



The
IMPACT
of a \$12.00
Minimum Wage
on Women in
Colorado



UNIVERSITY of
DENVER

COLORADO WOMEN'S COLLEGE

THE WOMEN'S
FOUNDATION
OF COLORADO

What is the Minimum Wage in Colorado?

- \$8.31 per hour, or \$17,285 annually for full-time, year-round work

Who Makes Up the Minimum Wage Workforce in Colorado?

- More than **50%** are women
- **85%-90%** are older than **20**
- Median age is approximately 30 years old
- Nearly **35%** are over **40**
- **35%** have attended college
- **16%** possess at least a bachelor's degree



The Impact of a \$12.00 Minimum Wage on Women in Colorado Executive Summary

The Impact of a \$12.00 Minimum Wage on Women in Colorado examines who would be impacted by an increase in the Colorado minimum wage, and the effect of a higher minimum wage on Colorado's workers and its economy. The report also highlights policy considerations for Colorado lawmakers on how to best support Colorado women and families in achieving economic self-sufficiency.

In November 2016, Colorado voters will have the opportunity to vote on an increase to the statewide minimum wage, which currently is \$8.31 per hour, or \$17,285 annually for full-time, year-round work. The amendment proposes to raise Colorado's minimum wage by the year 2020, to \$12.00 per hour, or \$24,960 annually for full-time, year-round work.

The Impact of a \$12.00 Minimum Wage on Women in Colorado examines how increases to the minimum wage impact earnings, poverty, and gender and racial equality, and also investigates the potential impact on childcare affordability and families' eligibility for public support programs.



Key Findings and Policy Considerations:

An increase in the minimum wage would have a significant positive impact on Colorado women and families, lifting many working women and their children out of poverty.

- Since women are over-represented in the bottom of the wage distribution and the majority of minimum wage earners, they will gain the most from the boost in minimum wages.
- The proposed \$12.00 per hour minimum wage will boost income for approximately 290,000 women.
- Most female minimum wage workers will receive wage increases between \$4,000 and \$7,000 per year.
- Women are breadwinners in nearly half of households with children under age 18. For a family with two children, a minimum wage boost to \$12.00 per hour could cover the cost of six to eight months of food; seven to nine months of transportation expenses; four to seven months of rent; or a semester to a full year at a community college.

Increasing the minimum wage to \$12.00 per hour by 2020 will boost earnings and consumer spending in Colorado.

- The minimum wage boost in Colorado will collectively increase wages by \$600-\$700 million, positively contributing to economic activity throughout the state.
- Incomes will increase for 20% of all households in Colorado, including 200,000 households with children.
- Most of the increased earnings will impact workers

over 20 years of age, and households earning less than \$60,000 annually.

- The spending by minimum wage increase recipients and their families will augment Colorado's Gross Domestic Product (GDP) by \$400 million.

Increasing the minimum wage will contribute to economic growth without significant job losses or increases in consumer prices.

- The impact on overall prices is small, as consumer prices may rise .1-.2% per year over the transition period, which is well below the average cost of living increase of 2% over the past generation.
- Higher worker effort and reduced turnover will mitigate higher costs for employers, thereby reducing the risk of dramatic price increases as wages rise.
- Higher minimum wages have strong positive earnings effects for restaurants and other low wage retail industries.
- Possible negative employment impact is minimal; overall, most researchers over the past 15 years have found that the minimum wage in the U.S. has little noticeable impact on job losses. Cities and counties that raised minimum wages did not experience resulting job losses, when compared to regional neighbors with lower minimum wages.

Childcare costs are not expected to increase substantially, especially in parts of the state with higher cost of living, such as Denver and Boulder.

- Childcare costs are driven by cost of living, not minimum wages. Since increases in minimum wages will have little effect on overall wages throughout the state, they should have no statistically significant or meaningful impact on childcare prices.
- Childcare costs may increase by 9-10% over the next four years in communities with lower cost of living, and lower average wages for childcare workers, before the minimum wage increase. These implications could be mitigated by:
 - Reducing barriers to entry into the childcare market by reducing administrative burden for centers seeking new or renewed licenses to operate.
 - Increasing Colorado Child Care Assistance Program (CCCAP) reimbursement rates for providers, in order to offset modest cost increases due to higher minimum wages, and ensure that providers continue to accept CCCAP families.



A minimum wage increase would be a net positive for minimum wage earners and the state of Colorado. It would increase earnings, strengthen the economy, and reduce economic inequity in our state.

- Currently in Colorado, many low-income households are supported by both earned income and public safety-net programs. The effects on eligibility for public assistance programs in Colorado would be very small, with almost no effects projected for single-earner households.
- The economic impact on most families will be positive. However, an extremely small number of families may experience cliff effects, or an increase in household expenses, as a result of a loss of eligibility for public assistance programs that exceeds the increase in earnings. These implications could be mitigated by:
 - Evaluating outcomes of the extended CCCAP Cliff Effect Pilot programs, and taking successful approaches to cliff effect mitigation to scale across the state, so that families who near the eligibility limits can gradually decrease reliance on this important work support program.
 - Monitoring out-of-pocket costs for CHP+ and Connect for Health consumers to ensure that costs remain affordable for families making minimum and near-minimum wages.
 - Implementing state supplements to the Low-Income Energy Assistance Program (LEAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) programs in order to ensure that three- and four-person, dual-earner households are not caught in the eligibility gap if the new minimum wage takes effect.



Introduction

In November 2016, Colorado voters will have the opportunity to vote on an increase to the statewide minimum wage, which currently is \$8.31 per hour, or \$17,285 annually for full-time, year-round work. The amendment proposes to raise Colorado's minimum wage to \$12.00 per hour, or \$24,960 annually for full-time, year-round work, by 2020.

The Impact of a \$12.00 Minimum Wage on Women in Colorado examines who would be impacted by an increase in the Colorado minimum wage, and the effect of a higher minimum wage on Colorado's workers and its economy. This report also explores the impacts of increases to the minimum wage with respect to earnings, poverty, and gender and racial equality, and also investigates the potential impact on childcare affordability and families' eligibility for public support programs. This report also highlights policy considerations for Colorado lawmakers on how to best support Colorado women and families in achieving economic self-sufficiency.



Overall Findings

The proposed increase in Colorado's minimum wage to \$12.00/hour by 2020, if enacted, will have substantial positive effects on Colorado's working poor and middle-income families. It will significantly boost income for working women, and is an important step toward self-sufficiency and a living wage for many women in Colorado. The economic literature finds the minimum wage in the United States has had little noticeable effect on employment, while positively boosting earnings. In fact, since weak consumer demand is a major factor in holding Colorado businesses back from expanding their payrolls, raising the minimum wage can provide a catalyst for new hiring in the state. This occurs because the extra bump in salary earned by working Americans in Colorado will spur economic activity and offset any possible job losses (Cooper, 2013). As a result, we expect the increase in the minimum wage to boost the income of many working women in Colorado, and lift most out of poverty.

At the same time, however, it is likely that some households will experience gains in income, but an accompanying loss of access to public benefits such as nutrition assistance and earned income tax credits. A key question, therefore, is whether the gains in income will offset these potential losses, or if the loss of benefits—constituting a marginal tax increase—will cause the families to be worse off economically than they were at the previous wage rate. Thus, we examine the pros and cons of Colorado's initiative to raise the minimum wage, and present considerations for policymakers if the initiative is adopted. The goal of this analysis is to answer the following questions:

1. How many women will be impacted by the raise of minimum wage in Colorado?
2. As the minimum wage increases, how will childcare affordability and access be affected in communities across Colorado?
3. As earnings increase, as a result of the increase to the minimum wage, how will families' eligibility for public assistance be affected?
4. What changes may be considered for the eligibility guidelines for such assistance programs to limit the "cliff effect" as the minimum wage increases?

Benefits to a Minimum Wage Increase

- Increasing the minimum wage will raise income for 20% of all households in Colorado, boosting earnings for more than 400,000 households. The proposed \$12.00/hour wage will boost income for approximately 290,000 women. Most of the female workers will receive wage increases between \$4,000 and \$7,000 per year; the range dependent on whether current workers are earning the minimum hourly wage or something slightly above the current minimum.
- The raise in the minimum wage will improve the economic well-being of many children in Colorado who are currently living in poverty. Approximately one-quarter of Colorado's female-headed households with children are poor, and the rate is even higher for families with children under five—more than 36%. The wage boosts income for more than 200,000 families with children. This is especially salient because working women in low-income families contribute a greater share of family resources than working women in higher-income families, underscoring the importance of the minimum wage to low- and moderate-income families. Working mothers now make up approximately 40 percent of primary breadwinners for families with children, and co-breadwinners in nearly two-thirds of families with children as of 2009, compared to less than 30 percent of families in 1967.
- The median age of minimum wage workers in Colorado is around 30 years old, and 85%-90% are older than twenty. Nearly 35% are over forty, and half work full-time, with 85% working more than 20 hours per week. Hence working families, not teenagers, will be the primary recipients of higher wages.
- The average affected worker earns half of his or her family's total income. Two-thirds of the minimum wage income will go to Colorado households earning less than \$60,000 annually. Therefore, the proposed minimum wage increase is targeted toward working- and middle-class Coloradans.
- The proposed minimum wage will raise incomes for many workers who earn near minimum wages, due to the ripple effect that occurs as wages increase. Estimates show that a third of the benefit goes to workers earning \$25,000-\$35,000 per year.
- Most of the benefits of rising incomes will impact white workers and their families, but people of color are overrepresented among minimum wage workers in the state. In Colorado, white workers will receive 59% of the benefits, Latino workers 29%, Black workers 6%, and Asian workers 6%.
- Approximately 16% of white workers in Colorado, or 250,000, and 30% of Black workers in Colorado, or nearly 27,000, will experience wage increases. In addition 28% of Latino workers in Colorado, or 130,000, will also receive boosts in wages if the minimum wage increase is passed. The move to \$12.00 is, therefore, an important step towards reducing racial and ethnic inequality in Colorado. Additionally, more than 6% of Asians and Native Americans, or 30,000 workers, will benefit from a minimum wage increase to \$12.00.
- The increase will benefit workers at all levels of education; 35% have attended college and 16% have at least a bachelor's degree.
- A higher minimum wage reduces government welfare spending. The boost in income shifts low-wage workers out of poverty and reduces their dependence and eligibility for government benefits (Cooper, 2016). This has the potential to save the state and federal government millions of dollars, even if steps are taken in the short-term to protect the most vulnerable workers from experiencing cliff effects as their incomes increase.
- The minimum wage in Colorado has not kept up with inflation, the rise in average household income, or the rise in worker productivity in the state. If the minimum wage in Colorado had kept pace with either productivity gains or personal income increases since 1968, it would exceed \$23.00 per hour in 2016.
- The impact on overall prices is small, as consumer prices may rise .1-.2% annually over the transition period, well below the average cost of living increase of 2% over the past generation. Possible negative employment impact is minimal; overall, most find that the minimum wage in the U.S. has little noticeable impact on job losses (Wolfson & Belman, 2015).
- Minimum wage increase spending by recipients and their families will augment Gross Domestic Product (GDP) in Colorado by \$400 million. The boost in spending by Colorado workers will further minimize potential job losses by layoffs due to higher wages. Higher worker effort and reduced turnover will mitigate higher costs for employers, thereby reducing the risk of dramatic price increases as wages rise. The positive effect of higher wages was recognized more than 100 years ago by Henry Ford, when he raised wages to reduce employee turnover and increase productivity and profits. The extra income was not Ford's main motivation, but it did boost his workers to middle class, allowed them to buy Ford's cars, and drove consumer demand throughout the country. We expect the minimum wage boost in Colorado to increase wages by \$600-\$700 million, positively contributing to economic activity throughout the state.

- Female full-time earnings in Colorado have lagged male earnings compared to the rest of the country. In 2002, female wages in the state were 84% of male wages compared to 78% nationwide; however, while nationwide the gap has gradually closed to 81%, in Colorado, female earnings are now 80% of male earnings. Raises in minimum wages should help close the gap, and reduce inequality between male and female workers in the state. We document the inequality effect later in the report.
- Three industries in Colorado account for nearly half of the private sector workers getting wage increases from a \$12.00/hour minimum wage: retail trade (17.6%), health care and social assistance (18%), and restaurants (13.5%). Higher minimum wages will help women as they are more likely concentrated in these low wage occupations. Higher minimum wages will particularly help the majority of 236,000 food preparation and restaurant workers, 56,000 cashiers, 21,000 personal care aides, and 17,000 housekeepers in Colorado.
- Higher minimum wages will help women feed their families and provide substantially better nutrition for young children. A National Bureau of Economic Research (2016) study shows that higher minimum wages substantially raise birth weight and improve these infant's future educational and financial prospects. Thus, higher minimum wages will help ensure that the next generation becomes healthier and more productive Coloradans.



What Does a Minimum Wage Boost Mean to Most Workers?

A minimum wage boost to \$12.00, for a family with two children, could mean:

- Six to eight months of food,
- Seven to nine months of transportation expenses,
- Four to seven months of rent, or
- A semester to a full year at a community college.

For a single female-headed household, the boost could feed her and her children for a year, as well as pay for her children's clothing and incidentals.

Minimum Wage Work

There has been considerable investigation into the positive and negative effects of the minimum wage since Card and Krueger (1994) published their seminal work on New Jersey's minimum raise increase from \$4.25 to \$5.05 in 1992. Their research compared job growth between 410 fast-food restaurants in New Jersey and Eastern Pennsylvania before and after the minimum wage increase, and found no indication that minimum wages reduced employment. Card (1992) also examined increases in the minimum wage in California that supported his N.J. findings that state increases have little adverse impact. Prominent work on increases in the federal minimum wage by Katz and Krueger (1992) and Card (1992) also highlight no negative job effects. However, Neumark and Wascher (2007) conclude that minimum wage increase can lead to job losses for low-skilled workers.

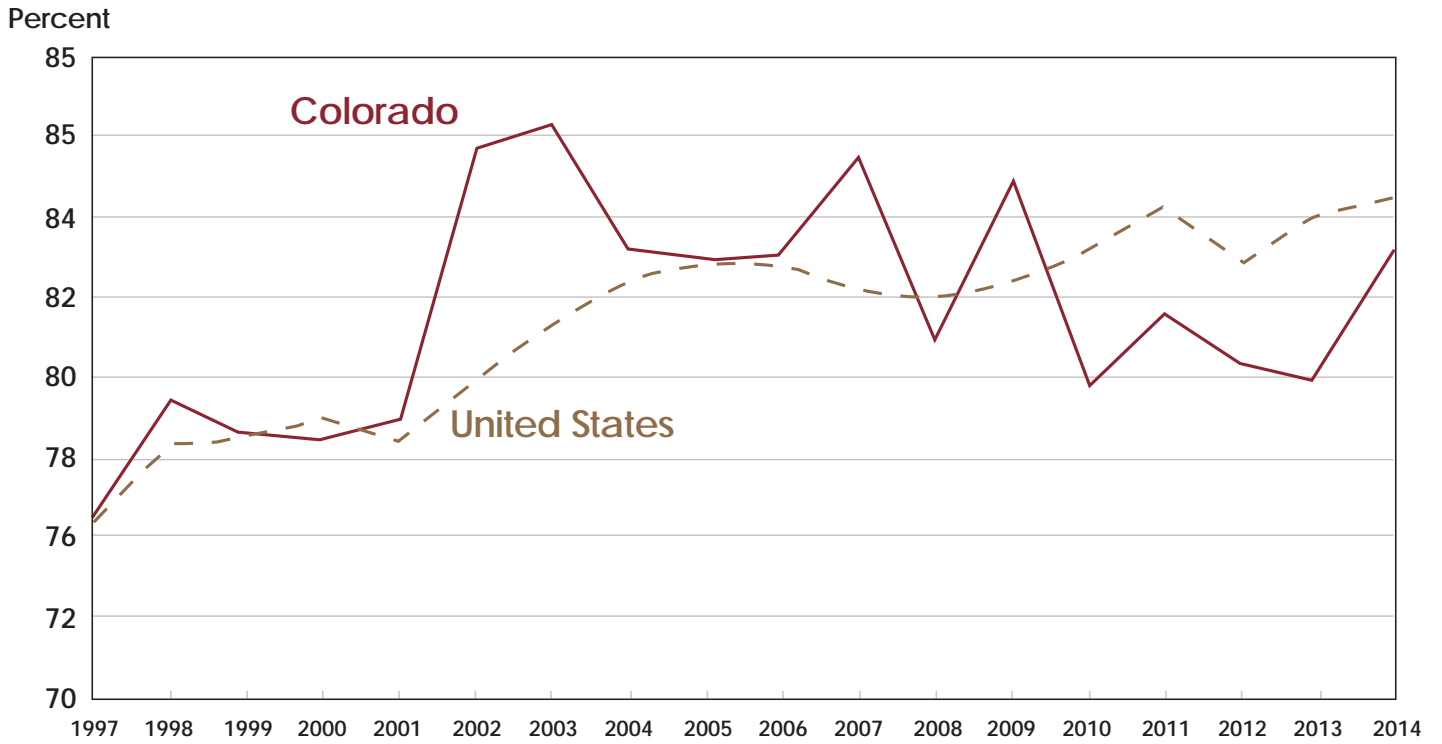
In a comprehensive study, Dube, Lester, and Reich (2010) analyze contiguous counties across the U.S. with different minimum wages, and show that although there are sizeable differences in minimum wages across the U.S., there are no negative employment effects between counties. Instead, higher minimum wages have strong positive earnings effects for restaurants and other low-wage retail industries. Wolfson and Belman (2015) provide a comprehensive investigation of minimum wage impacts using meta-analysis; this estimation technique incorporates, synthesizes and re-estimates the statistical work of 15 years of prior minimum wage work. They conclude: "As a whole, this literature provides no support for the position that minimum wage policy in the United States has had any detectible effect on employment, either negative or positive" (p. 23). Their work parallels most prior meta-analysis works such as Card and Krueger (1995) and Doucouliagos and Stanley (2009). Thus, there is little economic evidence supporting negative minimum wage effects.

Wolfson and Belman's (2015) meta-analysis conclusions on women further document no negative job effects, but instead strongly support higher income for working women. Belman, Wolfson, and Nawakitpahaitoon (2015) also find no negative employment effects on women; in contrast, their work demonstrates that higher minimum wages are associated with higher wages and earnings for women and these positive effects are larger than for men. They find that nine of the eleven articles that estimate the effect of the minimum wage on women's earnings find a positive effect on hourly or weekly earnings (e.g., Butcher, 2005; Dinardo, Fortin, and Lemieux, 1996; Easton, 2006; Harvey and Bernstein, 2003; Lee, 1999; Neumark and Wascher, 2011; Orrenius and Zavodny, 2008; Stewart, 2004), one reports a mixed effect (Sabia 2008), and one reports no effect (Grossberg and Sicilian 1999). Belman et al. (2015) further finds that the preponderance of research on minimum wages shows a positive effect on worker's wages; see for instance work by Allegretto, Dube, and Reich (2011); Giuliano (2013); Lam et al. (2006); and Orrenius and Zavodny (2008). They posit that, "the virtual unanimity of the evidence supports a conclusion that increases in the minimum wage raise teen and young adult earnings" (Belman, et al., 2015, p. 583). Since women are over-represented in the bottom of the wage distribution and the majority of minimum wage earners, women will gain the most from the boost in minimum wages.

Research on wage distributions further highlights that increases in minimum wages positively affect the lowest three deciles of the wage distribution of women (Butcher, 2005; Dinardo, Fortin, and Lemieux, 1996; Harvey and Bernstein, 2003; Lee, 1999). Inequality research also consistently demonstrates that the decline in the minimum wage (adjusted for inflation) after the 1970s had a markedly larger effect in increasing earnings inequality among women than among men. Thus, the minimum wage boost in Colorado will lead to more equality between women and men.

Work by Cooper (2013) details the proposed nationwide minimum wage boost to \$10.10 an hour by 2016, which was subsequently blocked by Congress. He found that raising the minimum wage would increase Colorado wages by \$578 million and GDP by \$366 million, and that the boost would affect 18% of all workers and create 1500 jobs in Colorado. We believe the increase to \$12.00 per hour by 2020 will lead to even greater gains for working women and men in Colorado. Work by the Chicago Fed (Aaronson and French, 2013) further confirms that spending increases among recipients of minimum wage boosts. Using estimates from Aaronson, Agarwal, and French (2012), a minimum wage increase of more than \$3/hour in Colorado should boost many adult low wage workers by \$800-\$1500 per quarter after 2020. These amounts are substantial and should go a long way in improving the welfare of and reducing poverty in working families, and single female-headed households.

Chart 1. Women's earnings as a percentage of men's full-time wage and salary workers, the United States and Colorado, 1997-2014 annual averages



Source: U.S. Bureau of Labor Statistics



Impact on Childcare

Childcare and housing are the two largest expenses for families with children. Childcare expenses average \$12,736 for infants and \$9,619 for four-year olds in Colorado. The state has the seventh highest childcare costs in the country, and Denver has the sixth most expensive childcare costs among all major Metropolitan Statistical Areas (MSAs) in the country. A possible drawback to higher minimum wages is its possible impact on childcare costs, and therefore we address the question: Do higher minimum wages lead to higher childcare costs?

We compared prices from more than 400 childcare centers in select metropolitan areas in California and Washington State, which have different minimum wage laws for different cities, following the continuous cities analysis method used by Dube, Lester, and Reich (2010). Childcare price data are collected from Oakland, which has a \$12.55 minimum wage in 2016, and Fremont, a city near Oakland that has a minimum wage of \$10.00 an hour. We also gathered childcare price data from Seattle, which has a minimum wage of \$12.00-\$13.00 an hour depending on the size of company and number of employees, and assembled childcare costs in three cities near Seattle—Bellevue, Redmond and Kirkland—that have minimum wages of \$9.47. Lastly, we examined the relationship in Colorado and Missouri across counties to assess whether higher wages lead to higher childcare costs.

Table 1 highlights two salient features about childcare: (1) there are considerable differences in childcare costs, and (2) childcare costs are not driven by differences in minimum wages. Consider Seattle, which has a minimum wage approximately three dollars higher than nearby municipalities; its infant and toddler care averages \$140 and is still \$62 lower than neighboring regions. Oakland’s infant and toddler costs are \$21 and \$50 lower, respectively, than similar care in Fremont, even though Oakland has a \$12.50/hour minimum wage. Further, the standard deviations (differences in wages) are large and the 25% and 75% wage quartiles are also considerable; these statistics imply that, despite higher minimum wages in Oakland, there are no significant differences in childcare costs between Oakland and lower cost/wages in nearby cities.

Table 1: Childcare Costs in Adjacent Municipalities

City		Infant	Toddler	Pre-school	Adjacent	Infant	Toddler	Pre-school
Seattle	Mean	\$1,560	\$1,373	\$1,107	Bellevue	\$1,700	\$1,436	\$1,211
	St. Dev	\$367	\$334	\$331	Redmond	\$258	\$270	\$255
	25%	\$1,325	\$1,150	\$905	Kirkland	\$1,494	\$1,191	\$1,039
	75%	\$1,910	\$1,700	\$905		\$1,740		\$1,425
Oakland	Mean	\$1,433	\$987	\$948	Fremont	\$1,454	\$1,136	\$764
	St. Dev	\$421	\$440	\$466		\$160	\$211	\$331
	25%	\$1,340	\$930	\$875		\$1,500	\$1,195	\$780
	75%	\$1,827	\$1,600	\$1,623		\$1,500	\$1,515	\$1,200

Table 1 compares Seattle to nearby municipalities of Bellevue, Redmond, and Kirkland, and Oakland to Fremont. All estimates are in monthly dollars.



Childcare Costs Driven by Cost of Living not Minimum Wages

Table 2 presents the ten largest counties for Missouri, each with a population over 100,000. Inspection of the table reveals considerable range in childcare costs between counties and within the same county. There tends to be a strong correlation between childcare wages and childcare costs; e.g., the infant (0-12 mo.), young toddler (13-24 mo.), older toddler (24-36 mo.), and preschooler (37 mo.-5 yrs.) correlations are 53%, 49%, 45%, and 37% respectively. However, this correlation likely reflects higher costs of living and income (more income implies higher demand and higher prices); for instance, the average overall wages in these counties are also very highly correlated with childcare costs, with correlations of 45%, 46%, 51%, and 53% for infant, young toddler, older toddler, and preschooler. If we adjust childcare costs by overall income per capita in the state, then the relationship between costs and wages falls apart: the average correlations then are 6%, 1%, -5%, and -13%. Since increases in minimum wages will have little effect on overall wages throughout the state, they have no statistically significant or practically meaningful impact on childcare costs.

Table 2. Childcare Costs and Wages in Missouri

County	Infant			Pre-school			Toddler			Pre-school			CC	Avg
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Wage	Wage
St Charles	\$70	\$207	\$288	\$70	\$206	\$288	\$70	\$165	\$253	\$49	\$146	\$225	\$346	\$498
St Louis City	\$85	\$166	\$385	\$85	\$160	\$385	\$60	\$128	\$365	\$50	\$113	\$345	\$442	\$478
St Louis County	\$100	\$218	\$366	\$80	\$214	\$366	\$75	\$168	\$303	\$50	\$152	\$300	\$422	\$802
Jefferson	\$113	\$169	\$236	\$113	\$169	\$236	\$85	\$138	\$195	\$80	\$130	\$205	\$322	\$499
Greene	\$100	\$172	\$232	\$100	\$169	\$232	\$90	\$120	\$192	\$70	\$111	\$172	\$285	\$448
Jackson	\$95	\$173	\$262	\$75	\$169	\$262	\$65	\$135	\$245	\$65	\$121	\$215	\$387	\$447
Franklin	\$120	\$139	\$159	\$115	\$136	\$159	\$85	\$109	\$150	\$84	\$103	\$150	\$258	\$494
Clay	\$105	\$188	\$259	\$105	\$186	\$259	\$95	\$158	\$209	\$85	\$148	\$198	\$335	\$605
Boone	\$125	\$185	\$252	\$125	\$185	\$252	\$85	\$160	\$225	\$55	\$146	\$200	\$293	\$701
Jasper	\$105	\$133	\$165	\$105	\$132	\$165	\$65	\$100	\$140	\$30	\$92	\$135	\$277	\$601
Correlation	CC	45%		CC	46%		CC	51%		CC	53%			
	AVG	54%		AVG	49%		AVG	45%		AVG	45%			
	ADJ	6%		ADJ	1%		ADJ	-5%		ADJ	-13%			

Table 2 presents data for all counties in Missouri with populations over 100,000. Childcare costs and wages are all weekly dollars. The two columns on the right are childcare (CC) wages for the Missouri counties and average wages for all occupations for these counties. We then take the correlations between average childcare costs and childcare wages and wages for all occupations in the rows at the bottom. Last, we adjust childcare wages by overall wages in the county to reflect higher standard of living/costs in particular counties.



Table 3 investigates the relationship between childcare costs and childcare wages in 25 Colorado counties, where availability of data on childcare wages determined the choice of counties. The table also presents average wages for all occupations. There is also a very strong and significant relationship between costs for both infant- and toddler care and wages for that care. However, there is also a large and significant relationship between childcare costs, particularly for toddlers, and average wages in the county. Again, this occurs because higher income is associated with higher demand and higher willingness to pay, which leads to higher prices. Assuming these average wages reflect higher costs of living, income and demand in these counties, we use these estimates to adjust childcare costs, similar to our Missouri procedure. Once again, after adjusting for average income (and higher demand in high income counties), the relationship between childcare wages and costs vanishes. Thus, this supplies further evidence that increases in the minimum wage should have no effect on overall childcare costs.

Lastly, we examined the distribution of wages in Colorado and Denver to determine the impact of higher minimum wages on childcare. Childcare wages in the Denver-Aurora-Lakewood MSA are already high; the U.S. Census shows they were \$12.37 in 2015. Estimated average childcare wages by 2020 are \$13.60 assuming a 2% annual inflation rate. Colorado has the fifth highest wages for childcare workers; by 2020 estimated childcare wages will be \$13.20. Average childcare wages, therefore, are already above the \$12.00/hour minimum wages.

The distribution of childcare wages, however, is important, and the U.S. Census provides the bottom 10% and 25% of childcare workers in Colorado. Using these wage numbers, we estimate, the childcare workers in the bottom 10% and 25% will earn by 2020 an estimated \$9.50 an hour and \$10.20 an hour, respectively. The cost to bring these workers up to \$12.00 imply an estimated increase in wage costs of approximately \$1.60 an hour for half of Denver workers, and \$1.80 an hour for half of all Colorado workers. We then examined the cost structure of childcare centers in Colorado and Denver given by Bizminer, a dataset that provides detailed comprehensive costs of all childcare facilities in both Colorado and the Denver region. Using a conservative estimate that labor costs comprise 50% of operating expenses (Bizminer reports even lower estimates), we calculate that childcare costs over the next four years may rise by an additional 1.5% per year in both Denver and the state. Although many workers who are currently earning around \$12.00/hour are likely to receive additional pay increases, which may boost childcare costs further, we believe these cost increases are unlikely, as they will be mitigated by lower turnover and absenteeism among childcare workers. A 2014 Berkeley study (Dube et al, 2014; see also Manning, 2014) demonstrates turnover rates and absenteeism fall substantially after a minimum wage increase.

In smaller cities and towns in Colorado, the story may be somewhat different. These areas have lower costs of living, and average childcare wages tend to be lower. For example, Fort Collins will provide average childcare wages of approximately \$11.00 an hour by 2020, and half of all workers will be making around \$9.65. The boost in minimum wages may increase childcare costs by an additional 2.3.-2.5% annually over the next four years. As mentioned, employers may be able to absorb some of these costs due to lower turnover (and hence limit hiring and training costs), less absenteeism, and higher morale/work effort. Since most workers are currently earning less than \$12.00, the lower costs of turnover should dominate the effect of some workers being pushed above \$12.00 an hour. However, the larger increases in the lower cost/lower wage areas of Colorado suggest that public policy reforms, including Colorado Child Care Assistance Program adjustments, may be required to help certain families outside of higher wage cities like Denver and Boulder.



Table 3. Childcare Costs and Wages in Colorado

County	Infant Costs	Toddler Costs	Childcare Wages	Avg. Wage in County
Adams	\$13,099	\$10,231	\$447	\$890
Arapahoe	\$12,824	\$10,376	\$424	\$1,125
Archuleta	\$12,824	\$7,404	\$410	\$575
Boulder	\$15,193	\$1,3210	\$460	\$1,168
Broomfield	\$15,734	\$12,790	\$445	\$1,460
Denver	\$15,410	\$11,477	\$499	\$1,170
Douglas	\$16,311	\$12,359	\$444	\$1,063
Eagle	\$13,033	\$11,105	\$522	\$800
El Paso	\$11,434	\$9,389	\$398	\$848
Fremont	\$7,067	\$5,716	\$382	\$575
Garfield	\$12,297	\$10,842	\$447	\$868
Grand	\$13,250	\$10,522	\$389	\$603
Gunnison	\$12,539	\$11,359	\$322	\$636
Jefferson	\$14,125	\$10,675	\$420	\$970
La Plata	\$10,350	\$8,258	\$373	\$783
Larimer	\$14,683	\$11,101	\$365	\$847
Logan	\$7,015	\$6,430	\$202	\$646
Mesa	\$8,648	\$7,111	\$311	\$750
Montezuma	\$7,794	\$6,851	\$261	\$648
Otero	\$5,867	\$5,391	\$312	\$611
Pitkin	\$18,186	\$16,333	\$594	\$937
Pueblo	\$8,000	\$6,873	\$387	\$719
San Miguel	\$12,990	\$11,431	\$387	\$761
Summit	\$15,324	\$12,588	\$477	\$708
Weld	\$12,322	\$10,178	\$372	\$865
Correlation:				
Childcare	77%	75%		
Avg Wage	24%	61%		
Adj Childcare	6%	1%		

Table 3 presents infant and toddler annual childcare costs, weekly childcare wages and average weekly wages for all occupations for 25 Colorado counties. The 25 counties are determined by Bureau of Labor Statistics availability for childcare wages. The bottom rows present correlations. There is a strong and significant relationship between childcare costs and childcare wages in the county; however, there is also a large and significant relationship between average wages of all occupations and childcare costs. Higher wages in the county are driven by higher productivity/standard of living and also reflect higher costs of living. The last row adjusts childcare wages by average wages in the county; results highlight the relationship between childcare costs in the county and wages disappears and, therefore, higher childcare costs are a function of higher income and demand.



Impact on Eligibility for Public Programs

Currently in Colorado, many low-income households are supported by both earned income and public safety-net programs that include: nutrition assistance through programs like Supplemental Nutritional Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); housing and utility assistance through programs like Section 8 (funded by the U.S. Department of Housing and Urban Development) and the Low-Income Energy Assistance (LEAP) program; health care through Health First Colorado (Medicaid) and the Colorado Health Plus (CHP+) program; and childcare assistance through the Colorado Child Care Assistance Program (CCCAP). Cash assistance is provided for the very poor through Colorado Works (CW), Colorado's implementation of the federal Temporary Assistance to Needy Families (TANF) program, and the Earned Income Tax Credit (EITC). Eligibility for these programs sometimes varies across counties within Colorado, in particular because Colorado and local jurisdictions have set eligibility limits above federal minimums for some programs; in other cases the eligibility is set by the federal government with no local variation.

In our analysis, we examined whether workers and families that currently receive public assistance through these programs are likely to lose access to these benefits if the minimum wage increases to \$12.00/hour, and identified households who might experience a net loss in income because the increase in wages would be offset by an increase in household costs. Our analysis adjusts current eligibility levels for projected annual inflation of 2%, and compares household incomes at \$12.00/hour with incomes at the current minimum wage rate adjusted at 2% per year (that is, we project that the 2016 rate of \$8.31/hour would increase to \$9.00/hour if no other policy changes are enacted).

We find that, in general, the effects on eligibility for public assistance programs in Colorado would be very small, with few effects projected for single-earner households. Although we did find that a very small number of dual-earner households in Colorado have the potential to lose eligibility for public assistance programs because of an increase in the minimum wage, a few caveats are important to note. First, calculations described below assume that earners within the family are currently earning the minimum wage and would receive the full increase to \$12.00/hour by 2020; this may overestimate the effects of the wage increase because many families have one worker earning more than the minimum already. Second, this analysis assumes that all workers in the household are paid for 40 hours per week for 52 weeks per year. Many workers may choose to take some unpaid leave, and may not be scheduled for a full 40 hours per week; therefore, this analysis uses a fairly generous estimate of annual wages to identify those who may be at risk of losing benefits due to the increase in income. Lastly, in some cases, the public programs have different income eligibility limits by county within the state, and in all cases, participation rates in these programs are less than 100%; therefore, the actual effects of a change in minimum wage will impact far fewer families than are actually eligible for these programs. When available, participation rates and differences in eligibility limits are included in the estimates below. The following is an analysis of projected effects within several key public programs in Colorado.

CCCAP^l. In general, the CCCAP and Health First CO/CHP+ programs are the most generous in terms of extending eligibility to low-income workers making more than the current minimum wage for full-time work. For instance, in Denver and 18 other counties, families can earn up to 225% of the federal poverty level (FPL) and still be eligible for entry into CCCAP, and in two counties, Heuferno and Park, the level is even higher (230% and 300%, respectively). In other areas of Colorado, eligibility limits are lower, but the state minimum limit is 165% FPL, or \$26,280/year for a family of two, which translates to \$12.63/hour in wages. In general, single-earner families whose incomes are raised directly by the increase in minimum wages to \$12.00/hour will not lose their access to subsidized childcare, regardless of family size. Further, in many counties like Denver, where eligibility limits are even higher than the state minimum, even those whose incomes are already at or just above \$12.00/hour—those who may receive wage increases as an indirect effect of the minimum wage change—will not be at risk of losing subsidized childcare as a result of this policy change. In Denver, for instance, a single parent of one child would need to make \$18.76/hour to lose the CCCAP benefit. Even with relatively generous eligibility levels, however, participation in CCCAP is low, with only 25% of eligible children participating (Colorado Center on Law and Policy, 2014); of those, roughly 89% of participating households are headed by a single parent (State of Colorado, Child Care Automated Tracking System, 2015). By contrast, the only households that stand to lose eligibility are two-parent households, which means that the number of households losing access will be very, very small.

There are only two scenarios in which a family may lose access to CCCAP benefits: dual minimum-wage earning families with one child, living in counties with income eligibility limits at or below 225% FPL, and dual minimum-wage earning families with two children, living in counties with limits at or below 185% FPL. In the first case, this includes all but two counties within Colorado; in the second case, families in 36 of Colorado's 64 counties would be affected. Three-person households that lose their CCCAP benefit may still see a net gain from the income increase if they are currently making the minimum wage and can expect to receive the full increase from \$9.00 to \$12.00/hour. Four-person households are more likely to see a net loss if they lose access to CCCAP, especially if one of the children is an infant and/or if the children receive center-based care. The average cost of infant care in rural areas of the state, where the eligibility levels are typically lower, was \$8,796 in 2013, and the corresponding average cost of toddler care in these areas was \$8,304. Therefore, if a family must take on the full cost of care once the minimum wage increases, the wage increase of \$12,501 will be more than offset by the increased childcare costs. Although it is a relatively small percentage of Colorado families in which both workers are minimum-wage earners, these families are particularly vulnerable to financial insecurity. Notably, these families are also likely to experience losses of other public benefits, as described below. Therefore, if the policy change goes into effect, special attention should be paid to the cumulative effects of the income increase and concomitant loss of public supports in the small number of families with two full-time, minimum-wage earners.

Families faced with a net income loss due to increased childcare costs may choose to reduce hours worked by one or both parents, or they may choose informal childcare arrangements in order to save costs. These choices have consequences for the state; although the state may save some money through a reduction in families claiming CCCAP benefits, the state may also see a reduction in income tax revenues in both the short- and long-term if a family member chooses to leave the workforce in order to care for his/her children. There are also long-term consequences for the person leaving the workforce and his/her family; Madowitz, Rowell, and Hamm (2016) found that a woman making \$30,253/year (the U.S. median wage in 2014, and roughly \$14.50/hour for full-time work), who leaves the workforce for five years to care for a child, sacrifices a minimum of \$467,000 in earnings and retirement savings over her lifetime.

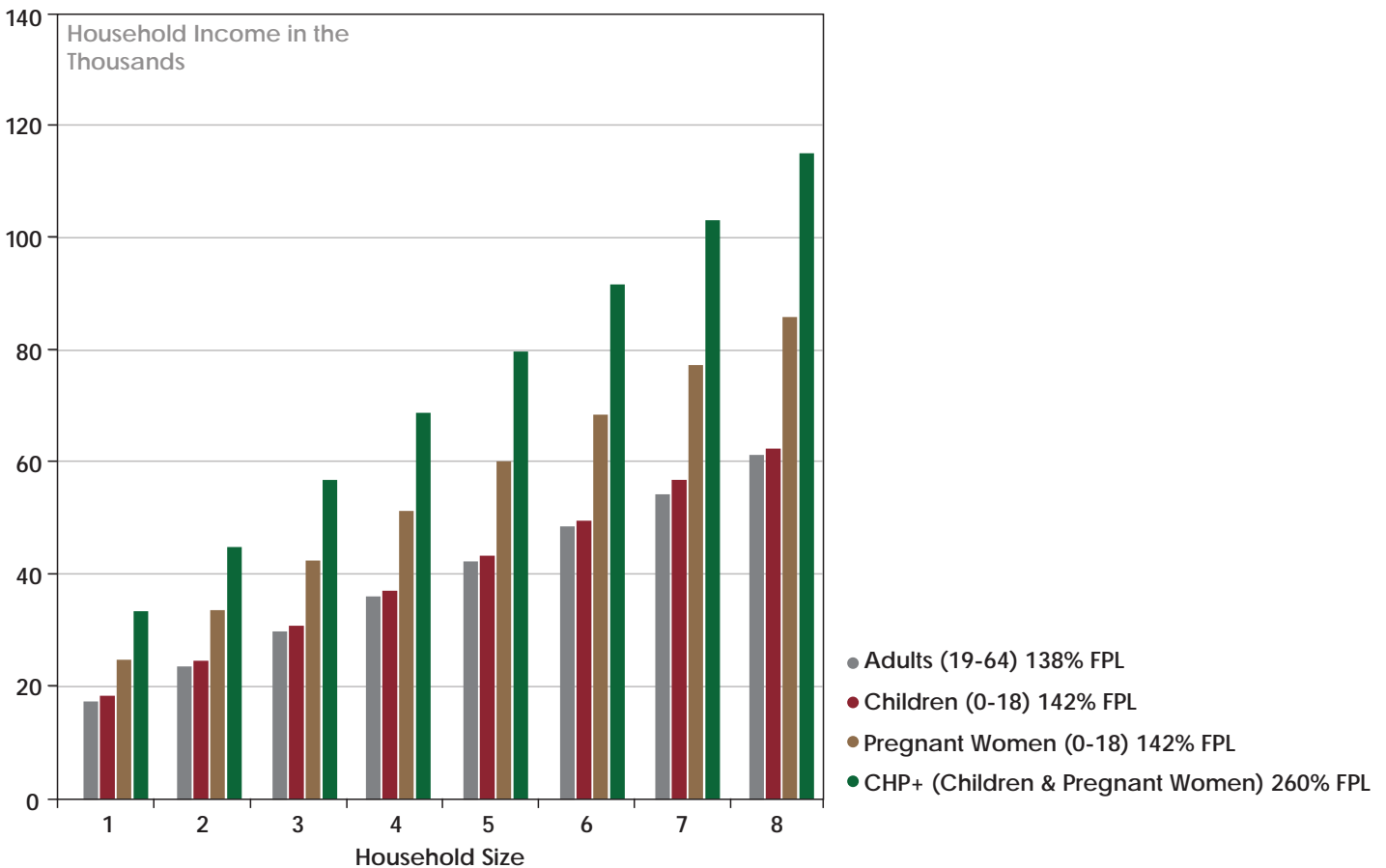
EITC^{ll}. Both the federal government and the state of Colorado offer an Earned Income Tax Credit for low- to middle-income families. Using 2016 eligibility limits as a guide, both single- and dual-earner families at the \$12.00/hour minimum wage level will continue to qualify for these refundable tax credits in most cases. There is one family constellation that will stand to lose access to this cash benefit: dual-earner households with one child. These households will qualify at incomes up to \$48,541, but if both workers work for 52 weeks at 40 hours per week, their total income will be \$49,920. The maximum federal tax credit available to families with one child is \$3,650 (in inflation-adjusted dollars), and an additional \$365 is available through the state program; however, the amount of tax benefit that these families will lose will be somewhat less than this maximum amount because the program phases out support at higher incomes. For instance, a single-parent of one child earning the current Colorado minimum wage, or \$17,825 in 2016, would receive \$3,359 through the federal EITC program; a two-earner family with one child, where both workers earn minimum wage for full-time, year-round work, would only receive \$1,610 in EITC benefits. These amounts will change slightly by 2020, but the general finding remains that a three-person household with two minimum-wage earners and one child would lose approximately \$1,600 in EITC benefits, but this would be offset by a gain of \$15,350 in household income from the minimum wage increase. Further, families at this income level will be eligible for the federal Child Tax Credit, which provides up to \$1,000 per year in a refundable tax credit for working, middle-income families (up to \$110,000 in annual income). Thus, the impact of a loss of EITC is likely to be small—or roughly \$600 out of the overall \$15,350 increase in annual income.

Health First Colorado/Medicaid. Colorado's Medicaid program is officially called Health First Colorado (shortened to Health First CO in this report). The effects of the minimum wage increase on health care coverage through Health First CO is somewhat more complex, and a small group of adults may lose access to Health First CO coverage—but gain access through other means—if eligibility limits remain the same once the minimum wage increase takes effect. As Table 4 shows, adults in one- and two-person households will earn more than the current income limit for Health First CO eligibility. Thus, assuming they work full 40-hour weeks at \$12.00/hour for the entire year, these groups will likely lose access to Health First CO coverage. Similarly, households with two minimum wage earners will see changes in eligibility for both the adults and children. Namely, pregnant women in 3-person households will lose eligibility, as will adults in 4-, 5-, and 6-person households, and children in 4- and 5-person households.

It is important to note, however, that these individuals will be able to access subsidized coverage through other sources. For instance, pregnant women who are ineligible for Health First CO can still access care through CHP+ up to 260% of FPL; thus, the small group of pregnant women who stand to lose eligibility for Health First CO will remain eligible for CHP+ up to \$56,737 in annual income. Children who lose access to Health First CO are also eligible for CHP+ up to 260% FPL, which means that those in the 4- and 5-person households who lose Health First CO coverage can receive coverage until their families earn \$68,388 and \$80,038 per year, respectively. As for non-pregnant adults earning more than 138% FPL and less than 400% FPL, subsidized coverage on a sliding scale is available through the Affordable Care Act's Health Care Marketplace (which is currently accessed in Colorado through the state's "Connect for Health" system). Thus, if the minimum wage in Colorado does increase to \$12.00/hour, one important action step will be to ensure that the affected Coloradans are educated about their health care options once Health First CO eligibility is lost, and to ensure that subsidies are adequate to keep cost-sharing responsibilities (copays, deductibles, and premiums) affordable for these families.

The increase to \$12.00/hour is unlikely to prompt any significant change in health care coverage costs for the state in the long-term. Although some adults will move from Health First CO to private insurance through the ACA exchanges, those adults are mostly covered now through the ACA-funded, Health First CO expansion, which is paid for almost entirely with federal dollars. Thus, these adults will move from one primarily federally funded coverage program to another, with only minor benefits for state budgets.

Chart 2. Health First CO Eligibility Limits by Coverage Category, 2020





It is important to note that assessments of whether the change in coverage options will result in a net gain or net loss for affected families, is based on comparison of full-time income for all earners, with the maximum out-of-pocket costs allowed under current federal and state statutes. For CHP+, this limit is 5% of household income; thus, workers currently earning less than \$11.40/hour will receive a wage increase equal to more than the maximum out-of-pocket costs allowed in CHP+. For private insurance plans sold through the Colorado Connect for Health Exchange, the maximum out-of-pocket cap for a family is typically \$6,850; thus, for those making more than \$8.70/hour currently, the shift to private insurance could be a net loss if the maximum out-of-pocket cost limit is reached. For those with lower out-of-pocket costs each year, the likelihood of a net gain is higher. However, in many cases a majority of the wage gains will be offset by increased health coverage/health care expenses.

LEAP^{IV}. Currently, eligibility for LEAP in Colorado is limited to households making less than 165% FPL. Thus, the net effects will be the same as effects on households receiving CCCAP in CCCAP's lowest eligibility limit counties. Currently, participation rates in the LEAP program are low—as of 2012, only 17% of eligible households participated (Landey & Rzad, 2014)—and benefits average less than \$400/year (CO Office of Economic Security, 2016). Therefore, even among the few families that lose access to this program, the average wage increase will more than offset the increase in their household energy costs.

Section 8/Housing Assistance. Section 8 provides housing assistance through a variety of mechanisms, including vouchers provided directly to eligible participants, access to rent-controlled apartments in public housing properties, and tax-credits to developers who provide affordable housing to income-qualified renters. Other jurisdictions, including Denver, also offer housing support through programs like the Denver Subsidized Housing Program, although the income limits for these programs are often lower than for the Section 8 programs. Participation rates in housing assistance programs are quite low, and long waiting lists exist. Nationally, only .5% of full-time workers receive public housing assistance (Cooper, 2016). Eligibility levels for Section 8 vary by household size and are determined using percentages of median income in each Metropolitan Statistical Area (MSA); families may qualify as extremely low-income (making 30% of the Area Median Income), very low-income (making 50% of the median), or low-income (making 80% of the median). For instance, in Denver City and County, the income threshold for eligibility at the very low-income level for a family of four is \$39,950, while the equivalent threshold in Alamosa County, one of the poorest areas of the state, is \$30,350. Because these eligibility levels are determined by median income, we expect that most effects of an increase in the minimum wage in Colorado would also affect the eligibility thresholds: as households living at minimum wage see their wages increase, the median wages in the area will also increase (we estimate median incomes will increase by roughly 1.5%-3% across the state). Thus, few families, if any, would lose eligibility as the minimum wage increases.

SNAP^V. The eligibility for nutrition assistance through the SNAP program is set at the federal level, and is currently 130% FPL. Calculation of monthly benefit amounts, however, allows for a number of deductions from gross income, and as a result, it is difficult to anticipate how much food assistance a family would receive based on household income alone. Nonetheless, using the current and projected minimum wages and current median household and childcare costs, it is likely that a single earner with one child would lose SNAP benefits if the minimum wage rises to \$12.00/hour, while a single earner with two children would continue to qualify for SNAP. The increase in income for these families will offset any loss in SNAP benefits, which averaged \$3,060 per year for a 2-person household in 2015 (CPBB, 2016) and is capped at \$4,284 per year for a family

of that size. However, increase in food costs would reduce the net benefit of the minimum wage increase by about half. Similarly, families with two minimum wage earners and 3 or 4 children may also lose SNAP benefits. The average SNAP benefit for a family of 5, adjusted for inflation, is forecast to be roughly \$7,014, with a maximum benefit cap of \$10,014, which means that these families may spend roughly 50-66% of their increased income on higher food costs. Families with two earners and four children will fare even worse, with their benefit loss equal to an average of \$8,326. Although the impact on the receipt of SNAP benefits will affect only a small percentage of minimum-wage workers, special attention to the needs of these vulnerable families is warranted. It is worth noting, however, that the initial reduction in net income gain from the minimum wage boost for these families may be worthwhile in the long-term, since it will set the family on a path to self-sufficiency while reducing dependency on public assistance.

TANF^{VI}. The federal TANF program is operated in Colorado under the name, Colorado Works (CW). Eligibility limits for CW/TANF tend to be very low, such that someone earning the current minimum wage for full-time work would not be eligible. Therefore, eligibility is unlikely to be affected by an increase in the minimum wage.

WIC^{VII}. The statewide eligibility limit for WIC is 185% FPL, which is the maximum eligibility level allowed by federal law. This equates to roughly \$15.42/hour for a single worker with one child. There are three family constellations that stand to lose access to this important benefit if the minimum wage increases: single workers who are pregnant, and two-income families with one or two children. The loss of access to WIC for single, pregnant women is a serious concern, since this program provides essential access to supplemental nutrition, such as milk, fresh fruits and vegetables, and high fiber bread and cereal, at a time that is critical for the health of both the mother and the fetus. Additionally, WIC offices provide nutrition counseling and referrals to other health services. Together, these services provide an essential safety net for low-income pregnant women. Although these families would become eligible for WIC support once the child is born, lack of access to prenatal nutrition support is a serious concern; however, as with LEAP, the number of women affected would be small since only about 3% of low-wage households participate in this program (Cooper, 2016).

Families with two full-time, minimum-wage earners and one or two children are also at risk of losing access to this important program, though the same caveats regarding participation rates should be noted. For these families, the loss would be more long-term, since WIC currently covers women in these families through pregnancy and the first year of the newborn's life, and young children up to age five. As Table 4 indicates, families with combined incomes up to \$40,371 (family of three) and \$48,661 (family of four) will be eligible in 2020, if federal and state statutes remain the same, but dual minimum-wage earning families would see wages increase to \$49,920. The limit is close enough for families with two children, that one parent might reduce work hours slightly in order to remain under the limit; foregoing just 104 hours of income during the year would allow these families to keep this public benefit with minimal harm to the worker or household. For three-person households, reducing hours to maintain WIC eligibility would require a much larger sacrifice of income and might make less financial sense. For these families, the increase in minimum wage would offset the loss in nutritional assistance, but this loss would still constitute a decrease in net annual income of approximately \$564 for a family of three. (The cost of the loss of WIC benefits was calculated by gathering prices of lowest-cost alternatives for items provided in the typical WIC nutrition box for a breastfeeding mother and a child aged 1-4. Prices were assessed at the largest chain grocery retailer in the Denver area in June 2016 and adjusted for predicted inflation.) The loss would be larger for families with a pregnant woman as well as young children, though the number of families in this situation who also have two earners working full-time for the entire year at minimum wage is very low.





What would raising the wage to \$12.00/hour mean for a typical Colorado family?

It is very difficult to predict actual effects on household budgets for minimum-wage employees, in part because minimum wage work tends to be unpredictable: over 40% of minimum wage jobs are subject to on-demand scheduling practices that give hourly workers little notice about when they will work, and cause fluctuations of 8 hours per week or more in the number of hours worked (Lambert, Fugiel, & Henly, 2014). Many minimum wage workers also work more than one job in order to make ends meet. For the purposes of this report, however, we assume 40 hours of work per week, 52 weeks per year, at the current (inflation-adjusted) minimum wage and compare it to the income generated by the same number of hours of work at the proposed \$12.00/hour rate.

Changes in income and benefits for a single mother of one preschool-aged child

For the most part, eligibility for public assistance programs would not change for a single mother with one young child. This family would see an increase in gross income of approximately \$6,251 in 2020, raising this family to 144% of FPL (assuming a 2% per year increase in this poverty guideline). Benefits would remain relatively stable, with two exceptions: the mother's health care coverage, and the family's SNAP benefits.

With regard to health care, the mother would be eligible for subsidies to help purchase insurance through the health care exchange. However, she would still face an increase in monthly expenses because her monthly premium will not be covered completely (her subsidy would be approximately \$275 annually, while current premiums for a single Denver female, 25 years of age, range from \$144 to \$410 per month). Even if the lowest premium rate only grows by an inflation rate of 2% per year (a generous estimate, since health care premiums have increased by approximately 4% in recent years even for those receiving subsidized insurance through the exchanges [NCSL, 2016]), the estimated annual expense for this mother's lowest-cost insurance option would be \$1,610 after the subsidy. She would also be eligible for cost-sharing to reduce her out-of-pocket expenses, and as of 2017, those expenses would be capped at \$2,350.

The loss of SNAP benefits would mean an increase in household food costs of approximately \$3,312 (using current estimates of the average SNAP benefit for a 2-person household and adjusting for 2% inflation per year). Each household's actual benefit is different, however, so it is important to take into account individual differences in household deductions and fluctuations in actual income.

The bottom line: if the mother has no out-of-pocket health expenses (other than the monthly premium), she stands to increase her annual household income by \$1,329 once the increased health care premiums and food costs are accounted for. However, if the mother has a health crisis and reaches her out-of-pocket maximum health care expenses, she will experience a net loss in annual income of roughly \$1,021. Therefore, this family constellation will be particularly vulnerable to changes in health care expenses, including increases in monthly premiums, cost-sharing, and overall increases in health care costs. As long as the family members stay healthy, however, the families stand to gain from an increase in the minimum wage, and these gains will likely grow over time as the workers benefit from annual raises and overall strengthening of the economy.



Changes in income and benefits for a dual-earner household with one toddler and one infant

Dual-earner families with a toddler and an infant have the potential to see changes in eligibility for several public assistance programs, though again, actual income for families with two earners in minimum wage jobs is very hard to predict. If both earners work 40 hours/week, 52 weeks/year, their gross income will increase by \$12,501 in 2020, raising them to just under 190% FPL. Therefore, these families have the potential to lose access to CCCAP, depending on the county in which they live, and will just miss the cut-offs for WIC and LEAP. (These families would already be ineligible for SNAP and would already have to transition to private, subsidized health insurance, even at the current minimum wage rate.)

The major concern for these families would be the loss of childcare assistance benefits, if they currently receive benefits and live in a county with eligibility at 185% FPL or lower. In these counties, center-based childcare for one infant and one toddler averages \$17,100 annually, and if these costs increase by 2% per year, the average will be \$18,509 in 2020. Families of this size with CCCAP benefits are currently at 142% FPL, and therefore pay 11% of their income for care for their first child, and an additional \$25/month for the second child. This means that their childcare expenses will go from approximately \$4,141 per year to \$18,509, a net increase of \$14,368.

If the families live in Denver or another area with higher CCCAP eligibility, the families will still experience a small increase in childcare expenses: CCCAP parent fees increase to 13% of income for families earning between 186% and 205% FPL, plus \$40/month for each additional child. Therefore, these families will pay roughly \$7,010 for childcare annually, an increase of \$2,569 per year.

In addition, these families will lose an average of \$400/year in energy assistance, and \$846 in WIC benefits regardless of where they live in Colorado. Thus, the net change in household income, if both earners are at \$12.00/hour and work 40-hour weeks for the entire year, will be a loss of \$3,113 for workers in low-CCCAP eligibility areas, and a gain of \$8,866 for families who retain CCCAP benefits. It is important to remember that only 1 in 6 families who are eligible for CCCAP actually participate in the program (CCLP, 2014) and most of the participating families are headed by single parents; therefore, the actual number of families affected by changes in their eligibility will be relatively small.

Conclusions and Considerations for Policymakers

For a majority of workers who currently earn the minimum wage for 40 hours of work per week, an increase in this wage will have net positive effects. Certain small populations of workers with families may lose eligibility for some safety net programs; in particular, families with two workers and one or two children, will be vulnerable to losses of public assistance supports and higher out-of-pocket costs for services like health care and childcare. In many cases, these losses will be more than offset by the increase in annual income, which will result in less reliance on public assistance and more self-sufficiency for Colorado families. In a few cases, however, these losses will not be offset by the increase in annual income, and instead, the families

will experience a net loss in household income—in other words, a marginal tax increase. In these families, there may be some economic incentive for one worker to reduce work hours or leave the workforce altogether—an adverse unintended outcome of raising the minimum wage that would hinder a movement toward self-sufficiency for these families.

It is difficult to know exactly how many families would be affected in this way. U. S. Census data (ACS, 2016) provides information on how many households contain married/partnered adults vs. single adults, but does not identify how many children are in each household. Approximately 12% of dual-earner households had household incomes of less than \$35,000/year in 2014, which is equivalent to about \$8.25/hour for each worker if both adults work full-time. However, it may be that in some of these households, only one worker is working full-time, at an hourly wage that is somewhat higher than the current minimum. It is also not known how many of these households include children—but we can surmise that some fraction of these 90,450 households in Colorado may be at risk for losing access to some benefits if the minimum wage increases. Further study of the demographics of the minimum wage population is needed to know how many households may experience adverse effects from the wage increase. Policymakers should plan to study the effects of the minimum wage increase on these families, and should work to mitigate the negative effects for families who are still vulnerable to financial insecurity, despite the increase in overall income.

One important finding is that for most workers, increasing the minimum wage will help to lift their households out of poverty, but for the most part, their incomes will remain under 200% FPL. Colorado workers experience significant disparities in rates of poverty and near-poverty; nearly 25% of people of color live at or below 200% FPL currently, compared with only 12% of whites in Colorado (PolicyLink/PERE National Equity Atlas, 2016). Raising the minimum wage may help remedy this disparity to some degree, and will help most of these families move closer to self-sufficiency.

Based on our findings, we highlight two basic responses for policymakers to consider, should the minimum wage ballot initiative pass: 1) help mitigate negative effects for the small number of families who will be affected by loss of access to public supports; and 2) offer supports and incentives to new and existing childcare providers to help increase access to affordable childcare options. Research is still being conducted on the effectiveness of Colorado's Cliff Effect Pilot Program within CCCAP. Preliminary results indicate that the strategies being tested are helpful for families (Wood, 2016). Through expansion of existing programs like this, and the new small business loan program for childcare providers, the state can help to maintain or expand the number of childcare options available to families and support families as they move toward self-sufficiency. A list of specific policy considerations is included below.

Potential strategies to mitigate cliff effects for families

- Expand eligibility for CCCAP across Colorado by increasing eligibility thresholds.
- Expand participation in CCCAP by eligible families by fully funding the program and reducing barriers to participation.
- Evaluate outcomes of the expanded CCCAP Cliff Effect Pilot Programs, and take successful approaches to cliff effect mitigation to scale across the state so that families who near the eligibility limits can gradually decrease reliance on this important work support program.
- Monitor out-of-pocket costs for CHP+ and Connect for Health consumers to ensure that costs remain affordable for families making minimum and near-minimum wages.
- Implement state supplements to the LEAP and WIC programs in order to ensure that 3- and 4-person households are not caught in the eligibility gap once the new minimum wage takes effect.

Potential strategies to mitigate increased childcare costs

- Reduce barriers to entry into the childcare market by reducing administrative burden for centers seeking new or renewed licenses to operate.
- Increase CCCAP reimbursement rates for providers in order to offset modest cost increases due to higher minimum wages and ensure that providers continue to accept CCCAP families.

About This Study:

This study is the first collaborative, cross-university research initiative developed and funded by the new Colorado Women's College Collaboratory (CWC^C) of the University of Denver. This CWC^C research initiative is a partnership with The Women's Foundation of Colorado, and engaged research faculty from Daniels College of Business and the Graduate School of Social Work at the University of Denver. This research was funded by Colorado Women's College, with additional support from the University of Denver Faculty Senate's Faculty Research Fund.

As the only community foundation in Colorado focused on women and girls, The Women's Foundation of Colorado engages in research, public policy advocacy, and strategic grantmaking to improve educational and employment opportunities to support girls and women on the path to economic self-sufficiency. As a research partner, WFCO pursues nonpartisan answers to key questions about opportunities and challenges for women and girls to identify strategies and guide action to improve economic outcomes for women and families through statewide policy and community grantmaking partnerships. Learn more at www.wfco.org.

The vision of Colorado Women's College (CWC) at the University of Denver is to be a global leader in advancing women in the 21st century through transformative education, leadership development, public-good work, and research.

Jack Strauss, PhD, is the Miller Chair of Applied Economics at the Daniels College of Business. His research focuses on applied economic analysis and he has more than three dozen publications in the areas of housing, employment growth, stock returns and exchange rates. He has extensive local experience conducting economic impact studies, as well as international policy expertise, consulting for the Central Banks of Azerbaijan, Egypt, Indonesia and Ukraine.

Jennifer C. Greenfield, PhD, MSW, is an Assistant Professor in the Graduate School of Social Work at the University of Denver. Her research focuses on the intersections of health and wealth disparities among women across the life course, especially through the mechanism of family care work, and seeks to identify policy interventions that best support families as they balance work and caregiving. Social work doctoral student, Mark Plassmeyer, MSW, served as research assistant on this project, providing invaluable contributions to the data collection and manuscript preparation.

For more information, go to wfco.org or womenscollege.du.edu

Data Sources and Methods

This study surveys in-depth the economic literature on minimum wage impacts, including a 2015 comprehensive investigation of minimum wage impacts using meta-analysis; this estimation technique incorporates, synthesizes and re-estimates the statistical work of 15 years of prior minimum wage work. We also examined prior meta-analysis works from 1995 and 2009, along with prominent work on increases in both state-level and federal minimum wages dating back to 1992. Research on wage distributions from 1996, 1999, 2003, and 2005 was also reviewed, along with inequality research on the decline in the minimum wage (adjusted for inflation) after the 1970s. Data on household income was calculated by the authors, using the most recent U.S. Census data.

To understand how childcare prices were likely to be affected by an increase in the minimum wage, we compared prices from more than 400 childcare centers in select metropolitan areas in California and Washington State, which have different minimum wage laws for different cities, following the contiguous cities analysis method used by Dube, Lester, and Reich (2010). Childcare price data are collected from Oakland, which has a \$12.55 minimum wage in 2016, and Fremont, a city near Oakland that has a minimum wage of \$10.00 an hour. We also gathered childcare price data from Seattle, which has a minimum wage of \$12.00-\$13.00 an hour depending on the size of company and number of employees, and assembled childcare costs in three cities near Seattle—Bellevue, Redmond and Kirkland—that have minimum wages of \$9.47. Lastly, we examined the relationship in Colorado and Missouri across counties to assess whether higher wages lead to higher childcare costs and adjusted for standard of living.

Analysis of likely impacts on eligibility for public programs was conducted by comparing eligibility at the current minimum wage, adjusted for 2% annual inflation, with eligibility at the proposed \$12.00/hour wage, for a range of household sizes and for households with both one and two workers. In all analyses, we assumed that the federal poverty limit (FPL) would increase by an annual 2% inflation rate, and that current eligibility thresholds, would remain constant after inflation adjustment. We calculated household income by assuming 40 hours of work per week for all 52 weeks of the year for each worker in the household. Limitations of these assumptions are discussed in the report.

References

- Aaronson, D., & French, E. (2013). How does a federal minimum wage hike affect aggregate spending? *Chicago Fed Letter*, 313.
- Aaronson, D., Agarwal, S., & French, E. (2012). The spending and debt response to minimum wage hikes. *American Economic Review*, 102(7), 3111-3139.
- Allegretto, S. A., Dube, A., & Reich, M. (2011). Do minimum wages really reduce teenage employment? Accounting for heterogeneity and selectivity in state panel data. *Industrial Relations*, 50(4), 205-40.
- Belman, D., Wolfson, P., & Nawakitpahaitoon, K. (2015). Who is affected by the minimum wage? *Industrial Relations*, 54(4), 582-621.
- Butcher, T. (2005). The hourly earnings distribution before and after the national minimum wage. *Labour Market Trends*, 113(10), 427-35.
- Card, D. (1992a). Using regional variation in wages to measure the effects of the federal minimum wage. *Industrial and Labor Relations Review*, 46(1), 22-37.
- Card, D. (1992). Do minimum wages reduce employment: A case study of California, 1987-89. *Industrial and Labor Relations Review*, 46(1), 38-54.
- Card, D., & Krueger, A. (1994). Minimum wages and employment: A case study of the fast food industry in New Jersey and Pennsylvania. *American Economic Review*, 772-793.
- Card, D., & Krueger, A. (1995). *Myth and measurement: The new economics of the minimum wage*. Princeton, NJ: Princeton University Press.
- Colorado Center on Law and Policy (2014). Child care funding in Colorado has fallen behind by \$54 million. Denver, CO: Author. Retrieved on August 29, 2016 from: cclponline.org/wp-content/uploads/2014/03/CCCAP-underfunding-brief-3.26.14_FINAL2.pdf.
- Cooper, D. (2013). Raising the minimum wage to \$10.10 would lift wages for millions and provide a modest economic boost. (EPI Report 371). Washington, DC: Economic Policy Institute.
- Cooper, D. (2016). Balancing paychecks and public assistance. (EPI Briefing Paper 148). Washington, DC: Economic Policy Institute.
- DiNardo, J. E., Fortin, N., & Lemieux, T. (1996). Labor market institutions and the distribution of wages: 1973-1992. *Econometrica*, 64(9), 1001-44.
- Doucoulagos, H., & Stanley, T. (2009). Publication selection bias in minimum-wage research? A meta-regression analysis. *British Journal of Industrial Relations*, 47(2), 406-428.
- Dube, A., Lester, T. W., & Reich, M. (2010). Minimum wage effects across state borders: Estimates using contiguous counties. *The Review of Economics and Statistics*, 92(4), 945-964.
- Dube, A., Lester, T. W., & Reich, M. (2014). Minimum wage shocks, employment flows and labor market frictions. (IRLE Working Paper No. 149-13). Berkeley, CA: Institute for Research on Labor and Employment.
- Easton, T. (2006). Metropolitan wage levels of less-educated workers: 1986 to 1999. *Industrial Relations*, 45(4), 119-47.
- Giuliano, L. (2013). Minimum wage effects on employment, substitution, and the teenage labor supply: Evidence from personnel data. *Journal of Labor Economics*, 31(1), 155-94.
- Grossberg, A. J., & Sicilian, P. (1999). Minimum wages, on-the-job training, and wage growth. *Southern Economic Journal*, 65(1), 539-56.
- Mayayeva, Y., Anderson, J., Hess, C., & Milli, J. (2015). *The Economic Status of Women in Colorado*. Institute for Women's Policy Research. Retrieved on August 25, 2016 from: iwpr.org/publications/pubs/the-economic-status-of-women-in-colorado.
- Katz, L. F., & Krueger, A. B. (1992). The effect of the minimum wage on the fast food industry. *Industrial and Labor Relations Review*, 46(1), 6-21.
- Harvey, A., & Bernstein, J. (2003). Measurement and testing of inequality from time series of deciles with an application to U.S. wages. *Review of Economics and Statistics*, 85(2), 141-52.
- Lam, K., Ormerod, C., Ritchie, F., & Vaze, P. (2006). Do company wage policies persist in the face of minimum wages? *Labour Market Trends*, 114(3), 69-81.
- Lambert, S. J., Fugiel, P. J., & Henly, J. R. (2014). *Schedule Unpredictability among Early Career Workers in the US Labor Market: A National Snapshot*. University of Chicago: Employment Instability, Family Well-being, and Social Policy Network, retrieved from: localprogress.org/wp-content/uploads/2014/08/exec_summary_fair_workweek_rev1b.pdf (accessed August 23, 2016).
- Landey, A. & Rzad, Y. (2014). *Approaches to low-income energy assistance funding in selected states*. Washington, DC: Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services. Retrieved on August 25, 2016 from: aspe.hhs.gov/basic-report/approaches-low-income-energy-assistance-funding-selected-states.
- Lee, D. S. (1999). Wage inequality in the United States during the 1980s: Rising dispersion or falling minimum wage? *Quarterly Journal of Economics*, 114(8), 977-1023.
- Madowitz, M., Rowell, A. & Hamm, K. (2016). *Calculating the hidden cost of interrupting a career for childcare*. Washington, D.C.: Center for American Progress. Retrieved on July 17, 2016 from: americanprogress.org/issues/early-childhood/report/2016/06/21/139731/calculating-the-hidden-cost-of-interrupting-a-career-for-child-care/.
- Neumark, D., & Wascher, W. (2007). Minimum wages and employment. *Foundations and trends in microeconomics*, 3(1-2), 1-182.
- Neumark, D., & Wascher, W. (2011). Does a higher minimum wage enhance the effectiveness of the Earned Income Tax Credit. *Industrial and Labor Relations Review*, 64(7), 712-46.

Orrenius, P. M., & Zavodny, M. (2008). The effect of minimum wages on immigrants' employments and earnings. *Industrial and Labor Relations Review*, 61(4), 544-563.

Pearce, D. (2015). The Self-Sufficiency Standard for Colorado 2015. Colorado Center on Law and Policy. Retrieved on August 25, 2016 from: cclponline.org/wp-content/uploads/2015/06/SSS-FINAL.pdf.

PolicyLink/PERE National Equity Atlas (2016). Full-time Workers by Poverty Status: Colorado, 2012. Retrieved on August 25, 2016 from: nationalequityatlas.org/indicators/Working_poor/Workers_by_poverty:40291/Colorado/false/Year:2012/.

Reich, M., Allegretto, S., Jacobs, K., & Montialoux, C. (2016). The effects of a \$15 minimum wage in New York State. Berkeley, CA: Center for Wage and Employment Dynamics.

Sabia, J. J. (2008). Minimum wages and the economic well-being of single mothers. *Journal of Policy Analysis and Management*, 27, 848-66.

State of Colorado, Child Care Automated Tracking System (2015). CCCAP payment data for all low-income CCCAP clients with a payment from July 1, 2013 to June 30, 2014. Analysis performed by Sarah Freeman, Bell Policy Center.

Stewart, M. (2004). The employment effects of the national minimum wage. *Economic Journal*, 114(3), C100-C116.

Wehby, G., Dave, D., & Kaestner, R. (2016). Effects of the minimum wage on infant health. (NBER Working Paper No. 22373). Retrieved on July 20, 2016 from National Bureau of Economic Research website: nber.org/papers/w22373.

Wolfson, P. and Belman, D. (2015). 15 years of research on U.S. employment and the minimum wage. (SSRN Report 2705499). Retrieved on July 17, 2016 from Social Science Research Network website: papers.ssrn.com/sol3/papers.cfm?abstract_id=2705499.

Wood, N. O. (2016). Colorado families struggle with 'cliff effect' in childcare assistance. Denver, CO: Bell Policy Center. Retrieved on July 18, 2016 from bellpolicy.org/research/colorado-families-struggle-'cliff-effect'-child-care-assistance.

U.S. Census Bureau, American Community Survey (2016). American Community Survey 1-Year Estimates, Table S0201. Generated by Jennifer Greenfield using American FactFinder, factfinder2.census.gov, (18 July 2016)

Endnotes:

ⁱEligibility and general program information for CCCAP was drawn from the Colorado Department of Human Services website, which oversees the CCCAP program and maintains the CCCAP main webpage: coloradoofficeofearlychildhood.com/cccap.

ⁱⁱInformation about the federal Earned Income Tax Credit was accessed from the Internal Revenue Service of the United States at irs.gov/credits-deductions/individuals/earned-income-tax-credit. Information about Colorado's program was retrieved from the Colorado Department of Revenue at colorado.gov/pacific/tax/earned-income-tax-credit-eitc.

ⁱⁱⁱInformation about Health First Colorado (Medicaid) and CHP+ eligibility was accessed from the Colorado Department of Health Care Policy and Financing, which oversees both programs. The websites, colorado.gov/pacific/hcpf/colorado-medicaid and colorado.gov/pacific/hcpf/child-health-plan-plus, provide comprehensive program and eligibility information for consumers and providers.

^{iv}Colorado's LEAP program is administered through the Colorado Office of Economic Security, which posts information about the program and eligibility at sites.google.com/a/state.co.us/cdhs-leap/.

^vEligibility and program benefits for SNAP are managed at the federal level by the U.S. Department of Agriculture, Food and Nutrition Services division. Information about the program was accessed via their website at www.fns.usda.gov/snap/eligibility, as well as through the Colorado PEAK "Am I Eligible" tool, which was used to test family income and structure scenarios: www.fns.usda.gov/snap/eligibility.

^{vi}Colorado Works is the state's implementation of the Federal Temporary Assistance to Needy Families (TANF) program. Eligibility and program information was accessed via the federal www.benefits.gov website www.benefits.gov/benefits/benefit-details/1653, as well as from the City and County of Denver www.denvergov.org/content/denvergov/en/denver-human-services/assistance-programs/temporary-aid-to-needy-families.html.

^{vii}Eligibility and program information about Colorado's WIC program was accessed through the Department of Public Health and Environment at: www.colorado.gov/pacific/cdphe/categories/services-and-information/health/personal-and-family-health/wic. Additional information about the program's benefits, which are determined at the federal level, was found through the United States Department of Agriculture's Food and Nutrition Services division. See their WIC Benefits and Services page at www.fns.usda.gov/wic/wic-benefits-and-services.



The **IMPACT** of a \$**12.00** Minimum Wage on Women in Colorado

For more information, go to wfco.org or womenscollege.du.edu



UNIVERSITY *of*
DENVER

COLORADO WOMEN'S COLLEGE

THE WOMEN'S
FOUNDATION
OF COLORADO