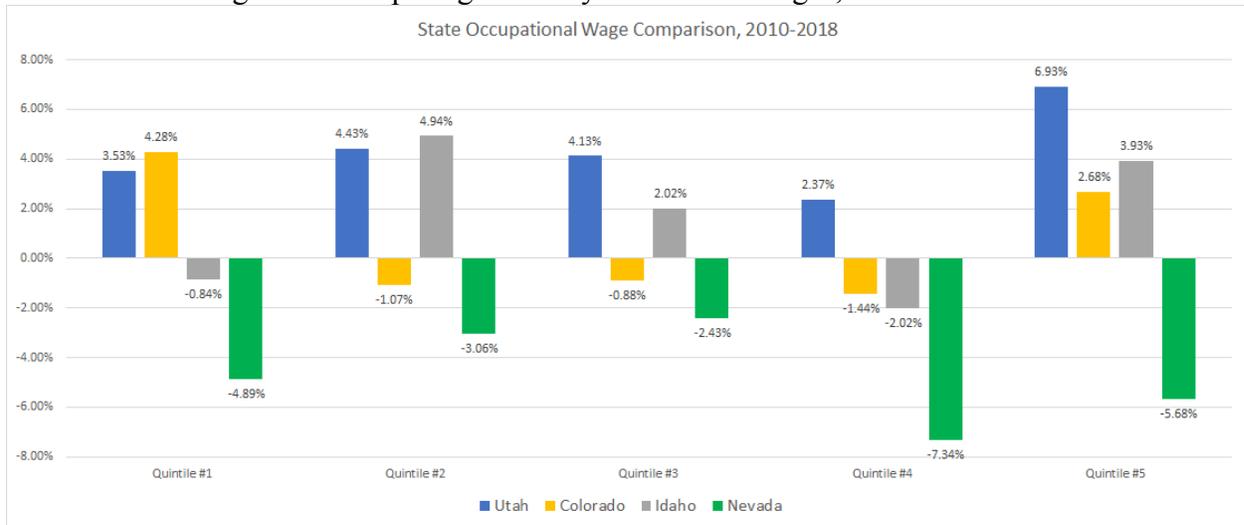
² <https://www.nelp.org/publication/occupational-wage-declines-since-the-great-recession/>

³ https://www.bls.gov/oes/oes_emp.htm

Figure 2 shows that Utah has seen the best recovery in comparison to the states we evaluated, with real average median wage increases in all five quintiles -- the only state of these four to manage this feat. In addition, Utah had the highest real average median wage increases in the top three quintiles, and the second highest in the lowest two quintiles.

Compared to the nation, Utah also experienced larger average median real wage increases in every quintile except for the lowest one.

Figure 2: Comparing States by Their Real Wages, 2010-2018



We also looked at the major occupational categories that gained the most jobs nationally as well as in the four states from 2010 to 2018. Table 1 shows results by number and percentage for the top five major occupational categories for each state, while Table 2 shows the median hourly wages in each of the top five job growth categories.

Table 1: Top 5 Job Growth by OES Major Occupational Categories with Percent of Total Jobs Gained, 2010-2018

| | National | Utah | Colorado | Idaho | Nevada |
|---|--------------------------|------------------------|------------------------|-----------------------|------------------------|
| Architecture and Engineering | N/A | N/A | N/A | N/A | 18,050 (7.7%) |
| Business and Financial | 1,630,390 (9.2%) | 23,750 (7.7%) | 57,000 (12.3%) | N/A | N/A |
| Community and Social | N/A | N/A | N/A | N/A | 23,210 (9.9%) |
| Construction and Extraction | N/A | 22,220 (7.2%) | N/A | 11,330 (10.2%) | N/A |
| Food Preparation and Serving | 2,347,280 (13.3%) | 23,170 (7.5%) | 52,580 (11.4%) | 14,290 (12.8%) | N/A |
| Healthcare Support | N/A | N/A | N/A | N/A | 18,810 (8.05%) |
| Legal | N/A | N/A | N/A | N/A | 24,850 (10.6%) |
| Management | 1,593,790 (9.0%) | 49,240 (16.0%) | N/A | N/A | 32,240 (13.8%) |
| Office and Administration | N/A | 27,660 (9%) | N/A | 10,920 (9.8%) | N/A |
| Personal Care and Service | 2,026,110 (11.5%) | N/A | 37,050 (8.0%) | N/A | N/A |
| Production | N/A | N/A | N/A | 10,980 (9.9%) | N/A |
| Sales and Related | N/A | N/A | 50,020 (10.8%) | 10,510 (9.4%) | N/A |
| Transportation and Material Moving | 1,696,280 (9.6%) | N/A | 32,540 (7.0%) | N/A | N/A |
| Total | 9,293,850 (52.7%) | 146,040 (47.5%) | 229,190 (49.5%) | 58,030 (52.1%) | 117,160 (50.2%) |

Table 2: Top 5 Growth Industries' Median Hourly Wages in 2018 (and 2010 in 2018 \$)

| | National | Utah | Colorado | Idaho | Nevada |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Architecture and Engineering | N/A | N/A | N/A | N/A | \$35.60 (\$38.67) |
| Business and Financial | \$32.86 (\$33.59) | \$27.82 (\$29.83) | \$34.14 (\$34.26) | N/A | N/A |
| Community and Social | N/A | N/A | N/A | N/A | \$24.33 (\$26.37) |
| Construction and Extraction | N/A | \$20.77 (\$20.49) | N/A | \$18.63 (\$19.66) | N/A |
| Food Preparation and Serving | \$11.09 (\$10.39) | \$10.27 (\$10.31) | \$11.39 (\$10.46) | \$9.44 (\$10.00) | N/A |
| Healthcare Support | N/A | N/A | N/A | N/A | \$16.34 (\$16.06) |
| Legal | N/A | N/A | N/A | N/A | \$42.17 (\$45.52) |
| Management | \$50.11 (\$50.62) | \$38.37 (\$42.86) | N/A | N/A | \$46.76 (\$45.04) |
| Office and Administration | N/A | \$15.67 (\$15.41) | N/A | \$15.32 (\$15.33) | N/A |
| Personal Care and Service | \$11.74 (\$11.42) | N/A | \$12.29 (\$12.29) | N/A | N/A |
| Production | N/A | N/A | N/A | \$16.10 (\$15.67) | N/A |
| Sales and Related | N/A | N/A | \$15.60 (\$15.71) | \$12.39 (\$12.72) | N/A |
| Transportation and Material Moving | \$15.74 (\$15.73) | N/A | \$16.84 (\$17.02) | N/A | N/A |
| Average Wage (unweighted) | \$24.31 (\$24.35) | \$22.58 (\$23.78) | \$18.05 (\$17.94) | \$12.39 (\$12.72) | \$33.04 (\$34.33) |

When comparing Utah to the other states, as well as the national level, Utah did well in terms of the jobs that were created. The top industry that was gained in Utah was Management Occupations which accounted for 16% of the total jobs gained between 2010-2018 in Utah. In comparison, the national and Idaho economies' biggest industry gains were in Food Preparation and Serving Related Occupations, being 13.3% and 12.8%, respectively. That is not to say that Food Preparation and Serving Related Occupations are exclusive to the national and Idaho economies in terms of growth. As a matter of fact, the only state to not have Food Preparation in the top five industries was Nevada which saw four out of the five industries being higher wage earning industries.

When comparing the Utah job gains to Nevada and Colorado, however, the results become similar. Nevada's top industry, in terms of growth, was Management Occupations at 13.8% of total jobs gained while Colorado's was Business and Financial Operations Occupations at 12.3%.

Additional Notes about Methodology: BLS OES Occupational Wages by Quintile

In this part of the analysis, we replicated the methodology from the National Employment Law Project (NELP) 2015 study, "[Occupational Wage Declines Since the Great Recession: Low-Wage Occupations See Largest Real Wage Declines.](#)" We used data sets from the Bureau of Labor Statistics' Occupational Employment Statistics (OES) from the years of 2010 and 2018 for both the national and state level. "The OES program conducts a semiannual survey designed to produce estimates of employment and wages for specific occupations. The OES program collects data on wage and salary workers in nonfarm establishments in order to produce employment and wage estimates for about 800 occupations." (https://www.bls.gov/oes/oes_emp.htm#datause)

OES does not report hourly wage data for occupations with irregular work schedules (e.g., teachers, legislators, athletes). We imputed median hourly wages for education-related occupations by dividing the median annual earnings by 1560 hours (9 months of full-time work) and divided by 2080 hours (12 months of full-time work) for the remaining occupations. In addition, the OES did not report median earnings data (hourly or annual) for high-wage occupations. These occupations earn more than \$80 for their hourly wage according to the Bureau of Labor Statistics. In order to not delete these occupations from the data, we assigned an hourly wage of \$80 in 2010 and \$92.13 in 2018, based on the assumption that the hourly wage was adjusted for inflation.

For Figures 1 and 2, we ranked occupations in Utah, Colorado, Idaho, Nevada, and the United States from lowest to highest using their median hourly wage, weighted by 2010 employment, and then grouped the occupations into five approximate equal quintiles. For each quintile, we calculated the average of the percentage change in the median hourly wage for the occupations in that quintile. Similarly, the total percentage change is the weighted average of the percentage change for all occupations. We used CPI-U to adjust for inflation.

For Tables 1-2, we ranked occupations in Utah, Colorado, Idaho, Nevada, and the United States by comparing the 2018 total number of jobs in each industry to the 2010 total number of jobs in each industry. We ranked the industries from highest to lowest by the increase in jobs. We used CPI-U to adjust for inflation.

Methodology #2: Trends in Real Hourly Wages using CPS Data

Additionally, we compare the change in real hourly wages by decile from 2010 to 2018 to measure economic recovery and growth during this time period (adjusted to 2018 dollars using CPI-U-RS). This data comes from an Economic Policy Institute analysis of Current Population Survey (CPS) data released in 2020. We analyzed not only the change in median real hourly wage, an indicator of economic well-being, but also by decile to make these results more comparable to the NELP methodology. However, caution should be taken in a direct comparison between this analysis and methodology #1. Methodology #1 used data from the BLS OES, which surveys non-farm business establishments⁴. CPS data, which this methodology uses, relies on a survey of employees rather than employers. Likewise, the quintiles of the NELP methodology and this decile analysis are not directly comparable because of the construction of the quintiles. Thus, the results from the NELP methodology and this analysis of real wages by deciles are not directly comparable, though they are both seeking to measure the same basic metric of economic well-being.

Figure 3: Changes in Real Median Hourly Wages 2010-2018

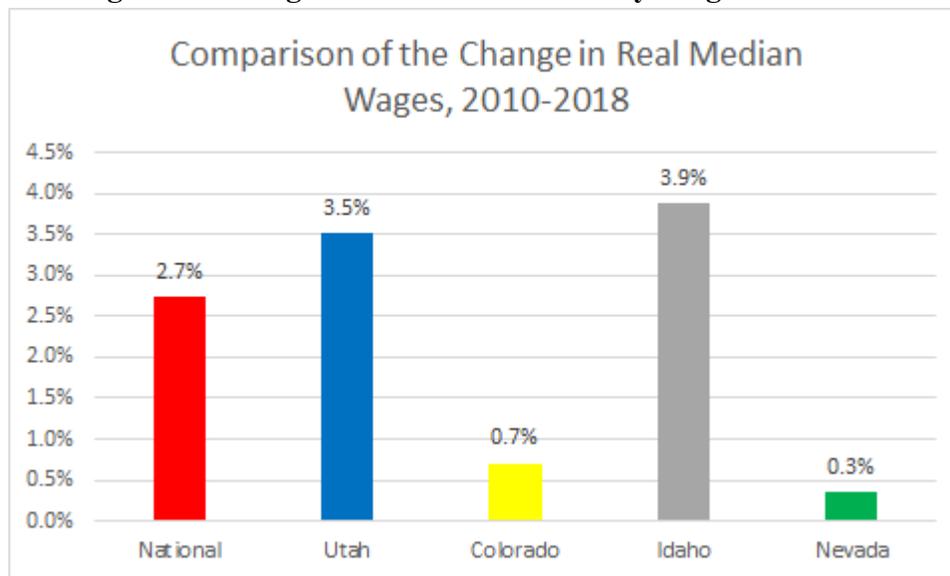


Figure 3 shows the change in real median hourly wage from 2010 to 2018. It includes figures for the nation, Utah, Colorado, Idaho, and Nevada. Utah ranks second in terms of growth in real median wage during this time period. Given that this time period takes place right after the 2008 recession and that wage declines tend to lag behind recessions, this figure could be seen as the median wage recovery since the 2008 recession. It is interesting to note the relatively low recovery in both Colorado and Nevada. In the case of Nevada this could have perhaps been

⁴ https://www.bls.gov/oes/oes_ques.htm#overview

because of how hard that state was hit by the housing market decline during the 2008-2009 recession.

Figure 4: National Change in Real Wages by Decile 2010-2018

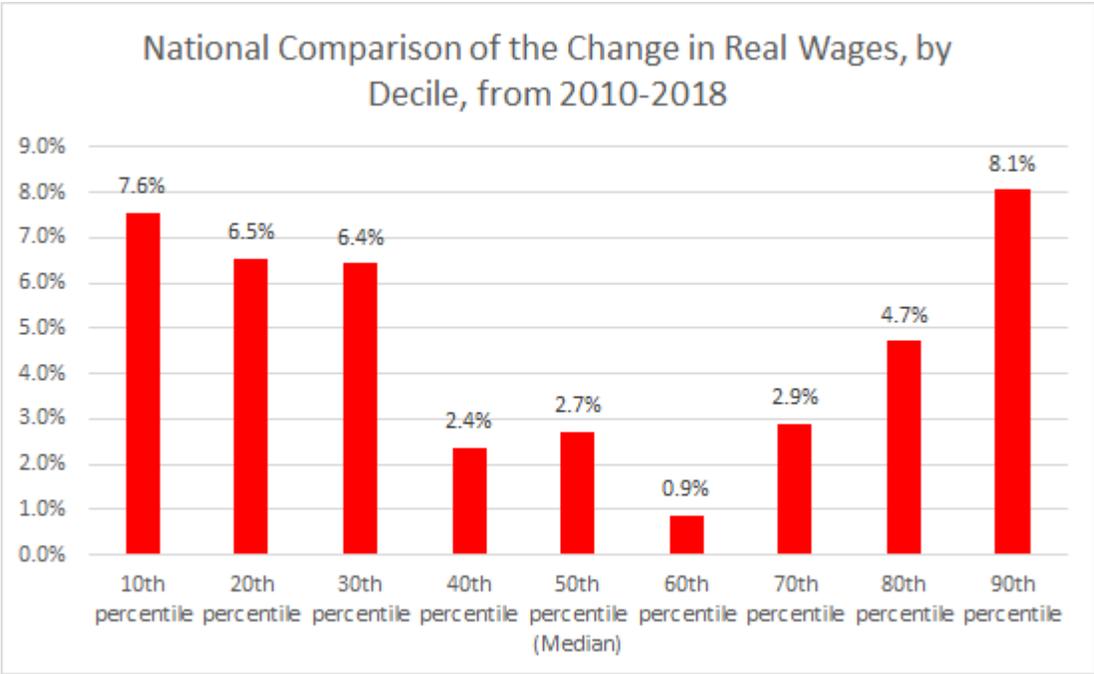


Figure 4 shows results that are interesting when compared to methodology #1. Methodology #1 shows that national wage growth occurred in the bottom two quintiles while wages declined in the top three quintiles during the period of 2010 to 2018. However, methodology #2 finds that there has been positive national wage growth at every wage level. Note how there exists high real wage growth in the lower deciles, consistent with the finding using methodology #1 (see Figure 1). However, differing from the findings using the employer survey in section 1, this analysis of wage growth based on the wage-earner survey (Census CPS) finds small wage increases in the 4th through the 7th deciles and larger wage increases in the 8th and 9th deciles, whereas the employer survey found 2018 wages below their 2010 levels in real terms for the middle and top of the wage scale. The CPS survey finding is that the 2010-2018 economic growth period saw the largest increases in the extreme lower bound and the extreme upper bound of the wage distribution. In the middle of the scale, median real wages rose 2.7%, which is rather mild compared to the lower and upper deciles. This breakdown also shows the inherent weakness of the standard practice of reporting trends just for the median wage.

Figure 5

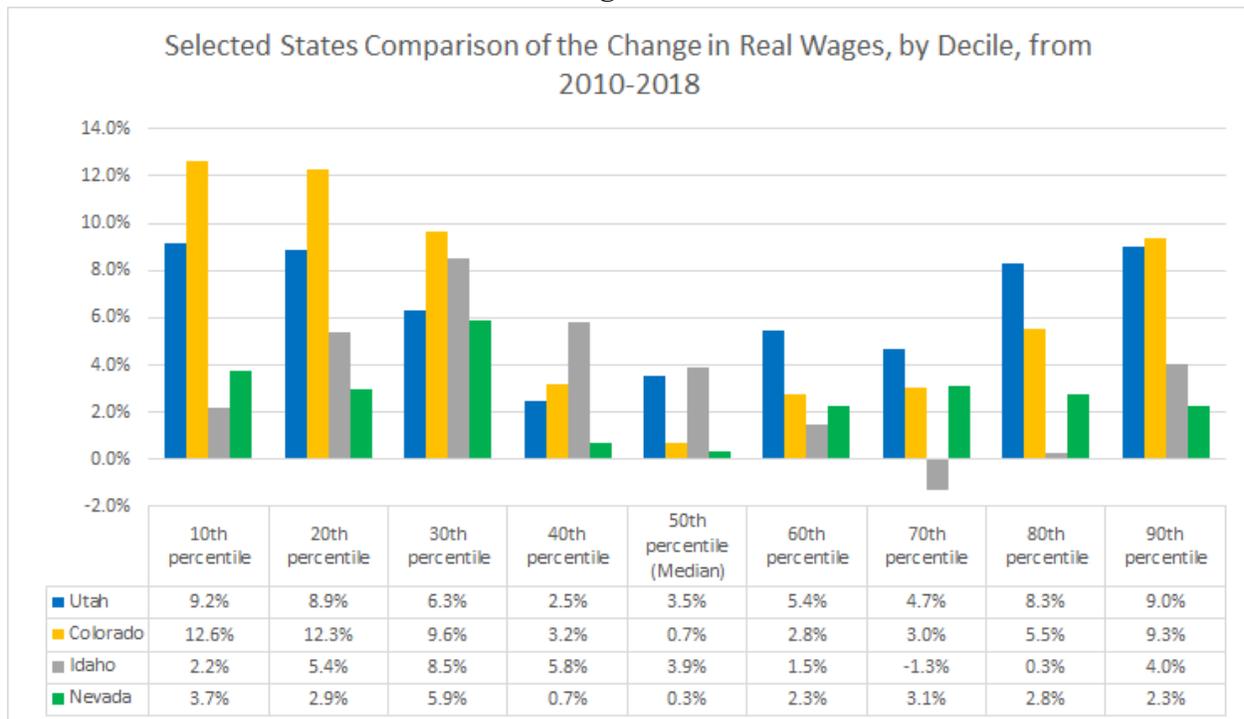


Figure 5 shows a comparison of Utah, Colorado, Idaho, and Nevada at the various decile levels. Here, Utah experienced the largest growth of the four states at the 60th, 70th, and 80th percentiles. Colorado outperforms the other states in real wage growth at the 10th, 20th, 30th, and 90th percentiles. This is interesting, considering the low growth Colorado saw at the 50th percentile.

It is also noteworthy that only Utah and Colorado experienced the same U-shaped wage growth pattern as the nation, while Idaho and Nevada seemed to experience a more random pattern of wage growth across wage levels.

Compared to the national level, Utah experienced greater real wage growth at every decile except at the 30th percentile.

PART II: JOB QUALITY INDEX

The sections above examining wage growth attempt to measure what is generally considered to be the most important metric of job quality -- how much income a job generates. But income is not the only measure of job quality. Others have created more sophisticated methods to measure job quality, such as the European Trade Union Institute's European Job Quality Index⁵ and Cornell University Law School's U.S. Private Sector Job Quality Index⁶.

For this 2020 report we sought as much as feasible to emulate the European Job Quality Index, due to its holistic, family-friendly approach to measuring job quality. This more holistic approach still counts wages as half of the overall index while including other dimensions as well in our analysis of job quality for Utah, some neighboring states, and the nation as a whole.

Information regarding some of the dimensions of job quality in the European index are not available for U.S. states. As a result, we modified the index to reflect what is available and what we believe to be pertinent to Utah and the surrounding states. Using primarily CPS data that's been prepared by the Economic Policy Institute (EPI), the University of Minnesota's IPUMS, and the Center for Economic and Policy Research (CEPR), we constructed a job quality index similar to that of the European Job Quality Index. The downside of using CPS data, however, is the rather large standard errors and nature of the sampling variation. Specific dimensions will list the data used for that dimension of job quality.

Voices for Utah Children's index seeks to analyze job quality by looking at the dimensions of wages, wage equality, non-standard forms of employment, working hours, job safety, and unions for 2018. Each dimension is composed of various weighted sub-dimensions that have been normalized to represent values from 0 to 1 using the values from the national level, Utah, Idaho, Colorado, and Nevada in order to allow comparison between different units. These normalized variables rely on values for 2018, and thus, to allow comparisons over time, 2018 should be used as the base year for normalization. Normalizations are inversed for some values so that a higher normalize score always represents higher job quality. Once sub-dimensions have been normalized and weighted, they are added together to create the index for that dimension of job quality (wages, wage equality, etc.). Dimensions themselves are analyzed in order to give more analysis into a specific dimension of job quality between states. For the total Job Quality Index, dimensions are weighted, and then values are summed to form the total Job Quality Index. Values are multiplied by 100 to provide a 100-point scale index of Job Quality. Table 3 below shows the general construction of the Job Quality Index and the weight we assigned to each variable.

⁵ <https://www.etui.org/Topics/Labour-market-employment-social-policy/Job-quality-index-JQI>

⁶ <https://www.jobqualityindex.com/>

Table 3a: Dimensions of the Job Quality Index and Weight

| Dimension | Sub-dimensions | Data | Sub-Dimension Weight |
|---|---|--|-----------------------------|
| Wages Weighted at 50% of total Job Quality Index | 50th Percentile (Median) Wages adjusted for Cost of Living using US Bureau of Economic Analysis (BEA) Regional Price Parities (RPP) | Economic Policy Institute analysis of Current Population Survey (CPS) Data Regional Price Parities from the Bureau of Economic Analysis | 1/3 |
| | 10th Percentile Wages Adjusted for Cost of Living using RPP | Economic Policy Institute analysis of Current Population Survey Data Regional Price Parities from the Bureau of Economic Analysis | 1/3 |
| | Percentage of Workers Earning Below Poverty Wage | EPI analysis of CPS-ORG | 1/3 |
| Wage Equality Weighted at 10% of Job Quality Index | Ratio of Hispanic to White Median Hourly Wages | Economic Policy Institute analysis of Current Population Survey Data | 1/4 |
| | Ratio of Hispanic to White 10th Percentile Hourly Wages | Economic Policy Institute analysis of Current Population Survey Data | 1/4 |
| | Ratio of Female to Male Median Hourly Wages | Economic Policy Institute analysis of Current Population Survey Data | 1/4 |
| | Ratio of Female to Male 10th Percentile Hourly Wages | Economic Policy Institute analysis of Current Population Survey Data | 1/4 |

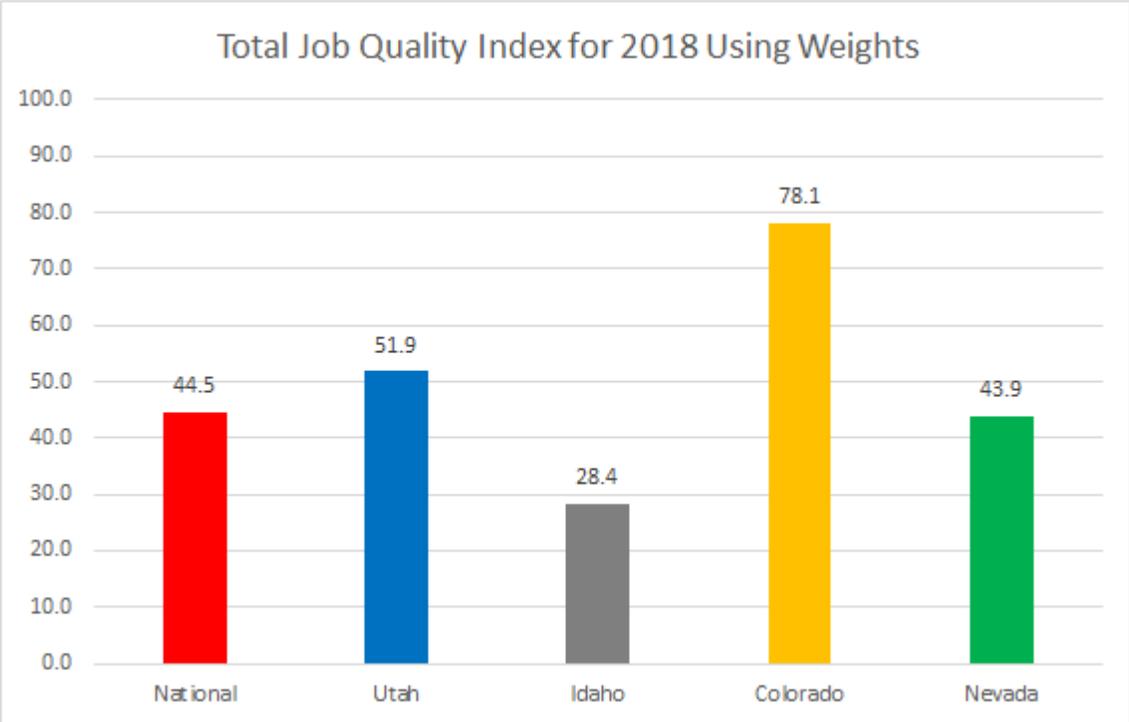
Table 3b: Continuation of Dimensions of the Job Quality Index and Weight

| Dimension | Sub-dimensions | Data | Sub-Dimension Weight |
|---|---|--|-----------------------------|
| Non-Standard Employment Weighted at 10% of total Job Quality Index | Part-Time for Economic Reasons Out of Total Number of Employees | Microdata Analysis of CEPR CPS Data | 1/2 |
| | Percent of Employees Who Work Multiple Jobs | Microdata Analysis of CEPR CPS Data | 1/2 |
| Working Hours Weighted at 10% of total Job Quality Index | Percent of Employees Working More than 48 Hours | Microdata Analysis of CPS data from the MDAT of the Census Bureau | 1/2 |
| | Average Weekly Hours Worked | Microdata Analysis of CPS data from the MDAT of the Census Bureau | 1/2 |
| Job Safety Weighted at 10% of total Job Quality Index | Fatal Occupational Injury Rates | Bureau of Labor Statistics - Microdata Analysis of CPS data from the MDAT of the Census Bureau | 1 |
| Unions Weighted at 10% of total Job Quality Index | % of Employees who are Members of Unions | Economic Policy Institute analysis of Current Population Survey Data | 1/2 |
| | % of Employees Covered by Unions | Economic Policy Institute analysis of Current Population Survey Data | 1/2 |

Analysis of the Total Job Quality Index - 2018

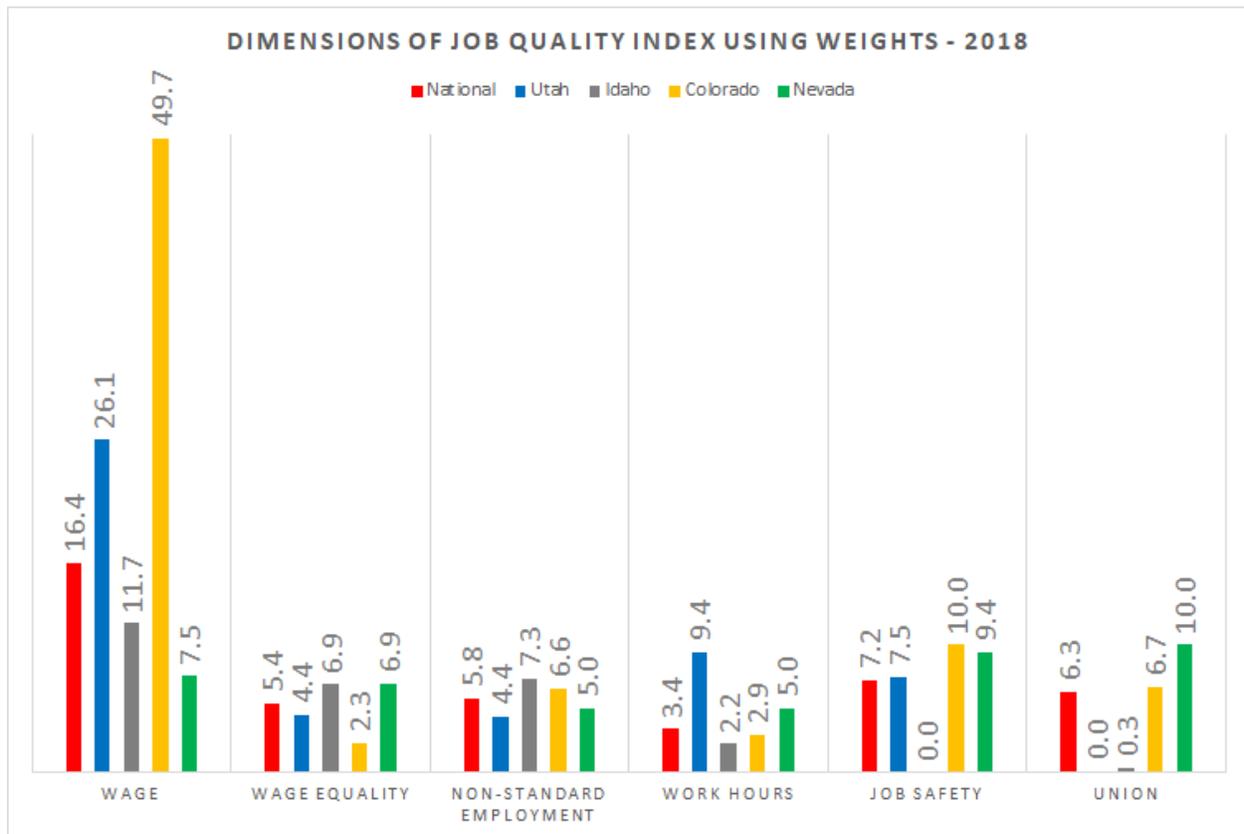
Here we will discuss the results for the Job Quality Index in total, with all dimensions combined. We will include analysis of the Job Quality Index using weights that we have determined, and then an analysis of the Job Quality Index in which each dimension is equally weighted. It should be noted that due to the normalization of these values, these index scores do not have values. Rather, they exist to give a sense of the magnitude difference between states in regard to job quality and the various dimensions that compose job quality within this index.

Figure 6: Job Quality Index for 2018 Using Weights



Here, we observe that Utah has the second highest level of job quality using the weighted Job Quality Index with an index score of 51.9. Utah ranks behind Colorado and ranks 7.4 index points above the national level. Nevada trails the national level very closely, being less than a single point behind the national level. Idaho ranks the lowest in terms of job quality, being approximately 16 points below the national level and 23 points below the US level.

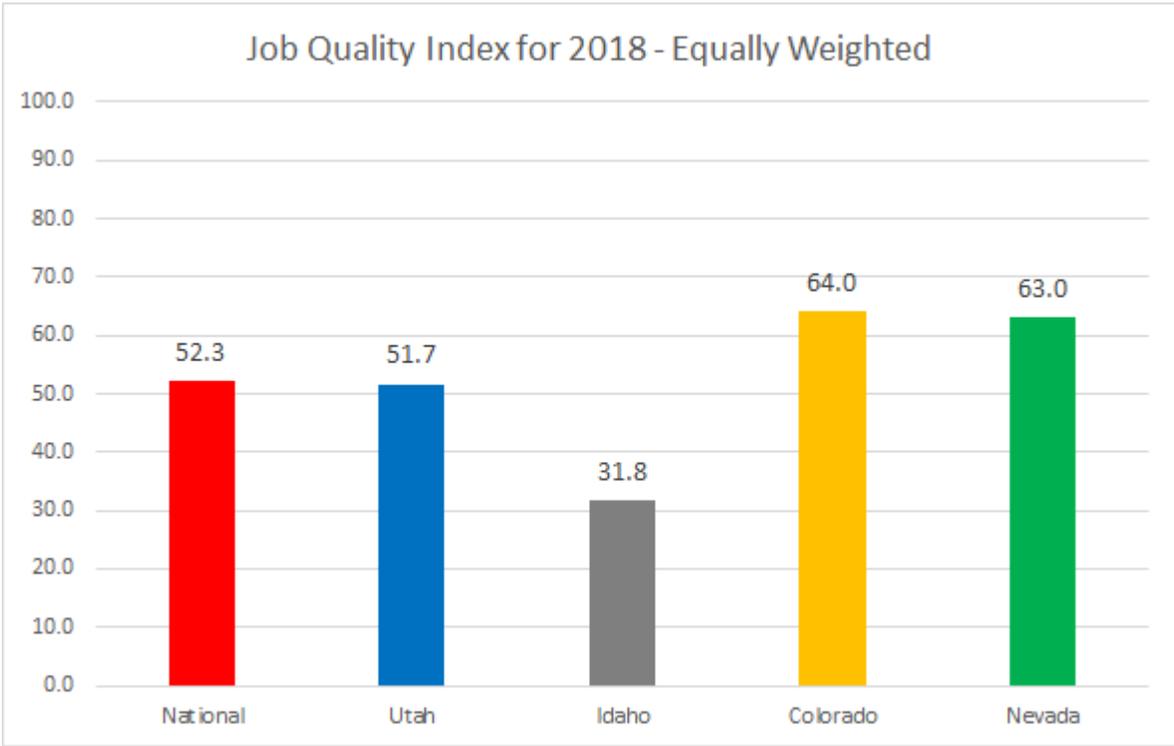
Figure 7: Dimensions of Job Quality Index Using Weights - 2018



In Figure 7 we see the explanation for the differences in job quality. With wages composing 50% of job quality and Colorado having the best sub-dimension values for this dimension, we can see the large effect that wages have on job quality in this index. It is interesting to note that, in terms of wages, Nevada actually ranks the worst. Utah ranks second in terms of wages in this index. This second in wages, which composes a large proportion of job quality in this index, and decent values in terms of work hours and job safety, help to explain the 2nd place position of Utah in this job quality index.

The two sub-dimensions where Utah ranks the lowest are those for non-standard employment and unionization. However, since these sub-dimension each only make up 10% of the index, Utah’s low scores in these two areas are outweighed by higher scores in the areas of wages and work hours. The weights chosen by Voices for Utah Children are subjective and other job quality indexes distribute the weights differently. For example, the U.S. Private Sector Job Quality Index referenced above puts almost all its weight on wages, while our index places 50% of the weights on wages and the other 50% evenly distributed among five other dimensions. However, as we will see in Figure 8 and 9, equally weighting the dimensions does change the index score results.

Figure 8: Job Quality Index - Equally Weighted

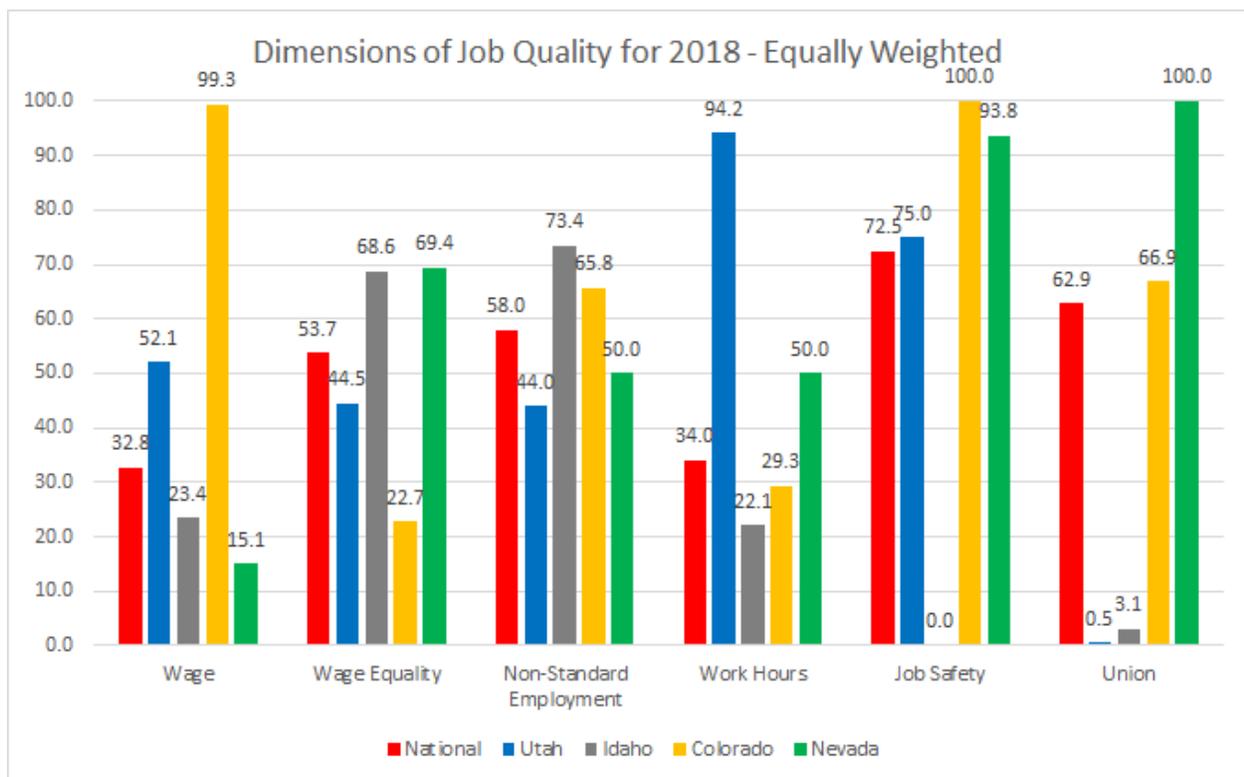


In Figure 8 we see that when dimensions are equally weighted (similar to what the European Job Quality Index does in their latest reports), the relative results are different. While Utah’s index score does not change much (falling from 51.9 to 51.7, the smallest change of any of the five), Utah now lies second to last in job quality, falling behind the nation, Colorado, and Nevada, ahead only of Idaho.

It is of interest to note the large increase in Nevada’s result here compared to the weighted version, rising to second highest and comparable to Colorado (which holds on to its top position). Explanations for this result will be offered in Figure 9 below.

As Figure 9 below shows, Utah’s lower ranking in the equally weighted Job Quality Index can be attributed to our very low unionization dimension score and our relatively low scores for non-standard employment and wage equality. These low scores have the effect of bringing down Utah’s ranking in the equally weighted Job Quality Index. Likewise, Nevada’s relatively high wage quality, job safety, and union dimension scores more than make up for its very low wage score and mediocre non-standard employment and work hours dimension scores under this calculation system.

Figure 9: Dimensions of Job Quality - Equally Weighted



Voices for Utah Children believes that a weighted Job Quality Index is preferred in terms of literature progression and also as a reflection of how most people view the overall job environment. However, Figure 8 and Figure 9 are included in this report so that interested readers can see the effect of weighting vs not weighting in creation of a Job Quality Index.

Job Quality Dimension Analysis: Wages

Having explored the total Job Quality Index, we now seek in this section to explore the dimension of wages and the patterns and findings from our research. We will go into detail about the methodology and the research process. First we will explore the various sub-dimensions that went into the dimension of wages, and from there explore other interesting findings from our research

50th Percentile Median Wages Adjusted for Cost of Living using RPP

For the calculation of this sub-dimension data from the EPI analysis of CPS data was used to provide median wages for 2018 in the areas of interest in this report. In order to adjust for cost of living differences among areas, the Regional Price Parity index from the Bureau of Economic Analysis was used to adjust these median wages for cost of living using a method described by the Philadelphia Federal Reserve Bank⁷. The 2017 Regional Price Parity index was used as 2018 values were not available during the calculation of this data, consistent with documentation from the St. Louis Federal Reserve Bank suggesting using 2017 RPP results to approximate 2018 values.⁸

Figure 10a shows median wages adjusted for cost of living for each area of interest in this report. Figure 10b shows the values that these wages produce once they have been normalized. Note that, in the calculation of the index score, a weight of 0.33 was applied to these normalized scores in order to construct the dimension itself. For this sub-dimension, we show normalized scores in addition to dollar or other values just as an example of how the two relate to each other, but normalized scores are omitted from charts for the other dimensions below.

⁷ https://www.philadelphiafed.org/-/media/research-and-data/publications/economic-insights/2017/q4/rs_purchasing-power.pdf?la=en

⁸ <https://research.stlouisfed.org/publications/cost-of-living/calculator> (See note beneath “Comparing real minimum wages across the U.S. in 2018”)

Figure 10a: Median Hourly Wages Adjusted for Cost of Living

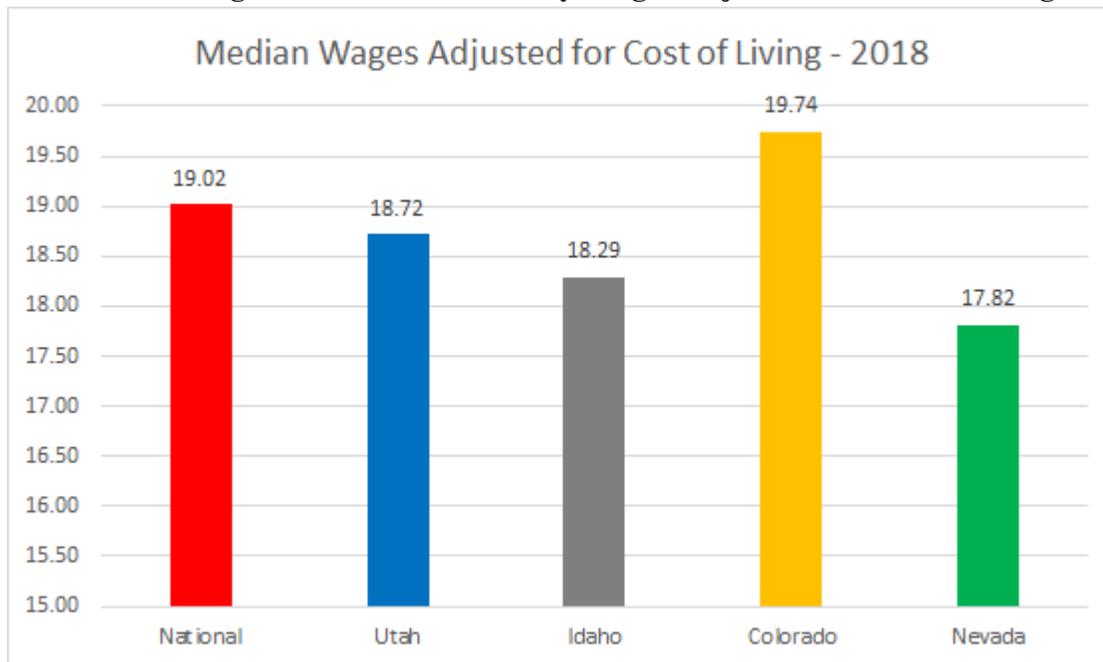
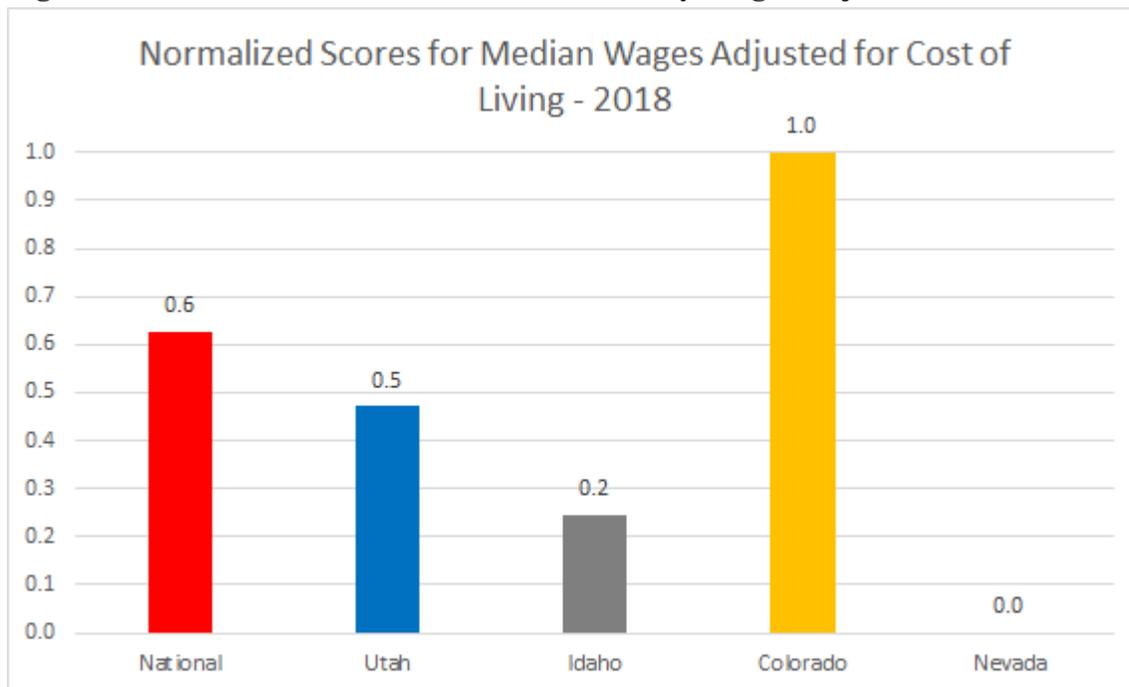


Figure 10b: Normalized Scores for Median Hourly Wages Adjusted for Cost of Living



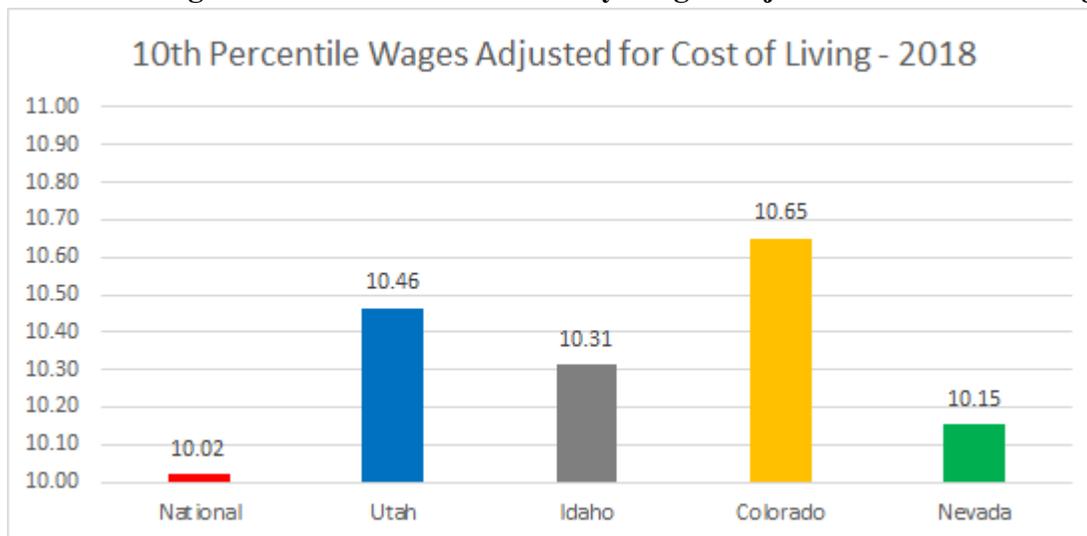
10th Percentile Wages Adjusted for Cost of Living

Like the median wages, this data came from the EPI analysis of the CPS. Once again, in order to account for cost of living, the RPP from the BEA was utilized in order to construct these figures. The 10th percentile wages were included along with the 50th percentile wages because looking

at 10th percentile wages provides insight into how the economy performs for the lowest income earners in a way that is missed by looking just at median wages.

Figure 11 shows 10th percentile wages adjusted for cost of living in a graphical form. Notice how the data points, while still being distinct, tend to cluster together between \$10.00 and \$11.00. It is also noteworthy that, once cost of living adjustments are made, all four states exceed the national level for 10th percentile wages.

Figure 11: 10th Percentile Hourly Wages Adjusted for Cost of Living



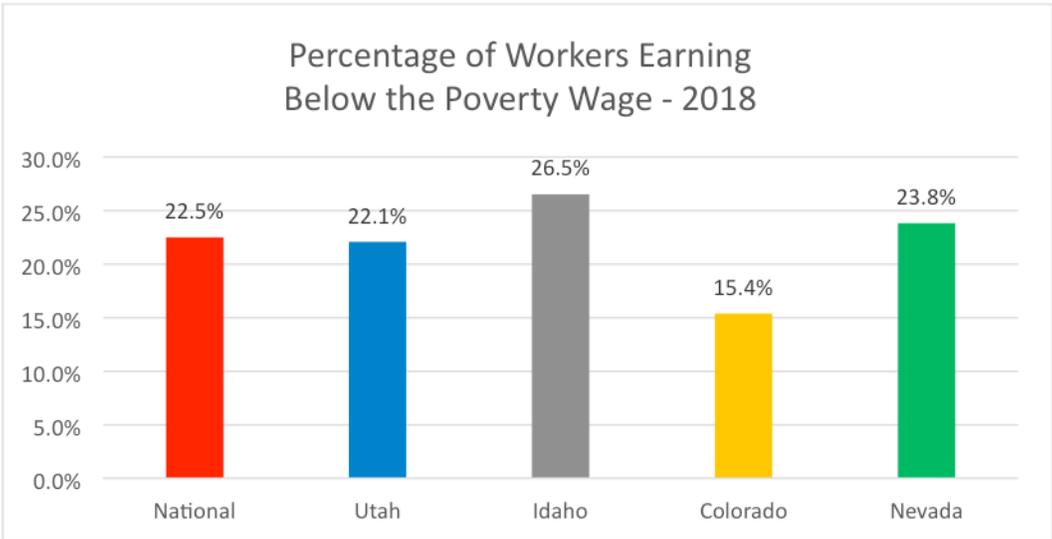
Percentage of Workers Earning Below Poverty Wage

This third and final sub-dimension of wages was calculated using figures provided by the EPI analysis of CPS data. The Economic Policy Institute states that the poverty wage is calculated to be \$12.36 in 2018 CPI-U-RS dollars, and is found using the poverty threshold for a family of four in 2018 and dividing this figure by 2080 hours (which is 52 weeks * 40 hours/week).

We inverse the normalization (1 - Normalized Scores) for this figure in order to retain consistency in which higher scores represent greater job quality. This is done because a lower percentage of workers earning below poverty wage is considered as representing a higher job quality, and so an inverse normalization must be applied.

Figure 12 shows the percentage of workers earning below poverty wage. Note that lower values are preferred.

Figure 12: Percentage of Workers Earning Below Poverty Wage



Supplemental Information: Utah’s national ranking for hourly wages

In the course of analyzing wage data, we calculated Utah’s national ranking for hourly wages with and without cost of living adjustments. This was not included in the Job Quality Index as we believe that 50th percentile and 10th percentile wages adjusted for cost of living include this information. However, we believe it to be of interest in assessing how Utah’s economy performs for Utah’s families and children. Utah’s ranks and those of the other three states are in Table #4 below. One interesting result is that adjusting for Utah’s relatively low cost of living (97% of the national level) does not improve our ranking but actually lowers it relative to other states.

Table 4: Ranking for hourly wages in 2018 (#1 is highest, #50 is lowest)

| | Colorado | Utah | Idaho | Nevada |
|---|----------|------|-------|--------|
| 10 th percentile (low-income) wage unadjusted | #12 | #25 | #40 | #36 |
| 10 th percentile (low-income) wage adjusted for cost of living | #15 | #31 | #36 | #44 |
| 50 th percentile (median) wage unadjusted | #11 | #30 | #42 | #36 |
| 50 th percentile (median) wage adjusted for cost of living | #11 | #34 | #45 | #47 |
| Average wage unadjusted | #9 | #27 | #43 | #33 |
| Average wage adjusted for cost of living | #8 | #35 | #46 | #44 |

Methodological Note: These data all come from the federal Bureau of Labor Statistics Occupational Employment Statistics program (BLS OES), which is referenced on page 2. The cost-of-living adjustment was applied using the federal Bureau of Economic Analysis Regional Price Parities values. All figures for Table 4 are from 2018.

Job Quality Dimension Analysis: Wage Equality

We believe wage equality among different demographic groups to also be an indicator of job quality in the US. Not only may differences in wages reflect systematic biases in the workplace, but they may also be a reflection of the implicit choices that workers have had to make that result in differing wage rates.⁹ In this dimension we compare the differences between Hispanic and White workers and between male and female workers for hourly wages at the 10th and 50th percentiles.

Data for 50th percentile hourly wages came from the Economic Policy Institute's analysis of CPS data for 2018. Due to a low sample size of 10th percentile Hispanic workers, Voices for Utah Children pooled together 3 years (2016, 2017, and 2018) of CEPR-provided CPS microdata in order to construct a 10th percentile pooled Hispanic wage. In order to maintain consistent results, the 10th percentile wage for White workers was also calculated using this same pooled method. Use of the "wage3" microdata variable was used as we believe it to be the most consistent with the wage as calculated by EPI.

Figure 13 shows the hourly wage ratio of Hispanic to White at the 10th and 50th percentiles. Figure 14 shows the hourly wage ratio of females to males at the 10th and 50th percentiles. It appears that the wage gap between both Hispanics and White and females and males are less at the 10th percentile than at the 50th percentile. Likewise, it is of interest that Colorado, which tends to rank the best in terms of wage in this analysis, is ranked as the lowest in terms of the wage ratio between Hispanics and Whites at both the 10th and 50th percentiles. Utah ranks the lowest in terms of the wage ratio between females and males at the 50th percentile. However, it is of interest that Utah only ranks second lowest in terms of the wage ratio between females and males at the 10th percentile.

⁹ The Economic Policy Institute engages in a further discussion of this phenomenon: <https://www.epi.org/publication/womens-work-and-the-gender-pay-gap-how-discrimination-societal-norms-and-other-forces-affect-womens-occupational-choices-and-their-pay/>

Figure 13: Hourly Wage Ratio of Hispanics to Whites

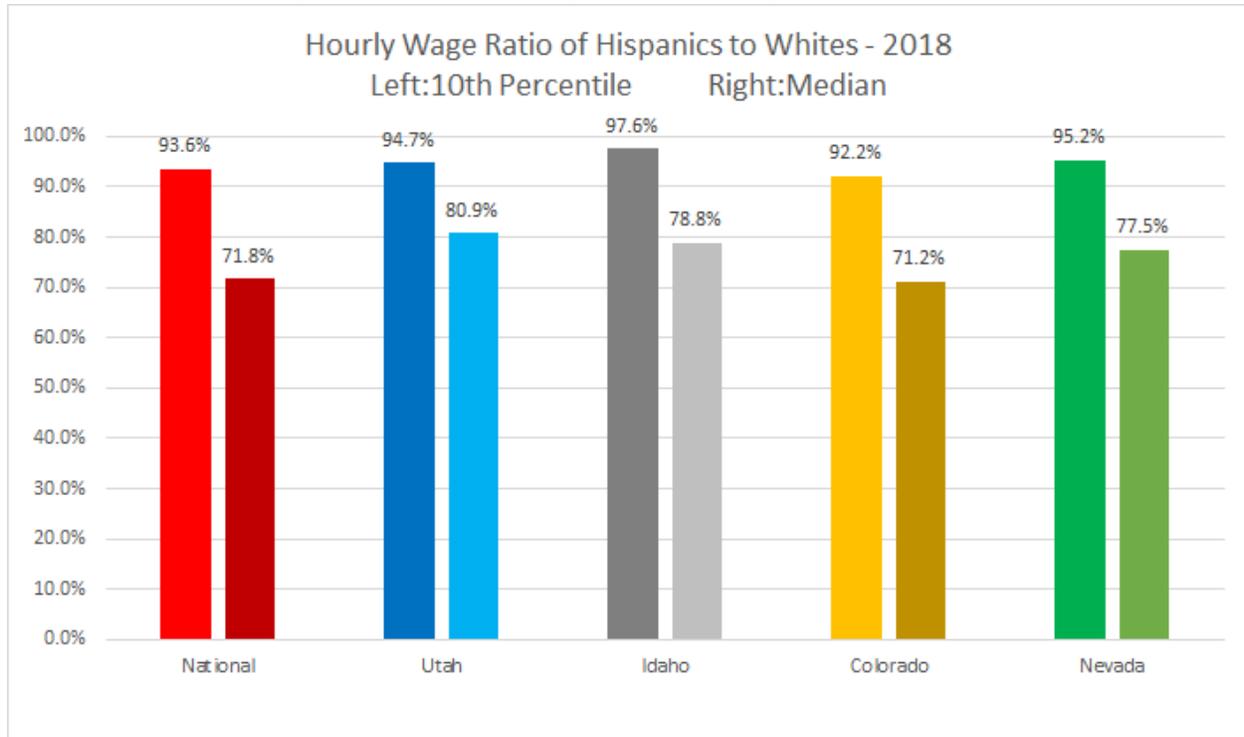
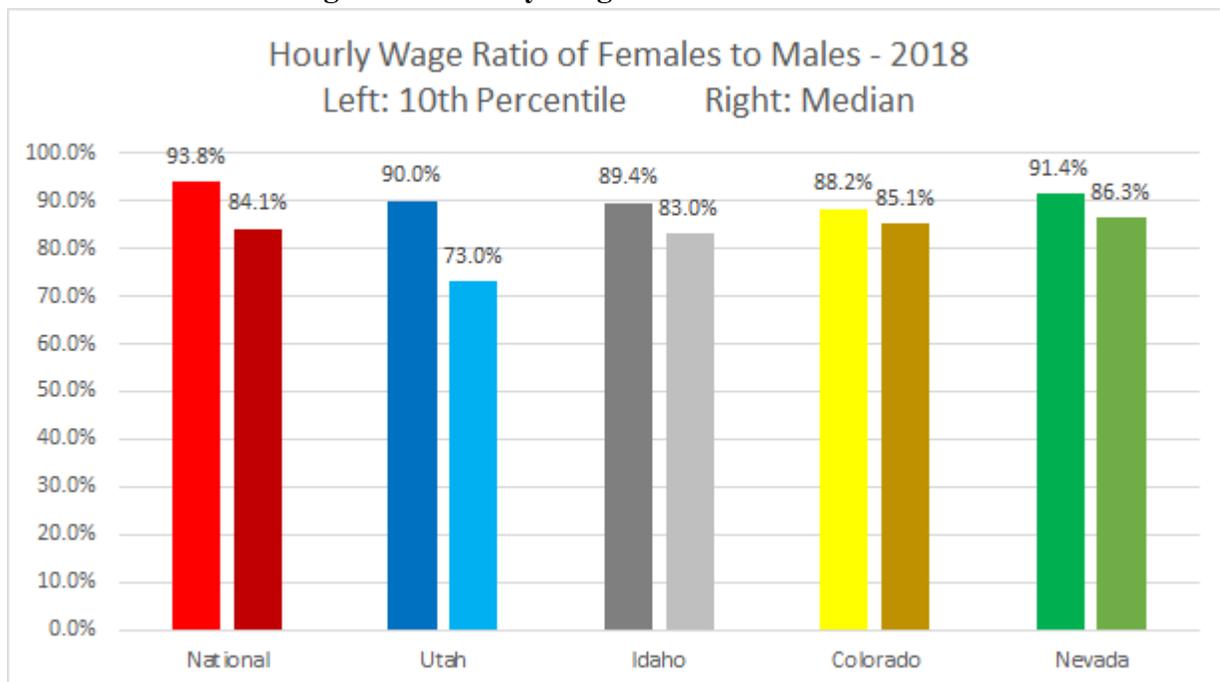


Figure 14: Hourly Wage Ratio of Women to Men



Job Quality Dimension Analysis: Non-Standard Forms of Employment

Voices for Utah Children sought to measure non-standard forms of employment through two primary sub-dimensions: percent of the total workforce that is part-time for economic reasons and percent of the workforce that work multiple jobs. The percent of the workforce that is part-time for economic reasons is also often referred to as the involuntary part-time workforce. This metric aims to report on those who are working part-time because they are unable to find full-time work. Those who work multiple jobs are included in this dimension under the belief that people who work multiple jobs also largely do so involuntarily because they are unable to find a single job that provides the wages needed to support their household, adding transportation and other logistical challenges to their lives and reducing their quality of life. The two factors were evenly weighted in the calculation of this dimension.

Microdata analysis of CEPR CPS data was used in order to calculate the percent of the total workforce who are part-time for economic reasons. Analysis was performed at the national level and for Utah, Colorado, Idaho, and Nevada. Likewise, the same microdata analysis was performed using CEPR CPS data in order to calculate the number of workers who work multiple jobs. In this instance, working multiple jobs is included as a binary value. The number of multiple jobs are not included and are simply recorded as working one job or as working two jobs or more. Because larger values in the index should represent better job quality, these values were inverted in the calculation of the index scores.

Figure 15 shows a rather tight grouping of involuntary part-time workers among the studied areas. All values are within 1 percentage point of the national value. Only Nevada is above the national percentage of involuntary part-time workers, with Utah, Idaho, and Colorado all being below the national average. Figure 16 shows the percent of workers who work multiple jobs. Figure 16 shows the opposite results of Figure 15. Here, only Nevada is below the national value. Utah, Idaho, and Colorado all lie above the national value. Most interestingly, Utah has the highest percentage of workers who work multiple jobs and is almost 2 percentage points higher than the next highest state.

Figure 15: Percent of Workers Who Are Part-Time for Economic Reasons

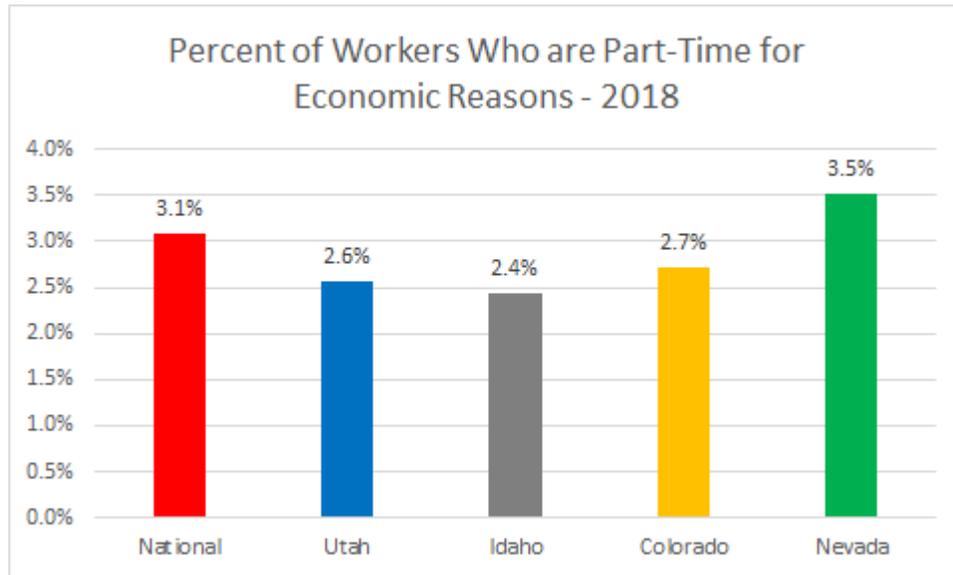
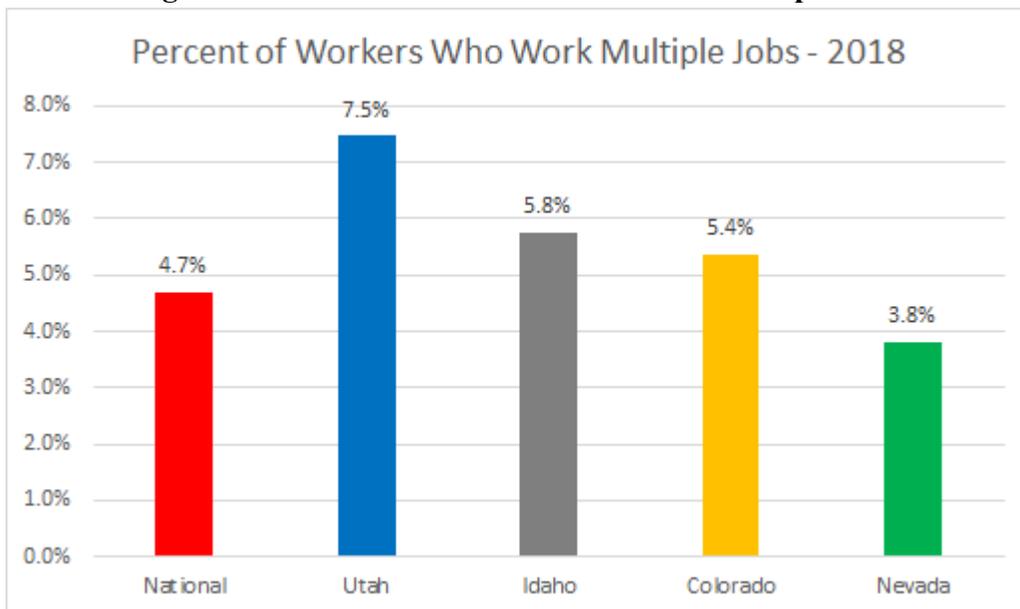


Figure 16: Percent of Workers Who Work Multiple Jobs



Supplemental Information: Part-time employment overall, by age, and by sex

In the course of our analysis of part-time employment for economic reasons we produced figures relating to the percent of workers who are part-time as a share of total employment. Although not relevant to the discussion of the job quality index, such figures provide information that is still informative. This is especially the case for the sex slice and age slice figures. This information was generated through microdata analysis of CPS data provided by the MDAT service through the Census Bureau.

Figures 17a, 17b, and 17c represent part-time employment as a percent of total employment overall, by age, and by sex, respectively. Utah has the highest rate of part-time employment out of the five studied geographic areas of interest. Idaho follows second, 1.3 percentage points lower than Utah’s rate. The sex slice figures show that in every geographic area, women work part-time at a far greater rate than men. This difference was greatest in Utah, where the difference in the percent of part-time employment as a share of total employment between women and men was 20.3 percentage points. Not only that, but in Utah women worked part-time at a greater rate than every other geographic area of interest, with Idaho a close second. It is also noteworthy that men in all four states work part-time at a higher rate than men nationally.

Figure 17a: Part-time Employment as a Share of Total Employment

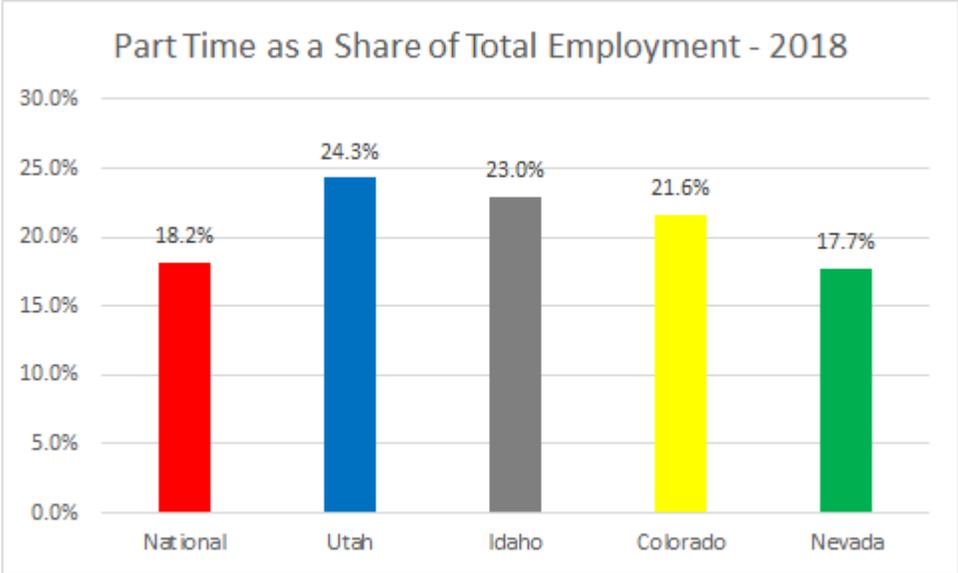


Figure 17b: Age Slice - Part Time Employment as a Share of Total Employment - 2018

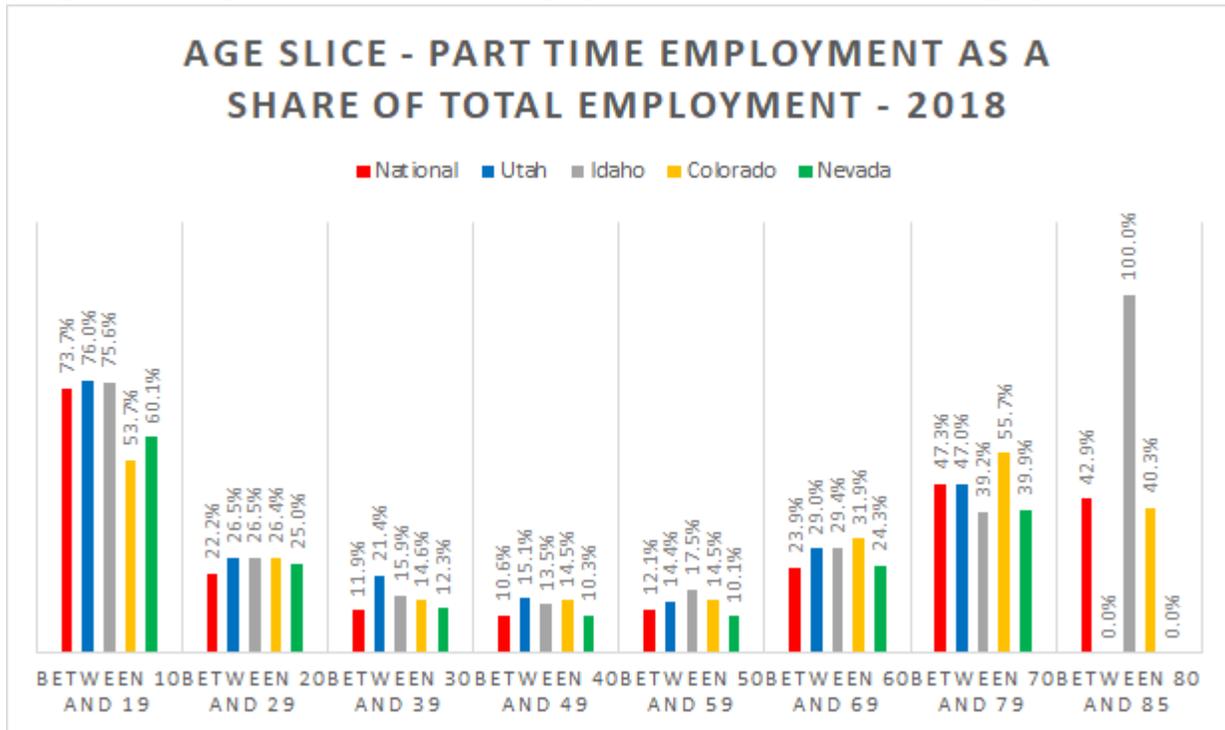
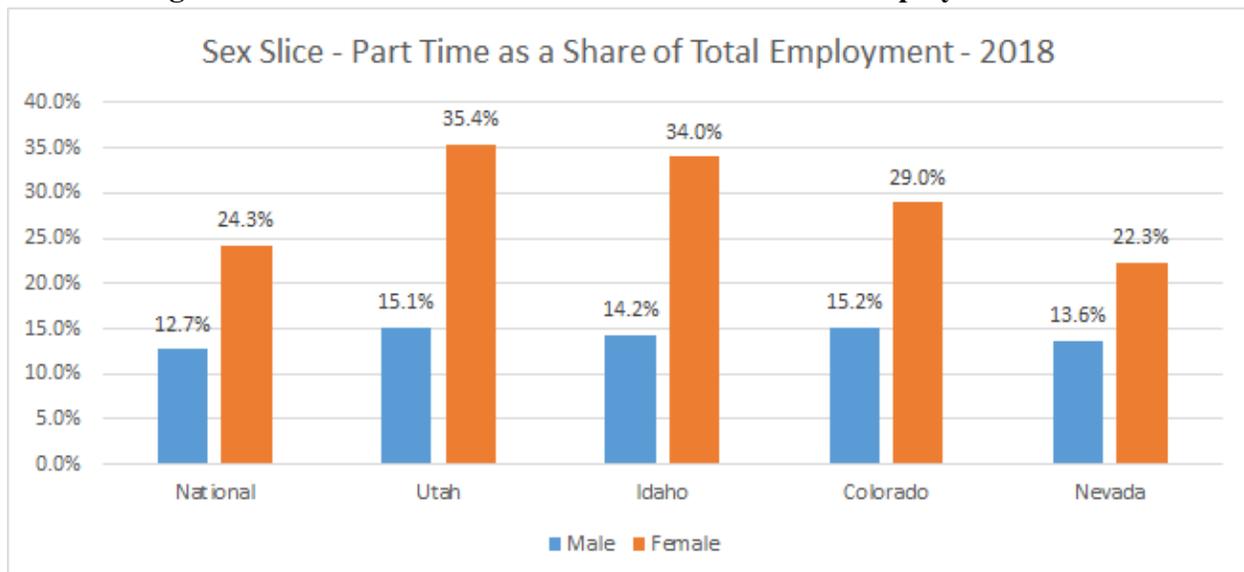


Figure 17c: Sex Slice - Part-time as a Share of Total Employment - 2018



Job Quality Dimension Analysis: Working Hours

Voices for Utah Children included working hours as a dimension of job quality based on the belief that overly long working hours harms the work-life balance of individual workers. Thus, we measured the average weekly hours worked and the percent of workers who work more than 48 hours in a week. It should be noted that the average weekly hours worked includes both full-time and part-time workers.

Microdata analysis of CPS data provided by the MDAT service of the Census Bureau was used. Once again, in order to ensure that higher index values in the job quality index represent better job quality overall, the normalized values for these figures were inverted. This ensures that a lower percent of workers who work more than 48 hours and a shorter average work week both represent better job quality.

Figure 18 and Figure 19 represent these sub-dimensions, respectively. In Figure 18, notice how Utah has the shortest average work week out of the analyzed geographic areas of interest. This shorter average work week may perhaps be explained through Utah having a greater percentage of part-time employment, consistent with the data reported above in Figure 17a. Idaho and Colorado, the next two areas with the highest rates of part-time as a percent of total employment, also have shorter average work weeks than nationally.

Figure 18: Percent of Workers Who Work 48+ Hours a Week

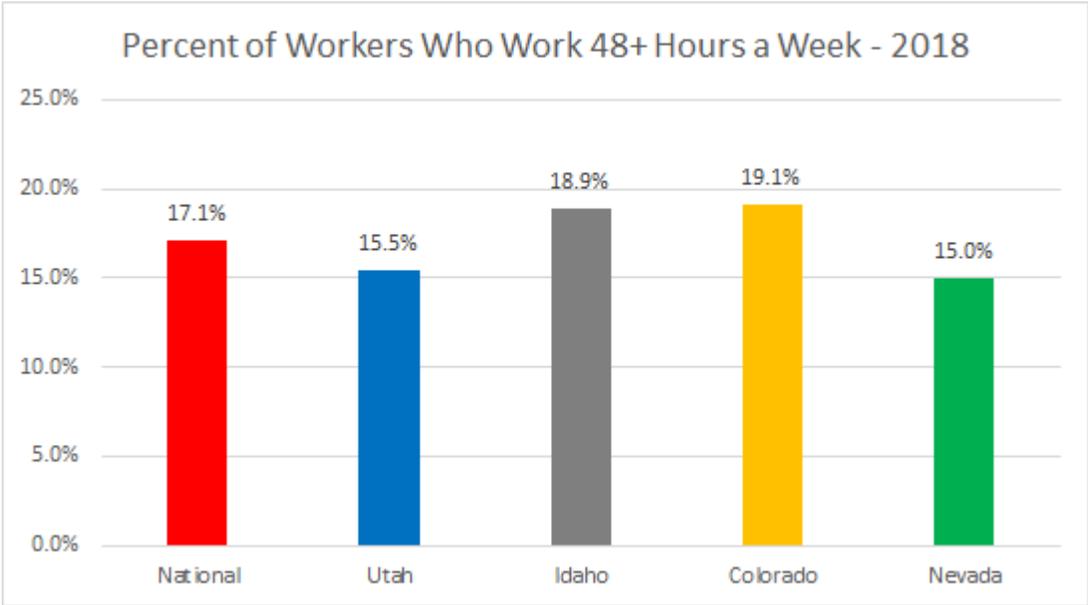
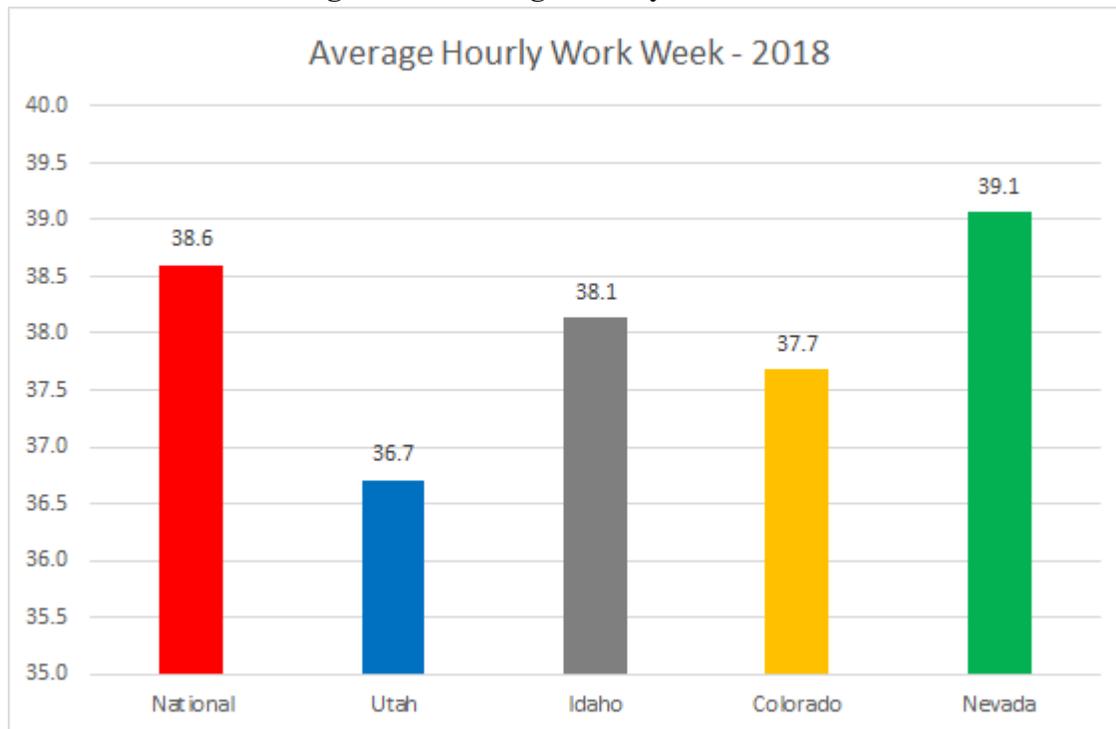


Figure 19: Average Hourly Work Week



Job Quality Dimension Analysis: Job Safety

Voices for Utah Children included job safety as the next dimension of job quality. The conditions in which workers perform their jobs and the safety of these jobs are important factors to the wellbeing of families and children. However, data about job safety and working conditions is lacking. The RAND Corporation has sought to collect data on working conditions in a harmonized manner with the European Working Conditions Survey by conducting their own American Working Conditions Survey.¹⁰ However, the data is unsuitable for a state-level comparison. Indeed, even data collected by the BLS through their Survey of Occupational Injuries and Illnesses¹¹ is incomplete due to non-participating states. Two states analyzed in this report, Idaho and Colorado, do not provide data to the SOII and thus non-fatal workplace injuries cannot be factored into our analysis of job safety. Thus, we are left with the Census of Fatal Occupational Injuries¹² as a data source in creating a dimension on job safety. The CFOI measures the rate of fatal workplace incidents. This data source was factored into our analysis of job quality. However, we hope to continue to survey the field and include additional metrics of job safety and working conditions in the future.

¹⁰ <https://www.rand.org/education-and-labor/projects/american-working-conditions.html>

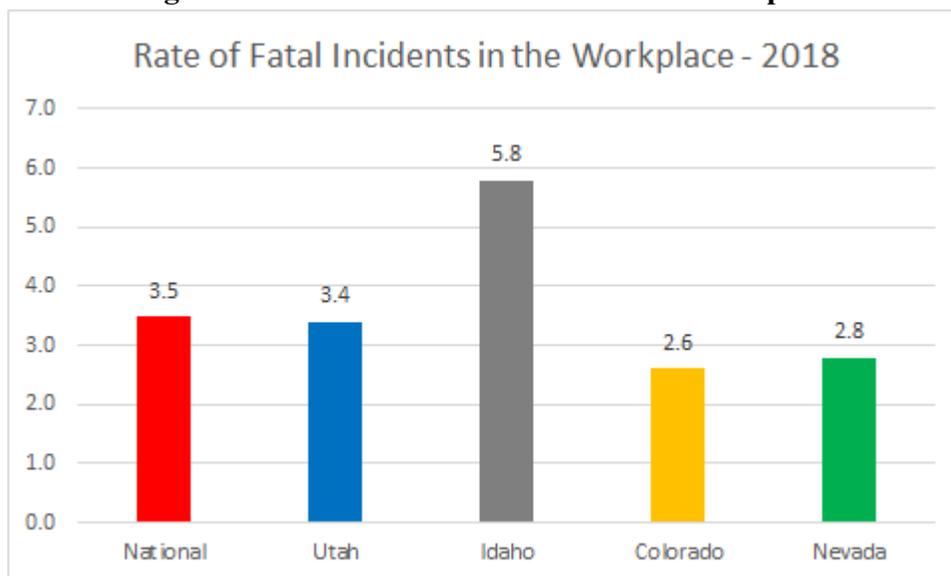
¹¹ <https://www.bls.gov/respondents/iif/>

¹² <https://www.bls.gov/iif/oshcfoi1.htm>

In order to ensure that higher index scores in the job quality index correspond to a higher level of job quality, we inverted the normalized scores for the overall fatality rate. Thus, states that had lower fatal rates will have a higher job safety dimension score than states with higher fatal rates.

Figure 20 shows the rate of fatal incidents in the workplace. Utah's fatal incident rate is very close to the national rate. Idaho is of interest due to its very high fatality rate, almost 1.5 times the national level. Colorado has the lowest fatality rate, followed closely by Nevada, and are .9 and .7 percentage points below the national rate, respectively.

Figure 20: Rate of Fatal Incidents in the Workplace



Job Quality Dimension Analysis: Unionization

Recent decades have witnessed a sharp decline in unionization in the United States, where unionization rates are among the lowest in the OECD.¹³ Many economists have drawn links between this decline and the trend of stagnant and falling wages in the US, especially for lower-skilled workers.¹⁴ Economic evidence indicates that unionized workers enjoy higher wages and better benefits.¹⁵ It is also the case that union membership rates vary considerably among the 50 states, from a low of 3% in North Carolina to a high of 24% in New York.¹⁶ Thus, Voices for Utah Children included unionization as a dimension of job quality in this index.

We looked at two sub-dimensions in order to construct this dimension on unions: union coverage and union membership. Due to the nature of union contracts and agreements, some workers who

¹³ <https://stats.oecd.org/Index.aspx?DataSetCode=TUD>

¹⁴ <https://www.theatlantic.com/business/archive/2016/08/union-inequality-wages/497954/>

¹⁵ <https://www.bls.gov/opub/mlr/2013/04/art2full.pdf>

¹⁶ <https://www.governing.com/gov-data/public-workforce-salaries/union-membership-affiliation-by-state-data-statistics.html>

are not members of unions receive the benefits that union workers do and are covered by these agreements or contracts. As a result, we seek to measure both coverage and membership. The figures used in this report came from EPI analysis of CPS data.

Figure 21 shows union membership rates for our five geographic areas. Perhaps as expected, Utah has the lowest levels of union membership while Nevada's is the highest. Utah's membership rate is well under half the national rate. In Figure 22 we see Nevada also has the highest rate of union coverage, but this time we see Idaho with the lowest rate. However, Idaho only underperforms Utah by one-tenth of a percentage point.

Figure 21: Union Membership

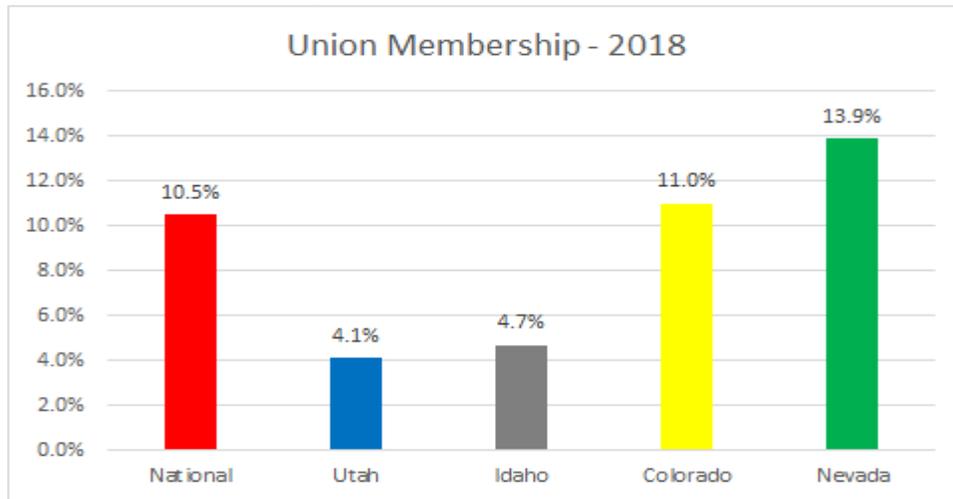


Figure 22: Union Coverage

