ECOnorthwest

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Regional Minimum Wage Economic Analysis for Five Boulder County Municipalities

Prepared for: The Boulder County Minimum Wage Economic Study Scoping Team, Consisting of the Cities of Boulder, Longmont, Louisville, and Lafayette, and the Town of Erie

Executive Summary

The federal minimum wage, last updated in 2009, has been significantly eroded by inflation, especially during the high inflation periods of 2021 and 2022. Many states and local jurisdictions have set higher minimum wages to address regional cost of living differences. After the 2019 passage of HB19-1210, five municipalities in Boulder County—Boulder, Erie, Lafayette, Longmont, and Louisville—are considering the option of higher local minimum wages. ECOnorthwest was engaged to analyze the potential economic impacts of such wage increases.

Relying on the best available research literature while acknowledging limitations in available data, ECOnorthwest conducted the analyses described below and in the full study report. Study components include existing conditions analysis for the five study municipalities, a comparative analysis of other localities that have increased their minimum wage, a literature review, a regional minimum wage impact analysis, and an analysis of responses to categorical and quantitative questions from the minimum wage questionnaire conducted by the municipalities. An equity framework guided our analytical decision making.

Recommendations

The economic impacts associated with increasing the minimum wage are best viewed as a set of trade-offs to individuals, businesses, governments, and the community. As such, an optimal minimum wage target should consider the full set of benefits and costs, as well as their size and distribution, because the benefits and costs can differ in magnitude and apply to different people. Moreover, an optimal minimum wage target depends on the preferences of a community. These preferences are critical because policymakers have to assign a relative value or weight to each trade-off, implicitly or explicitly, to determine which policy option is best for their community. Notably, communities can differ with respect to what minimum wage policy has the highest net positive impact, not just because of any community-specific costs and benefits, but also because of the preferences and values of the people living in the community. In short, no minimum wage target is universally optimal; the optimal target is a matter of identifying, quantifying, and then weighing the various trade-offs.

In light of this reality, ECOnorthwest presents the following recommendations regarding the minimum wage target, escalation schedule, and indexing mechanism. Additional information is provided in the full report.

- ♦ *Recommendation #1: Under the assumption that the five municipalities are interested in raising their minimum wages above Colorado's, two factors—a slower ramp-up and consistency with Unincorporated Boulder County—lead us to recommend Scenario B2, where the regional minimum wage reaches that of Unincorporated Boulder County in*

2035. The slower ramp-up period of Scenario B2 relative to Scenario B1 provides a degree of predictability and certainty that would allow individuals, businesses, and governments to adapt to the new economic landscape with minimal disruption. And narrowing, and then eliminating, the gap in wages between Unincorporated Boulder County and the five municipalities over the long term would help increase the consistency of the economic landscape across the region.

♦ *Recommendation #2: Conduct a mid-cycle evaluation of Scenario B2 in 2030 to assess the degree to which the benefits and costs of the higher minimum wage have come to fruition.* To the extent that the anticipated outcomes fall short of expectations, the planned escalation in the minimum wage could be adjusted between 2030 and 2035.

♦ *Recommendation #3: Index the minimum wage annually based on the regional Consumer Price Index for All Urban Consumers (CPI-U) in the Denver-Aurora-Lakewood area.* The goal of wage indexing is to keep worker compensation in line with other changes in the regional economy, particularly price increases.

Existing Conditions

Socioeconomic conditions in the five municipalities and the broader region are essential context for the minimum wage impact analysis and ultimate policy design. The analysis includes macroeconomic indicators such as population growth, unemployment, and inflation, as well as more-detailed examinations of employment, worker, and household characteristics.

Economic Conditions

Recent trends in the economic conditions of the analysis region, and the nation, have been marked by the COVID-19 pandemic recession of 2020. Macroeconomic indicators, including GDP, inflation, and employment, were all negatively affected in 2020. The five municipalities show trends similar to the state and nation, with positive trends during the 2010s interrupted by the COVID-19 economic shock.

One key indicator of macroeconomic conditions is changes in employment (see ES-Exhibit 1). Between 2014 and 2023, three of the five municipalities had higher annual average employment growth than the statewide average (1.6 percent), with Boulder and Longmont as the exceptions. Induced by the COVID-19 pandemic recession and following state and national trends, employment declined across municipalities in 2020, by up to 5.4 percent, in Boulder. Erie employment has had an average annual growth rate of 8.7 percent, consistent with the town's rapid population growth over the same period.

Sales and other retail-based taxes (local government revenues) are another key indicator that could be affected by a minimum wage increase. We examined the extent to which municipality general fund revenues depend on sales tax revenue (from 40 to 66 percent of municipalities' general funds in FY2024) and, where data were available, we assessed the share of municipality sales tax revenue garnered from industries most affected by minimum

wage increases, such as food service, lodging, and retail (from 58 to 65 across municipalities). Our impact analysis modeling suggests very small potential effects of a minimum wage increase on local sales tax revenue.

**ES-Exhibit 1. Year-Over-Year Change in Employment**
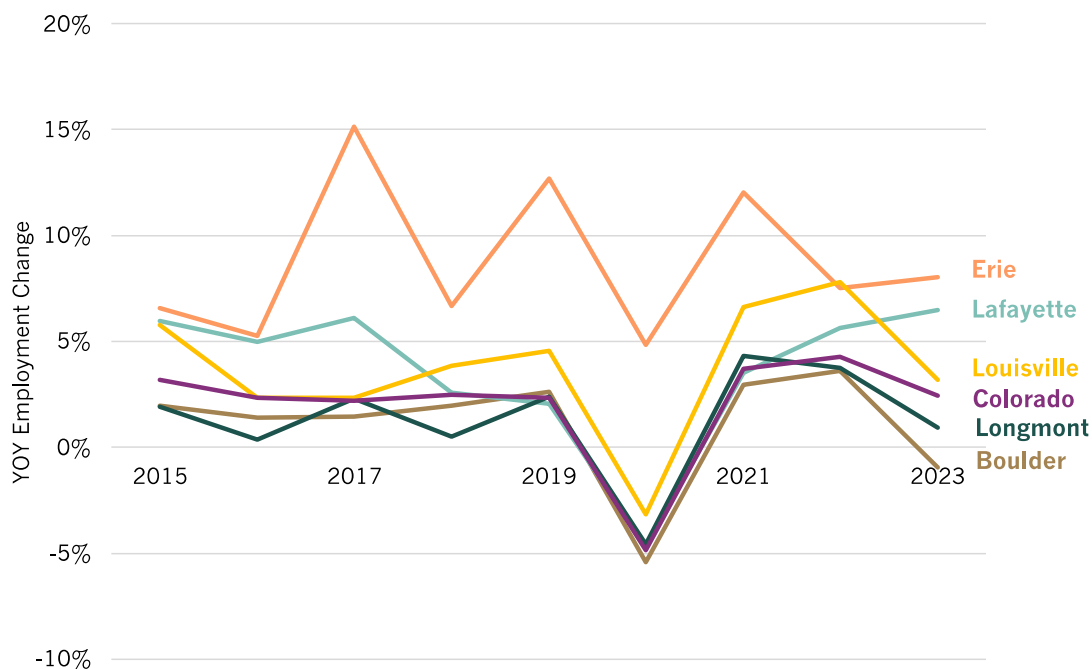
Data source: Colorado Department of Labor and Employment, 2014-2023

At the household level, median income informs us of the overall economic condition of residents of the municipalities and region. Boulder has a median household income below the statewide average of $87,600, likely due to the large college student population in the city. Erie and Louisville have the highest median household incomes, approximately $154,500 and $135,800, respectively. ES-Exhibit 2 illustrates the range of incomes by race/ethnicity across the municipalities and region. The variation and ranges suggest which subpopulations in which municipalities may be most affected by a minimum wage increase.

ES-Exhibit 2. Median Household Income by Race/Ethnicity
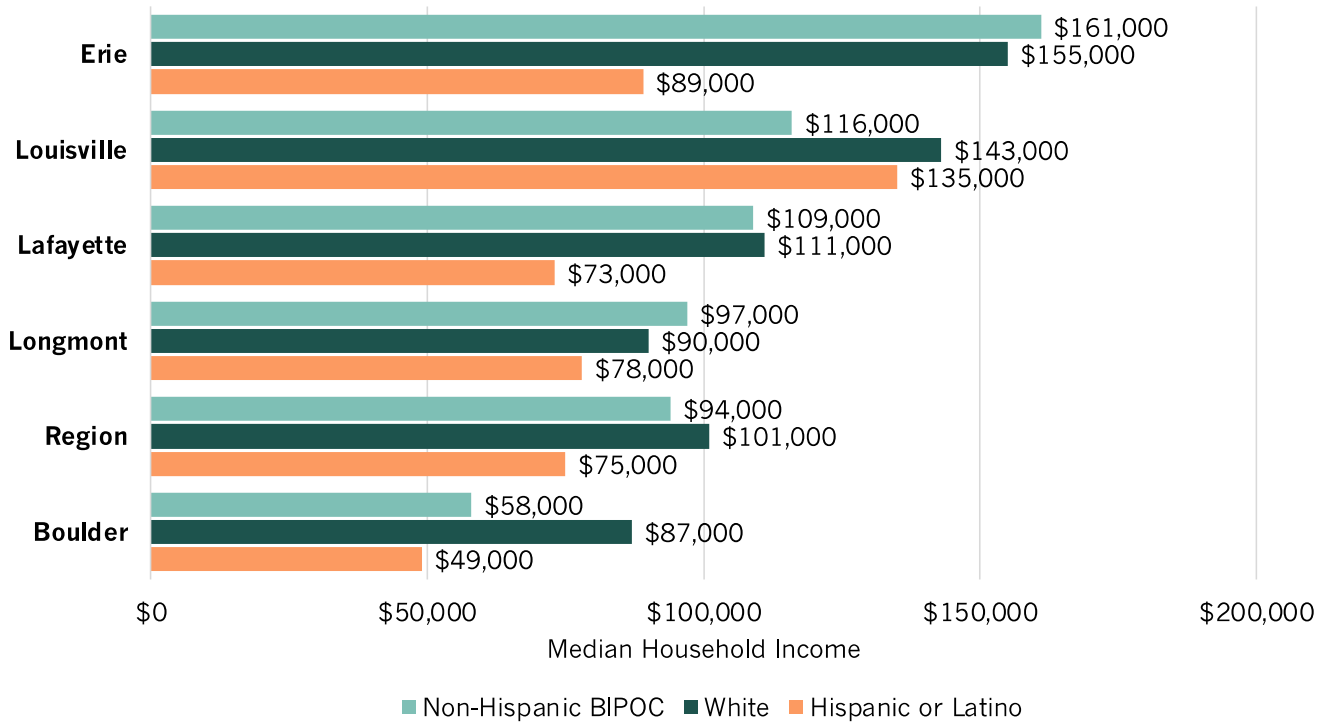
Data source: U.S. Census Bureau, American Community Survey, 2022 5-year estimates

Employment and Industry

Compared to Colorado, the five municipalities have relatively concentrated employment in high-skill industries such as professional and technical services, high-tech manufacturing, healthcare, and information. Additionally, private educational services are concentrated in Boulder and Longmont. Most working residents in the five municipalities commute elsewhere in Colorado or Boulder County and thus would not directly benefit from local minimum wage increases. However, low-income workers are slightly more likely to work within their municipality of residence (28 percent compared to 22 percent of all workers). An increased minimum wage would also help low-wage workers who live outside the five municipalities if they work in one of the five municipalities.

Roughly one third of workers across the study municipalities work in low-wage industries, and nearly half work in low-wage occupations. While one quarter of all workers in the region identify as BIPOC, a disproportionate share of workers in low-wage occupations identify as BIPOC, and most low-wage BIPOC workers are Hispanic or Latino. ES-Exhibit 3 shows the share of each municipality that is Hispanic or Latino or non-Hispanic BIPOC, reflecting differences in subpopulations that may be disproportionately affected by a minimum wage increase. Low-wage industries and occupations also have differential shares by gender: women make up the majority of low-wage-industry workers, while a higher share of low-wage-occupation workers identify as men.

ES-Exhibit 3. Share of Population that is Hispanic or Latino or Non-Hispanic BIPOC, by Municipality
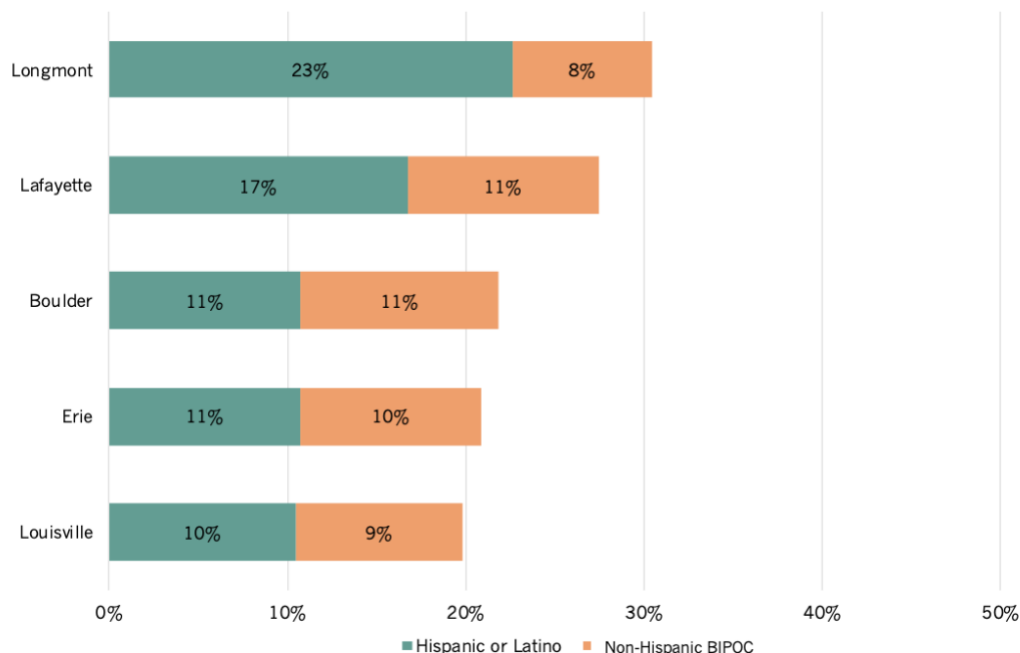
Data source: U.S. Census Bureau, American Community Survey, 2022 5-year estimates

Wage Distribution and the Minimum Wage

Approximately one in three workers in the region earn below $25 per hour and one in ten earn below $15 per hour. Workers earning below $15 per hour account for a disproportionately high number of hours worked, indicating that lower-wage workers typically work longer hours than their higher-wage counterparts.

Our analysis examines the distribution of minimum wage workers and their household income relative to the Boulder County Self-Sufficiency Standard (SSS). Approximately 56 percent of households that have at least one minimum wage worker (righthand set of columns in ES-Exhibit 4) have income below the SSS, compared to 18 percent of households without minimum wage workers (lefthand set of columns).

ES-Exhibit 4. Share of Households with Income Below and Above the Self-Sufficiency Standard, by Household Type
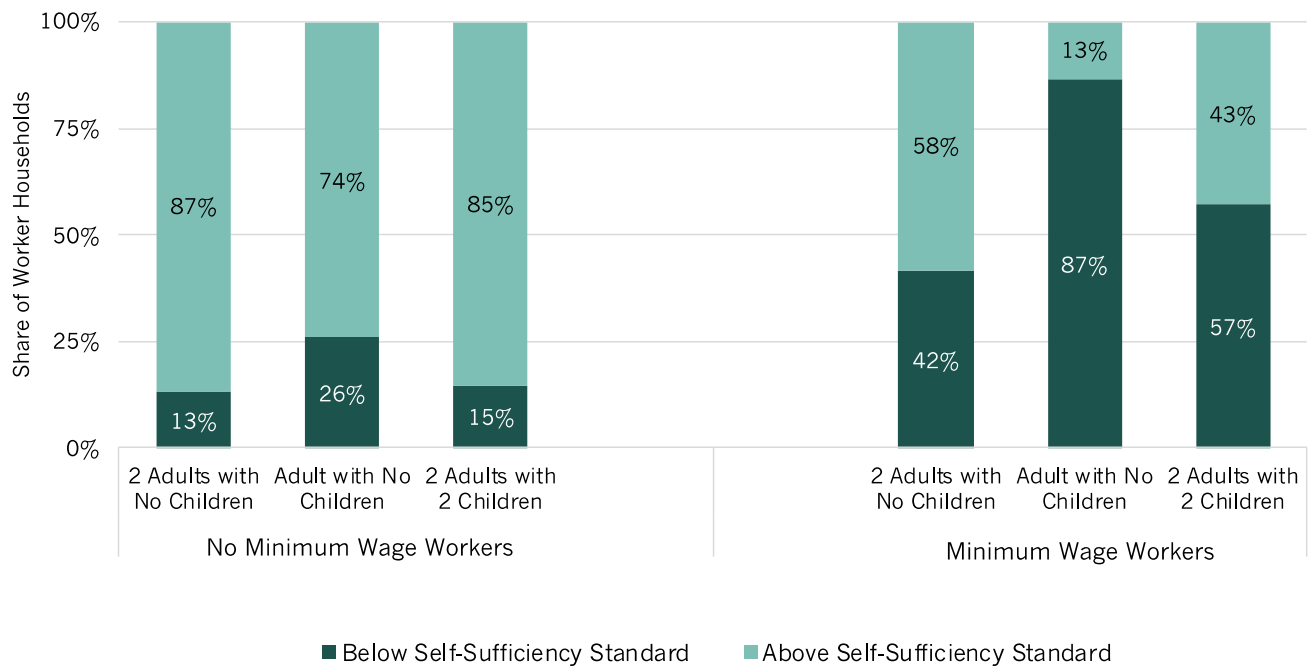
Note: "Minimum wage" defined here as estimated hourly wages below $15
Data source: U.S. Census Bureau, American Community Survey, 2022 5-year estimates

Tipped workers earning the minimum wage represent an important part of the minimum wage workforce. Data limitations prevented the impact analysis from estimating effects for these workers, but available data provide context for understanding potential impacts. Tipped workers, who in Colorado receive no less than $11.40 per hour from employers if they earn at least $3.02 per hour in tips, face a generally higher poverty rate (12.8 percent) compared to the overall workforce (6.7 percent) at the national level. Most tipped workers are aged 20 to 39 and have relatively low educational attainment, and BIPOC individuals constitute a larger share of this group. If Colorado's tip credit remains at $3.02, the subminimum wage would get proportionately closer to the standard minimum wage over time.

Comparative Analysis

In exploring the impacts of local minimum wage increases, we analyzed ten cities and counties that implemented wages above federal and state requirements (see ES-Exhibit 5). These regions were chosen for their similarity in population, industry makeup, and demographics to our study municipalities. Data collected before and after the wage increases offered insights into economic trends. Most municipalities indexed their minimum wages to inflation, with regional trends often guiding adjustments. While some employed caps to moderate rapid increases during periods of high inflation, others used more-intricate methods tying wages to local unemployment rates; these lacked clear information about effectiveness. Our high-level characterization of outcomes for the ten cities and counties that

enacted local minimum wage increases suggests that doing so does not necessarily lead to large, negative economic effects.

ES-Exhibit 5. Change in Economic Conditions after Minimum Wage Increase Relative to State Change

Cities	AAGR (to full wage)	Unemployment Rate Trend Relative to Statewide Trend	Poverty Rate Trend Relative to Statewide Trend	Labor Force Participation Rate Relative to Statewide Trend	Employment Growth Rate Trend Relative to Statewide Trend
Flagstaff, AZ	8%	2.70	NA	-1.30	0.00
Alameda, CA	12%	0.80	0.30	0.20	-0.01
Milpitas, CA	13%	1.50	-0.70	7.60	0.29
San Mateo, CA	14%	1.50	3.30	2.20	0.04
Santa Clara, CA	14%	2.90	5.00	0.70	0.04
Cook County, IL	12%	-0.70	-1.10	0.60	0.01
Montgomery County, MD	7%	0.80	0.60	-0.50	-0.01
Minneapolis, MN	14%	1.50	-4.80	1.10	0.02
Santa Fe County, NM	42%	-3.40	-2.30	-2.20	-0.01
Seattle, WA	16%	1.10	0.00	0.10	0.04

Data sources: U.S Census Bureau, American Community Survey, 2022 1-year estimates, Table DP03_0002P, DP03_0009P, DP03_0003, and DP03_0119P, Various Years; UC Berkeley Inventory of US City and County Minimum Wage Ordinance

Our findings suggest that while cities and counties with higher minimum wages differed markedly from their counterparts, the economic repercussions were generally modest. Changes in unemployment, poverty rates, and employment levels varied compared to state averages, reflecting localized economic conditions.

Literature Review

The study's literature review provides a summary of recent research on the minimum wage, with a focus on economic impacts. It both informs the impact analysis and provides context for interpreting the results of the analysis. The following are highlights from decades of minimum wage research:

» **Employment:** A rich body of research on the impact of a minimum wage increase on aggregate employment shows a complex set of dynamics, however the overall consensus indicates limited negative impacts on aggregate employment.

» **Capital Investment:** One explanation for the limited employment impacts of a minimum wage increase is that employment effects are short term, and employers can and will shift towards more capital-intensive (less labor-intensive) operations over the long term.

» **Prices:** In the traditional economic framework, wage increases lead to higher prices, and recent empirical research provides evidence that minimum wage increases are passed on to consumers, however the estimated effects on price are relatively small.

» **Business Productivity:** Current research indicates both positive and negative effects on business productivity, depending on firm size and industry, across varying metrics such as worker productivity, firm revenue, and product quality.

» **Poverty and Income Inequality:** For low-income workers, researchers have found that a minimum wage increase can reduce income inequality, as well as racial and gender wage gaps. Other effects, both positive and negative, have been documented, including improved social and health outcomes for children, low-income workers commuting to areas with higher minimum wages, and diminished access to jobs for workers without a high school diploma.

In sum, over the past three decades, economists have studied the myriad and sometimes counterintuitive impacts of raising the minimum wage. The understandable initial focus on employment has expanded to include impacts on capital investment, prices, business productivity, poverty, inequality, and beyond. This rich body of academic literature reveals a complex picture. What is clear from the literature is that the often assumed simple, direct relationship between increases in the minimum wage and reductions in employment is overly simplistic. Research has shown that increases in the minimum wage can have both positive and negative impacts of varying degrees on a wide array of economic outcomes over different time horizons.

Regional Minimum Wage Impact Analysis

The economic impacts associated with increasing the minimum wage are best viewed as trade-offs—a set of benefits and costs to individuals, businesses, local governments, and society as a whole. Most obviously, the main benefit of increasing the minimum wage is an increase in income among low-wage workers. The trade-offs that accompany this benefit are well documented and span many dimensions: employment, prices, operating costs, productivity, poverty, and inequality. Estimating the magnitude of these trade-offs has been and continues to be the subject of rich debate among economists. For the purposes of our analysis, we take these different perspectives into account, and present estimates based, generally, on median impacts across a diverse set of published research. Importantly, we take a holistic approach and consider not just the immediate response of employers to higher labor costs, but also the broader economic impacts of low-wage workers' higher incomes.

Our framework is based on the University of California, Berkeley's Institute for Research on Labor and Employment (IRLE) minimum wage model. The impacts of raising the minimum wage are multifaceted, necessitating a comprehensive framework like the IRLE model to analyze the net effects on employment, business viability, and economic dynamics across various scenarios. The model takes into account direct and indirect impacts of increasing

the minimum wage on both workers and businesses, including increased automation and productivity, to estimate the net effect on employment (see ES-Exhibit 6).

ES-Exhibit 6. Analysis Framework – The Berkeley IRLE Minimum Wage Model for the Effect of Increases in the Minimum Wage on Workers and Businesses
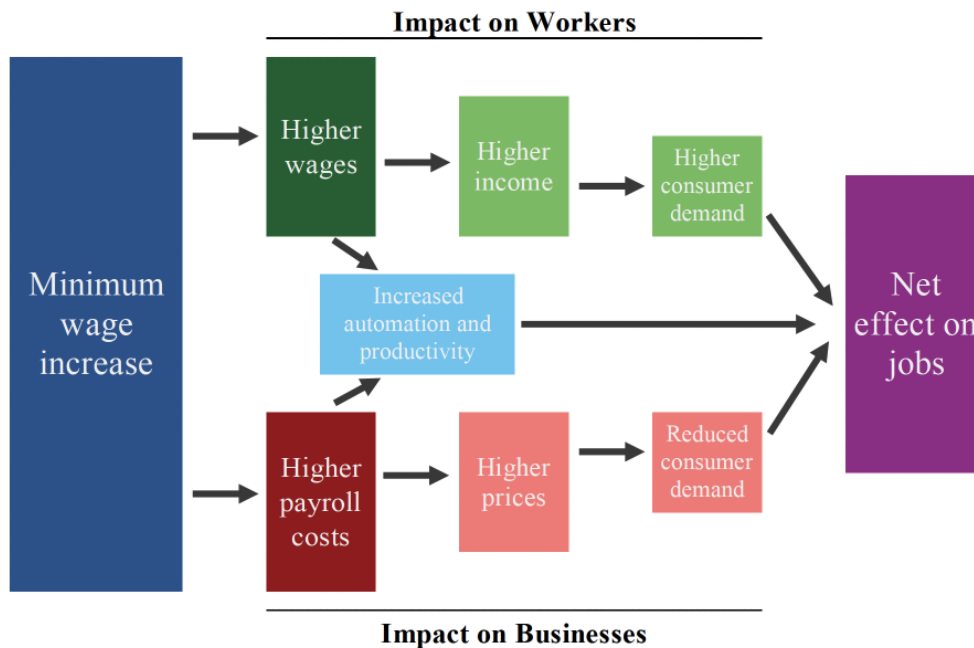
Source: Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment.

Scenarios

The Regional Minimum Wage Impact Analysis focuses on four scenarios, with each evaluated relative to the existing Colorado minimum wage ($14.42 in 2024). We assume a 3 percent annual increase to the Colorado minimum wage, based on historical inflation trends, resulting in an estimated wage of $19.96 in 2035. Two other current-law policies informed scenario development, those for Denver and Unincorporated Boulder County.

Although not used in the modeling, we also project the Boulder County SSS for two representative household types (single adult and two adults with two school-aged children) out to 2035 based on historical growth of the SSS and current inflationary trends (3 percent per year). As shown in ES-Exhibits 7-8, the current-law minimum wage policies currently reach between 58 percent (Colorado) and 86 percent (Denver) of the projected SSS for selected household types. By 2035, they reach between 50 percent (Colorado) and 84 percent (Unincorporated Boulder County) of the projected SSS.

Each of our four scenarios begins with Colorado's minimum wage in 2024 of $14.42. Two are designed to reach Unincorporated Boulder County's minimum wage, one as soon as possible under existing law (a maximum 15-percent increase per year) (Scenario B1) and the other in 2035 (Scenario B2). The remaining two scenarios are designed to reach

Denver's minimum wage, one as soon as possible (Scenario D1) and the other in 2035 (Scenario D2).

By 2030, the Unincorporated Boulder County-based scenarios reach between 65 and 90 percent of projected SSS for selected household types. By 2035, the scenarios reach between 72 and 84 percent of the projected SSS. By 2030, the Denver-based scenarios reach between 61 and 79 percent of projected SSS for selected household types. By 2035, they range from 63 to 74 percent of the projected SSS.

ES-Exhibit 7. Minimum Wage Scenarios for Reaching Unincorporated Boulder County's Minimum Wage, 2024-2035

ES-Exhibit 8. Minimum Wage Scenarios for Reaching Denver's Minimum Wage, 2024-2035
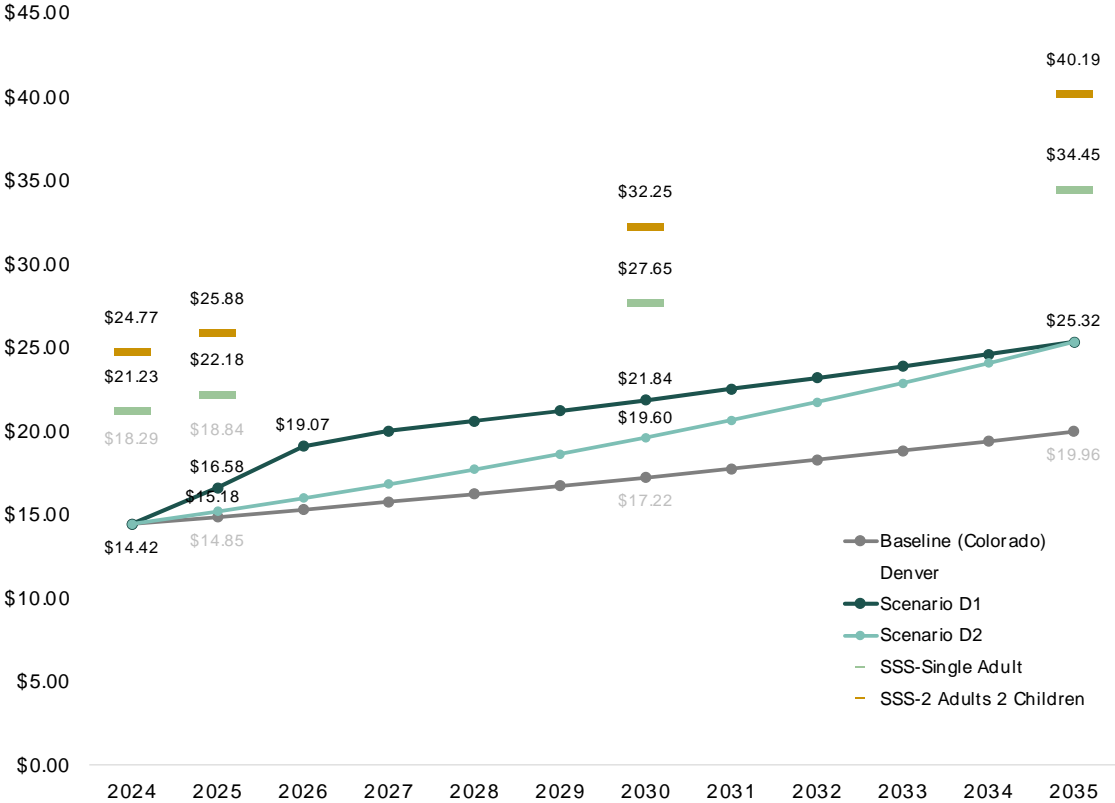
Findings

We assessed impacts for each scenario relative to the status quo (the Colorado minimum wage). The report provides impact results for each individual municipality, where possible, as well as for all five combined.

Select Effects of Modeled Minimum Wage Increases

ES-Exhibit 9 shows the number of employees across the five municipalities that would be laid off due to the minimum wage increase at 2030 levels. Under all scenarios, teenagers and young adults are most likely to be affected by job loss due to a minimum wage increase. Scenario B1 employment loss is the highest compared to other scenarios in 2030, due to the comparatively faster minimum wage increase rate. Overall, the Unincorporated Boulder County-based scenarios are associated with higher employment loss compared to the Denver-based scenarios.

ES-Exhibit 9. Change in Employment Relative to Baseline, 2030

SCENARIO	TEENAGERS & YOUNG ADULTS	ADULTS	ALL WORKERS	IMPACT AS A SHARE OF CURRENT EMPLOYMENT
Scenario B1	-1,755	-282	-2,037	-1.0%
Scenario B2	-1,057	-167	-1,224	-0.6%
Scenario D1	-1,266	-167	-1,433	-0.7%
Scenario D2	-635	-97	-732	-0.4%

Source: ECOnorthwest analysis. Colorado Department of Labor and Employment, QCEW, 2023.
Notes: Teenagers are those 16-19 years old and Younger Adults are those 20-24 years old.

Many workers would have increased earnings under a minimum wage increase (see ES-Exhibit 10). The number of workers (directly and potentially affected) that could experience increases in earnings is between 1,848 and 15,805 across the municipalities, representing between 1 percent and 8 percent of current employment. Scenario B1 would realize the largest gain in workers earning higher wages in 2030.

ES-Exhibit 10. Number of Workers with Increased Earnings Relative to Baseline, 2030

SCENARIO	TOTAL WORKERS	SHARE OF CURRENT EMPLOYMENT
Scenario B1	15,805	8.0%
Scenario B2	5,108	2.6%
Scenario D1	6,969	3.5%
Scenario D2	1,848	0.9%

Source: ECOnorthwest analysis. Colorado Department of Labor and Employment, QCEW, 2023.
Note: Total workers include those directly and potentially affected.

The Federal Poverty Level (FPL) is widely regarded as inadequate for assessing family economic resiliency, with measures such as the Self-Sufficiency Standard allowing for better and more holistic assessments.[1] Due to limitations in the research literature and available data, the economic model relies on a stratification of family income relative to the FPL at the regional level (five municipalities combined). Families with lower incomes benefit more from minimum wage increases and tend to spend a higher portion of their income. Families with incomes below 300 percent FPL experience an increase in income in all scenarios.

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[1] Colorado Center on Law and Policy. (2024). Self-Sufficiency Standard. Accessed at:
https://copolicy.org/resources-publications/publications/self-sufficiency-standard/

Our analysis estimated the effect on individuals in poverty by municipality. ES-Exhibit 11 presents the reduction in numbers of people in poverty due to the minimum wage increase in 2030. Up to 481 people could be lifted out of poverty by 2030, across scenarios.[2]

ES-Exhibit 11. Change in Poverty Relative to Baseline, 2030

SCENARIO	CHANGE IN POPULATION IN POVERTY	CHANGE IN POVERTY RATE
Scenario B1	-481	-0.17%
Scenario B2	-103	-0.04%
Scenario D1	-166	-0.06%
Scenario D2	0	0.00%

Source: ECOnorthwest analysis

Under Scenario B1, prices would be cumulatively higher by 0.1 percent relative to baseline through 2030, and under Scenario B2 by 0.05 percent. Scenarios D1 and D2 show slightly lower price differences, of 0.03 to 0.06.

By 2030, Boulder County economic output under all scenarios increases minimally or remains unchanged, and then turns slightly negative by 2035. This small shift is due to reductions in average family income, particularly among higher-income households affected by price increases. More households have incomes above three times the FPL than below, and their income reductions lead to slight reductions in economic output. In 2030, GDP is anticipated to increase, at maximum, by between 0.0005 (Scenario D1) and 0.001 percent (Scenario B1). The negative impact by 2035 is slightly larger, with modeled effects ranging from a decrease in GDP of 0.02 percent (Scenario D2) to 0.06 percent (Scenario B1). Additionally, impacts to local (county and municipality) tax revenues collected by all local governments in Boulder County are expected to be negligible compared to overall municipality budgets.

Dashboard

We consolidated the findings into a dashboard as a visual comparison of the tradeoffs suggested by the results (see ES-Exhibit 12). Positive outcomes are shaded green, negative outcomes are red, and smaller effects are lighter in color. Color coding for an outcome is relative to modeled impacts across years and scenarios for *that outcome only.*

The dashboard provides a general assessment of the impacts associated with each scenario. It should not be used to "score" scenarios computationally based on shades of green and red. Decisionmakers will need to consider how much weight their municipality should place on a given outcome. For example, how beneficial is a reduction in poverty compared to a loss in employment?

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[2] For effects by demographic characteristics, see the full report.

What the dashboard makes clear is that no single perfect solution exists—rather, trade-offs exist under each scenario. In cases where the positive impacts are maximized, so are the negative ones; in cases where the negative impacts are minimized, so are the positive ones. The optimal policy, therefore, depends on how much weight the affected municipalities place on the various outcomes.

ES-Exhibit 12. Effect of Increases in the Minimum Wage, 2025, 2030, and 2035 - Dashboard

	2025				2030				2035			
	Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios		Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios		Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios	
	D1	D2	B1	B2	D1	D2	B1	B2	D1	D2	B1	B2
Impacts to Workers												
Workers with increased earnings (000s)												
Directly affected workers												
Potentially affected workers												
Net change in employment												
Net change in hours worked*												
Workers' earnings												
Change in real annual income												
Families with income < 100% FPL												
Families with income between 100% to 300% FPL												
Families with income between 300% to 500% FPL												
Families with income > 500% FPL												
Impacts to Businesses												
Operating costs												
Change in payroll costs												
Change in operating costs												
Prices												
Percentage of workers getting a raise												
Employee retention*												
Worker productivity*												
Business productivity and profits												
Business failures*												
Business migration*												
Impacts to Region												
Consumption												
GDP												
Number of people in poverty (000s)												
Unemployment												
Subsitution away from unskilled labor												
Wage inequality (tighter wage distribution)												
Impacts to Governments												
Impact to local government revenues												
Impact to local government expenses												

Source: ECOnorthwest. *Qualitative assessment

Notes: Tradeoffs are measured relative to the status quo—maintaining the state mandated minimum wage, adjusted for anticipated inflation. Outcomes that are positively affected by an increase in the minimum wage—per a given scenario—are shown in green; those that are negatively affected are shown in red. The lighter the shade, the more moderate the impact; the darker the shade, the more pronounced the impact. Outcomes that are unaffected are denoted in yellow. In the case of quantitatively-assessed outcomes, the shades of color are approximately proportional to the largest impact for that outcome. In the case of qualitatively-assessed outcomes, the shades of color are based on magnitudes reported in the relevant economics literature. Looking horizontally, the dashboard shows how each scenario compares over time (2025, 2030, and 2035) for a given outcome. Looking vertically, the dashboard shows how all outcomes, collectively, are affected by a given scenario.

Acknowledgments

That assistance notwithstanding, ECOnorthwest is responsible for the content of this report. The staff at ECOnorthwest prepared this report based on their areas of expertise and general knowledge. ECOnorthwest also relied on information derived from government agencies, private statistical services, the reports of others, interviews of individuals, or other sources believed to be reliable. ECOnorthwest has not independently verified the accuracy of all such information and makes no representation regarding its accuracy or completeness. Any statements nonfactual in nature constitute the authors' current opinions, which may change as more information becomes available.

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1. Introduction

The real value of the current federal minimum wage, already considered low by many when it was established in 2009, is continuously eroded by inflation, a particularly acute concern given the extremely high inflation observed during 2021 and 2022. Recognizing this and other disconnects between the federal minimum wage and local conditions (e.g., regionally higher-than-national-average cost of living), many states have long set a minimum wage higher than that required by federal law—including Colorado since 2007—and city and county jurisdictions have increasingly set minimum wages higher than required by the relevant state law. Since the passage of HB19-1210 in 2019, local governments in Colorado have been permitted to set minimum wages higher than the state-mandated minimum, an option now being considered by five municipalities in Boulder County: City of Boulder, Town of Erie, City of Lafayette, City of Longmont, and City of Louisville (see Exhibit 1, below). These municipalities are referred to as the Scoping Team in the remainder of the report.

Identifying the potential economic implications of minimum wage increases is critical both to decision-making regarding when and by how much to increase local minimum wages and to building community understanding about the costs and benefits of decisions ultimately made. Acknowledging this, the Scoping Team collectively engaged ECOnorthwest to conduct an economic analysis of potential minimum wage increases.

This report describes the results of the analysis. The remainder of this section describes the geography considered in the analysis, how equity considerations informed the analysis, and the remaining components of the report.

A Note About Analysis Geography

The analysis focuses specifically on the five municipalities but as described elsewhere in the report, not all data of interest are available at the municipal level. Most importantly, this limitation applies to important Census data regarding the demographic characteristics of workers and other residents. Thus, the data presented below sometimes reflect conditions within municipal boundaries, and sometimes a broader region consisting of three Public Use Microdata Areas (PUMAs)[1], specifically, PUMAs A, B, and D in Exhibit 1. Although this region excludes some areas within the municipal boundaries of Longmont and Erie, it includes more than 90 percent of the population in the five municipalities.[2]

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[1] PUMAs, defined by the U.S. Census Bureau, are non-overlapping geographic areas that partition the U.S. into areas containing no fewer than 100,000 people each. Census data available at the PUMA level are much more detailed than data available for smaller geographies, such as cities and towns.

[2] The three-PUMA region excludes 58 percent of Erie's population. However, a demographic analysis of municipal populations and that of PUMA C suggests that including PUMA C would skew the data for the broader region due to the demographics of the non-Erie portion of the PUMA, which is essentially Weld County. See Appendix B for population and worker demographics in PUMAs A, B, C, and D.

Exhibit 1. Municipality Boundaries and Census PUMA Geography
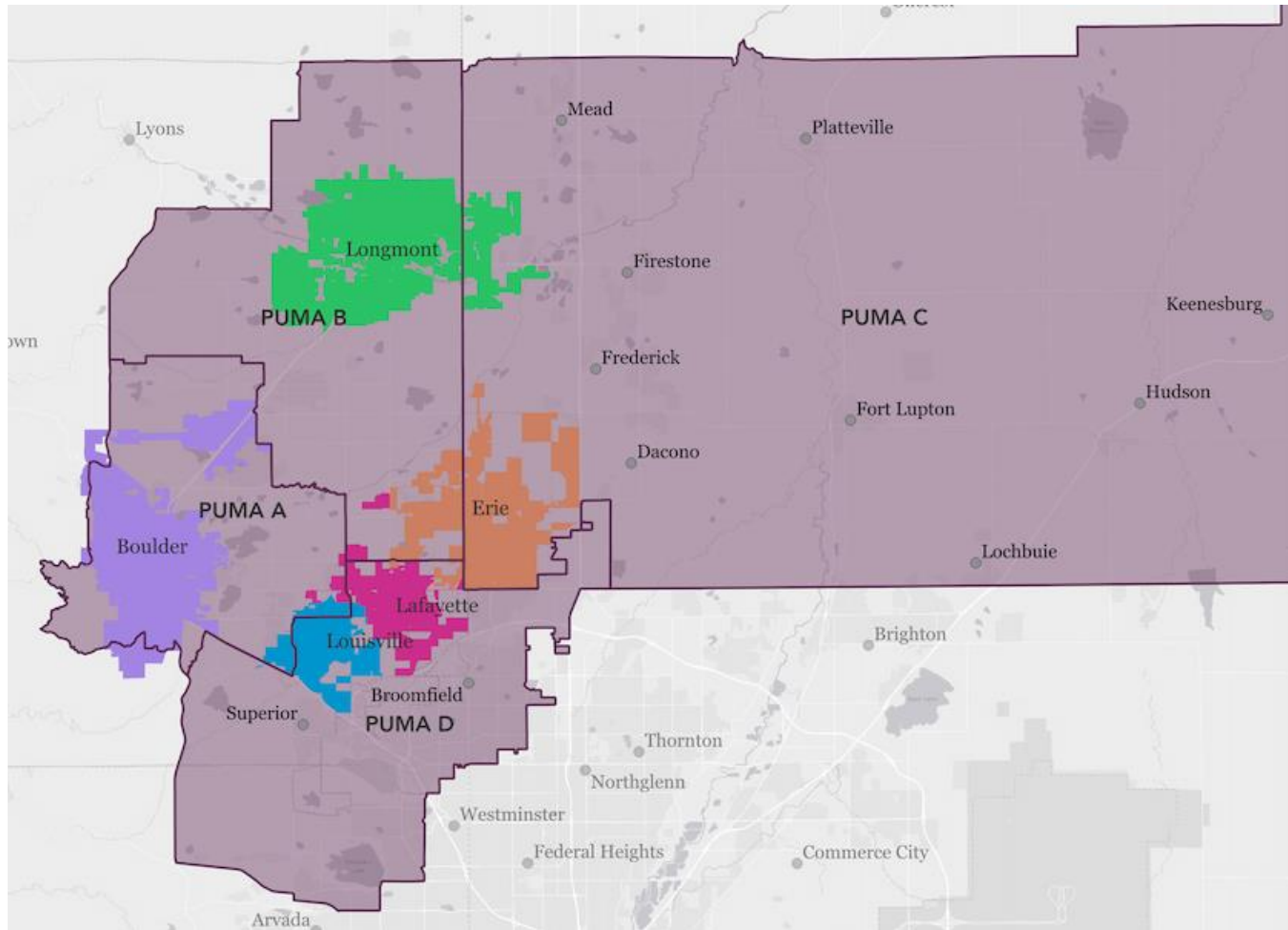
Source: U.S. Census Bureau, 2022. Note: PUMA C is only partially pictured.

Equity

A focus on equity was essential to the success of this project. We applied an equity framework to the analysis, including an understanding of the historical context in which communities of color have not had the same educational and economic opportunities as white communities and are disproportionately represented among low-wage earners.

Wherever possible we used data that can be disaggregated by race/ethnicity, income, and other demographics. In using such data, we seek to fully understand the limitations of any data source with respect to equity considerations. For example, we discussed with the Scoping Team the tradeoffs of using American Community Survey (ACS) data produced by the Census Bureau at the municipality versus PUMA levels. PUMAs do not align with the study municipality boundaries (see Exhibit 1) but relying in part on data for these larger geographic units allows some disaggregation by race/ethnicity[3] and provides valuable

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[3] PUMAs are non-overlapping geographic areas that partition the U.S. into areas containing no fewer than 100,000 people each.

information about communities not as well represented in the limited data available at the municipal level.

Census Bureau data sources, while among the most reliable available for regions across the United States, have important limitations that we acknowledge. These limitations, listed below, highlight the need to continuously evaluate opportunities for improving data collection regarding marginalized communities.

MARGINS OF ERROR

ACS data uses population sampling to create estimates of socioeconomic trends. In some cases, the margin of error (MOE) associated with this sampling can be very high, indicating low accuracy of associated estimates. In this report, we do not show unreliable estimates. This typically happens for populations representing a small share of the total population, populations that are undercounted (see "Data Collection with Undocumented Populations," below), or data filtered to small geographies such as the block-group data used to characterize neighborhoods and other small regions of interest.

COVID-19 DISTORTIONS

The 5-year 2018-2022 ACS estimates used in this report include data from the year 2020, when the onset of the COVID-19 pandemic created many challenges for the US Census Bureau's typical data collection methods. During this time, there were noted issues that caused distortions in surveys, including the ACS. In particular, the Bureau saw challenges that resulted in undercounting younger populations and overcounting the white, non-Hispanic population nationwide.[4] These data artifacts from 2020 will likely influence the quality of certain Census data products for several years to come.

DATA COLLECTION WITH UNDOCUMENTED POPULATIONS

Undocumented immigrants and mixed-status families are often considered "hidden" or "hard-to-reach" populations for several reasons, including socio-economic barriers, fear, and lack of trust in the institutions that seek to engage them.[5] The term "hidden" is used when public acknowledgement of membership in the population is potentially threatening to the individual.[6] Based on these critical barriers, the US Census Bureau reports that undocumented populations are difficult to count due to a reliance on survey-style data collection and a residential address matching process.

Specifically, if an address is not included in the Bureau's database, surveys will not be sent to that address. For this and other reasons, immigrant and other marginalized communities can be difficult to reach considering a higher probability of experiencing irregular housing and addressing, limited English proficiency, confidentiality concerns, and complex

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[4] Pew Research Center, 'Key facts about the quality of the 2020 Census,' https://www.pewresearch.org/short-reads/2022/06/08/key-facts-about-the-quality-of-the-2020-census/.

[5] Urban Institute. "When Researchers Build Trust, "Hard-to-Reach" Undocumented Communities Aren't So Hard to Reach"

[6] Heckthorn, A. "Respondent-Driven Sampling: A New Approach to Study Hidden Populations"

households. For example, the Bureau estimated that 20 percent of census "noncitizens" had addresses that could not be linked to an address in the database compared to 6 percent of citizens, "raising the possibility that the 2020 Census did not collect data for a significant fraction of noncitizens."[7],[8] These limits in data have wide-ranging effects on demographic and population profiles that drive policy setting, resource distribution, and public interventions.

Report Components

The analysis consists of five main components:

- **Existing Conditions Analysis (Section 2).** This phase of the project documented socioeconomic conditions in the five municipalities and for some metrics, across a broader region.[9] The analysis included macroeconomic indicators such as population growth, unemployment, and inflation, as well as more detailed examinations of employment, household characteristics, and other indicators.

- **Comparative Analysis (Section 3).** In parallel to the existing conditions analysis, the research team conducted a high-level comparative analysis of other cities or regions that have increased the local minimum wage beyond that required by state and federal law. Although the impact analysis provides more-definitive information about potential effects of an increase in local minimum wages, comparing economic performance and other outcomes of selected comparison regions provides insight into how the five Boulder County municipalities might fare with a similar increase.

- **Literature Review (Section 4).** Rapid minimum wage increases implemented at the state and local level have proliferated in recent years, particularly since the onset of the COVID-19 pandemic and the ensuing economic disruptions. These changes have both reignited interest in identifying the effects of changes in the minimum wage and provided numerous natural experiments researchers have analyzed to do so. The literature review for this project explored both the economic theory that suggests how a minimum wage increase might affect conditions and recent empirical work that either supports or rejects the presence of a relevant effect.

- **Regional Impact Analysis (Section 5).** The impact analysis involved modeling how each of the four specific minimum wage scenarios, described in Section 5, could affect outcomes such as employment, wages, poverty rates, total economic output, and other metrics. Modeling disaggregated impacts to specific municipalities to the extent possible.

- **Appendix A: Questionnaire Analysis (Section 6).** ECOnorthwest provided an analysis of responses to categorical and quantitative questions from the minimum wage

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[7] "Noncitizens" defined as "People who indicate that they were born in the United States, Puerto Rico, a U.S. Island Area, or abroad of at least one U.S. citizen parent are U.S. citizens... [or] indicate that they are U.S. citizens through naturalization." https://www.census.gov/glossary/?term=Citizenship+status
[8] Center for Economic Studies. "Non-Citizen Coverage and Its effect on US Population Statistics"
[9] In some cases, data limitations (e.g., data not available by municipality) required a regional analysis. In other cases, regional information provides useful context for interpreting conditions in a municipality.

questionnaire conducted by the municipalities, with a focus on dimensions of the data most relevant to the other analyses.

- ♦ **Appendix B: Additional Materials (Section 7).** This section provides additional details on the Existing Conditions, Comparative, Regional Impact Analyses.

2. Existing Conditions

Economic Conditions

This section focuses on the current population, demographics, and macroeconomic environment of the region and the five municipalities. The conditions described provide context for the impact analysis and, in many cases, relate directly to potential impacts of a minimum wage increase.

SUMMARY:

➤ Over the past five years, the region's population (in Boulder, Weld, and Broomfield counties) has been growing faster than Colorado overall. Across the five municipalities, Erie and Lafayette have experienced relatively higher population growth, with Longmont, Boulder and Louisville exhibiting little recent population growth.

➤ Macroeconomic indicators including GDP, inflation, and employment metrics, show trends similar to the state, with growth during the 2010s interrupted by the COVID-19 economic shock, as it was nationwide. Also similar to state and national trends, recent economic activity has bounced back and stabilized in the last couple of years.

➤ Boulder and Longmont have relatively young populations, with a disproportionate number of young adults. In Boulder, this trend is driven largely by the presence of the University of Colorado, Boulder. Populations of the other municipalities have relatively higher shares of children and residents in the middle age groups.

➤ Across the five municipalities, the Black, Indigenous, People of Color (BIPOC) population comprises between 19 percent (Louisville) and 31 percent (Longmont) of the total population. Of BIPOC race and ethnicities, Hispanic and Latino residents make up between 10 percent (Louisville) and 23 (Longmont) percent of the total population.

➤ Erie, Louisville, Lafayette, and Longmont have median household incomes above the statewide average. Boulder has a slightly lower median household income, likely because of the concentration of college students and other young adults.

➤ The median income among BIPOC households falls below the overall median in each of the municipalities, by 43 percent for Hispanic and Latino households in Erie and by 27 percent for households of non-Hispanic BIPOC groups in Boulder. Across municipalities, the difference is more pronounced for Hispanic and Latino households.

DEMOGRAPHICS

Exhibit 2 displays population growth since 2010 for the five municipalities and Exhibit 3 shows the 2022 population totals and selected demographic characteristics. Among the five

municipalities, Boulder has the largest population (105,650), although its growth has been relatively modest, growing only 8 percent between 2010 and 2022 (0.6 percent per year). This was slower than the other municipalities with the exception of Louisville, the smallest of the municipalities (19,394), with a growth rate of only 5 percent (0.4 percent per year). Longmont, the second most populous municipality, with a population of nearly 100,000 in 2022, grew by 1.2 percent per year, or 15 percent in total, between 2010 to 2022. Lafayette (30,890) and Erie (34,080) have both grown more rapidly, with population growth since 2010 of 26 percent (1.9 percent per year) and 85 percent (5.3 percent per year), respectively. Municipal population projections were not available for this analysis, but the surrounding Boulder County is projected to grow by 15 percent, or 0.6 percent per year, between 2025 and 2050 (Weld and Broomfield counties are projected to grow by 59 and 40 percent, respectively).[10]

Exhibit 2. Population Growth Relative to 2010
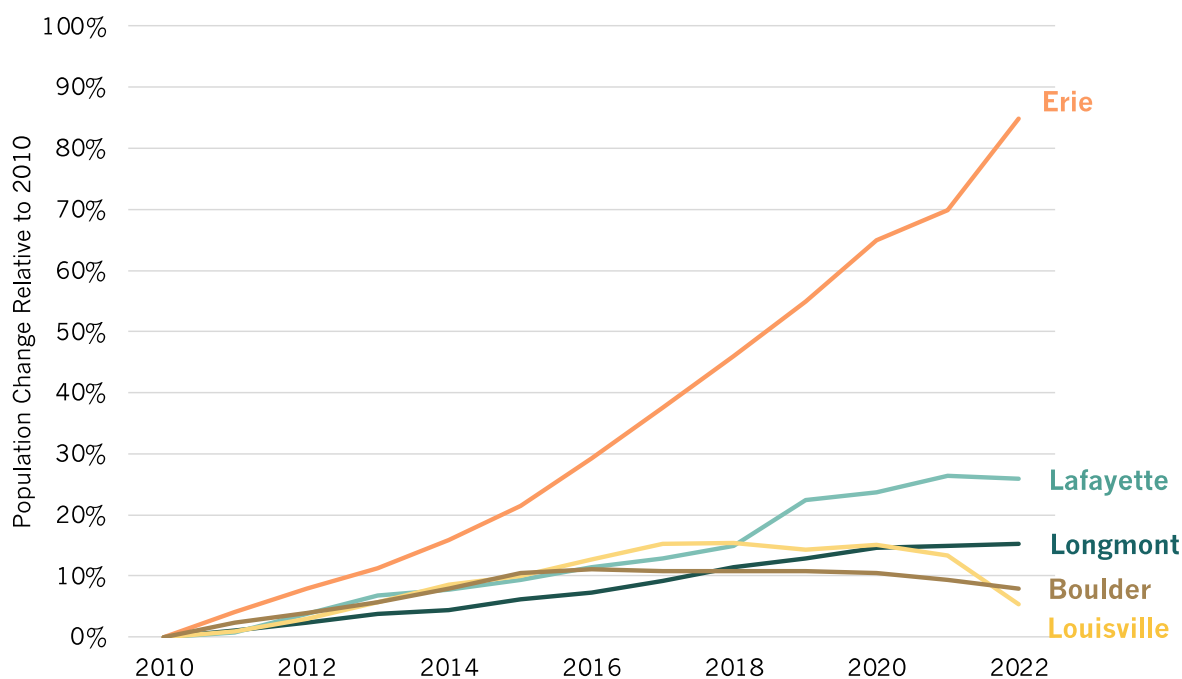
Source: Colorado State Demography Office, 2022

Boulder, home to the University of Colorado, stands out among the five municipalities for its distinctive age demographics. With 32 percent of its residents aged 18 to 24, Boulder has a notably younger population, largely due to the high concentration of college students, who make up 31 percent of its total population. Erie, Lafayette, and Louisville have a contrasting age structure, with the largest share of the population between the ages of 25 and 64 followed by those under 18. Longmont is similar to Erie, Lafayette, and Louisville but has a slightly higher share of young adults and those 65 years or older.

Longmont has the highest share of BIPOC residents (31 percent), with 23 percent of the population identifying as Hispanic and Latino residents and 8 percent identifying as Asian,

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[10] Colorado State Demography Office. (2023). County Population Projections. Accessed at: https://demography.dola.colorado.gov/assets/html/county.html

American Indian or Alaska Native, Black or African American, Native Hawaiian or Pacific Islander, or two or more races. Lafayette follows closely with a BIPOC population of 28 percent, while the share of other municipalities' populations range between 19 percent and 22 percent.

Educational attainment varies by municipality. Boulder has the highest percentage of residents 25 and over with a bachelor's degree or higher, at 77 percent, reflecting the influence of the university. Erie, Lafayette and Louisville also have relatively high educational attainment, with between 63 percent and 66 percent of their populations holding at least a bachelor's degree. Longmont has lower educational attainment, with 46 percent of residents having a bachelor's degree or higher and 38 percent having a high school diploma or some college education.

Exhibit 3. Demographic Characteristics

DEMOGRAPHIC CHARACTERISTIC	BOULDER	ERIE	LAFAYETTE	LONGMONT	LOUISVILLE
Race/Ethnicity					
White	78%	79%	73%	70%	80%
Hispanic and Latino[1]	11%	11%	17%	23%	10%
Non-Hispanic BIPOC[2]	11%	10%	11%	8%	9%
Age					
Under 18	12%	30%	23%	20%	24%
18 to 24	32%	5%	7%	9%	8%
25 to 64	44%	55%	56%	53%	53%
65 or more	12%	10%	15%	17%	15%
Educational Attainment					
Less than HS	3%	3%	4%	8%	1%
HS or Some College	17%	25%	26%	38%	27%
Associate degree	3%	7%	7%	8%	6%
Bachelor's degree or Higher	77%	65%	63%	46%	66%
Sex[3]					
Male	52%	49%	49%	50%	51%
Female	48%	51%	51%	50%	49%
College Student % of Total Population	31%	5%	6%	5%	5%
Total Population	105,650	34,082	30,890	99,779	19,394

Source: Colorado State Demography Office, 2022; U.S. Census Bureau, American Community Survey, 2022 5-year estimates
Notes:
1: Hispanic or Latino individuals are those who identified as any race but selected Hispanic or Latino for their ethnicity.
2: Non- Hispanic BIPOC includes individuals who identify as Asian, Black or African American, AIAN, NHPI, Two or more races, or Some other race.
3: The Census only allows individuals to indicate binary sexes.
4: Columns do not sum to 100% due to rounding.

GROSS DOMESTIC PRODUCT

Gross domestic product (GDP) estimates are available at the county rather than municipal level. Boulder County GDP was $35.6 billion in 2022.[11] Boulder County per capita GDP, $108,750 in 2022, has risen by 35 percent since 2017 and remains higher than in the Denver-Aurora-Lakewood Metropolitan Statistical Area (MSA) ($96,740) and Colorado ($84,140).[12]

Boulder County's real GDP year-over-year growth generally mirrors changes in the Denver MSA and Colorado, with moderate year-over-year growth going into the COVID-19 pandemic (between 5 and 10 percent), almost no growth during 2020, and growth post pandemic (approximately 8 percent in 2021 and 2022). Denver MSA and Colorado GDP post-pandemic annual growth rates—between 10 and 12 percent—have been higher than Boulder County's.

INFLATION

The annual inflation rate in the Denver-Aurora-Lakewood MSA, the closest geographical proxy for the five municipalities, varied between 1 and 3 percent prior to the COVID-19 pandemic. Prices in Colorado and across the U.S. began to rise soon after the pandemic recession. Inflation in the Denver MSA has been higher than the national average since the economic rebound. As elsewhere, inflation slowed considerably beginning in 2023 and is projected to continue a downward trend over the coming years.[13]

EMPLOYMENT GROWTH

Among the five municipalities, employment growth has been highest in Erie, Louisville and Lafayette between 2014 and 2023.[14] Over this period, the average annual growth rate was 8.7 percent in Erie, and roughly 4 percent in Louisville and Lafayette. Employment growth in these. municipalities outpaces the statewide average (2 percent)[15], while Boulder and Longmont fall below, at 1.0 percent and 1.3 percent respectively (see Exhibit 4).

During the COVID-19 pandemic year of 2020, four of the municipalities experienced a decline in employment from 2019: Boulder saw a decrease of 5.4 percent, followed by Longmont (-4.6 percent), Lafayette (-4.6 percent), and Louisville (-3.2 percent). These municipalities experienced employment declines similar to the statewide average (-4.8 percent). Erie exhibited positive growth of 4.8 percent. Post-pandemic, employment has grown across the municipalities, with a similar annual growth rate of between 3 and 4 percent in 2021 for Boulder, Longmont, and Lafayette, while Louisville and Erie experienced higher employment growth of 6.6 and 12 percent, respectively, indicating its resilience to the COVID-19 shock. Between 2022 and 2023, Longmont, and Louisville experienced modest growth rates of 0.9 and

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[11] U.S. Bureau of Economic Analysis. (2022). Gross Domestic Product by County. Accessed at: https://www.bea.gov/data/gdp/gross-domestic-product

[12] U.S. Bureau of Economic Analysis. (2022). Gross Domestic Product by County. Accessed at: https://www.bea.gov/data/gdp/gross-domestic-product; Colorado State Demography Office. (2022). Population Estimates by County and Municipality. Accessed at: https://demography.dola.colorado.gov/assets/html/muni.html

[13] Colorado Legislative Council. (2024). Economic & Revenue Forecast. Accessed at: https://leg.colorado.gov/sites/default/files/mar2024forecastforposting.pdf

[14] Colorado Department of Labor and Employment. (2014-2023). Quarterly Census of Employment and Wages.

[15] Ibid.

3.2 percent, respectively, while Boulder had a negative rate of 1.0 percent. Lafayette and Erie had the highest employment growth rates between 2022 and 2023, with 6.5 and 8.0, respectively. Employment in the municipalities now exceeds pre-pandemic levels and annual growth is stabilizing toward pre-pandemic trends.

Exhibit 4. Year-Over-Year Growth in Employment, 2014-2023
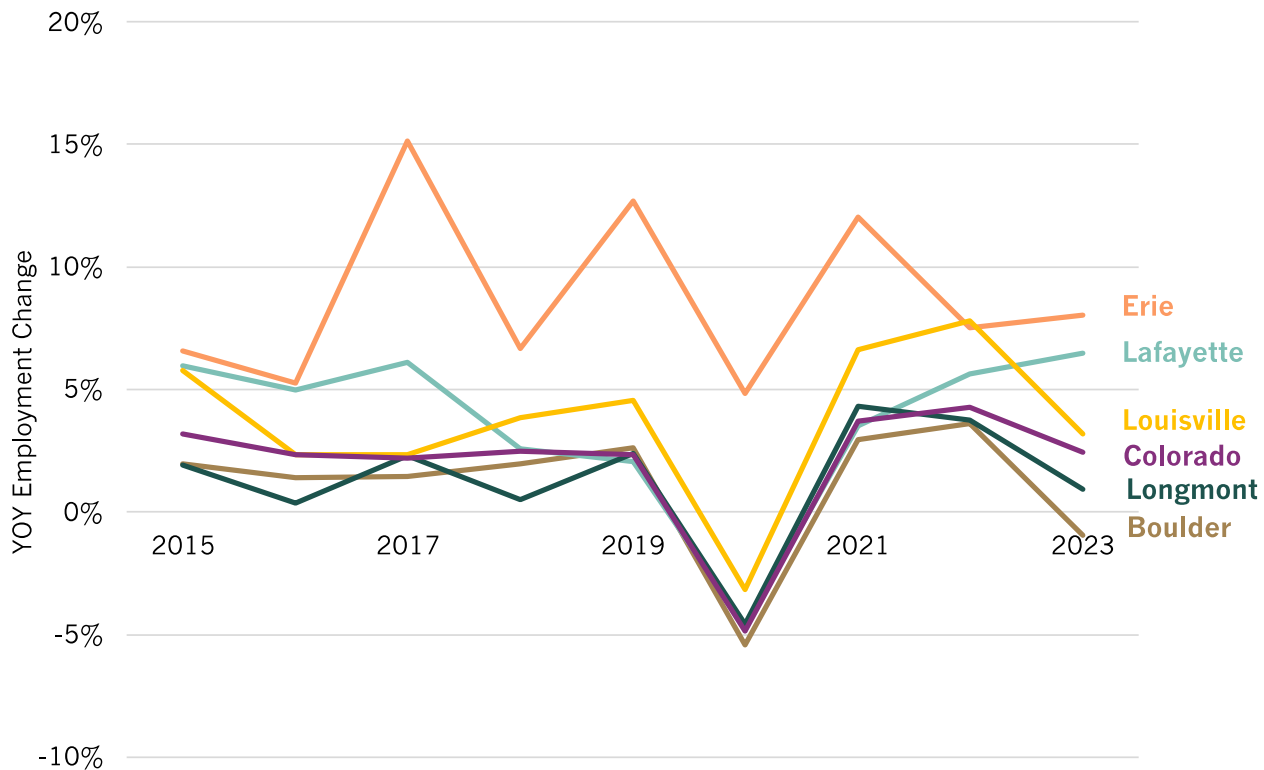
Source: Colorado Department of Labor and Employment, QCEW, 2014-2023

UNEMPLOYMENT

Boulder County's unemployment rate has generally tracked Colorado's though with a somewhat shorter post-pandemic recovery to pre-pandemic levels. The Denver MSA unemployment rate is projected to decrease to 2.3 percent by 2026, suggesting continued strength in the regional labor market.[16]

Due to data availability across municipalities, Exhibit 5 shows the U.S. Census Bureau American Community Survey (ACS) estimates of unemployment rates.[17][18] The unemployment rate in the

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[16] Colorado Legislative Council. (2024). Economic & Revenue Forecast. Accessed at:
https://leg.colorado.gov/sites/default/files/mar2024forecastforposting.pdf

[17] Unemployment rate includes part-time and temporary workers. For more information visit:
https://www.census.gov/topics/employment/labor-force/guidance/survey-differences.html

[18] As an alternative data source, we examine unemployment rates reported by the Bureau of Labor Statistics (BLS) Local Area Unemployment Statistics (LAUS) which are reported monthly. These data are not available for Louisville due to the population size. Unemployment rate estimates from the BLS LAUS are generally lower for the municipalities, compared to the ACS estimates. According to the BLS, Longmont and Boulder had an unemployment

five municipalities has also generally followed statewide trends. Notably, four of the five municipalities had lower unemployment rates than the state during the COVID-19 pandemic recession. Boulder's unemployment rate, at 5.4 percent as of the most recently available data (2022), however, appears somewhat higher than the statewide average. Longmont and Erie had an unemployment rate of approximately 4 percent in 2022. Louisville and Lafayette had the lowest unemployment rate of the five municipalities, at roughly 3 percent.

Exhibit 5. Unemployment Rate, 2010-2022
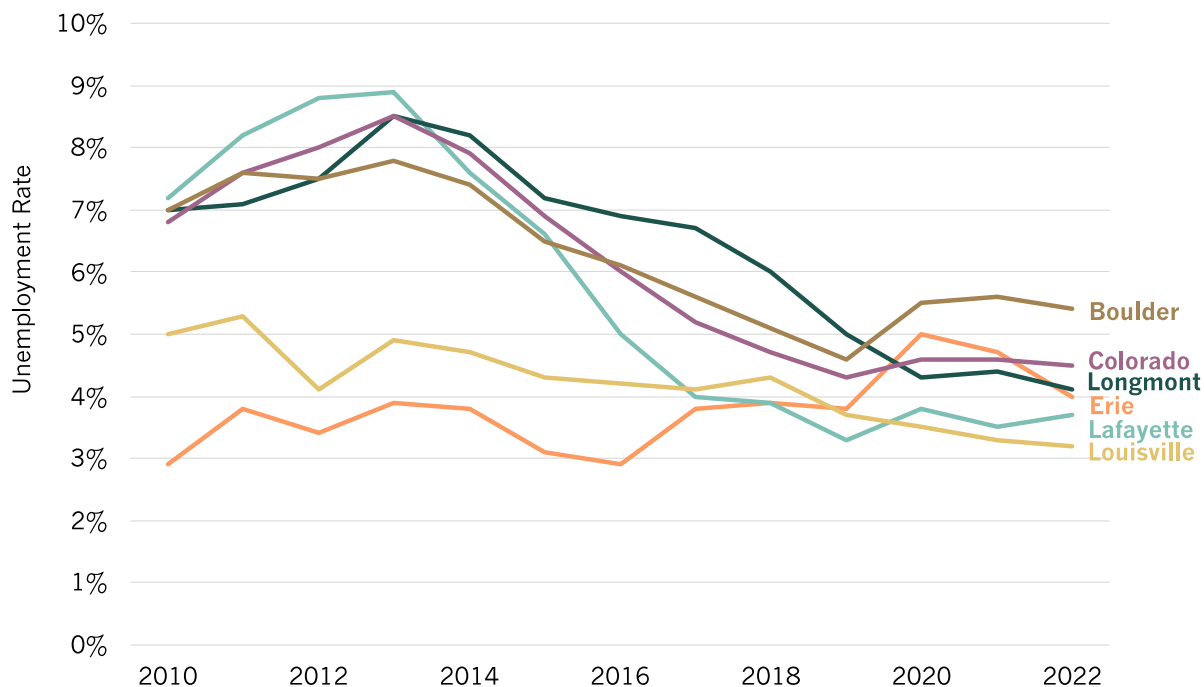
Source: U.S. Census Bureau, ACS, 2010-2022, 5-year estimates.

LABOR FORCE PARTICIPATION RATE

Labor Force Participation (LFP) rates, measure the percentage of the working-age population (aged 16 and older) that is either employed or actively seeking employment.[19] A higher LFP rate suggest that a larger proportion of people are engaged in productive activities. The statewide LFP rate has decreased steadily since 2010 but, at 68.6 percent, remains above the national average of 62.6 percent.[20]

Boulder County had a higher LFP rate pre-pandemic (69.7 percent) compared to Denver County (69.3 percent) and the state (68.1 percent), but it is projected to drop below the rate of Denver

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rate of 2.9 and 3.1 percent, respectively, in 2023. Erie and Lafayette had slightly lower unemployment rates, 2.7 and 2.8 percent, respectively.

[19] LPF rates include part-time and temporary workers. For more information visit:
https://www.census.gov/topics/employment/labor-force/guidance/survey-differences.html

[20] U.S. Bureau of Labor Statistics. (2023). Local Area Unemployment Statistics.; U.S. Bureau of Labor Statistics. (2023). Current Population Survey. Accessed at: https://www.bls.gov/data/.

County and the state by 2040. Boulder County LFP rate is projected to decrease to 64.7 percent in 2040.[21] These differing long-term trends reflect differences in the age profile of each region's population. At the municipality level, Erie and Lafayette have historically had the highest LFP rates, at approximately 75 percent in 2022 (see Exhibit 6). Boulder is the only municipality with an LFP rate below the statewide average, likely due to the large student population.

Exhibit 6. Labor Force Participation Rate, 2010-2022
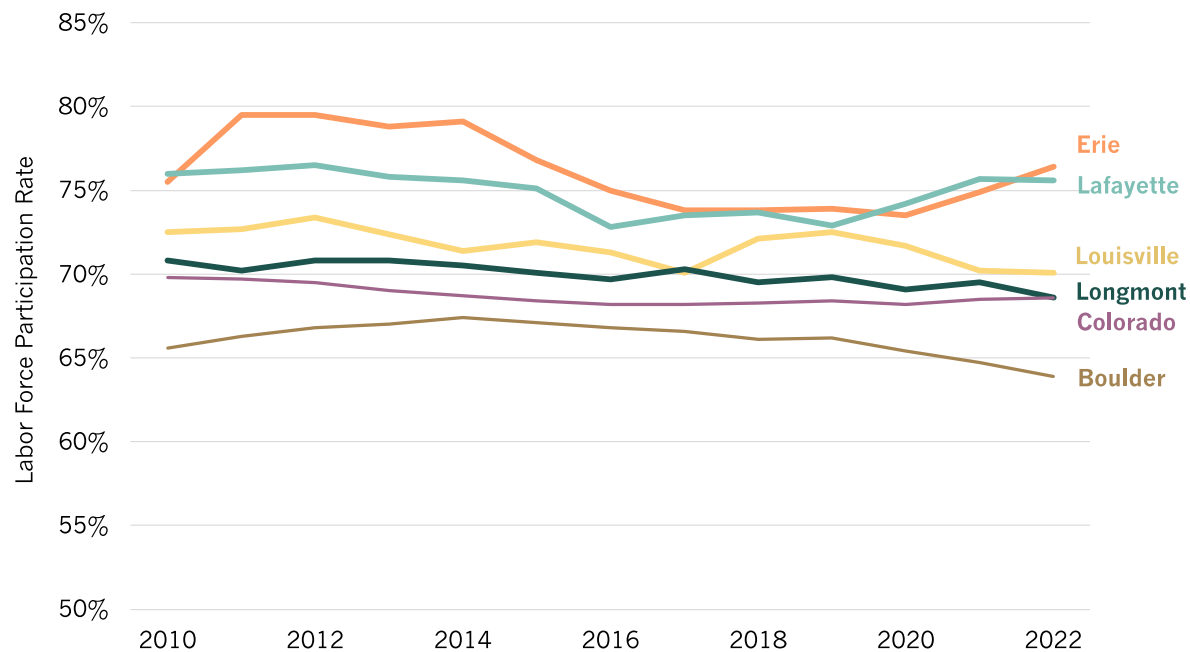
Source: U.S. Census Bureau, ACS, 2010-2022, 5-year estimates.

MEDIAN INCOME

Four of the five municipalities have a median household income above the statewide median of $87,600 (see Exhibit 7). Despite the high level of educational attainment in the city, Boulder is the exception due to its share of college students. Erie and Louisville have the highest median incomes of the five municipalities.

Household income disaggregated by race and ethnicity provides insight into economic disparities within communities and suggests the location and identity of households that are relatively more likely to earn higher wages, if the minimum wage in their place-of-work increased. Across the five municipalities, the median household income of Hispanic and Latino households is lower than the overall municipality-wide median. The difference is greatest in Erie and Boulder, with Hispanic and Latino households earning 43 percent and 39 percent less, respectively, than the municipality median income. Hispanic and Latino households in Louisville earn essentially the municipal median. Median incomes of non-Hispanic BIPOC households is higher than the municipality median in Erie, Lafayette, and Longmont, but lower in Louisville

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[21] Colorado State Demography Office. (2021). Labor Force Participation Rate Projections. Accessed at: https://demography.dola.colorado.gov/assets/html/county.html

and Boulder. Exhibit 8 presents the median annual household income levels by race and ethnicity, while Exhibit 9 compares these estimates to the municipality median income.

Exhibit 7. Municipality Median Annual Household Income
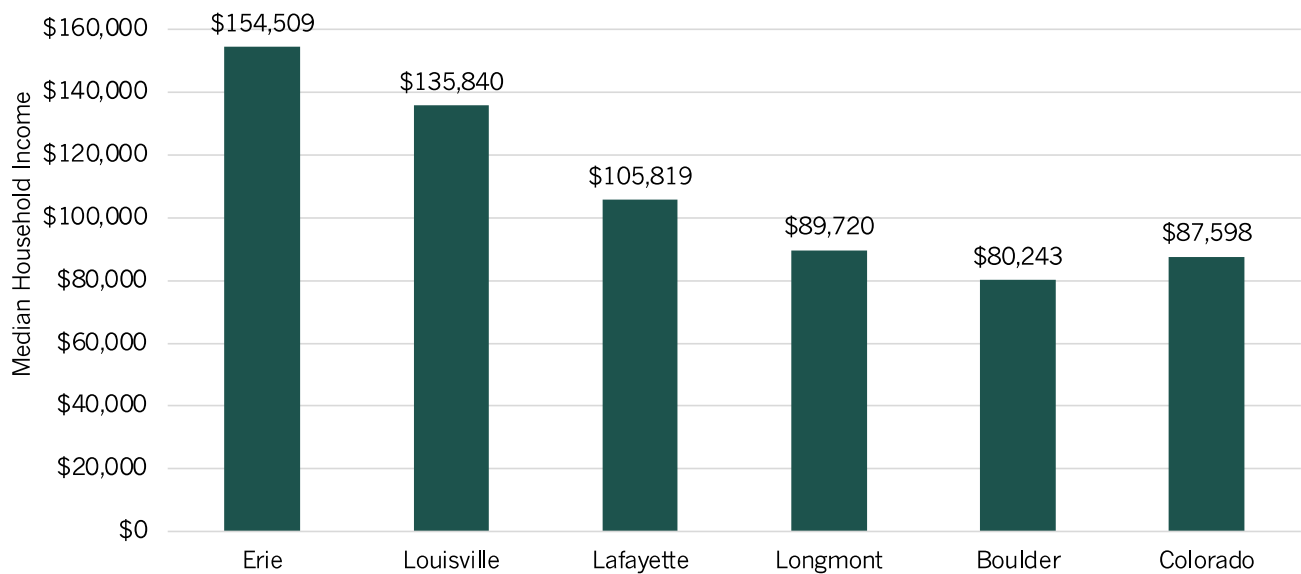
Source: U.S. Census Bureau, ACS, 2022, 5-year estimates. 2022 dollars.

Exhibit 8. Median Annual Household Income by Race and Ethnicity
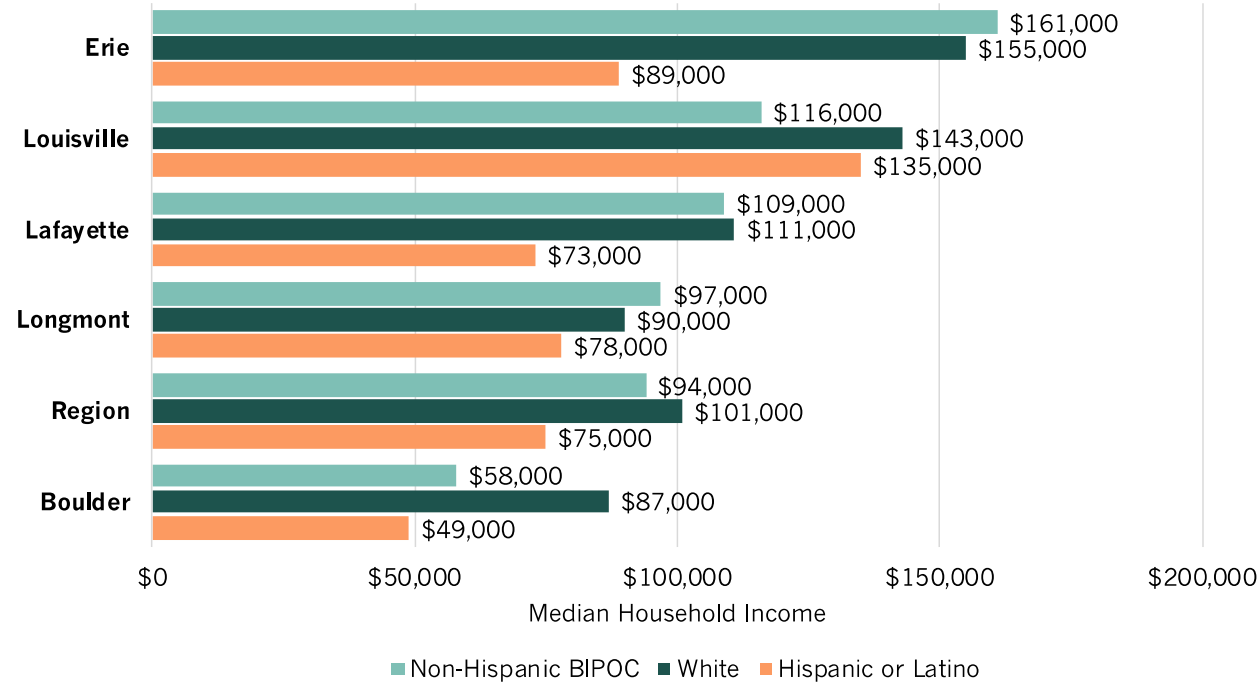
Source: U.S. Census Bureau, ACS, 2022, 5-year estimates. 2022 dollars.
Note: Non-Hispanic BIPOC those that identify solely as Asian, Black or African American, AIAN, NHPI, Two or more races, or Some other race.

Exhibit 9. Comparison of Race-Specific and Municipality Median Household Income
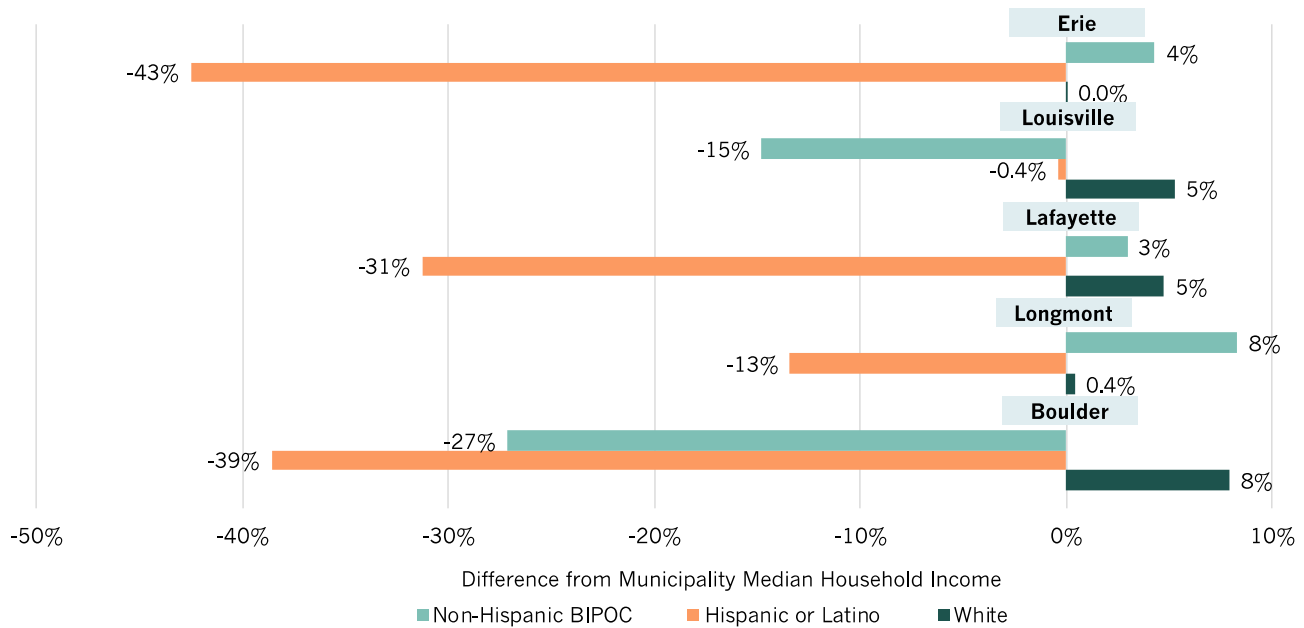
Source: U.S. Census Bureau, ACS, 2022, 5-year estimates.
Note: Non-Hispanic BIPOC those that identify solely as Asian, Black or African American, AIAN, NHPI, Two or more races, or Some other race.

Municipal Finances

This section focuses on sales tax revenues, the government revenue stream potentially the most affected by a minimum wage increase. Sales tax revenues are also more sensitive to macroeconomic conditions than many other government revenues. A minimum wage increase could affect sales tax revenue if the increase results in lower economic activity (as demonstrated in other sections, this outcome appears unlikely). We examine the reliance of municipality general funds on sales tax revenue as well as examining the revenue garnered from industries that could be directly affected by a minimum wage increase.

SUMMARY:

➤ Minimum wage increases could affect economic activity, particularly in industries reliant on a large low-wage workforce such as restaurants, retail, and accommodations. These industries also generate a large share of total sales tax revenue. For municipalities that rely on sales and other retail-based taxes for revenue, the minimum wage increase could therefore affect the municipality's fiscal stability.

➤ In 2023, per capita sales tax revenue was highest in Boulder and Louisville at roughly $1,300. Per capita sales tax revenue is lower in the other municipalities, ranging from roughly $600 to $1,000.

➤ Sales tax revenue has been mostly resilient in the face of the COVID-19 pandemic recession, due to pandemic-induced consumption increases and rapid inflation thereafter, with Boulder and Louisville as the exceptions. Erie stands as an outlier in

sales tax revenue growth, with an average annual growth rate between 2019 and 2023 of 16.4 percent, while the other municipalities saw more modest growth rates of between 6 and 9 percent.

Lafayette, Boulder, and Louisville have the highest base sales tax rate of the five municipalities (see Exhibit 10). Additionally, some municipalities collect retail marijuana taxes, with Lafayette having the higher rate. Erie has the lowest sales and use tax rates across categories.

The municipalities vary considerably in their reliance on sales and use tax revenue. About 40 percent of general fund revenues in Boulder will be garnered from sales and use tax in FY2024.[22] Lafayette relies the most heavily on this revenue, with 66 percent of general fund revenue anticipated from this source in FY2024.[23] Longmont, Erie, and Louisville lie in between with approximately half of their general fund revenue from these sources (see Exhibit 11).[24]

Exhibit 10. Municipality Sales and Use Tax Rates

MUNICIPALITY	BASE SALES TAX	LODGING TAX	RETAIL MARIJUANA TAX
Boulder	9.0%	12.7%	3.5%
Longmont	8.7%	10.7%	11.7%
Lafayette	9.1%	11.1%	14.1%
Louisville	9.0%	12.0%	0.0%
Erie (Boulder County)	8.7%	8.7%	0.0%
Erie (Weld County)	7.4%	7.4%	0.0%

Source: Municipality Governments, 2024.
Note: Tax rates above should not be summed and are inclusive of county and special district taxes.

Exhibit 11. Budgeted Sales and Use Tax Revenue Share of the General Fund

MUNICIPALITY	2024
Lafayette	66%
Louisville	55%
Erie	52%
Longmont	46%
Boulder	40%

Source: Municipality Governments, 2024

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[22] City of Boulder. (2024). Budget. Accessed at: https://bouldercolorado.gov/services/budget

[23] City of Lafayette. (2024). City Budgets & Financial Reports. Accessed at: https://www.lafayetteco.gov/2578/City-Budget-Financial-Reports

[24] Town of Erie. (2024). Budgets. Accessed at: https://www.erieco.gov/131/Budgets; City of Louisville. (2024). Budgets and Financial Reports. Accessed at: https://www.louisvilleco.gov/local-government/government/departments/finance-and-utility-billing/budgets-and-financial-reports; City of Longmont. (2024). 2024 Budget Documents. Accessed at: https://www.longmontcolorado.gov/departments/departments-e-m/finance/budget-office/budget-process/2024-budget-documents

Sales and use tax revenue growth has varied over time across the municipalities. Boulder had the lowest growth, increasing by an average of 5.9 percent annually, between 2019 and 2023 (see Exhibit 12). In contrast, Erie saw the highest growth, likely driven by population increases, with a 16.4 percent increase per year. Longmont's revenue grew by 7.6 percent per year between 2019 and 2023, while Lafayette and Louisville experienced an average annual growth of 8.5 percent and 8 percent per year, respectively. Boulder and Louisville experienced a decrease in sales tax revenue during 2020, however the loss was recovered in 2021. The annual growth rate flattened in 2022 and substantially decreased in 2023. These pre-existing revenue trends suggest potential differences in municipalities' abilities to withstand a minimum wage increase, to the extent that the increase has meaningful effects on these revenues.

Exhibit 12. Year-Over-Year Change in Municipality Nominal Sales and Use Tax Revenue
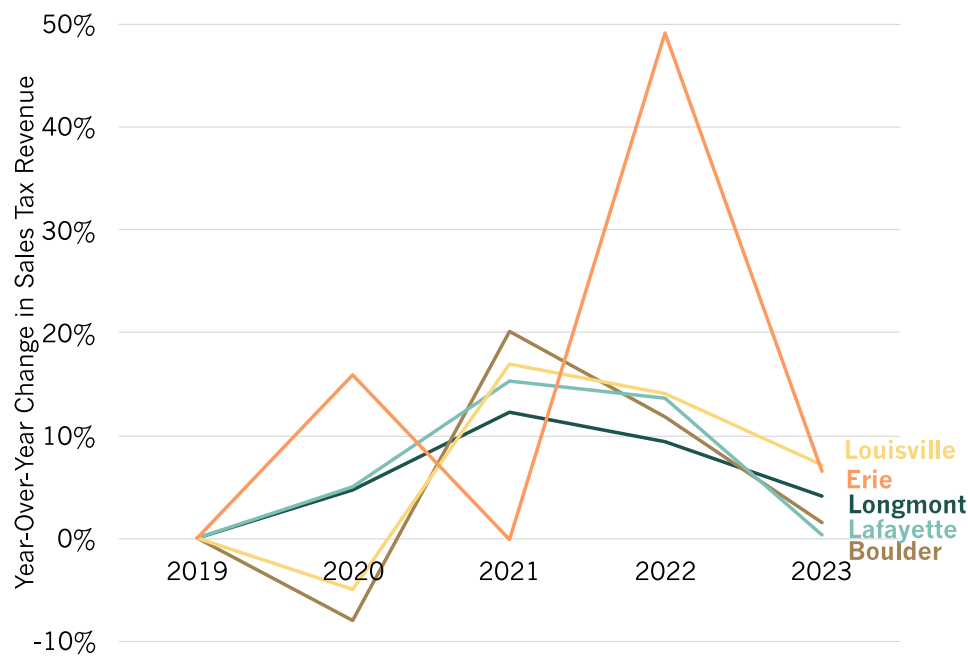
Source: Municipality Government Offices, 2019-2023

2023 SALES TAX REVENUE

Boulder:
  Total: $137.1 million
  Per Capita: $1,297

Erie:
  Total $20.8 million
  Per Capita: $610

Lafayette:
  Total: $27.3 million
  Per Capita: $883

Longmont:
  Total: $103.3 million
  Per Capita: $1,036

Louisville:
  Total: $25.3 million
  Per Capita: $1,270

Data was received by municipality government offices, with the except of Longmont and Lafayette, for which the Annual Comprehensive Financial Report was utilized.

Municipalities also vary in their reliance on sales and use tax revenue from industries that rely on a low-wage workforce, those most directly affected by changes in the minimum wage. Exhibit 13 presents, by municipality, the share of sales and use tax revenue garnered from retail, accommodations, and food services industries—all low-wage industries. The municipalities have experienced little to no change in the share of sales tax revenue from these sources.

Exhibit 13. Municipality Sales Tax Revenue Garnered from Select Service Industries
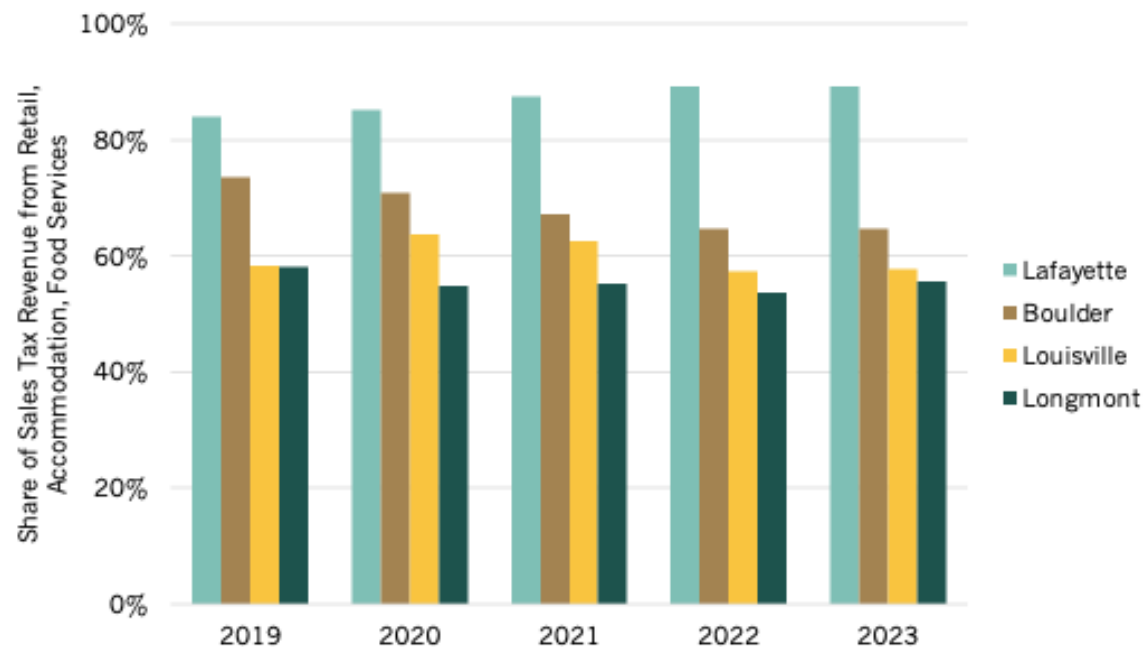
Source: Municipality Government Offices, 2023
Note: Data on sales and use tax revenue by industry was unavailable for Town of Erie.

Industry and Employment

In this section we first examine industry composition and worker commuting patterns in Boulder County and the five municipalities to provide a baseline understanding of the potential extent to which workers, businesses, and residents in each municipality might be affected by a minimum wage increase. We define "low-wage" industries and occupation based on wage distributions, literature on the types of businesses that employ minimum wage workers, and the types of jobs those workers hold. Although all industries would be affected to some extent, a focus on low-wage industries and occupations provides context for assessing where a minimum wage increase could have the greatest impact.

SUMMARY:

➢ Compared to Colorado, the five municipalities have relatively concentrated employment in high-skill industries such as professional and technical services, high-tech manufacturing, healthcare, and information. The municipalities' relatively low concentrations of low-wage industries suggests that a minimum wage increase might have a smaller impact on the economy than in other parts of the state.

➢ Most working residents in the five municipalities commute elsewhere in Colorado or Boulder County and would thus not directly benefit from local minimum wage increases. However, low-income workers are slightly more likely to work within their municipality of residence (28 percent compared to 22 percent of all workers). On the other hand, an increased minimum wage could help low-wage workers who live outside the five municipalities if they work in one of the five municipalities.

➢ In 2023, Boulder and Longmont had the highest average annual employment of the five municipalities, with 106,850 and 49,240 workers respectively. Longmont, Boulder, and Erie had the highest share of employment in low-wage industries, around 40 percent, compared to Louisville and Lafayette's 17 percent and 26 percent, respectively.

➢ In 2023, Boulder and Louisville had the highest average hourly wage per employee across all industries, approximately $50. Longmont had the lowest average hourly wage at $37.60. In low-wage industries, this trend holds, with Boulder and Louisville having comparatively higher wages than the other municipalities, particularly in accommodation and food service and retail trade.

➢ Across the three-PUMA region, Hispanic and Latino and female workers are disproportionately more likely to work in low-wage industries and occupations. Additionally, low-wage workers are more likely to be between the ages of 18 and 24, and to have lower educational attainment.

INDUSTRY CONCENTRATION

Examining the mix of industry in Boulder County identifies the primary sectors that drive the regional economy. As opposed to considering employment levels across industries, analyzing

the concentration of employment in an industry relative to the state helps inform where the region has a comparative advantage[25] and the relative diversification of the economy and potential sensitivity to a minimum wage increase.

Location quotients (LQs) are commonly used to measure employment concentration in one region relative to another, in this case, Colorado. An LQ greater than one indicates that the selected region has relatively more employment, or a higher concentration, in an industry than the state. The presence of only a few high-concentration industries indicates that the municipality economy is more centralized on those industries (Boulder and Louisville), whereas if there are moderately high concentrations across a variety of industries, the municipality economy is less dependent on a few select industries (Longmont, Lafayette, Erie).

Boulder County has high employment concentration in manufacturing, professional, technical, and scientific services, and information industries (see Exhibit 14). This indicates that the region has a relatively large workforce employed in higher-skilled, technical occupations. Boulder County also has a high employment concentration in educational services[26] (LQ of 1.3).

Narrowing the focus to the five municipalities, all have an LQ greater than one in professional and technical services (see Exhibit 15), ranging from 1.1 in Lafayette to 2.2 in Louisville. Manufacturing is the second-most concentrated industry across municipalities, although Louisville stands out with an LQ of 3.9, indicating that manufacturing employment is almost four times as concentrated as the state.

Boulder also has relatively high concentrations of employment in information and educational services; Erie has a concentration of employment in the recreation and construction industries; Lafayette has a concentration in health care; Longmont has concentrations in agriculture and retail trade; and Louisville has a concentration in information.

The municipalities generally have low concentrations of low-wage industries, suggesting that a minimum wage increase might have a smaller impact on the economy than in other parts of the state. Food service and retail trade are two important, low-wage industries. The food service industry LQs do not exceed 1.0 in any of the municipalities, indicating relatively low concentrations of these industries. The retail trade LQ falls below that of key industries in any of the municipalities but is above 1.0 (about 1.3) in Longmont and Erie.

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[25] Comparative advantage refers to the ability of a region's economy to produce a particular good or service more efficiently relative to other economies.

[26] Private-industry education services include private postsecondary institutions, technical colleges, tutoring services, and other educational support services, and excludes employment at UC Boulder.

Exhibit 14. Industry Employment Location Quotients, Boulder County
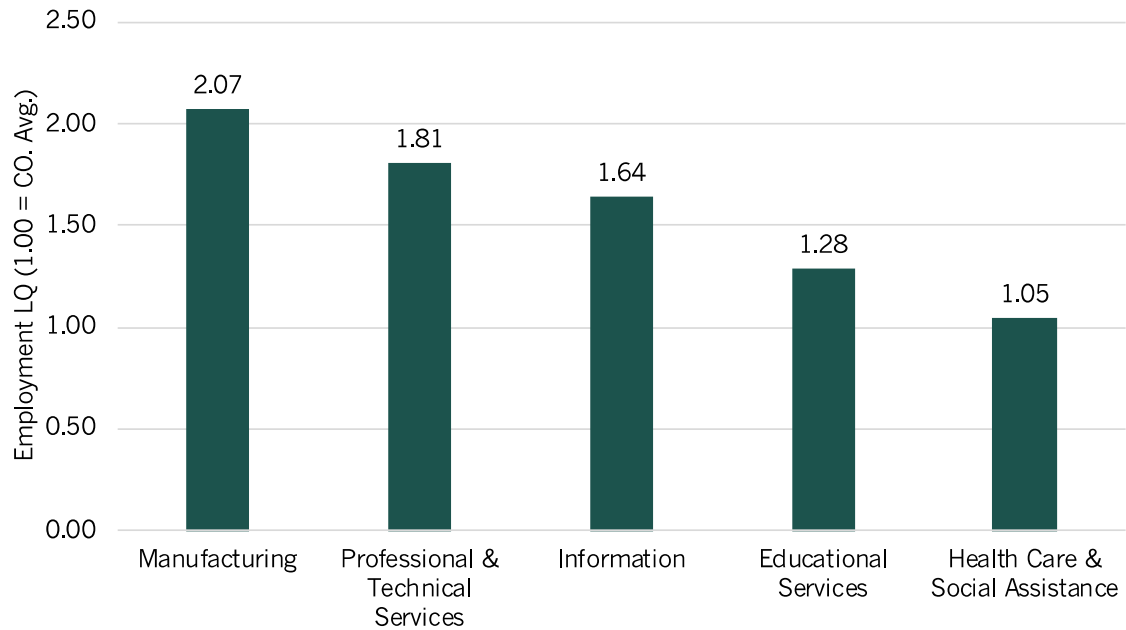
Source: Colorado Department of Labor and Employment, QCEW, 2023

Exhibit 15. Industry Employment Location Quotients, Municipalities
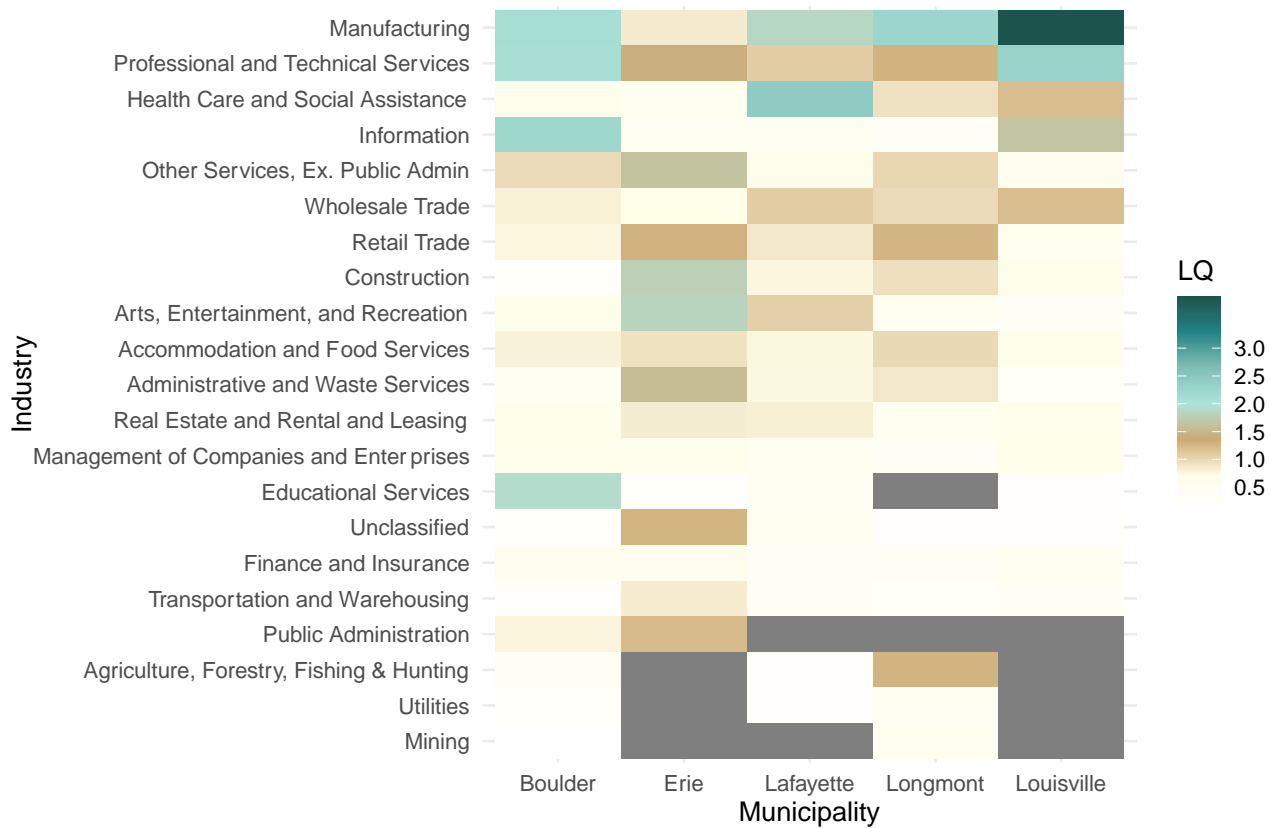
Source: Colorado Department of Labor and Employment, QCEW, 2023
Note: Dark grey squares indicate data are not available.

COMMUTING PATTERNS

Both residents of and workers in the five municipalities could benefit from the local minimum wage increase. Based on 2021 estimates, roughly 40 percent of residents work in one of the five municipalities (see Exhibit 16). Low-income workers are more likely to be employed in the five municipalities than all workers (40 percent compared to 44 percent of workers) and are even more likely to be employed in their municipality of residence (22 percent compared to 28 percent of workers). [27] Low-income workers are also less likely to commute to the City of Denver compared to all workers.

Low-income residents of Boulder and Longmont are most likely to work and live in their municipality of residence. Erie and Lafayette residents commute to the rest of Colorado (excluding Boulder County, and Denver), compared to other municipality residents (see Exhibit 17). Longmont, Louisville, Lafayette, and Erie commute at a higher rate to Boulder compared to the other five municipalities, with 13 to 17 percent of these workers commuting to Boulder.

Exhibit 16. Share of Municipality-Resident Workers by Work Location (Commuting Patterns)
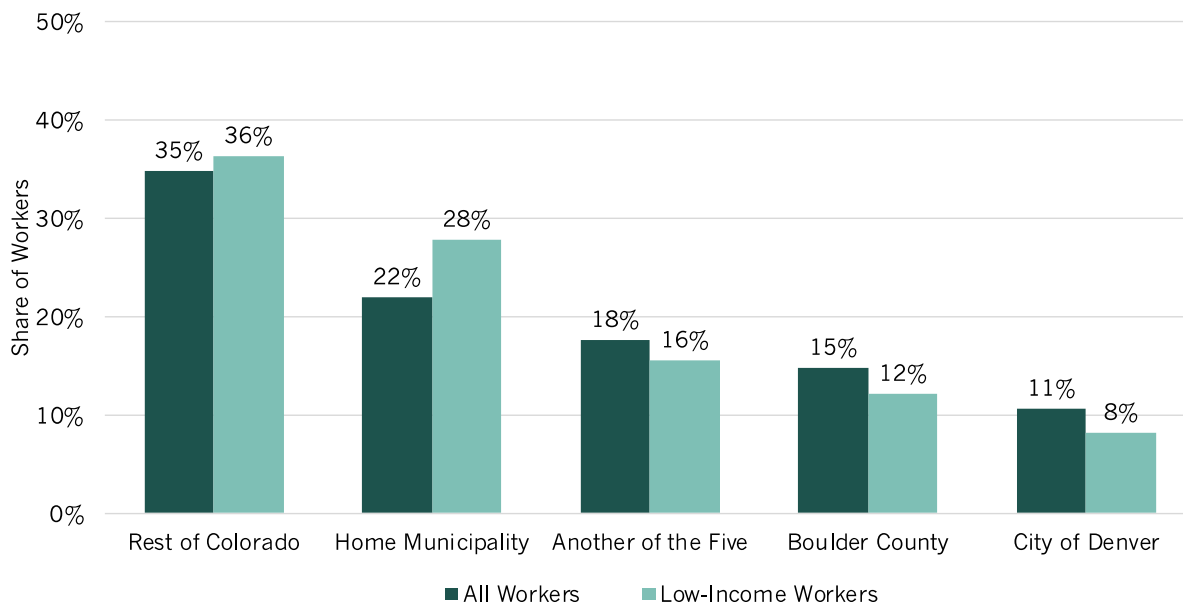
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics (LODES), 2021
Note: Data is presented for the five municipalities combined.

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[27] U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) defines low-wage workers as those earning less than $1,250 per month. Accessed at:
https://lehd.ces.census.gov/data/lodes/LODES8/LODESTechDoc8.1.pdf

Exhibit 17. Share of Low-Income Municipality-Resident Workers by Work Location (Commuting Patterns)
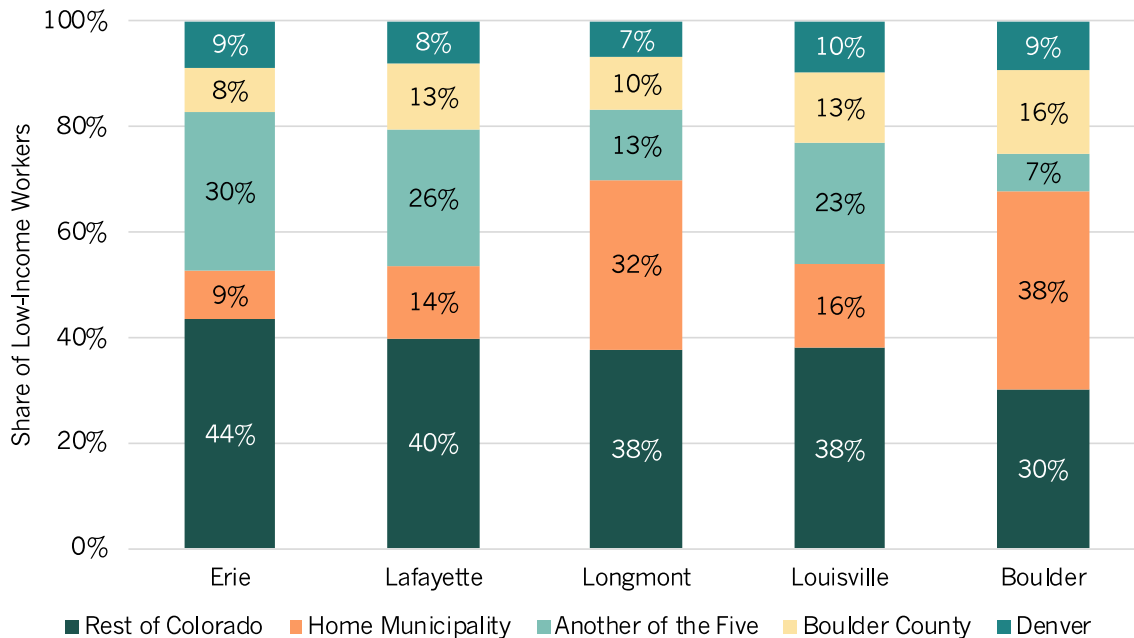
Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics (LODES), 2021

DEFINITION OF LOW-WAGE INDUSTRIES AND OCCUPATIONS

We examine both occupations and industries because individuals in low-wage occupations, regardless of industry, are most likely to experience directly the effects of a minimum wage increase, while all employees of businesses in low-wage industries might not be affected by an increase.

We define low-wage industries and occupations based on Boulder County employment information from the Quarterly Census of Employment and Wages for industries, and the Occupational Employment and Wage Statistics for occupations, published by the Bureau of Labor Statistics. For our purposes, we define a low-wage industry or occupation as one in which the average (for industries) or median (for occupations) hourly wage is below or near to the first quartile of the wage distribution.[28]

Exhibit 18 shows the average annual employment, pay, and hourly wage by industry for Boulder County while Exhibit 19 presents similar information for occupations. In total, seven industries and eight occupations met the low-wage definition. Low-wage industries include service-based, agriculture, and transportation/warehousing industries. Low-wage occupations intersect with low-wage industries but also include healthcare support, production, and sales occupations.

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[28] Median wages are not available in the published Quarterly Census of Employment and Wages data.

Exhibit 18. Low-Wage Industry Employment and Wages, Boulder County

INDUSTRY	AVERAGE ANNUAL EMPLOYMENT	AVERAGE ANNUAL PAY	AVERAGE HOURLY WAGE
Accommodation and Food Services	17,250	$30,624	$14.72
Retail Trade	16,824	$43,257	$20.80
Other Services	5,649	$56,962	$27.39
Arts, Entertainment, and Recreation	3,592	$34,129	$16.41
Educational Services	3,568	$51,117	$24.58
Transportation and Warehousing	1,559	$56,480	$27.15
Agriculture, Forestry, Fishing & Hunting	634	$45,089	$21.68
Total/Weighted Average	**129,665**	**$94,425**	**$45.40**

Source: Colorado Department of Labor and Employment, QCEW, 2023

Note: Wage estimates do not include tips.

Exhibit 19. Low-Wage Occupation Employment and Wages, Boulder County

OCCUPATION	AVERAGE ANNUAL EMPLOYMENT	AVERAGE ANNUAL PAY	MEDIAN HOURLY WAGE
Sales and Related	19,640	$47,570	$22.87
Food Preparation and Serving Related	17,660	$37,440	$18.00
Production	8,730	$47,611	$22.89
Transportation and Material Moving	7,290	$46,301	$22.26
Healthcare Support	5,260	$43,056	$20.70
Personal Care and Service	4,680	$39,416	$18.95
Building and Grounds Cleaning and Maintenance	4,310	$42,349	$20.36
Farming, Fishing, and Forestry	220	$43,784	$21.05
Total/Weighted Average	**194,440**	**$75,565**	**$36.33**

Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics (OES), 2023

Note: Wage estimates do not include tips.

MUNICIPALITY EMPLOYMENT AND BUSINESSES

Employment in low-wage industries comprises the highest share of employment in Longmont, Boulder, and Erie, approximately 40 percent, compared to 26 percent and 17 percent in Lafayette and Louisville, respectively (see Exhibit 20).

Exhibit 21 shows the average hourly wage per employee for the low-wage industries in the five municipalities. Notably, Quarterly Census of Employment and Wages data does not indicate the number of hours worked by an employee. This implies that industries that rely more on part-time employees, such as food service and retail, could appear to have lower wages due to the assumption of full-time employment. Of the low-wage industries, accommodation and food services and retail trade have the lowest average hourly wage per employee across all municipalities, $15.42 and $24.74, respectively.

Exhibit 20. Low-wage Industry Employment

INDUSTRY NAME	BOULDER	ERIE	LAFAYETTE	LONGMONT	LOUISVILLE
Accommodation and Food Services	8,589	598	1,163	4,938	1,365
Agriculture, Forestry, Fishing and Hunting	242	Unavailable	21	398	Unavailable
Arts, Entertainment, and Recreation	1,685	280	390	594	164
Educational Services	16,894	136	547	Unavailable	208
Other Services	3,251	326	287	1,554	349
Retail Trade	7,838	790	1,307	5,959	1,015
Transportation and Warehousing	975	219	243	646	316
Total Employment	**39,474**	**2,349**	**3,777**	**14,088**	**3,416**
Low-wage Industry Share of Total Employment	**37%**	**37%**	**26%**	**40%**	**17%**

Source: Colorado Department of Labor and Employment, QCEW, 2023
Note: Employment is shown for private ownership codes only.

Exhibit 21. Low-wage Industry Average Hourly Wage Per Employee

INDUSTRY NAME	BOULDER	ERIE	LAFAYETTE	LONGMONT	LOUISVILLE
Accommodation and Food Services	$17.20	$11.50	$13.60	$13.40	$16.50
Agriculture, Forestry, Fishing and Hunting	$23.10	Unavailable	$18.60	$24.50	Unavailable
Retail Trade	$25.90	$27.00	$23.90	$21.70	$29.80
Other Services	$29.50	$25.80	$28.00	$24.80	$26.70
Arts, Entertainment, and Recreation	$33.30	$25.60	$24.50	$21.10	$35.10
Transportation and Warehousing	$37.40	$27.50	$31.70	$29.30	$25.50
Educational Services	$37.40	$45.50	$28.00	Unavailable	$40.30
All Industries Average Hourly Wage	**$50.90**	**$48.70**	**$44.90**	**$37.60**	**$49.80**

Source: Colorado Department of Labor and Employment, QCEW, 2023
Note: Hourly wages per employee are calculated assuming full-time employment (2,080 hours per year), and do not include tips. Employment is shown for private ownership codes only.

Business size is calculated based on the firmwide employment. For example, to calculate total employment for a large fast-food chain with multiple locations, we sum employment across all firm locations. In 2023, most firms in the five municipalities employed fewer than 10 employees, with Erie and Boulder having the highest share of smaller firms, although most workers are employed by larger firms (see Exhibit 22). Erie has the highest share of employment in small businesses (1 to 24 employees), while Louisville and Lafayette have roughly half of their employment in large businesses (100 or more employees).

Exhibit 23 shows the share of employment at small businesses (1 to 24 employees) in low-wage industries versus all other industries. Across all municipalities, low-wage industry small businesses employ 34 percent of total employment, while small businesses in all other industries employ 30 percent. Erie and Louisville deviate the most from the five-municipality averages: Erie's small businesses in all other industries employ 61 percent of employment in these industries while Louisville's small businesses in low-wage industries employ 49 percent of low-wage industry employment.

Exhibit 22. Share of Businesses (Left) and Employment (Right) by Business Size
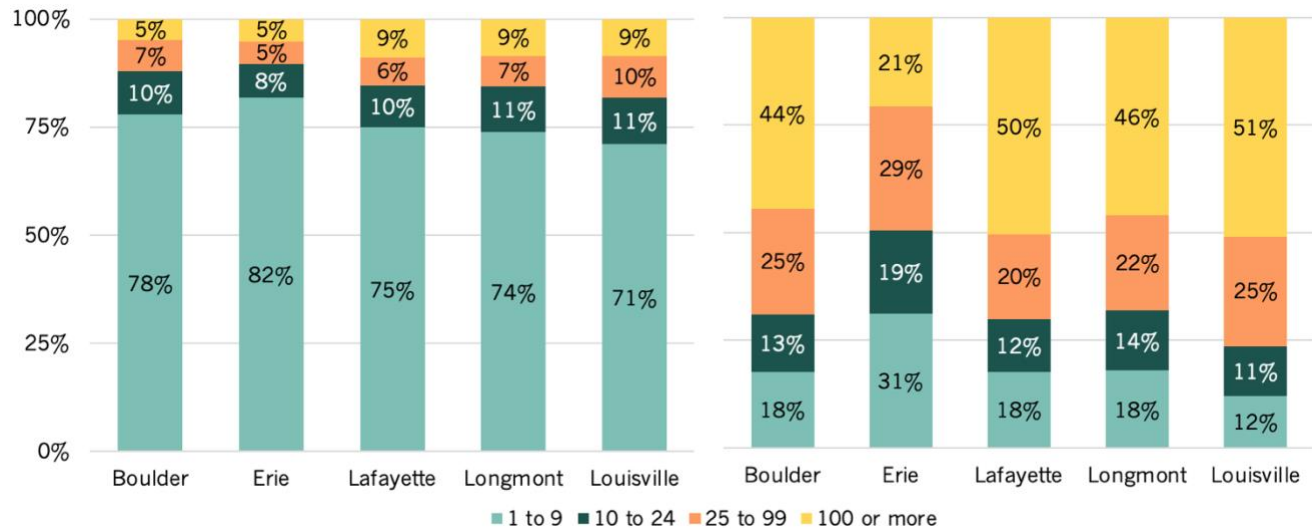
Source: Colorado Department of Labor and Employment, QCEW, 2023

Note: Estimates only include private industry businesses and employment.

Exhibit 23. Small Business Share of Employment in Low-Wage Industries
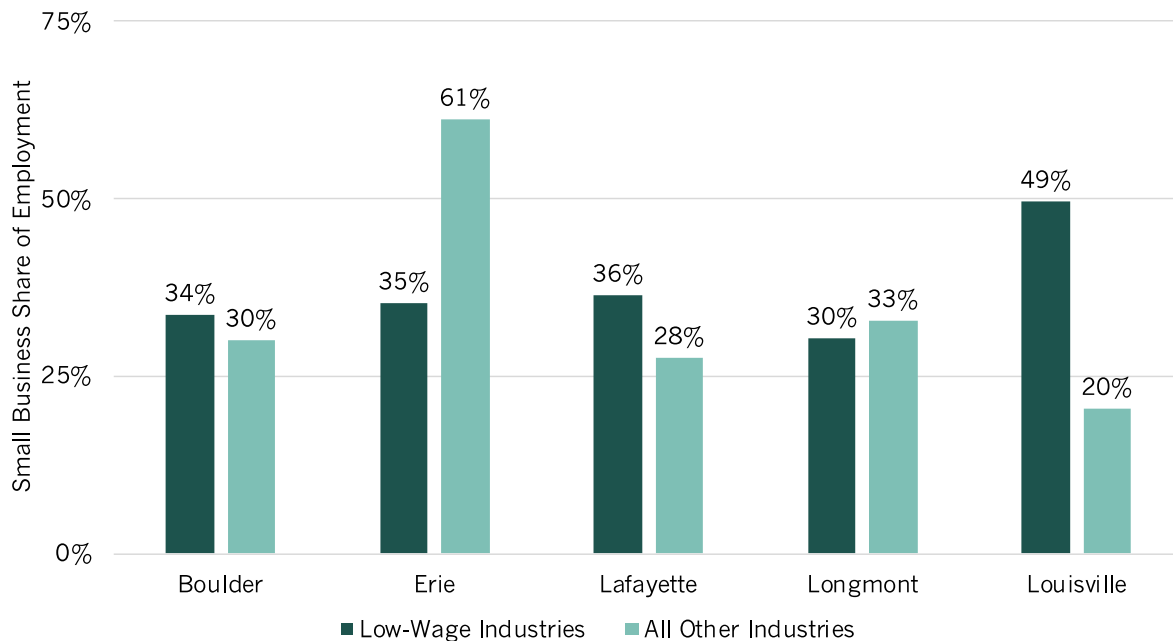
Source: Colorado Department of Labor and Employment, QCEW, 2023

Note: Estimates only include private industry businesses and employment.

DEMOGRAPHICS OF LOW-WAGE INDUSTRIES AND OCCUPATIONS

Due to the available data, we present worker demographics at the three-PUMA region level (see definition in Introduction). In 2022, 40 percent of the region's workers had jobs in low-wage industries and 27 percent in low-wage occupations.[29] While one quarter of all workers in the region identify as BIPOC, a disproportionate share of workers in low-wage occupations identify

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[29] U.S. Census Bureau. (2022). American Community Survey, PUMS, 5-year estimates.

as BIPOC (see Exhibit 24). A slightly lower share of low-wage industry workers identify as BIPOC. However, Hispanic and Latino workers are disproportionately represented in both low-wage occupations and industries. Low-wage industries and occupations also have differential shares by sex: female workers make up the majority of low-wage-industry workers, while a higher share of low-wage-occupation workers identify as male.

Low-wage industry and occupation workers are more likely to be less than 24 years old or over 65 years old compared to the overall workforce. Most working minors (those less than 18 years old) are employed in low-wage industries and in low-wage occupations (see Exhibit 25). Additionally, 67 percent of all workers under 24 years old work in low-wage industries and 53 percent work in low-wage occupations. Roughly half of all workers over 65 years old work in low-wage industries and 36 percent work in low-wage occupations. This data suggests that workers who are less than 24 years old, BIPOC, and/or elderly could benefit proportionately more from an increase in wages applicable to these industries.

Employees in low-wage occupations have relatively lower educational attainment (see Exhibit 26). The educational attainment of workers in low-wage industries is more similar to that of all workers in the region. This is because industries require employees with a wide range of educational backgrounds, whereas specific occupations demand more specialized training. For example, hotel managers as well as food preparation workers would be employed within the accommodation and food service industry, but a hotel manager is likely to hold an associate degree or bachelor's degree while a food preparation worker would typically have a high school diploma.

Exhibit 24. Race/Ethnicity of BIPOC Low-Wage Workers, Three-PUMA Region
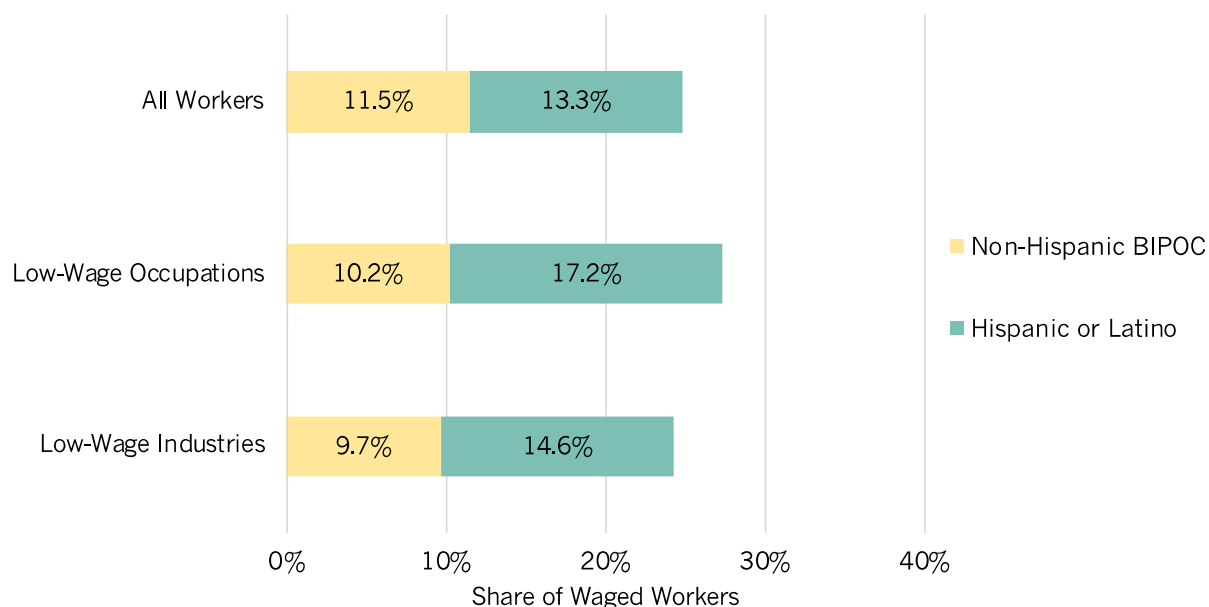
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Non-Hispanic BIPOC includes Asian, Black or African American, AIAN, NHPI, Two or more races, or Some other race

Exhibit 25. Age Distribution of Low-Wage Workers, Three-PUMA Region
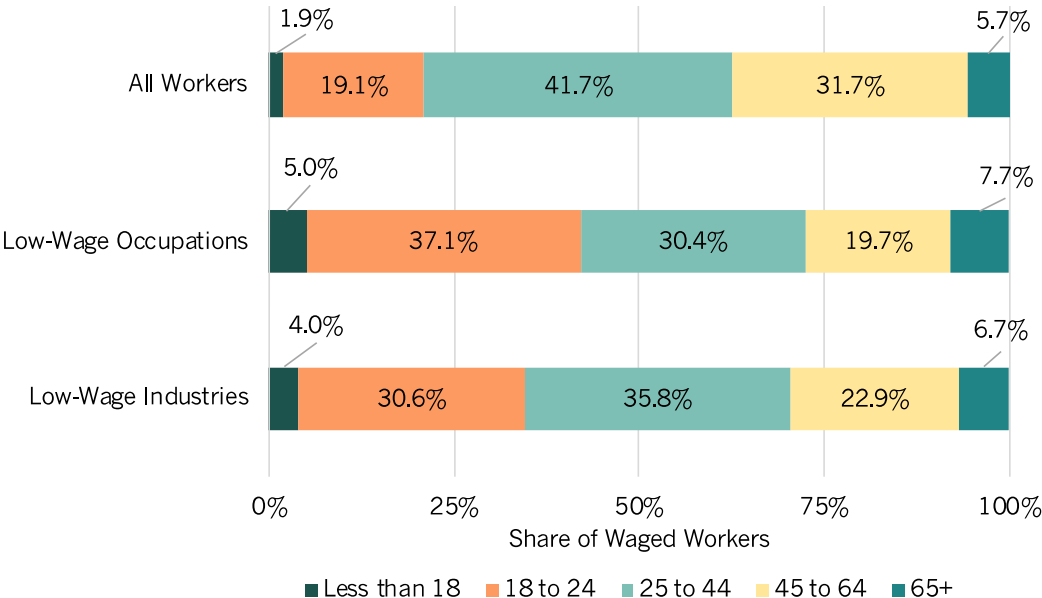
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.

Exhibit 26. Educational Attainment of Low-Wage Workers, Three-PUMA Region

Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.

Minimum Wage Earners

For the minimum wage earner information presented here, we focus specifically on low-wage earners—with low-wage defined as under $15 per hour—referred to here as "minimum wage earners". Due to data limitations, we cannot accurately categorize workers subject to a specific minimum wage or not (e.g., we cannot directly distinguish between tipped and untipped workers). The $15 threshold is slightly above the 2024 Colorado minimum wage ($14.42). Most of the data presented below reflect employment and wages during 2018-2022 (during which time the Colorado minimum wage ranged from $10.20 in 2018 to $12.56 in 2022).

SUMMARY:

➢ In the three-PUMA region, one-third of workers earn below $25 per hour, and one-tenth of workers earn below the $15 per hour "minimum wage" threshold. Workers earning below $25 per hour account for 41 percent of the total hours worked, indicating that those earning lower wages work longer hours than those in higher wage brackets.

➢ Workers in low-wage industries and occupations are more likely to earn less than $15 per hour across the three-PUMA region. Minimum wage earners are concentrated in the accommodation and food services, retail trade, and arts and recreation industries.

➢ Minimum wage workers in the three-PUMA region are more likely to identify as BIPOC or female. They are also more likely to be between the ages of 18 and 24 and to be currently enrolled in college.

➢ Workers in service-based industries and occupations are likely to rely on tips for a substantial amount of their wages. Nationally, 21 percent of workers in food service rely on tips.

REGIONAL WAGE DISTRIBUTION

Exhibit 27 presents the distribution of workers and all the hours worked by employees by hourly wage bracket in the three-PUMA region. Approximately one-third of workers earn under $25 per hour. Workers earning less than $25 per hour account for 41 percent of all hours worked in the three-PUMA region, a disproportionate share of total hours. This likely indicates that low-wage workers—particularly those earning $15 or less per hour, as shown in the chart—must work more hours to meet their cost-of-living needs, compared to workers at higher wage levels.

Exhibit 28 provides a breakdown of the wage distribution across low-wage occupation and industry groupings in the three-PUMA region. Among workers with at least part-time hours, 15 percent earn $15 per hour or less. In low-wage occupations and industries, the distribution shifts down, with minimum wage workers accounting for 33 percent and 27 percent of employment, respectively. Low-wage industries tend to have higher wages compared to low-wage occupations due to the diverse workforce needed in low-wage industries—the mix of

worker wages creates a more dispersed distribution. Further, the share of workers earning above $35 per hour is roughly cut in half in low-wage industries and occupations.

Exhibit 27. Wage Distribution of Workers and Hours Worked, Three-PUMA Region
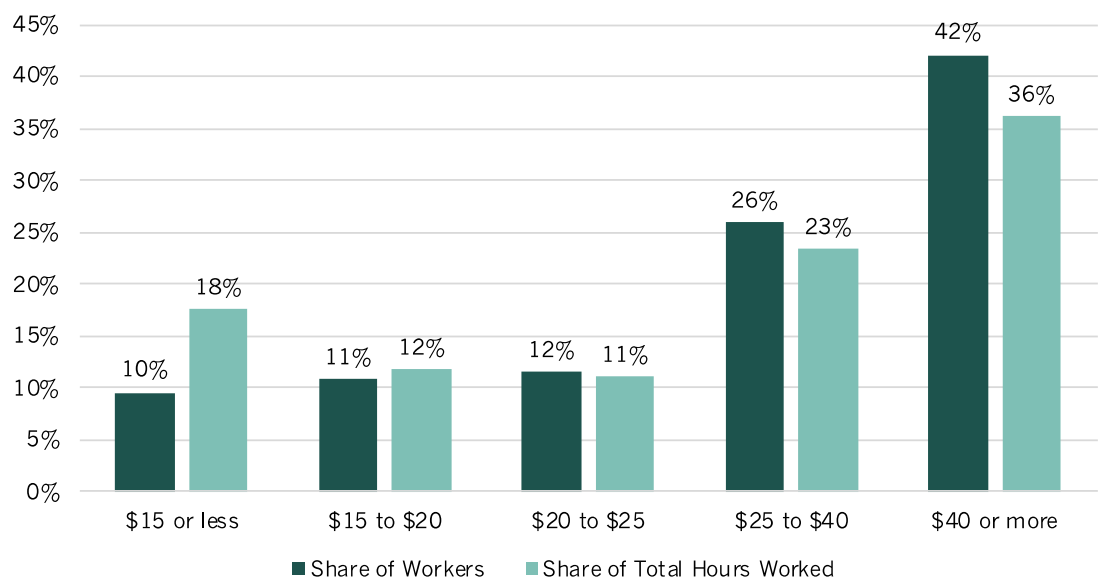
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates. 2022 dollars.
Note: Data presented for all workers.

Exhibit 28. Workers in Low-Wage Occupations and Industries by Wage, Three-PUMA Region
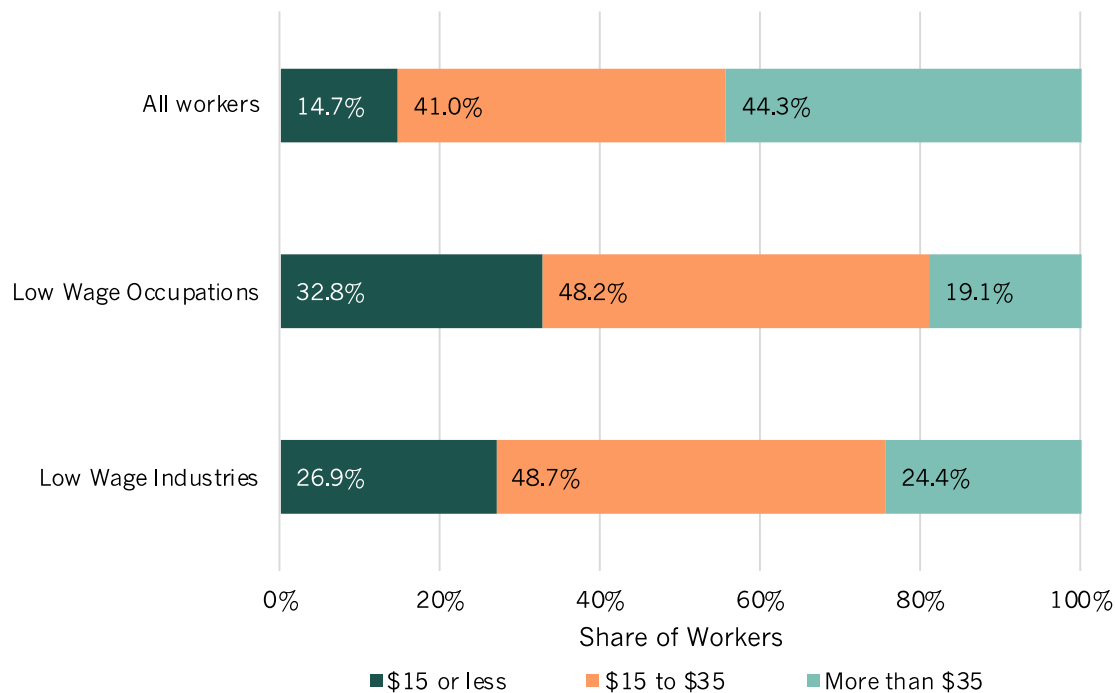
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates. 2022 dollars.
Note: Data presented for all workers who work at least 1,040 hours in a year.

TIPPED WORKERS

Until 2006, Colorado minimum wage law was set by federal law, in which a "tip credit" permits a worker's tips to count for a portion of the regular minimum hourly wage ($7.25 per hour as of 2009). The current federal tip credit ($5.12) means tips can count toward up to a record-high 71 percent of the federal minimum wage *(EPI, "Twenty-Three Years and Still Waiting for Change", 2014)*.

In 2006, Colorado voters adopted an amendment that set the minimum wage for tipped workers at $3.02 less than the state minimum wage ($6.85 in 2007). This credit amount has remained constant since 2006 and also applies in localities that have adopted higher minimum wages (Denver, Edgewater, and Boulder County) *(CO Legislative Council, "Overview of Minimum Wage Laws, 2019)*. At the state minimum wage level, tipped workers receive $11.40 from employers and $3.02 from tips per hour (CDLE, 2024), meaning customers pay 21 percent of the state minimum wage for tipped workers. In 2007 the tipped-employee minimum wage was 56 percent of the Colorado minimum wage, versus 79 percent in 2024. If the state's tip credit remains at $3.02, state and local tipped-employee minimum wages will get proportionately closer to the standard minimum wage over time.

In the U.S., tipped workers comprise 1.9 percent of the workforce, and 21 percent of workers in food service occupations rely on tips as part of their wage *(U.S. Census Bureau, Current Population Reports Occupation, Earnings, and Job Characteristics, 2022).* Poverty rates for tipped workers nationwide was 13 percent (15 percent for waiters and bartenders) compared to 7 percent for all workers. Most tipped workers in the U.S. (58 percent) are between 20 and 39 years old. Tipped workers in the U.S. are less likely to have a bachelor's degree or higher compared to the workforce overall (11 percent compared to 34 percent). And BIPOC workers comprise a higher share of tipped workers than the overall workforce *(EPI, "Twenty-Three Years and Still Waiting for Change", 2014).*

The National Women's Law Center (NWLC) examined gender and racial disparities for tipped workers. Their analysis found that:
- For every dollar tipped male workers earn, female workers earn $0.83 in states with a tip credit and $0.89 in equal treatment states—states that pay the same minimum wage to tipped and non-tipped workers.
- In equal treatment states, the gender-wage gap decreased from 17 cents to 11 cents;
- Poverty rates of female tipped workers in equal treatment states is lower than tip credit states (17.5 percent compared to 20 percent);
- The decrease in poverty rates in equal treatment states is more pronounced for women of color. For Black or African American female tipped workers, the poverty rate decrease from 32 percent to 29 percent in equal treatment states, and for Latina female workers decreases from 30 percent to 26 percent.

(NWLC, "Raise the Wage: Women Fare Better in States with Equal Treatment for Tipped Workers", 2016)

In Colorado specifically, 66 percent of tipped workers are women and 22 percent are women of color. The poverty rate of women in tipped occupations is 12 percent and 14 percent for women of color in tipped occupations. *(NWLC, Women in Tipped Occupations, State by State, 2021)*

DEMOGRAPHICS OF MINIMUM WAGE EARNERS

Exhibit 29 provides demographic shares of minimum wage workers (those earning below $15 per hour) compared to all workers in the three-PUMA region by sex, race/ethnicity, and age. Female workers make up a larger share of minimum wage workers than of all workers (54 versus 44 percent). Hispanic and Latino workers are also overrepresented among minimum wage workers compared to their representation among all workers (18 versus 12 percent). Workers who identify as another BIPOC group comprise 10 percent of minimum wage workers and 9 percent of all workers.

Minimum wage workers are more likely to be under 24 years old compared to all workers: 66 percent of minimum wage workers are under 24 years old compared to only 11 percent of all workers. College students comprise 37 percent of the region's minimum wage earners versus 16 percent of the workforce overall.

Exhibit 29. Demographic Distribution of Minimum Wage Earners, Three-PUMA Region

DEMOGRAPHIC	MINIMUM WAGE EARNERS	ALL WORKERS
Race/Ethnicity		
White	72%	78%
Hispanic or Latino[1]	18%	12%
Non-Hispanic BIPOC[2]	10%	9%
Age		
Less than 18	7%	1%
18 to 24	49%	10%
25+	44%	89%
Sex[3]		
Female	54%	44%
Male	46%	56%
Share of College Students	37%	16%

Source: U.S. Census Bureau, American Community Survey, PUMS 5-year estimates.
Notes:
1: Hispanic or Latino individuals are those who identified as any race but selected Hispanic or Latino for their ethnicity.
2: Non- Hispanic BIPOC includes individuals who identify as Asian, Black or African American, AIAN, NHPI, Two or more races, or Some other race.
3: The Census only allows individuals to indicate binary sexes.
4: Columns do not sum to 100% due to rounding.

Exhibit 30 illustrates the share of individuals within various demographic groups who earn the minimum wage. Younger workers are disproportionately represented in minimum wage positions: 69 percent of those under 18 years old and 57 percent of those aged 18 to 24 earn the minimum wage. BIPOC workers are also disproportionately minimum wage earners, with 28 percent of Hispanic and Latino workers and 23 percent of Non-Hispanic BIPOC workers earning the minimum wage. In terms of sex, 17 percent of female workers earn the minimum wage, compared to 14 percent of male workers, reflecting broader gender disparities in the labor market. Workers that do not hold a post-secondary degree are more likely to earn the minimum wage, especially for those with only a high school diploma. Minimum wage earners in the region are disproportionately young, BIPOC, and female workers.

COLLEGE STUDENTS EARNING THE MINIMUM WAGE

Approximately half of all college students earn the minimum wage across the region. Specifically, working college students earn a median hourly wage of $15.44.

» **Full-time workers: $21.54**

» **Part-time workers: $14.23**

Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates. 2022 dollars.

Exhibit 30. Share of Demographic that Earns the Minimum Wage, Three-PUMA Region

Demographic	Minimum Wage Worker Share of Demographic
Less than 18	69%
18 to 24	57%
25+	12%
Hispanic or Latino	28%
Non-Hispanic BIPOC	23%
White	20%
Female	25%
Male	18%
HS or Lower	39%
Some College	37%
Associate Degree	18%
Bachelor's Degree	11%
Graduate/Professional Degree	6%

Minimum Wage Worker Share of Demographic
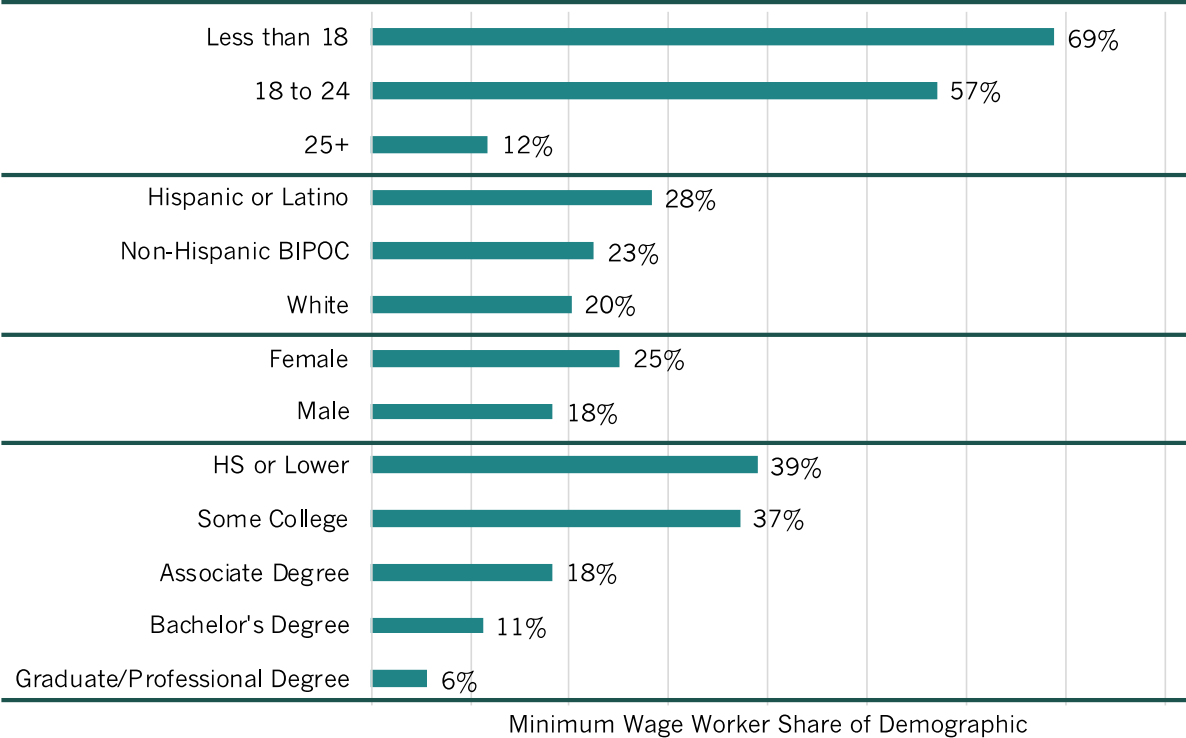
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.

WORKING UNEMANCIPATED MINORS

Unemancipated minors represent a small share of the workforce in the three-PUMA region (2 percent) and emancipated minors comprise less than one percent. About 7 percent of unemancipated minors are working, and 57 percent of those earn the minimum wage. Unemancipated minors who earn the minimum wage are most likely to live in households with two adults (60 percent of all working unemancipated minors).

The majority of unemancipated minors are white and identify as male. Further, a relatively higher share of Hispanic and Latino workers versus other racial groups are unemancipated minors. This trend is particularly pronounced for Hispanic and Latino workers in low-wage industries.

Among working unemancipated minors, 90 percent work in low-wage industries and 78 percent work in low-wage occupations. In low-wage industries and occupations, approximately 5 percent of BIPOC workers are unemancipated minors, compared to 2 percent in all jobs.

Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.

Household Characteristics

Here, we describe selected household characteristics with respect to the presence of a minimum wage earner (i.e., an individual who earns less than an estimated $15 per hour) and relative to other economic characteristics.

SUMMARY:

➢ The majority of worker households in the three-PUMA region have one or two adults and no children, however, households with at least one minimum wage worker are even more likely to have two or more adults and no children (62 percent), likely driven by the presence of college students in the area.

➢ BIPOC head of households represent 20 percent of all households with workers in the three-PUMA region, but represent 32 percent of minimum wage worker households, indicating that households with minimum wage workers are disproportionately BIPOC.

➢ Households with minimum wage workers have lower median incomes than those without and are more likely to be below the Federal Poverty Line and the Self-Sufficiency Standard. Additionally, households with minimum wage workers tend to spend more than 30 percent of their income on housing costs and those with children are more likely to receive SNAP benefits.

HOUSEHOLD TYPES AND DEMOGRAPHICS

There were approximately 190,000 households in the three-PUMA region in 2022. Of these households, approximately 89 percent have at least one worker.[30] Most worker households (68 percent) do not have children. Among worker households with children, 70 percent are two-adult households, 18 percent are households with three or more adults, and 12 percent are single adult households. Additionally, 20 percent of worker households identify as BIPOC, with 11 percent being Hispanic or Latino. Households with minimum wage workers are also disproportionately headed by individuals who identify as BIPOC: 32 percent of households with minimum wage workers are BIPOC compared to 18 percent of households without. Exhibit 31 presents the share of worker households by household type.

Exhibit 32 presents the share of worker households with minimum wage workers by household type. Of worker households, 16 percent have at least one minimum wage worker present, with significant variation across household type. Notably, 52 percent of households with three or more adults and no children have minimum wage workers. This disproportionality is due to the large number of college students in the three-PUMA region: 44 percent of college students live in households with three or more adults and no children and the median age of minimum wage workers in these households is 22 years old.[31] Additionally, two adult households with no children are more likely to have minimum wage workers than single adult households with no children.

Exhibit 31. Distribution of Worker Households by Type, Three-PUMA Region
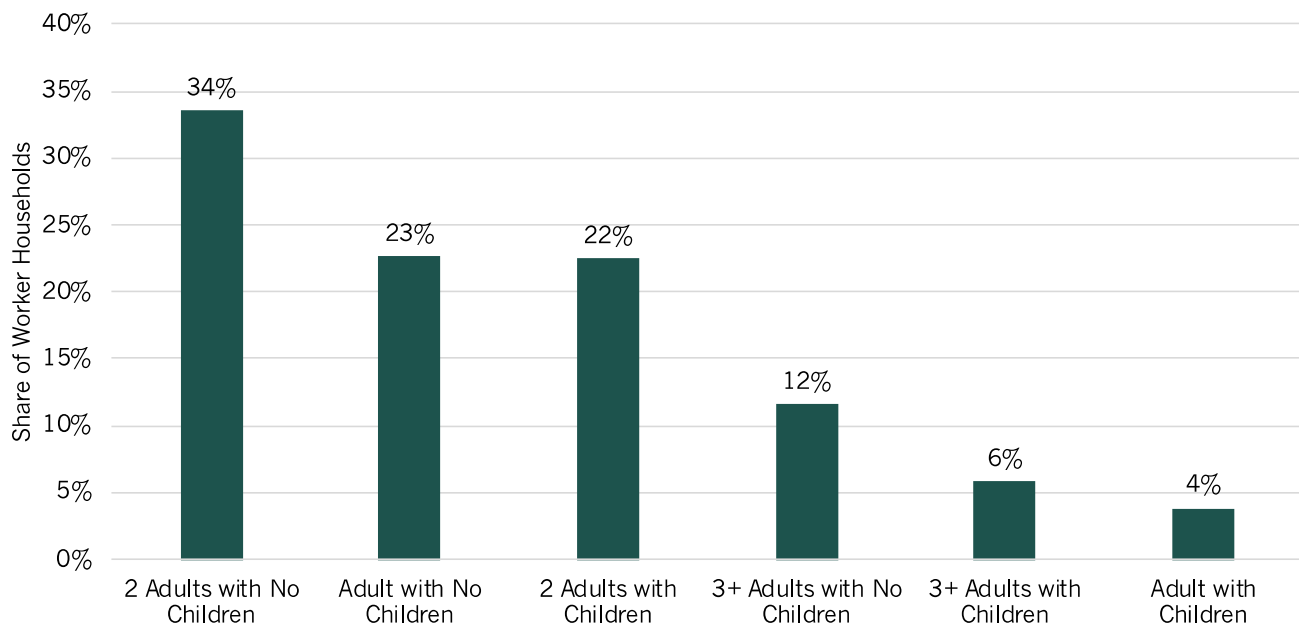
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker.

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[30] Worker households are defined as those with at least one waged worker and excludes self-employed individuals.
[31] U.S. Census Bureau. (2022) American Community Survey, PUMS, 5-year estimates.

Exhibit 32. Distribution of Minimum Wage Worker Households by Type, Three-PUMA Region
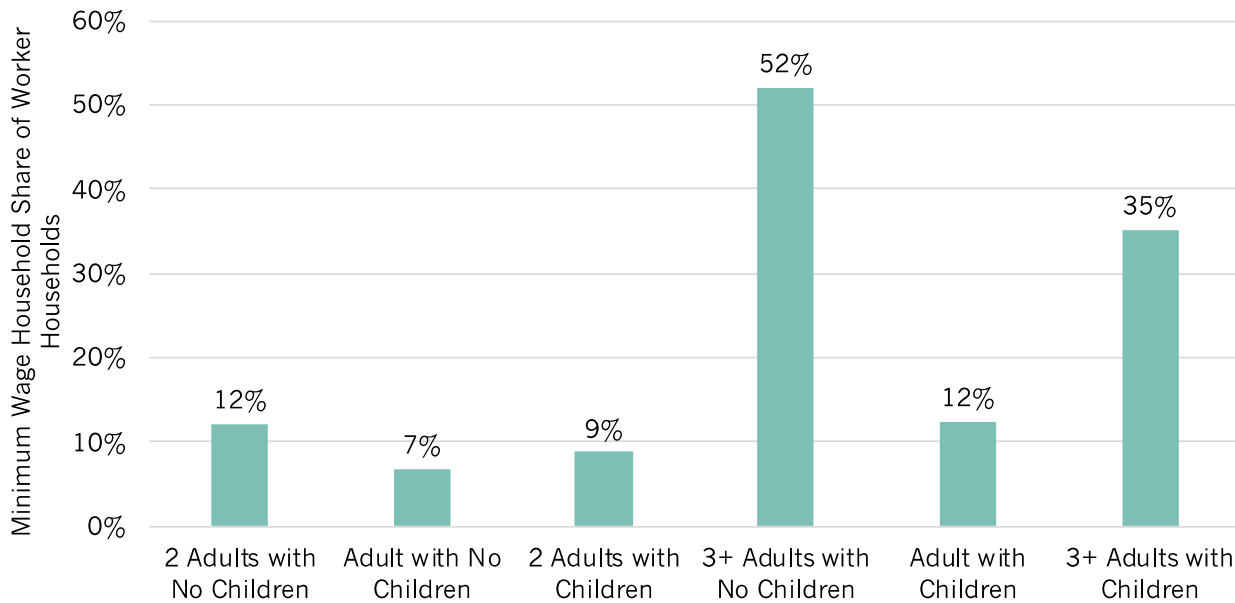
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

HOUSEHOLD INCOME, POVERTY, AND SELF-SUFFICIENCY

Median household income among households with a minimum wage worker ($85,400) is lower than for households without a minimum wage worker ($128,100). Exhibit 33 shows differences by household type; the largest percentage difference is for single adult households with no children, followed by two adult households with children.

Approximately 9 percent of the three-PUMA region's worker households have income below the Federal Poverty Level (FPL), and 17 percent are below 200 percent of FPL. Exhibit 34 shows the differences in poverty levels by household type and presence of at least one minimum wage worker for the top three most common household types, which account for 79 percent of worker households (see Exhibit 32). Of households with no minimum wage workers, single adult households with no children are more likely to be in poverty, with 12 percent of these households living under the FPL. Overall, households with minimum wage workers are more likely to be below 200 percent of the FPL. The share of households living below the FPL is highest for single adult households with no children (27 percent) and roughly two-thirds of these households live below 200 percent of the FPL.

Exhibit 33. Median Household Income for Minimum Wage Workers, by Type, Three-PUMA Region
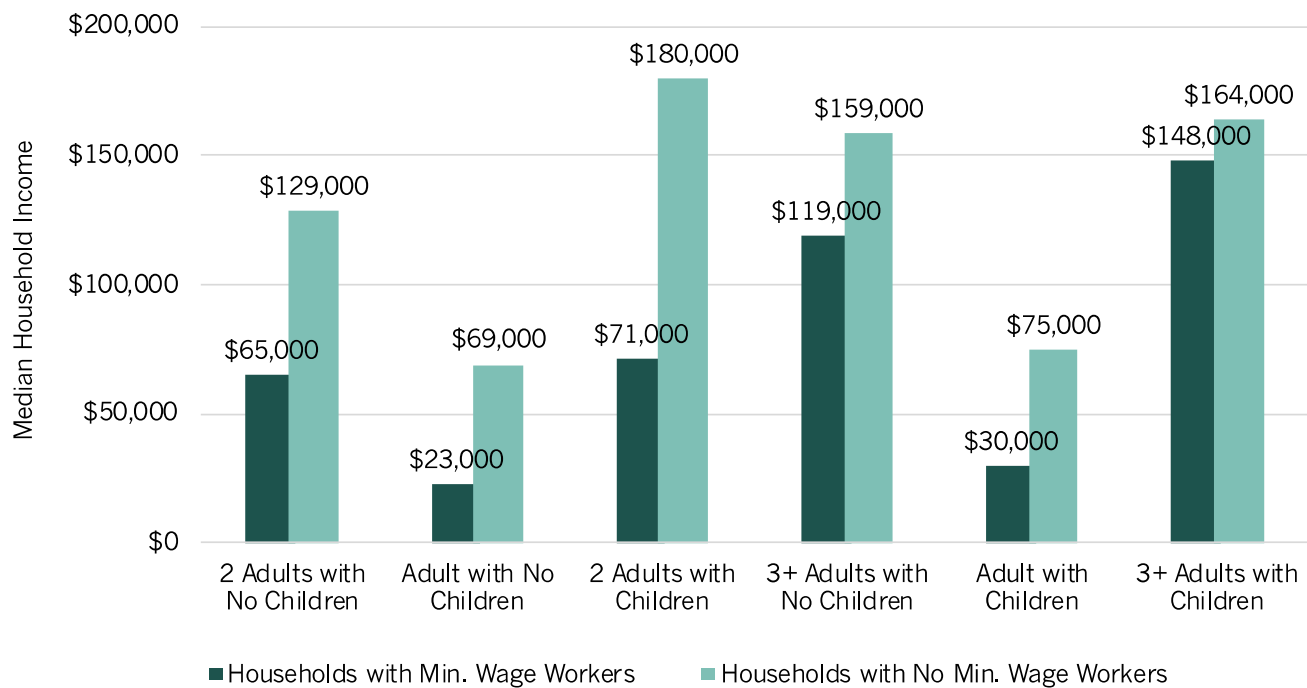
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates. 2022 dollars.

Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

Exhibit 34. Minimum Wage Worker Households by Poverty Level and Type, Three-PUMA Region
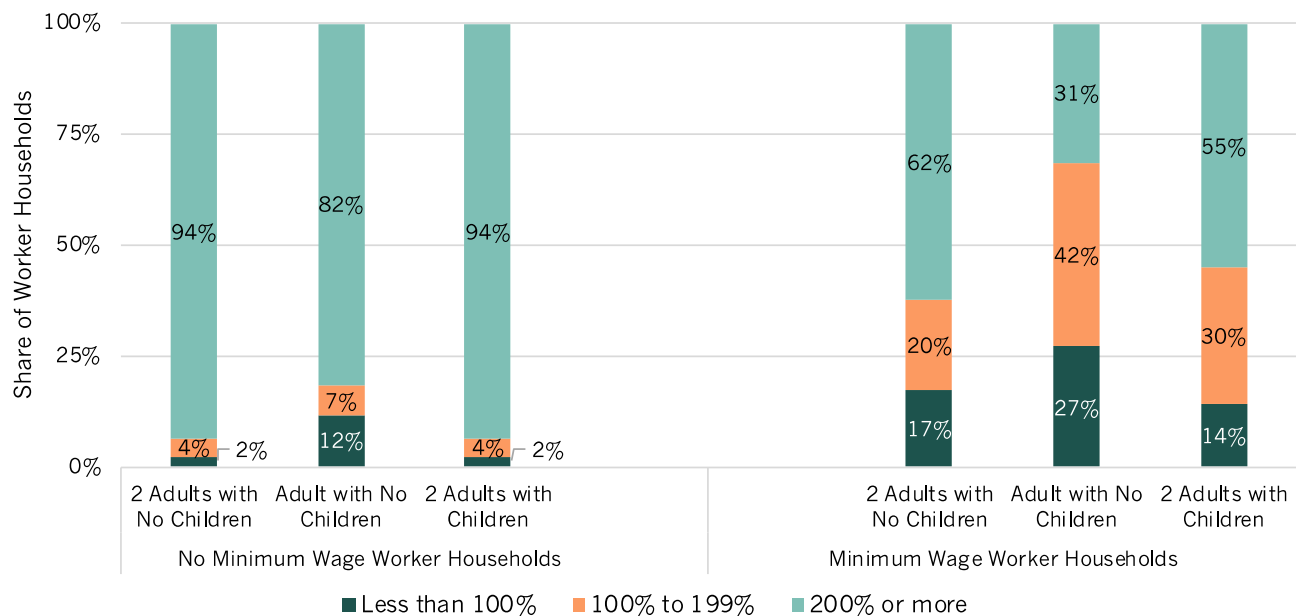
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

The current official poverty measure is inadequate, showing that many families with incomes above federal poverty thresholds still struggle to meet basic needs. The Self-Sufficiency Standard (SSS) for Colorado, developed by the University of Washington's Center for Women's Welfare and published in Colorado by the Colorado Center on Law and Policy, provides a more holistic measure of family economic stability than the federal poverty level, or multiples thereof. The SSS is a measure of the income needed for families of various sizes in Colorado to cover basic needs without government assistance.[32] The SSS includes costs for housing, childcare, food, healthcare, transportation, and taxes, as well as the emergency savings. The SSS is estimated separately by county and for household compositions, varying by the number of working adults and presence and age of children.

We compare household income to the 2022 SSS for Boulder County for selected household types, specifically, single adult, two adults, and two adults with two school-aged children. Most worker households have one or two adults and no children (56 percent), followed by households with two adults and one or more children (22.5 percent). We selected households with two school-age children based on the median age of children in the three-PUMA region. We utilize household annual income to determine whether the household is above or below the SSS level. Exhibit 35 presents the SSS annual income and hourly wage for the representative household types.

Exhibit 35. Representative Household Self-Sufficiency Income Levels, Boulder County

HOUSEHOLD TYPE	SELF-SUFFICIENCY ANNUAL INCOME	SELF-SUFFICIENCY HOURLY WAGE
Single Adult	$41,058	$19.44
Two Adults	$58,268	$13.79
Two Adults with Two School-aged Children	$95,819	$22.68

Source: Colorado Center on Law and Policy, Self-Sufficiency Standard, 2022, Boulder County
Note: School-aged children are those between the ages of 6 and 12, with the assumption of part-time care outside of school hours.

Among the non-minimum wage worker households in one of the three identified types, 18 percent are below the SSS and among minimum wage worker households, 56 percent are below the SSS. Single adult households comprise the highest share of households below the SSS (47 percent). As Exhibit 36 indicates, minimum wage worker households are much more likely to be below the SSS level. The largest difference in meeting the SSS between households with and without minimum wage workers is seen in single adult households: 87 percent of households with minimum wage workers fall below the SSS, compared to 26 percent of households without minimum wage workers.

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[32] Colorado Center on Law and Policy. (2022). The Self-Sufficiency Standard for Colorado. Accessed at: https://copolicy.org/wp-content/uploads/2022/11/CO22_SSS.pdf

Exhibit 36. Minimum Wage Worker Households Meeting the Self-Sufficiency Standard, Three-PUMA Region
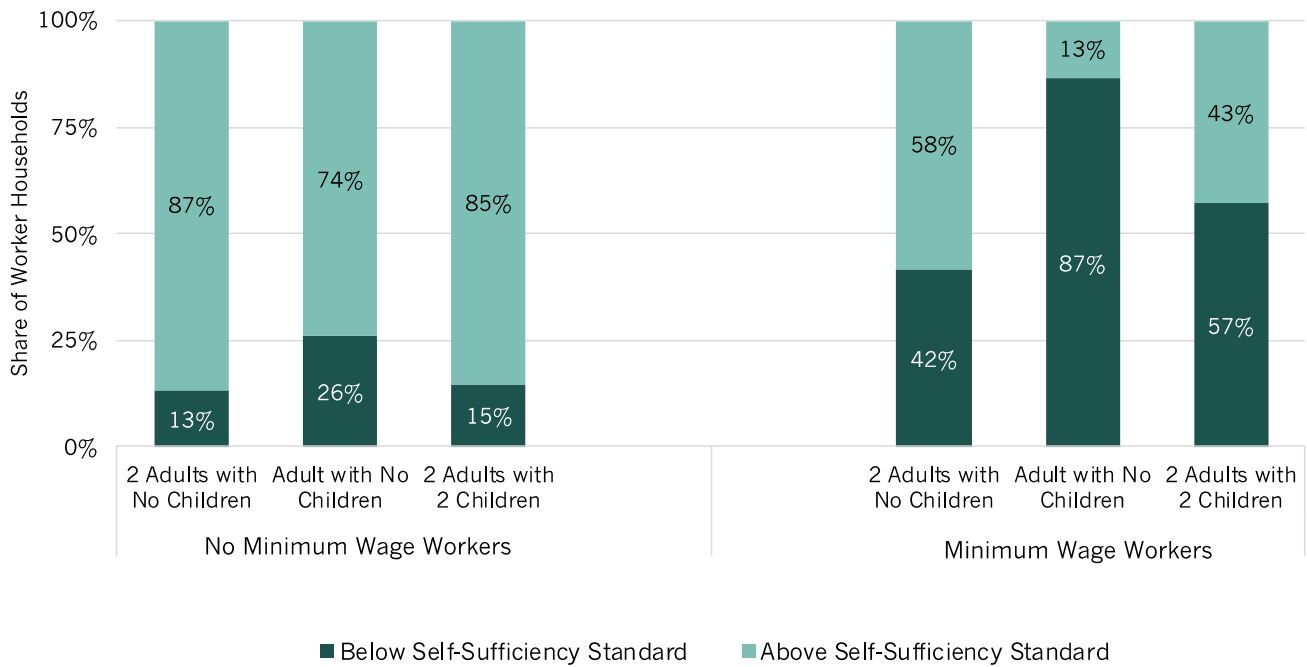
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

HOUSEHOLD SNAP RECEIPT

The Supplemental Nutrition Assistance Program (SNAP) provides low-income individuals and families purchase food, thereby alleviating hunger and improving nutrition. This assistance supports healthier diets and economic stability for recipients. Monthly income thresholds for SNAP eligibility in Boulder County range from $2,430 for one-person households to $5,000 for four-person households.[33] The monthly SNAP amount decreases with an increase in household income. A minimum wage could potentially price households out of government programs, such as SNAP (see Literature Review), however the household still likely have a net gain in income. For example, under the current minimum wage, a two-person household with one full-time minimum wage worker would be eligible for SNAP, but an increase of the minimum to $20 per hour would increase the household income above the eligibility threshold.[34] The worker moving from $15 per hour to $20 per hour, would increase their income by $800, which is more than the maximum amount a two-person household would receive in SNAP benefits ($535).[35]

In the three-PUMA region, 3 percent of worker households within the types shown below receive SNAP benefits. Households with minimum wage workers comprise 23 percent of the worker households receiving SNAP benefits.

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[33] Colorado Department of Human Services. (2024). Supplemental Nutrition Assistance Program (SNAP). Accessed at: https://cdhs.colorado.gov/snap
[34] Assuming no increase in SNAP eligibility income thresholds.
[35] Hunger Free Colorado. (2024). Getting Snap. Accessed at: https://hungerfreecolorado.org/getting-snap/

Exhibit 37 shows the share of worker households, with and without minimum wage workers, within each household type that receive SNAP benefits. Minimum wage worker households with two adults and children have the highest rate of SNAP receipt: 21 percent of minimum wage worker households in this type receive SNAP benefits compared to 3 percent for non-minimum wage worker households. For the other household types, rate of SNAP receipt is similar between households with and without minimum wage workers.

Exhibit 37. Share of Households Receiving SNAP Benefits, by Household Type and Presence of Minimum Wage Workers, Three-PUMA Region
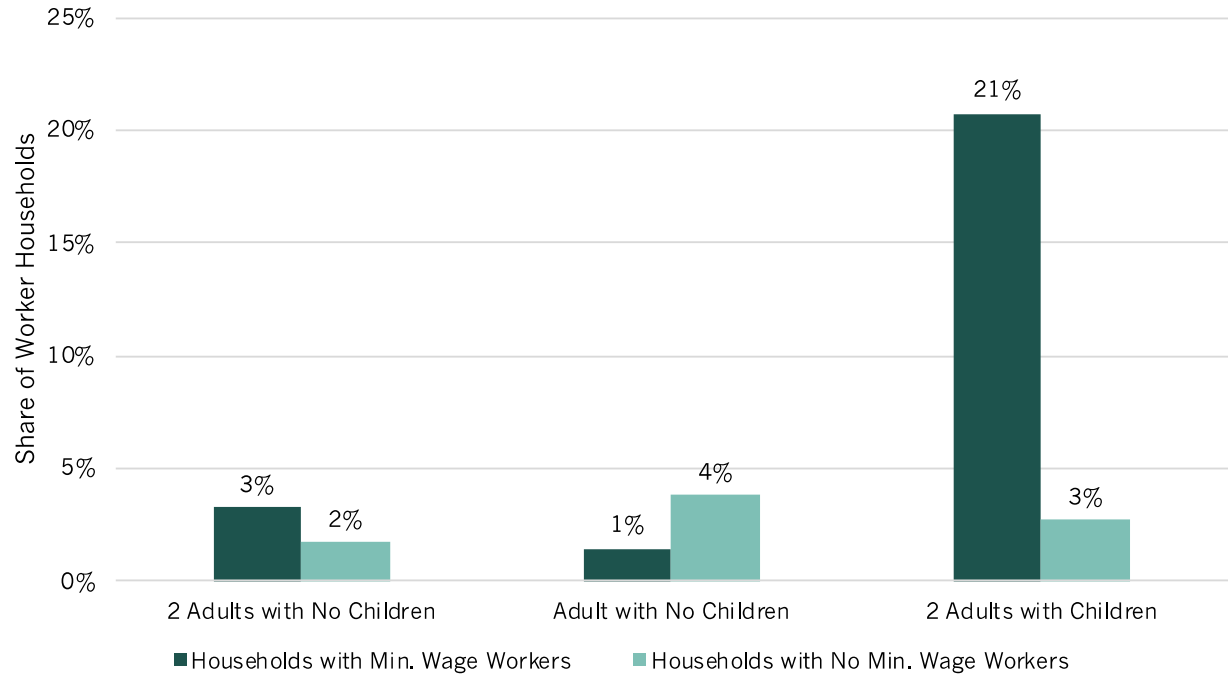
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

HOUSEHOLD COST BURDEN RATES

A household is considered cost-burdened when it spends more than 30 percent of its income on housing costs, including rent or mortgage payments and utilities. This financial strain can limit the household's ability to afford other essentials such as food, healthcare, transportation, and education. Increasing the minimum wage could mitigate the financial burden of housing for minimum wage workers. In 2023, Boulder County median rental price was close to $3,000, and Fair Market Rents (FMR), which represent the 40th percentile of market rents, ranged from $1,580 for one-bedroom units to $3,000 for four-bedroom units.[36]

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[36] Zillow. (2023). Boulder County Median Rental Price All Bedrooms. Accessed at: https://www.zillow.com/rental-manager/market-trends/boulder-co/; U.S. Department of Housing and Urban Development. (2023). Boulder County Fair Market Rents. Accessed at: https://www.huduser.gov/portal/datasets/fmr.html

In the three-PUMA region, 29 percent of worker households in the three types presented below are cost-burdened, and 20 percent of all cost-burdened households are minimum wage worker households. Exhibit 38 shows the share of worker households, with and without minimum wage workers, within each household type that are cost-burdened. The share of households with no minimum wage workers that are cost-burdened is much lower than that of households with minimum wage workers.

For two adult households with and without children, the share of minimum wage worker households that are cost-burdened is 47 percent and 90 percent for single adult households with no children. This data shows that housing costs are a larger burden for minimum wage workers than for higher-wage workers.

Exhibit 38. Cost-burdened Households as a Share of Total, Three-PUMA Region
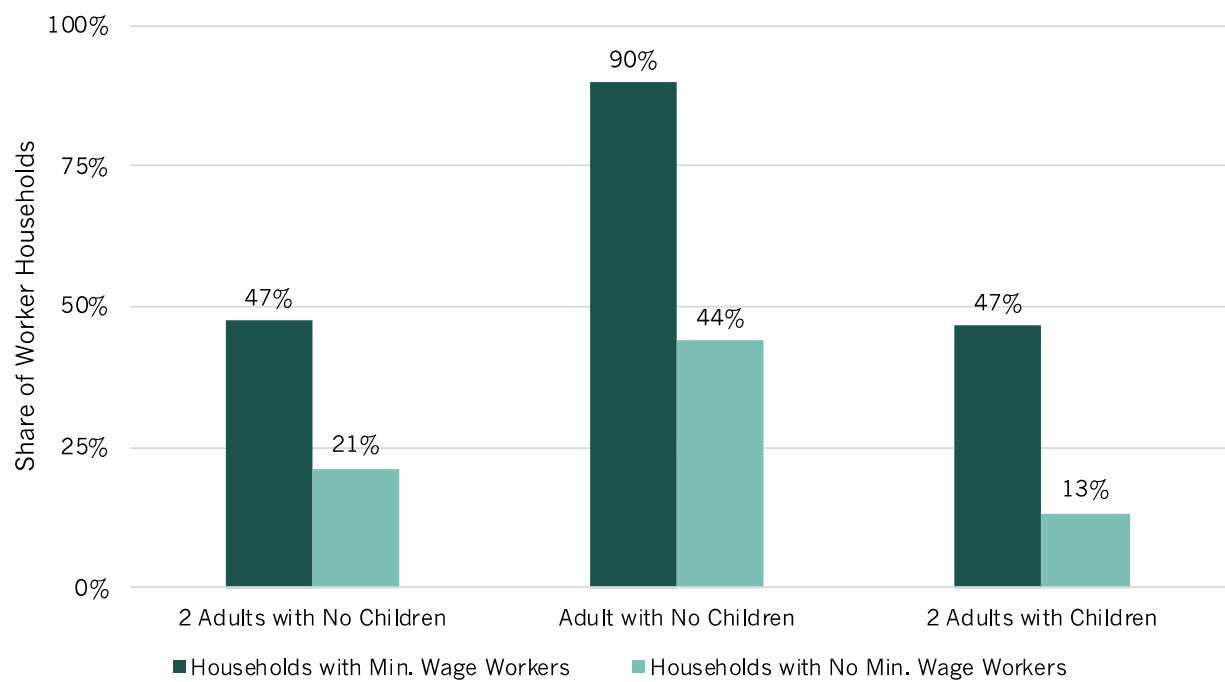
Source: U.S. Census Bureau, ACS PUMS, 2022, 5-year estimates.
Note: Worker households are those with at least one waged worker and a minimum wage household is one with at least one minimum wage worker.

3. Comparative Analysis

Concluding the analysis of conditions relevant to a potential minimum wage increase, we analyzed conditions for selected cities and counties that had recently implemented a local minimum wage higher than that required by state and federal law. Although the impact analysis will provide more definitive information about potential impacts, comparing economic performance and other outcomes of the comparison regions over time can provide insight into, and context for, how increases implemented by the five municipalities might affect conditions going forward.

The analysis also yielded information about how comparison regions increased their minimum wage. For example, how quickly the minimum increased initially and methods for increasing the minimum (indexing methods) after reaching a pre-specified target.

Selection of Comparison Regions

We identified a list of cities and counties that, to the extent possible, resemble one or more of the study's five municipalities in dimensions such as population, industry composition, demographic characteristics, and that, collectively, exhibit a range of these characteristics. We examined available data about the comparison cities and counties for periods before and after their minimum wage laws were enacted. The collected data provide insight into how cities and counties have fared after minimum wage increases.

The selection criteria, described in the Appendix, resulted in a list of the following 10 cities and counties. Denver's minimum wage increase took place too recently to meet the selection criteria for this analysis but research about conditions related to the increase is summarized below.

- Flagstaff, AZ
- Alameda, CA
- Milpitas, CA
- San Mateo, CA
- Santa Clara, CA
- Cook County, IL
- Montgomery County, MD
- Minneapolis, MN
- Santa Fe County, NM
- Seattle, WA

Exhibit 39 provides summary information regarding minimum wage implementation (average increase from first increase to the target wage) and selected demographic characteristics for each area. The Appendix provides additional detail. Exhibit 39 also shows each region's population and selected demographics as of each region's "midpoint year", the year halfway between the year the law was enacted and the year the target wage was reached.

Exhibit 39. Selected Localities with Recent Minimum Wage Increases

Cities	Population	Years of Increase	Ave. Annual Increase in Minimum Wage	Demographics (% of population)		
				Age 55 and above	Associate and above	BIPOC
Flagstaff, AZ	75,044	5	8%	18.1	59.5	36.6
Alameda, CA	77,630	2	12%	29.6	62.5	59.2
Milpitas, CA	80,424	3	13%	23.8	58.9	90.3
San Mateo, CA	105,016	3	14%	29	63.7	55.2
Santa Clara, CA	127,131	4	14%	21.6	62.3	70.5
Cook County, IL	5,180,493	4	12%	26.8	45.7	58
Montgomery County, MD	1,050,688	4	7%	29.2	63.2	57.4
Minneapolis, MN	429,605	5	14%	20.1	59.9	39.6
Santa Fe County, NM	148,164	1	42%	36.2	44.5	57.2
Seattle, WA	704,358	3	16%	23.5	69.9	35.5

Source: American Community Survey 1-Year Estimates, Table DP05, DP02, DP03, Various Years; UC Berkeley Inventory of US City and County Minimum Wage Ordinance

Trends and Comparisons

The review of research on city- and county-level minimum wages presented in Section 4 suggests that localities that institute higher minimum wages differ in important ways from localities that do not; additionally, localities seem able to tailor policy to local conditions without imposing substantial reallocation of labor and businesses. Dube and Lindner (2021) studied local-area minimum wages and demonstrated that cities that institute their own minimum wage in excess of those at the state or federal level were fundamentally different from cities that did not.[37] Our high-level characterization of outcomes for the 10 cities and counties that enacted local minimum wage increases similarly suggests that doing so does not necessarily lead to large, negative economic effects.

As a high-level illustration, Exhibit 40 compares locality-level change in economic outcome from two years before the first year of minimum wage increase to two years after, relative to changes over the same time period for the locality's state. For example, the 2.7 percentage point difference in Flagstaff's unemployment rate indicates that Flagstaff's unemployment rate increased by 2.7 percentage points more than the state's rate did

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[37] Dube, A. and Lindner, A. (2021). "City limits: what do local-area minimum wages do?" *Journal of Economic Perspectives*. https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.35.1.27.

during the relevant period. Green shading is generally positive (lower unemployment and poverty, higher labor force participation and employment) and red shading is generally negative (higher unemployment and poverty, lower labor force participation and employment) relative to state-level outcomes.

The outcomes presented suggest that cities/counties that have increased their minimum wage experienced a wide range of changes in unemployment, poverty, labor force participation, and employment rates relative to their states. The chart indicates that most of the selected municipalities experienced increases in unemployment rates relative to their state. However, most also experienced increases in in labor force participation that wholly or partially offset the change in unemployment rates, as indicated by the very slightly higher employment growth experienced by most municipalities. We emphasize that the table is provided to illustrate the experiences of these municipalities but that the differences displayed cannot be attributed directly to a minimum wage increase or any other single factor.

Exhibit 40. Change in Economic Conditions after Minimum Wage Increase Relative to State Change

Cities	AAGR (to full wage)	Unemployment Rate Trend Relative to Statewide Trend	Poverty Rate Trend Relative to Statewide Trend	Labor Force Participation Rate Relative to Statewide Trend	Employment Growth Rate Trend Relative to Statewide Trend
Flagstaff, AZ	8%	2.70	NA	-1.30	0.00
Alameda, CA	12%	0.80	0.30	0.20	-0.01
Milpitas, CA	13%	1.50	-0.70	7.60	0.29
San Mateo, CA	14%	1.50	3.30	2.20	0.04
Santa Clara, CA	14%	2.90	5.00	0.70	0.04
Cook County, IL	12%	-0.70	-1.10	0.60	0.01
Montgomery County, MD	7%	0.80	0.60	-0.50	-0.01
Minneapolis, MN	14%	1.50	-4.80	1.10	0.02
Santa Fe County, NM	42%	-3.40	-2.30	-2.20	-0.01
Seattle, WA	16%	1.10	0.00	0.10	0.04

Source: American Community Survey 1-Year Estimates, Table DP03_0002P, DP03_0009P, DP03_0003, and DP03_0119P, Various Years; UC Berkeley Inventory of US City and County Minimum Wage Ordinance

Denver's Minimum Wage Increase

Denver was the first local government in Colorado to enact a local minimum wage, which took effect on January 1, 2020. The minimum wage increased from $12.85 in 2020 to $17.29 in 2023 (the state minimum wage in 2023 was $13.65). For indexing after 2022, Denver uses the CPI reported in the U.S. Department of Labor's Index for Urban Wage

Earners and Clerical Workers (CPI-W). Findings regarding Denver's increase include the following, as reported by CDLE in 2023[38]:

- The impact of Denver's minimum wage increase was difficult to isolate due to the COVID-19 pandemic, which began shortly after the wage increase took effect—there was a strong positive correlation (0.82) between COVID-19 infection rates and unemployment rates across Colorado counties, including Denver.

- Relative to comparable localities, Denver had slightly lower unemployment rate immediately following the minimum wage law passing, but unemployment worsened as Denver experienced greater impact from COVID-19.[39] However, in 2021, Colorado's average unemployment rate dropped to 5.45 percent, while Denver's unemployment rate dropped to 5.90 percent—a greater relative decline in unemployment for Denver (by 0.40 percent) than for Colorado. The trend continues in 2022. Overall, in both 2021 and 2022, Denver's unemployment rate dropped more than its comparable localities' rates as the minimum wage rose significantly.

- From 2020–2022, Denver maintained strong wage growth and stronger wage growth than Colorado and comparator localities. Comparing Q1 2019 and Q1 2020, Denver's average weekly earnings increased compared to the state, from $302.00 higher than the state average to $339.00 higher, a 12.3 percent increase. In 2020, 2021, and 2022, while weekly wages in comparable localities remained stagnant or fell, Denver's weekly wages grew faster than the state's, by $52.00 in 2020, $49.67 in 2021, and $24.67 in 2022.

- As its local minimum wage rose above Colorado's from 2020 to 2022, Denver's per capita sales tax revenues at restaurants and bars increased by 85 percent, double the sales tax revenue increase in Colorado (43 percent). Denver's sales tax revenues did not fall relative to other parts of the state in the initial months after it adopted its minimum wage but they did fall after the impact of COVID-19.

Methods Used to Index Local Minimum Wages

Although many cities and counties raised their minimum wage rapidly to address apparent long-standing gaps between minimum wages and cost of living, increases generally level off once a pre-determined target is reached. In our analysis of local minimum wages, we found that about 95 percent of 67 local minimum wages are currently indexed to inflation, with about three-quarters of those indexed to regional inflation and the remainder indexed to nationwide inflation. About a quarter of localities also imposed a cap on the rate of increase in the minimum wage (e.g., to prevent rapid increases while inflation is rising quickly). A handful used other methods or a combination of methods, for example setting the local

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[38] Colorado Department of Labor and Employment. (2023) Local Minimum Wage Report 2023. Accessed at: https://cdle.colorado.gov/sites/cdle/files/Local_Min_Wage_Report_2023_1.pdf

[39] Comparable localities are defined as neighboring jurisdictions and relevant regions, including comparable counties, comparable cities, neighboring cities, neighboring counties, and rural counties.

minimum wage exactly two dollars above the state minimum wage or stopping increases while the local unemployment rate is above a specified level.

Using a regional, rather than national, inflation index to adjust a local minimum wage has the advantage of better reflecting local trends in cost of living. While more complicated methods, such as tying increases also to local unemployment rates, may have appeal, but the result is potentially a less transparent and less predictable wage environment and in our high-level review we found no evidence that such methods are necessarily better or worse than simple indexing to inflation.

4. Minimum Wage Literature Review

This literature review provides a summary of recent research on the minimum wage, with a focus on economic impacts. It both informs the impact analysis and provides important context for interpreting the results of the analysis. It further provides decision-makers an understanding regarding the current state of the research and the basis for important assumptions of the impact analysis. This review highlights important studies from the decades of minimum wage research. As described in the Section 5 impact analysis, our model relies heavily on a synthesis of these and other studies compiled by the Congressional Budget Office.

Summary

➢ Over the past three decades, economists have studied the myriad and sometimes counterintuitive impacts of raising the minimum wage. The understandable initial focus on employment has expanded to include impacts on capital investment, prices, business productivity, poverty, inequality, and beyond. This rich body of academic literature reveals a complex picture.

➢ What is clear from the literature is that the often assumed simple, direct relationship between increases in the minimum wage and reductions in employment is overly simplistic. Research has shown that increases in the minimum wage can have both positive and negative impacts of varying degrees on a wide array of economic outcomes over different time horizons.

➢ On net, the literature indicates that increases in the minimum wage can be an effective way to improve outcomes for low-wage workers.

Considerable debate exists among economists as to the direct and indirect impacts of raising the minimum wage. This controversy is not new. It has existed since the first federal minimum wage of 25 cents per hour was legislated as part of the 1938 Fair Labor Standards Act.[40] The purpose of this review is not to provide a historical overview of these controversies. Rather, we focus on the most recent empirical evidence surrounding the direct and indirect impacts of increasing the minimum wage. These impacts are best viewed as trade-offs, as the main benefit is obvious: an increase in wages among low-income workers. We focus on trade-offs with respect to employment, capital investment,

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[40] Quinn, J.F. and Cahill, K.E. (2019). "The Relative Effectiveness of the Minimum Wage and the Earned Income Tax Credit as Anti-Poverty Tools." In K. Ward and K. Himes (Eds.), *Growing Apart: Religious Reflection on the Rise of Economic Inequality*. Basel, Switzerland: MDPI.

prices, business productivity, poverty, and inequality. We start where economists generally agree, which is that minimum wages are a price floor.

The Minimum Wage as a Price Floor

RESEARCH SUMMARY

Basic economic theory suggests that the "price floor" for labor established through a minimum wage will reduce employment, increase prices, and result in other effects that disadvantage low-wage workers, even as those still employed receive higher wages. This type of "static" analysis has been challenged by some economists, leading to disagreements about not only the magnitude of these impacts, but also their direction.

Minimum wages are a price floor for labor, meaning that employers cannot legally set prices (in this case, wages, the price of labor) below a certain level. As a result, at the minimum wage, the amount of labor that workers are willing to supply exceeds the amount of labor that employers want. This gap between labor supply and labor demand is known as "excess supply" and leads to an outcome, at least conceptually, where employment is lower than it otherwise would be absent the minimum wage.

An increase in the minimum wage, therefore, benefits some low-wage workers—those who remain employed at the higher minimum wage—and potentially makes others worse off—specifically those who are laid off from their jobs because of the increase in the minimum wage. The minimum wage might, however, benefit other workers due to ripple effects within an organization, as employers attempt to maintain wage differentials among their employees. Higher wages, in turn, can increase the costs of production and result in higher prices, as employers charge more for the goods they sell to recoup the increased labor costs. Employers might also, over the longer term, invest more in capital in response to the relatively higher cost of labor; such a shift away from labor toward capital can exacerbate unemployment, especially for low-wage workers.

The Impact of the Minimum Wage on Employment

🔍 RESEARCH SUMMARY

Despite decades of research, the question of whether minimum wage increases have meaningful employment effects remains unsettled. More than 20 years after the seminal minimum wage research of Card and Kreuger (1994) found no employment impact, 2017 commentary by Neumark, whose research has identified negative employment effects underscores this point: "Yet despite the scores of studies, the development of richer data, and the development of more-refined empirical techniques, the debate among researchers about the employment effects of minimum wages – and concerning not just the magnitude, but the broader question of whether a higher minimum wage reduces employment – remains intense and unsettled." More recent research has found relatively small employment effects but has not fully resolved the question.

Employment effects are the most highly studied impact of the minimum wage. Research focuses on the question of whether a higher minimum wage actually reduces employment, like the static supply-and-demand framework predicts. In a groundbreaking study, David Card and Alan Krueger (1994) found no impact on employment from an increase in the minimum wage.[41] The authors made use of a "natural experiment" in which New Jersey increased its minimum wage and neighboring Pennsylvania did not. They found no impact on employment in fast-food restaurants in New Jersey relative to those across the border in Pennsylvania. In a subsequent meta-analysis of minimum wage studies, Card and Krueger (1995) identified a bias toward statistically significant negative impacts of the minimum wage, commonly known as publication bias.[42,43]

In an economic debate for the ages, David Neumark and William Wascher strongly disagreed with Card and Krueger's findings. Neumark and Wascher (2000), replicated the work of Card and Krueger (1994) using a different data source.[44] With these new data, they found that the increase in New Jersey's minimum wage led to a 4 percent decrease in fast food employment. This in turn elicited an academic riposte from Card and Krueger (2000) who, using yet another

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[41] Card, D. and Krueger, A. B. (1994). "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *The American Economic Review*. https://davidcard.berkeley.edu/papers/njmin-aer.pdf.

[42] Card and Krueger. (1995). "Time-Series Minimum-Wage Studies: A Meta-analysis." *The American Economic Review.* http://onala.free.fr/cardkrueger95.pdf.

[43] Franco, A., Malhotra, N., and Simonovits, G. (2014). "Publication bias in the social sciences: Unlocking the file drawer." *Science.* https://www.science.org/doi/10.1126/science.1255484.

[44] Neumark, D. and Wascher, W. (2000). "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Comment." *The American Economic Review*. https://web.archive.org/web/20060525090352id_/http://www.econ.jhu.edu:80/people/Barnow/neumarmw.pdf.

dataset, validate their initial results, finding that employment changed little following the wage rise.[45]

This exchange was but one salvo in a long-running debate between these and other economists. In an earlier study, Neumark and Wascher (1992) found that a 10 percent increase in the minimum wage decreased employment among teenagers by 1-2 percent and among young adults by 1.5-2 percent.[46] Card, Katz, and Krueger (1994) in turn responded that Neumark and Wascher's methodology was flawed and a correction eliminates the employment effect.[47] Neumark and Wascher (1994) responded again, arguing that the comments of Card, Katz, and Krueger did not substantively affect their results.[48]

David Neumark has since continued to study the impacts of the minimum wage. He has remained certain that increases to minimum wages reduce employment and that any wage benefits are overshadowed by these and other resultant costs (Neumark, Schweitzer, and Wascher, 2004, Neumark and Wascher, 2007, Neumark, 2018, and Neumark and Shirley, 2022).[49]

More than 20 years after these debates with Card and Kreuger, Neumark's commentary about the state of the literature is informative. He writes:

> "Yet despite the scores of studies, the development of richer data, and the development of more-refined empirical techniques, the debate among researchers about the employment effects of minimum wages – and concerning not just the magnitude, but the broader question of whether a higher minimum wage reduces employment – remains intense and unsettled."[50]

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[45] Card, D. and Krueger, A. B. (2000). "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania: Reply." *The American Economic Review*. https://takeactionminnesota.org/wp-content/uploads/2013/10/Minimum-Wages-and-Employment-A-Case-Study-of-the-Fast-Food-Industry-in-New-Jersey-and-Pennsylvania-Reply.pdf.

[46] Neumark, D. and Wascher, W. (1992). "Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws." *Industrial and Labor Relations Review*. https://journals.sagepub.com/doi/10.1177/001979399204600105.

[47] Card, D., Katz, L. F., and Krueger, A. B. (1994) "Comment on David Neumark and William Wascher, "Employment Effects of Minimum and Subminimum Wages: Panel Data on State Minimum Wage Laws." *Industrial and Labor Relations Review.* https://scholar.harvard.edu/lkatz/files/cardkatzkrueger94.pdf.

[48] Neumark, D. and Wascher, W. (1994). "Employment effects of minimum and subminimum wages: Reply to Card, Katz, and Krueger." *Industrial and Labor Relations Review*. https://www.proquest.com/openview/b74b1d0ad48e8a9e300a0b713c17f221/1?pq-origsite=gscholar&cbl=41821.

[49] Neumark, D, Scheitzer, M., and Wascher, W. (2004). "Minimum Wage Effects throughout the Wage Distribution." *The Journal of Human Resources*. https://www.jstor.org/stable/3559021.; Neumark, D. and Wascher, W. (2007). "Minimum wages and employment: a review of evidence from the new minimum wage research." *NBER*. https://www.nber.org/system/files/working_papers/w12663/w12663.pdf.; Neumark, D. (2018). "Employment effects of minimum wages: When minimum wages are introduced or raised, are there fewer jobs?" *IZA World of Labor*. https://wol.iza.org/uploads/articles/464/pdfs/employment-effects-of-minimum-wages.pdf.; Neumark and Shirley (2022). "Myth or measurement: What does the new minimum wage research say about minimum wages and job loss in the United States? *NBER*. https://www.nber.org/system/files/working_papers/w28388/w28388.pdf.

[50] Neumark, D. (2017). "The Employment Effects of Minimum Wages: Some Questions We Need to Answer." NBER Working Paper #23584. Cambridge, MA: National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w23584/w23584.pdf.

For example, recent meta-analyses that purportedly correct for publication bias have found little to no impact on employment (Chletsos and Giotis, 2015, Doucouliagos and Stanley, 2009, Leonard, Stanley, and Doucouliagos, 2013, Martínez and Martínez, 2021, Broecke, Forti, and Vandeweyer, 2017, Dube, 2019).[51] Other studies have found that certain groups may be more greatly affected than the labor market at large. As one example, Leonard, Stanley, and Doucouliagos (2013), in a meta-analysis of studies in the United Kingdom, found that the residential home care industry may be especially affected by minimum wage increases.[52] Similarly, Cengiz, et al. (2019) found that increases to state minimum wages decrease employment in tradeable sectors, suggesting that industries more vulnerable to external competition are more likely to be affected negatively.

Similarly, more-vulnerable groups such as the young and low skilled may face the greatest negative employment impacts from increases in the minimum wage, the very groups that the minimum wage aims to help (Broecke, Forti, and Vandeweyer, 2017 and Neumark and Shirley, 2022).[53] A study of the Seattle minimum wage increase from $9.47 to $11 and then to $13, Jardim et al. (2018) found that the second wage increase reduced hours worked by 6-7 percent but found smaller changes resulting from the first increase.[54,55] However, Dube (2019) noted that reviews of studies of low-wage workers and the minimum wage found only a small median impact.[56] A study of state-level minimum changes by Cengiz, et al. (2019) found that the

[51] Chletsos, M. and Giotis G. P. (2015). "The employment effect of minimum wage using 77 international studies since 1992: A meta-analysis." *MPRA*. https://mpra.ub.uni-muenchen.de/61321/1/MPRA_paper_61321.pdf.; Doucouliagos, H. and Stanley, T. D. (2009). "Publication Selection Bias in Minimum-Wage Research? A Meta-Regression Analysis." *British Journal of Industrial Relations*. http://digamoo.free.fr/doucouliagos09.pdf.; Leonard M. d. L., Stanley, T. D. and Doucouliagos, H. (2013). "Does the UK Minimum Wage Reduce Employment? A Meta-Regression Analysis." *The International Journal of Employment Relations*. https://onlinelibrary.wiley.com/doi/abs/10.1111/bjir.12031.; Martínez, M. J. and Martínez M. J. (2021). "Are the effects of minimum wage on the labour market the same across countries? A meta-analysis spanning a century." *Economic Systems*. https://www.sciencedirect.com/science/article/abs/pii/S0939362520301679.; Broecke, S., Forti, A., and Vandeweyer, M. (2017). "The effect of minimum wages on employment in emerging economies: a survey and meta-analysis." *Oxford Development Studies*. https://www.tandfonline.com/doi/abs/10.1080/13600818.2017.1279134.; Dube, A. (2019). "Impacts of minimum wages: review of the international evidence." *NBER and IZA Institute of Labor Economics*. https://r.jordan.im/download/economics/impacts_of_minimum_wages_review_of_the_international_evidence_Arindrajit_Dube_web.pdf.

[52] Leonard M. d. L., Stanley, T. D. and Doucouliagos, H. (2013). "Does the UK Minimum Wage Reduce Employment? A Meta-Regression Analysis." *The International Journal of Employment Relations*. https://onlinelibrary.wiley.com/doi/abs/10.1111/bjir.12031.

[53] Broecke, S., Forti, A., and Vandeweyer, M. (2017). "The effect of minimum wages on employment in emerging economies: a survey and meta-analysis." *Oxford Development Studies*. https://www.tandfonline.com/doi/abs/10.1080/13600818.2017.1279134.; Neumark and Shirley (2022). "myth or measurement: what does the new minimum wage research say about minimum wages and job loss in the united states? *NBER*. https://www.nber.org/system/files/working_papers/w28388/w28388.pdf.

[54] Jardim, E., Long, M. C., Plotnick, R., van Inwegen, E. Vigdor, J., and Wething, H. (2018). "Minimum wage increases, wages, and low-wage employment: evidence from Seattle." *NBER*. https://www.nber.org/system/files/working_papers/w23532/w23532.pdf.

[55] In a follow-up study focused on own-wage elasticities, the impact was found to be smaller.

[56] Dube, A. (2019). "Impacts of minimum wages: review of the international evidence." *NBER and IZA Institute of Labor Economics*. https://r.jordan.im/download/economics/impacts_of_minimum_wages_review_of_the_international_evidence_Arindrajit_Dube_web.pdf.

number of overall low-wage jobs remained unchanged five years following minimum wage increases.[57]

Dube and Lindner (2021) offered an explanation of why earlier papers, such as Jardim et al. (2018), found negative employment impacts.[58] The authors studied local-area minimum wages and demonstrated that cities that instituted higher minimum wages than those at the state or federal level were fundamentally different from cities that did not. This discrepancy calls into question the suitability of control groups of cities that had not increased the minimum wage typically used in earlier research. As an example, the authors showed that without city-level controls, the minimum wage seemed to increase wages across the income distribution, not just at the lower levels. When they then included city-level controls, wage increases were found only in the bottom 30th percentile of earners while employment effects were small.[59] Economists explain the growing body of research suggesting limited employment effects in a number of ways. For example, Martínez and Martínez (2023) used a meta-regression analysis to conclude that while increases to the minimum wage decreased hiring, they also decreased job separations.[60] These countervailing forces offset each other, resulting in the minimal employment impact that is found in the literature (see also Dube, Lester, and Reich, 2016 and Schmitt, 2013).[61]

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[57] Cengiz, D. Dube, A., Lindner, A., and Zipperer, B. (2019). "The Effect of Minimum Wages on Low-Wage Jobs." https://www.nber.org/system/files/working_papers/w25434/w25434.pdf.

[58] Dube, A. and Lindner, A. (2021). "City limits: what do local-area minimum wages do?" *Journal of Economic Perspectives*. https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.35.1.27.

[59] The authors find that minimum wage increases are associated with a 4 percent additional wage gain and an employment elasticity with respect to wage of –0.12.

[60] Martínez, M. J. and Martínez, M. J. (2023). "From snapshot to movie: Decomposing the minimum wage effects on employment into hirings and separations." *Employee Relations*. https://www.emerald.com/insight/content/doi/10.1108/ER-09-2021-0413/full/html.

[61] Dube, A., Lester, T. W., and Reich, M. (2016). "Minimum Wage Shocks, Employment Flows and Labor Market Frictions." *Journal of Labor Economics.* https://escholarship.org/content/qt27z0006g/qt27z0006g.pdf.; Schmitt, J. (2013). "Why Does the Minimum Wage Have No Discernible Effect on Employment?" *Center for Economic and Policy Research.* https://lobby99.org/Demo99/yDocs/@News/iss21_CEPR_MinwageEmp.pdf.

The Impact of the Minimum Wage on Capital Investment

> ## 🔍 RESEARCH SUMMARY
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> One explanation for the limited employment impacts of a minimum wage increase found by many researchers is that the measured employment effects are typically short-term, and that employers can and will shift towards more capital-intensive (less labor-intensive) operations over the long term. Some research supports the existence of these effects, with the magnitude varying by worker type and industry, with stronger effects on older, low-skilled manufacturing workers. However, as with employment effects, no clear consensus has emerged. Other research finds a counterintuitive reduction in capital expenditures in the retail and restaurant industries following minimum wage increases.

One potential explanation for the limited employment effects described above is that they exist in the short-term only, and that a longer-term substitution takes place, away from labor and towards capital. Aaronson, et al. (2018) offered some evidence in support of this theory.[62] Studying the restaurant industry, the researchers found that the rate of both firm entry into, and exit from, the market increased following minimum wage increases. The authors suggested this outcome was due to restaurants operating at the time of the minimum wage increase were unable to immediately adapt their operations to the new conditions. Over time the industry changed to become more capital intensive through firm churn. Jardim and van Ingwen (2019) also noted that minimum wage increases in Seattle increased firm exit and decreased the percentage of entering firms that were labor-intensive.[63]

This conclusion is echoed by Lordan and Neumark (2018), who found that minimum wage increases significantly decreased the share of automatable employment held by low-skilled workers, and increased the probability that these workers became non-employed or employed in worse jobs.[64] Further, the authors concluded that this impact was amplified for older, low-skilled workers in manufacturing.[65]

The substitution of capital for labor is also consistent with the results of Aaronson and Phelan (2019), who classified low-wage jobs as either "cognitively routine," "manually routine," or "non-routine."[66] They found that minimum wage increases lead to employment decreases in

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[62] Aaronson, D., French, E., Sorkin, I., and To, T. (2018). "Industry dynamics and the minimum wage: a putty-clay approach." *International Economic Review.* https://onlinelibrary.wiley.com/doi/pdf/10.1111/iere.12262.

[63] Jardim, E. and van Ingwen, E. (2019). "Payroll, Revenue, and Labor Demand Effects of the Minimum Wage." *W.E. Upjohn Institute for Employment Research*. https://research.upjohn.org/cgi/viewcontent.cgi?article=1316&context=up_workingpapers.

[64] Lordan, G. and Neumark, D. (2018). "People versus machines: the impact of minimum wages on automatable jobs." *NBER*. https://www.nber.org/system/files/working_papers/w23667/w23667.pdf.

[65] The authors also find some evidence that job opportunities for high-skilled worker increase.

[66] Aaronson, D. and Phelan, B. J. (2019). "Wage Shocks and the Technological Substitution of Low-wage Jobs." *The Economic Journal*. https://academic.oup.com/ej/article-abstract/129/617/1/5232517.

"cognitively routine" low-wage jobs but not in "manually routine" nor "non-routine" low-wage jobs. Aaronson and Phelan suggested that "cognitively routine" jobs were more susceptible to technological substitution. However, the researchers found that the employment impact of this change was small.

The existence of capital-labor substitution effects is controversial, as might be expected given the contentiousness of the literature in this space. Gustafson and Kotter (2022), for example, found that firms that employ large number of minimum wage workers, such as those in the retail and restaurant industries, reduced their capital expenditures following the increase in minimum wages.[67] The researchers found that these results were concentrated within the first two years of the wage increase, suggesting that the potential long-term impact noted in Aaronson, et al. (2018) could materialize later.

The Impact of the Minimum Wage on Business Productivity

RESEARCH SUMMARY

Fundamentally, minimum wages make capital—durable goods, such as computers, robots, and other machinery—more appealing, as a higher required wage reduces the relative price of capital. To the extent employers substitute capital for labor, worker productivity can increase because employees have more and better capital to work with. Due to reallocations of labor and capital within firms and of workers across firms, aggregate effects remain uncertain.

Riley and Bondibene (2017) highlighted that minimum wages necessarily make capital more appealing to firms, and that, as a result, increases in the minimum wage can improve labor productivity.[68] The productivity improvements they studied in Britain, however, were not a result of the substitution of capital and labor per se, but were rather due to increases in productivity overall. Coviello, Deserranno, and Persico (2022) found evidence that productivity did indeed increase following an increase in the minimum wage.[69] The authors studied a large retailer, finding that the gains in productivity were tied to employee supervision, however, and that, when employees were monitored less intensely, the impact on productivity reversed. In other words, the minimum wage increase did not directly increase productivity per se, but firms may adjust to wage increases by changing operations.

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[67] Gustafson, M. T. and Kotter, J. D. (2022). "Higher minimum wages reduce capital expenditures." *Management Science*. https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2022.4430.

[68] Riley, R. and Bondibene, C. R. (2017). "Raising the standard: Minimum wages and firm productivity." *Labour Economics*. https://www.sciencedirect.com/science/article/abs/pii/S0927537116303487.

[69] Coviello, D., Deserranno, E., and Persico, N. (2022). "Minimum Wage and Individual Worker Productivity: Evidence from a Large US Retailer." *Journal of Political Economy*. https://www.journals.uchicago.edu/doi/full/10.1086/720397.

Additionally, numerous studies have found that increases in the minimum wage lead to a reallocation of workers toward more-productive firms (Engbom and Moser, 2021, Dustman et al., 2021).[70] Other studies found a movement of workers toward large firms. Wursten and Reich (2023) identified stronger wage increases for teenage workers in larger firms and disemployment effects in smaller firms.[71,72] Dustman, et al. (2021) found that minimum wages caused a reallocation of workers from smaller and lower-paying firms to larger and higher-paying firms.[73]

The link between the minimum wage and productivity is not uniformly positive. Álvarez and Fuentes (2018), for example, studied manufacturing in Chile and found that increases in the minimum wage depressed total factor productivity.[74] The authors found that a 22 percent increase in the minimum wage reduced total factor productivity by 5.8 percent in industries with lower concentrations of unskilled labor and 9.7 percent in those with higher concentrations of unskilled labor. Tan (2021) considered the upstream supply-chain effects of an increase in the minimum wage of agricultural workers in South Africa.[75] Tan found that industries with greater upstream exposure to the agriculture sector saw greater decreases in employment for medium and large firms. For the most part, though, it appeared that larger firms were better able to use their market power to offset higher wages.

Due to the inability of firms to recover all of the increased labor, firm valuations can suffer. Tan (2021) noted that industries with greater upstream supply-chain exposure to the agriculture sector had greater decreases in assets and sales. Agarwal, Ayyagari, and Kosová (2024) studied the effect of the minimum wage on the hospitality industry and identified a small yet significant impact on business.[76] The authors found that a doubling of the minimum wage would reduce hotel revenues by 6.0 percent and occupancy rates by 3.1 percent. The authors noted that this impact was not universal across hotels, with luxury hotels more likely to pass along costs to consumers, without harming revenue. Given these findings, it is perhaps unsurprising that Clemens and Strain (2020) found that minimum wage noncompliance in the form of underpayment increased significantly following a minimum wage increase.[77]

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[70] Engbom, N. and Moser, C. (2021). "Earnings inequality and the minimum wage: evidence from Brazil." *NBER*. https://www.nber.org/system/files/working_papers/w28831/w28831.pdf.; Dustman, C., Lindner, A., Schönberg, U., Umkehrer, M., and vom Berge, P. (2021). "Reallocation effects of the minimum wage." *The Quarterly Journal of Economics*. https://academic.oup.com/qje/article/137/1/267/6355463.

[71] Wursten, J., and Reich, M. (2023). "Small Businesses and the Minimum Wage." *University of California Berkeley Institute for Research on Labor and Employment*. https://irle.berkeley.edu/wp-content/uploads/2023/03/Small-Businesses-and-the-Minimum-Wage-3-14-23.pdf.

[72] This disparate impact was focused on teenage workers. Overall, the largest wage gains were in small businesses.

[73] Dustman, C., Lindner, A., Schönberg, U., Umkehrer, M., and vom Berge, P. (2021). "Reallocation effects of the minimum wage." *The Quarterly Journal of Economics*. https://academic.oup.com/qje/article/137/1/267/6355463.

[74] Álvarez, R. and Fuentes, R. (2018). "Minimum Wage and Productivity: Evidence from Chilean Manufacturing Plants." *Economic Development and Cultural Change*. https://www.journals.uchicago.edu/doi/abs/10.1086/697557.

[75] Tan, B. J. (2021). "The minimum wage and firm networks." *United Nations University World Institute for Development Economics Research*. https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2021-100-minimum-wage-firm-networks-South-Africa.pdf.

[76] Agarwal, S. Ayyagari, M., and Kosová, R. (2024). "Minimum Wage Increases and Employer Performance: Role of Employer Heterogeneity." *Management Science*. https://pubsonline.informs.org/doi/abs/10.1287/mnsc.2022.4650.

[77] Clemens, J. and Strain, M. R. (2020). "Understanding "Wage Theft": Evasion and Avoidance Responses to Minimum Wage Increases." *NBER*. https://www.nber.org/papers/w26969.

A reduction in firm performance has implications for firm value and survival. Bell and Machin (2018)[78] used an unexpected increase in the United Kingdom's minimum wage to measure the impact of minimum wages on stock value. The pair found a significant reduction in the value of firms that rely on low-wage labor, suggesting that an increase in the minimum wage can reduce firm profitability. Interestingly, studies have found that an increase in the minimum wage can increase product quality. Dustman, et al. (2021) found that, in the years following a minimum wage increase, firm quality increased in regions that were more directly affected by the minimum wage. Additionally, Luca and Luca (2019) used data from Yelp to estimate that an increase in the minimum wage increased the likelihood that lower-rated restaurants exited the market while higher-rated restaurants were unaffected.[79] They found that for restaurants with a rating of 3.5 stars, a one-dollar increase in the minimum wage increased the likelihood of market exit by ten percent, while restaurants with a 5-star rating were unaffected.

Taken together, the findings on firm performance suggest that while some firms are harmed by minimum wage increases others, particularly those that remain in business, might benefit. As for other impacts discussed in this section, aggregate effects remain ambiguous.

The Impact of the Minimum Wage on Prices

RESEARCH SUMMARY

The potential impact of the minimum wage on prices is known as the "pass-through" effect because employers pass higher labor costs through to consumers. Many studies find this effect resulting from minimum wage increases. On net, minimum wage increases appear to increase prices to the extent employers cannot offset the increased wages through productivity gains, but the magnitude of the effects remains highly uncertain.

The potential impact of the minimum wage on prices is known as the "pass-through" effect because the resulting higher labor costs are passed through to consumers (Harasztosi and Lindner, 2019, Luca and Luca, 2019, Jardim and van Ingwen, 2019, Belman and Wolfson, 2014, MacDonald and Nilsson, 2016, Schmitt, 2013, Tan, 2021, Congressional Budget Office, 2023).[80]

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[78] Bell, B. and Machin, S. (2018). "Minimum Wage and Firm Value." *Journal of Labor Economics*. https://www.journals.uchicago.edu/doi/abs/10.1086/693870

[79] Luca, D. L., and Luca, M. (2019). "Survival of the Fittest: The Impact of the Minimum Wage on Firm Exit." NBER. https://www.nber.org/system/files/working_papers/w25806/w25806.pdf.

[80] Harasztosi, P. and Lindner, A. (2019). "Who pays for the minimum wage?" *American Economic Review*. https://www.aeaweb.org/articles?id=10.1257/aer.20171445.; Luca, D. L., and Luca, M. (2019). "Survival of the Fittest: The Impact of the Minimum Wage on Firm Exit." NBER. https://www.nber.org/system/files/working_papers/w25806/w25806.pdf.; Jardim, E. and van Ingwen, E. (2019). "Payroll, Revenue, and Labor Demand Effects of the Minimum Wage." *W.E. Upjohn Institute for Employment Research*.

Harasztosi and Lindner (2019) studied the impact of a large minimum wage increase in Hungary and found that 75 percent of the minimum wage increase was paid by consumers in the form of higher prices, while 25 percent was absorbed by firm owners.[81] Further, the authors found that, while the overall employment effect was small, employment impacts were larger in industries that had greater difficulty passing along the costs to consumers. This result is consistent with the findings of Cengiz, et al. (2019), who found that the employment impacts of higher minimum wages were largest in tradeable sectors.

MaCurdy (2015) reasoned that the minimum wage produces a price increase equivalent to a value-added tax. This "value-added tax," according to MaCurdy, is more regressive than a sales tax because of the types of goods that low-income consumers purchase. MaCurdy further noted that minimum wage benefits are distributed evenly across low-wage workers. Thus, while the benefits of a higher minimum wage are distributed evenly, the costs are born disproportionately by the poorest individuals.

MaCurdy's conclusion, however, is contradicted by Wiltshire, McPherson, and Reich (2023). These authors focused on large US counties that had a minimum wage of at least $15 an hour as of the first quarter of 2022, and found that the minimum wages caused McDonald's workers' wages to increase faster than the prices of Big Macs.[82] Wiltshire et al. argue that this finding implies that fast food companies have monopsony power (a monopsony is a market with a single buyer, not be confused with a monopoly, where the market contains a single seller) because minimum wages reduce real economic profits and this outcome should not exist in a perfectly competitive market.

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https://research.upjohn.org/cgi/viewcontent.cgi?article=1316&context=up_workingpapers.; Belman, D. and Wolfson, P. J. (2014). "What Does the Minimum Wage Do?" *W.E. Upjohn Institute for Employment Research.* https://research.upjohn.org/up_press/227/.; MacDonald, D., and Nilsson, E. (2016). "The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context." *W.E. Upjohn Institute for Employment Research.* https://research.upjohn.org/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1278&context=up_workingpapers. ; Schmitt, J. (2013). "Why Does the Minimum Wage Have No Discernible Effect on Employment?" *Center for Economic and Policy Research.* https://lobby99.org/Demo99/yDocs/@News/iss21_CEPR_MinwageEmp.pdf.; Tan, B. J. (2021). "The minimum wage and firm networks." *United Nations University World Institute for Development Economics Research.* https://www.wider.unu.edu/sites/default/files/Publications/Working-paper/PDF/wp2021-100-minimum-wage-firm-networks-South-Africa.pdf.; Congressional Budget Office. (2023). "The Budgetary and Economic Effects of S. 2488, the Raise the Wage Act of 2023." *Congressional Budget Office.* https://www.cbo.gov/system/files/2023-12/The_Budgetary_and_Economic_Effects_of_S.%202488_the_Raise_the_Wage_Act_of_2023_1.pdf.

[81] Harasztosi, P. and Lindner, A. (2019). "Who pays for the minimum wage?" *American Economic Review.* https://www.aeaweb.org/articles?id=10.1257/aer.20171445.

[82] Wiltshire, J. C., McPherson, C., and Reich, M. (2023). "Minimum wage effects and monopsony explanations." *University of California Berkeley Institute for Research on Labor and Employment.* https://static1.squarespace.com/static/5e0fdcef27e0945c43fab131/t/650dd1b3b4a3225bfac88294/1695404485834/Are+%2415+Minimum+Wages+Too+High%3F.pdf.

The Impact of the Minimum Wage on Poverty and Inequality

RESEARCH SUMMARY

Addressing poverty and inequality typically comprise the primary motivations for increasing the minimum wage. Some research confirms substantial wage benefits to affected workers, and that minimum wage law can reduce income inequality, although these benefits may be mitigated by other effects, such as reductions in employer benefits to offset increased payroll costs, and the possibility that workers lose eligibility for means-tested assistance programs or have increased need to commute to work. Other research, however, finds aggregate improvements in children's health and reductions in poverty associated with minimum wage increases.

Numerous studies have documented the impacts of increases in the minimum wage on workers' wages collectively (Wiltshire, McPherson, and Reich, 2023, Wursten and Reich, 2023, Oliveira, 2023, Redmond, Doorley, and McGuinnes, 2020, Cengiz, et al., 2019, and Engbom and Moser, 2021, Congressional Budget Office, 2023).[83] Perhaps most striking is the recent result of Oliveira (2023), who found that increases in the minimum wage accounted for 38 percent of wage growth in Portugal between 2006 and 2019.[84] In addition, they described spillover effects up to the 54th percentile of the wage distribution. They also linked the increased minimum wage to a reduction in income inequality. Redmond, Doorley, and McGuinnes (2020) similarly noted spillover effects up to the 30th percentile of wage distribution and income inequality reductions due to an increase in the minimum wage in Ireland.[85] The researchers noted, however, that as minimum wage earners were often located in high income households, the distribution of household income changed little.

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[83] Wiltshire, J. C., McPherson, C., and Reich, M. (2023). "minimum wage effects and monopsony explanations." *University of California Berkeley Institute for Research on Labor and Employment*. https://static1.squarespace.com/static/5e0fdcef27e0945c43fab131/t/650dd1b3b4a3225bfac88294/1695404485834/Are+%2415+Minimum+Wages+Too+High%3F.pdf.; Wursten, J., and Reich, M. (2023). "Small Businesses and the Minimum Wage." *University of California Berkeley Institute for Research on Labor and Employment*. https://irle.berkeley.edu/wp-content/uploads/2023/03/Small-Businesses-and-the-Minimum-Wage-3-14-23.pdf.; Oliveira, C. (2023). "The minimum wage and the wage distribution in Portugal." *Labour Economics*. https://www.sciencedirect.com/science/article/pii/S0927537123001343.; Redmond, P., Doorley, K., and McGuinnes, S. (2020). "The Impact of a Minimum Wage Change on the Distribution of Wages and Household Income." *IZA Institute of Labor Economics*. https://www.econstor.eu/bitstream/10419/215310/1/dp12914.pdf.; Cengiz, D. Dube, A., Lindner, A., and Zipperer, B. (2019). "The Effect of Minimum Wages on Low-Wage Jobs." https://www.nber.org/system/files/working_papers/w25434/w25434.pdf.; Engbom, N. and Moser, C. (2021). "Earnings inequality and the minimum wage: evidence from Brazil." *NBER*. https://www.nber.org/system/files/working_papers/w28831/w28831.pdf.; Congressional Budget Office. (2023). "The Budgetary and Economic Effects of S. 2488, the Raise the Wage Act of 2023." *Congressional Budget Office*. https://www.cbo.gov/system/files/2023-12/The_Budgetary_and_Economic_Effects_of_S.%202488_the_Raise_the_Wage_Act_of_2023_1.pdf.

[84] Oliveira, C. (2023). "The minimum wage and the wage distribution in Portugal." *Labour Economics*. https://www.sciencedirect.com/science/article/pii/S0927537123001343.

[85] Redmond, P., Doorley, K., and McGuinnes, S. (2020). "The Impact of a Minimum Wage Change on the Distribution of Wages and Household Income." *IZA Institute of Labor Economics*. https://www.econstor.eu/bitstream/10419/215310/1/dp12914.pdf.

Derenoncourt and Montialoux (2020) showed that the introduction of the 1966 Fair Labor Standards Act, which extended the minimum wage to industries where nearly a third of Black workers were employed, was significantly associated with reducing racial income inequality.[86] The authors concluded that the extension of the minimum wage can explain more than 20 percent of the reduction in racial income inequality during the Civil Rights Era. Reich and Wursten (2021) concluded that this trend has continued into more-recent times, with minimum wage increases reducing the racial wage gap by 12 percent for all workers and 60 percent for less-educated workers.[87] These reductions in the racial wealth gap were found to be largest for Black women and Black prime-age workers and indicated spillover effects for Black workers well above the new minimum wages.

While these results suggest a substantial benefit for workers, several caveats must be considered. First, the work of Dorsky, et al. (2022), found that an increase in the minimum wage decreased the probability that families under 300 percent of the federal poverty level have employer-sponsored insurance, finding that a one-dollar increase in the minimum wage decreased the probability of employer-sponsored insurance by approximately one percent. [88] This reflects a phenomenon noted in Clemens (2021), who argued that when employers are required to increase wages, they may reduce other compensation.[89] Clemens suggested effects such as fewer benefits, such as insurance, but also in more-difficult-to-measure forms such as increased effort requirements or worse working conditions. Another consideration is the extent to which the minimum wage will supplant other forms of income. This is demonstrated in Atkinson, et al. (2017), who noted that the egalitarian hopes for the minimum wage were limited by both the presence of minimum wage earners across the household income distribution and the fact that higher minimum wages can push individuals above the income threshold for means-tested government programs.[90,91]

Other researchers note other caveats to the generally positive findings regarding income and inequality. For one, minimum wage increases may make it more difficult more for lower-educated workers to find employment. Clemens, Kahn, and Meer (2020) found that, following a minimum wage increase, jobs listings were more likely to list a high school diploma as a

[86] Derenoncourt, E. and Montialoux, C. (2020). "Minimum Wages and Racial Inequality." *The Quarterly Journal of Economics*. https://gspp.berkeley.edu/assets/uploads/research/pdf/Minimum_Wages_and_Racial_Inequality.pdf.

[87] Reich, M. and Wursten, J. (2021). "Racial Inequality and Minimum Wages in Frictional Labor Markets." T*he University of California Berkeley Institute for Research on Labor and Employment*. https://escholarship.org/uc/item/01n6g4dz.

[88] Dworsky, M. S., Eibner, C., Nie, X., and Wenger, J. B. (2022). "The Effect of the Minimum Wage on Employer-Sponsored Insurance for Low-Income Workers and Dependents." *American Journal of Health Economics*. https://www.journals.uchicago.edu/doi/abs/10.1086/716198.

[89] Clemens, J. (2021). "How Do Firms Respond to Minimum Wage Increases? Understanding the Relevance of Non-Employment Margins." *Journal of Economic Perspectives*. https://pubs.aeaweb.org/doi/pdf/10.1257/jep.35.1.51.

[90] Atkinson, A. B., Leventi, C., Nolan, B., Sutherland, H., and Tasseva, I. (2017). "Reducing poverty and inequality through tax-benefit reform and the minimum wage: the UK as a case-study." *The Journal of Economic Inequality*. https://link.springer.com/content/pdf/10.1007/s10888-017-9365-7.pdf.

[91] See also, Congressional Budget Office. (2023). "The Budgetary and Economic Effects of S. 2488, the Raise the Wage Act of 2023." *Congressional Budget Office*. https://www.cbo.gov/system/files/2023-12/The_Budgetary_and_Economic_Effects_of_S.%202488_the_Raise_the_Wage_Act_of_2023_1.pdf.

requirement.[92] Further, Dube, Lester, and Reich (2016) and Shirley (2018) found that minimum wage increases led to higher probabilities of commuting, a conclusion echoed by McKinnish (2017), who also presented the somewhat surprising finding that low-wage workers were more likely to commute away from areas with minimum wage increases than toward them.[93] Finally, while minimum wages may not always lead to poverty reduction in the short term (Caliendo, Schröder, and Wittbrodt, 2018), they can have other very promising effects.[94] For example, minimum wage increases have been found to improve children's health (Wehby, et al. 2020), increase the amount of time that less-educated mothers spend with their children (Gearhart, Sonchak-Ardan, and Thibault, 2022), lead to higher birthweights (Wehby, Dave, and Kaestner, 2020), and reduce household and child poverty rates (Godoey and Reich, 2021).[95,96,97,98]

[92] Clemens, J., Kahn, L. B., and Meer, J. (2020). "Dropouts need not apply? The minimum wage and skill upgrading." *NBER*. https://www.nber.org/system/files/working_papers/w27090/w27090.pdf.

[93] Dube, A., Lester, T. W., and Reich, M. (2016). "Minimum Wage Shocks, Employment Flows and Labor Market Frictions." *Journal of Labor Economics.* https://escholarship.org/content/qt27z0006g/qt27z0006g.pdf.; Shirley, P. (2018). "The response of commuting patterns to cross-border policy differentials: Evidence from the American Community Survey." *Regional Science and Urban Economics.* https://www.sciencedirect.com/science/article/abs/pii/S0166046217300376.; McKinnish, T. (2017). "Cross-state differences in the minimum wage and out-of-state commuting by low-wage workers." *Regional Science and Urban Economics.* https://www.sciencedirect.com/science/article/abs/pii/S0166046216301156.

[94] Caliendo, M., Schröder, C., and Wittbrodt, L. (2018). "The Causal Effects of the Minimum Wage Introduction in Germany: An Overview." *IZA Institute of Labor Economics*. https://www.econstor.eu/bitstream/10419/193337/1/dp12043.pdf.

[95] Wehby, G., Kaestner, R. Lyu, W., Dave, D. M. (2020). "Effects of the minimum wage on child health." *NBER*. https://www.nber.org/system/files/working_papers/w26691/w26691.pdf.

[96] Maxwell, J., Pryce, R., Wilson, L. B. (2022). "The impact of increasing the United Kingdom national minimum wage on self-reported health." *Health Economics*. https://onlinelibrary.wiley.com/doi/pdfdirect/10.1002/hec.4490.

[97] Wehby, G., Dave, D., and Kaestner, R. (2020). "Effects of the minimum wage on infant health." *Journal of Policy Analysis and Management*. https://onlinelibrary.wiley.com/doi/abs/10.1002/pam.22174.

[98] Godoey, A. and Reich, M. (2021). "Are minimum wage effects greater in low-wage areas?" *Industrial Relations: A Journal of Economy and Society.* https://onlinelibrary.wiley.com/doi/abs/10.1111/irel.12267.

5. Impacts of the Minimum Wage

The economic impacts associated with increasing the minimum wage are best viewed as trade-offs—a set of benefits and costs to individuals, businesses, local governments, and society as a whole. Most obviously, the main benefit of increasing the minimum wage is an increase in income among low-wage workers. The trade-offs that accompany this benefit are well documented and span many dimensions: employment, prices, operating costs, productivity, poverty, and inequality. While documenting each trade-off and the direction of its impact (positive or negative) is a relatively straightforward exercise, estimating the *magnitude* of each trade-off has been and continues to be the subject of rich debate among economists, as illustrated in Section 4. For the purposes of our analysis, we take these different perspectives into account, and present estimates based, generally, on median impacts across a diverse set of published research. Importantly, we take a wholistic approach and consider not just the immediate response of employers to higher labor costs, but also the broader economic impacts of low-wage workers' higher incomes.

Summary

- The Regional Minimum Wage Impact Analysis (RMWIA) can help decisionmakers understand the potential impacts of increasing the minimum wage. The analysis embodies a wholistic approach that considers the many impacts to workers, businesses, local governments, and the region. The empirical analysis focuses on four scenarios, two tied to reaching Denver's minimum wage between 2025 and 2035 and two tied to reaching Unincorporated Boulder County's minimum wage over the same time period.

- What is clear from our analysis is that each scenario presents many trade-offs relative to the others. For example, we find that, under the Unincorporated Boulder County-based scenarios, in 2035, the percentage of workers across all five municipalities experiencing an increase in earnings is 14 percent; in exchange, however, we estimate that approximately one percent of workers would be out of work, relative to status quo conditions. Under the Denver-based scenarios, the corresponding percentages are 7 percent and one half of one percent.

- We also find, under the Unincorporated Boulder County-based scenarios, by 2035, approximately 1,000 fewer people across all five municipalities would be in poverty and that prices would be less than 0.1 percent higher than the status quo. Under the Denver-based scenarios, by 2035, approximately 500 fewer people would be in poverty and prices would be less than 0.1 percent higher than the status quo.

- Whether an increase in the minimum wage is optimal policy depends on how the five municipalities weigh the municipality-specific and collective trade-offs documented in this report.

Our analysis of trade-offs focuses on four scenarios, two tied to reaching Denver's minimum wage between 2025 and 2035 and two tied to reaching Unincorporated Boulder County's minimum wage over the same time period. For both the Denver-based scenarios and the Unincorporated Boulder County-based scenarios, we evaluate the situation where the regional minimum wage reaches the target a quickly as possible under existing law (Scenarios D1 and B1 for Denver and Unincorporated Boulder County, respectively). We also evaluate the situation where the regional minimum wage reaches the target at our furthest endpoint, 2035 (Scenarios D2 and B2 for Denver and Unincorporated Boulder County, respectively). For each scenario, we examine impacts to workers, businesses, governments, and the region.

The text below also discusses several outcomes that could not be quantified within the scope of this study, primarily due to the lack of a strong empirical foundation for incorporating these impacts into our model. For these outcomes, we provide a brief qualitative assessment of potential impacts.

We stress that the purpose of the RMWIA is to help decision makers understand the potential impacts of participating in a regional minimum wage increase. The desire to boost incomes of the most vulnerable workers is commendable and could very well be optimal policy, depending on the preferences within each municipality. Doing so, however, comes with tangible trade-offs that arguably should also be taken into consideration when making such a decision.

Conceptual Framework

Our framework is based on the University of California, Berkeley's Institute for Research on Labor and Employment (IRLE) minimum wage model. The model takes into account direct and indirect impacts of increasing the minimum wage on both workers and businesses, including increased automation and productivity, to estimate the net effect on employment (see Exhibit 41). Starting with workers, an increase in the minimum wage results in higher wages, not just for those who are earning below or at the new minimum wage, but also for those impacted by the ripple effects on compensation (e.g., impacts to maintain relative differences in compensation among workers). The higher wages then result in higher family incomes, which then spur consumer spending. Well-documented research shows that lower-income families spend a higher fraction of their income than middle- and higher-income families, so an increase in the minimum wage induces spending disproportionately through higher incomes for low-income families. This spending by lower-income families spurs economic activity, including the creation of jobs.

In terms of businesses, a higher minimum wage increases payroll costs and, in response, business might lay off workers or increase prices, or some combination of the two, in an effort to raise
revenues to cover the higher payroll costs. To the extent that employers raise prices, these higher prices would reduce consumer demand, and lower economic activity. This lower economic activity could then lead to job losses.

Still further, the resulting higher wages for consumers and higher payroll costs for businesses can affect how people work and how businesses operate. Workers might be more motivated and increase their productivity in response to receiving a pay raise, for example, and decrease their likelihood of separation. Businesses, on the other hand, might shift their production functions towards automation via machines and computers, as the relative cost of these technologies is lowered due to the minimum wage increase. These secondary effects will reverberate throughout the economy as workers and businesses adapt and change their behaviors.

This conceptual framework guides our RMWIA analyses. Most notably, our outcomes of interest extend beyond any one-time, immediate reduction in employment. We examine impacts to workers more broadly (earnings, income, poverty), businesses (operating costs, prices, employee retention, worker productivity, profits, failures, migration), the region (consumption, GDP, poverty, substitution away from skilled labor), and governments (revenue and costs). We examine these impacts for each of four minimum wage scenarios.

Exhibit 41. Analysis Framework – The Berkeley IRLE Minimum Wage Model for the Effect of Increases in the Minimum Wage on Workers and Businesses
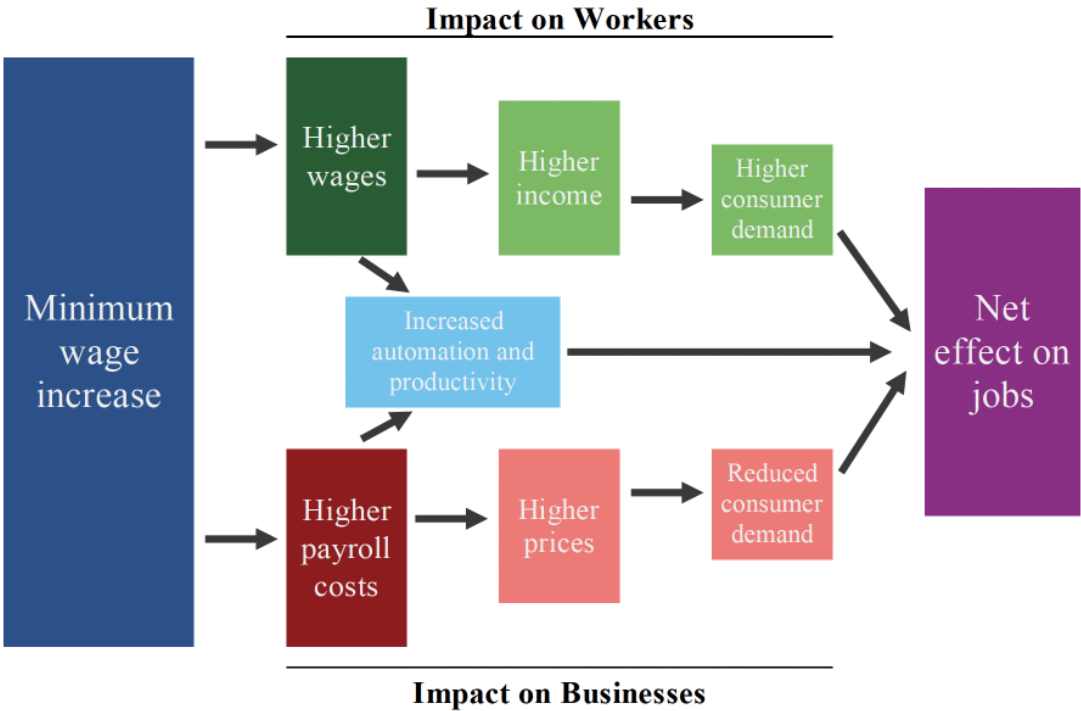
Source: Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment.

Four Scenarios for Evaluation

The RMWIA focuses on four scenarios, with each evaluated relative to existing Colorado minimum wage laws. The 2024 Colorado minimum wage is $14.42 per hour, a 5.6 percent increase above the 2023 minimum wage of $13.65 per hour, reflecting the effects of inflation,

the driver for state minimum wage increases. For the purposes of our analysis, we simply assume a three percent annual increase through 2035, based on historical trends (small to moderate differences in assumed inflation do not meaningfully affect results when comparing across scenarios).[99] Using a three percent annual increase, Colorado's minimum wage is estimated to be $19.96 in 2035 (see Exhibit 42). Colorado's minimum wage serves as the benchmark for each of the four scenarios because the localities of interest are required to at least adhere to the state's minimum wage laws.

Two other relevant minimum wage ordinances include those for Denver and for Unincorporated Boulder County, which have different rates in 2024 and different trajectories through 2035. The minimum wage for Unincorporated Boulder County is currently $15.69 and the minimum wage for Denver is currently $18.29. The rate of increase for Denver, however, is scheduled to increase with inflation, which, again, we set equal to 3 percent based on historical trends. This rate of increase puts Denver's minimum wage at $21.84 in 2030 and $25.32 in 2035. In contrast, Unincorporated Boulder County's minimum wage is scheduled to increase by approximately 9 percent until 2030, and then increase with inflation thereafter. Under this policy, and an assumed 3 percent increase for inflation, Unincorporated Boulder County's minimum wage is scheduled to increase to $25.00 in 2030 and $28.98 in 2035.[100]

Although not used in the modeling, we project the Boulder County Self-Sufficiency Standard (SSS) for two representative household types (single adult and two adults with two school-aged children) out to 2035 based on historical growth of the SSS and the current inflationary trends (3 percent per year). The SSS is updated every four years, with the most recent updating published in 2022.[101] The hourly SSS wage was $19.44 for single adult households and $22.68 for two working adult households with two school-aged children in 2022. With an assumed average annual growth of 4.5 percent, the 2035 hourly SSS wage would be $35.45 for single adult households and $40.19 for two adults with two children.

Each of our four scenarios begins with Colorado's minimum wage in 2024 of $14.42. Two of the scenarios are designed to reach Unincorporated Boulder County's minimum wage between 2025 and 2035, with one scenario reaching Unincorporated Boulder County as soon as possible under existing law (a maximum 15-percent increase per year) (Scenario B1) and the second scenario reaching Unincorporated Boulder County's minimum wage at the end of the period in 2035 (Scenario B2) (see Exhibit 43). The remaining two scenarios are designed to reach Denver's minimum wage between 2025 and 2035. Similar to Scenario B1, the first scenario

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[99] Economic Policy Institute. (2024). "Minimum Wage Tracker," https://www.epi.org/minimum-wage-tracker/#/min_wage/Colorado/Denver; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area - March 2024," https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm

[100] GovDocs. (2024). "Boulder County, Colo., Minimum Wage Ordinance." https://www.govdocs.com/boulder-county-colo-minimum-wage-ordinance/; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area - March 2024," https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm.

[101] Colorado Center on Law and Policy. (2022). The Self-Sufficiency Standard, Boulder County. Accessed at: https://copolicy.org/resources-publications/publications/self-sufficiency-standard/

reaches Denver's minimum wage as soon as possible (Scenario D1) and the second reaching Denver's minimum wage in 2035 (Scenario D2) (see Exhibit 44).

By construction, B1 and D1 provide an analysis of trade-offs for the most expeditious policies and B2 and D2 provide an analysis of trade-offs for the most gradual ones. Many options exist in-between and the trade-offs associated with these alternatives would need to be weighed the same way that they are for our four scenarios. Further, we note that employment growth, generally, could affect our results, because the spread between the status-quo values and the scenario values could widen as the base employment number grows. For the sake of simplicity, we assume that employment growth is the same under the status quo case and all four scenarios; as such, the spread, in percentage terms, is not a function of employment growth.

Exhibit 42. Illustration of Minimum Wages, Colorado, Denver and Unincorporated Boulder County (Actual and Projected), 2024-2035
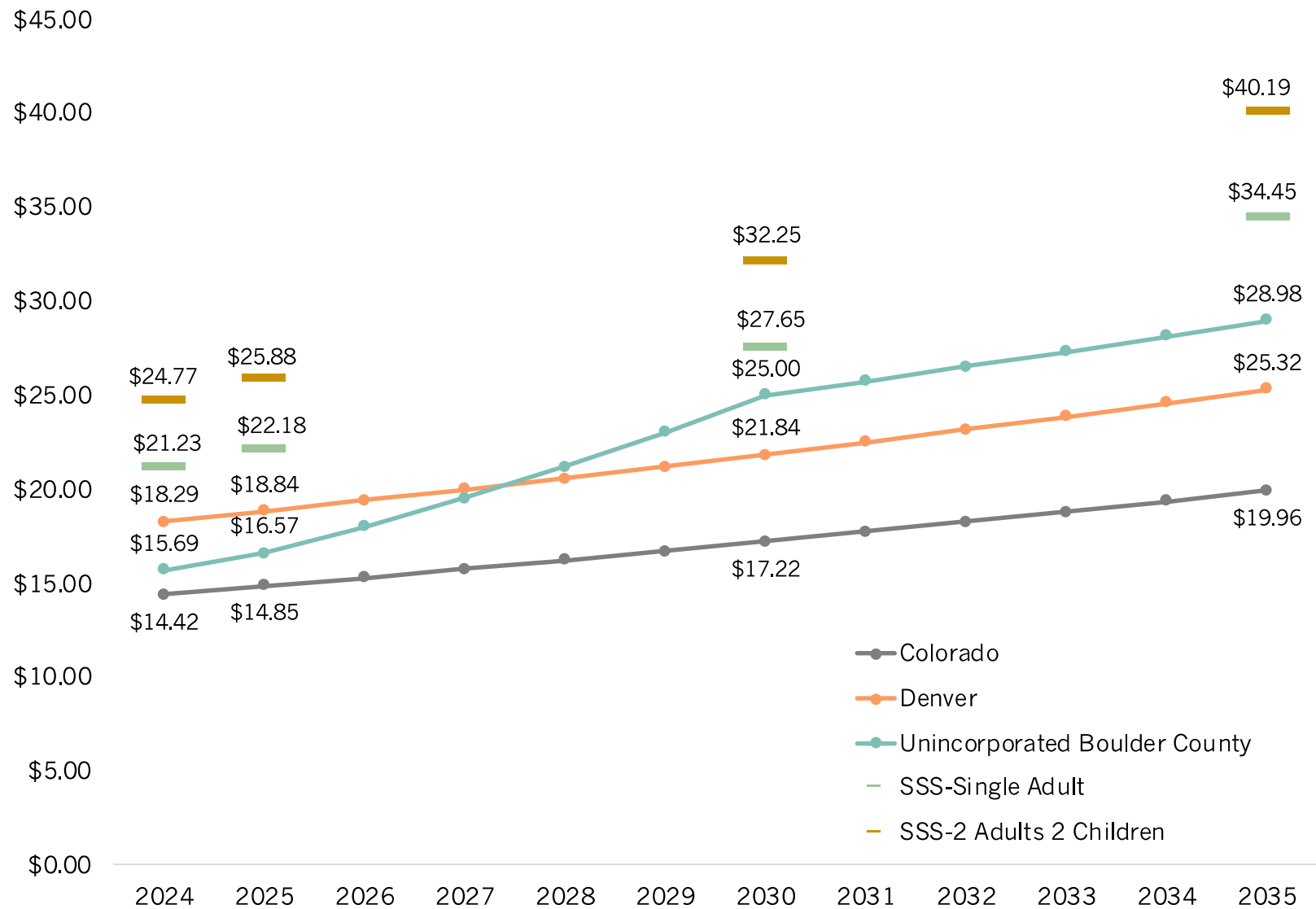
Exhibit 43. Illustration of Minimum Wage Scenarios for Reaching Unincorporated Boulder County's Minimum Wage, 2024-2035

Exhibit 44. Illustration of Minimum Wage Scenarios for Reaching Denver's Minimum Wage, 2024-2035

Impacts to Affected Individuals and Households

Our analysis of impacts to individuals and households includes a quantitative analysis of the number of workers who would experience an increase in earnings under the four scenarios and the number of workers who would experience a layoff, as well as the change in real income for families. We also evaluate impacts to workers' hours worked and annual earnings qualitatively.

EMPLOYMENT AND EARNINGS

All estimates presented in this section are based on a middle estimate for all five municipalities combined. We have also estimated low and high estimates based on impact ranges from the literature, and we have estimated impacts for each of the five municipalities individually. These detailed results can be found in Appendix B.

Employment losses are lower in Denver-based scenarios than in the Unincorporated Boulder County-based scenarios. Teenagers and young adults are most likely to lose employment due to the minimum wage increase. As shown in Exhibit 45, the combined municipalities could experience total employment losses in 2035 of between 2,804 (1.4 percent of total current employment) (Scenario B2) and 1,292 (0.7 percent of total current employment) (Scenario D1). Job losses of 1.4 percent implies an average *annual* reduction in employment associated with Scenario B2 of about 0.1 percent per year, less than one-tenth the average employment growth over the past decade. Even for the most affected groups, teenagers and young adults, the maximum potential loss of employment in 2035 would be 7 percent of teenagers employed and 4 percent of young adults employed.

Workers who remain employed, with earnings at or below the minimum wage, will experience an increase in earnings. Exhibit 46 presents the number of workers, directly and potentially affected, who could experience an increase in earnings due to a minimum wage increase.[102] In 2035, the Unincorporated Boulder County-based scenarios could produce increased wages for more than two times as many workers as under the Denver-based scenarios. Across all industries, 13.5 percent of workers could experience an increase in earnings under Unincorporated Boulder County-based scenarios, and 7.4 percent of workers under Denver-based scenarios by 2035.

To evaluate the percentage of workers with increased earnings by industry we combine our findings for directly-affected and potentially-affected workers with industry-specific analysis from the Berkeley study. Impacts to the restaurant industry workers are largest compared to other industries, with between 16.1 percent and 29.5 percent of workers anticipated to have increased earnings by 2035 (see Exhibit 47). Other industries with a high impact include grocery stores, retail trade, and other services.

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[102] Potentially-affected workers are those who have wages that exceed the proposed minimum wage. These workers are expected to also experience an increase in earnings because of ripple effects within an organization that retain differences in pay across workers.

Exhibit 45. Effect of Increases in the Minimum Wage on Employment, Relative to Baseline, Municipalities Combined

SCENARIO	2025		2030		2035	
All Employment						
Scenario B1	-699	-0.4%	-2,037	-1.0%	-1,896	-1.0%
Scenario B2	-164	-0.1%	-1,224	-0.6%	-2,804	-1.4%
Scenario D1	-699	-0.4%	-1,433	-0.7%	-1,292	-0.7%
Scenario D2	-101	-0.1%	-732	-0.4%	-1,623	-0.8%
Teenagers (16 to 19)						
Scenario B1	-377	-1.8%	-1,067	-5.0%	-989	-4.7%
Scenario B2	-86	-0.4%	-643	-3.0%	-1,477	-7.0%
Scenario D1	-377	-1.8%	-772	-3.6%	-694	-3.3%
Scenario D2	-53	-0.3%	-386	-1.8%	-859	-4.0%
Young Adults (20-24)						
Scenario B1	-242	-0.9%	-688	-2.6%	-638	-2.4%
Scenario B2	-55	-0.2%	-414	-1.6%	-951	-3.6%
Scenario D1	-242	-0.9%	-494	-1.9%	-444	-1.7%
Scenario D2	-34	-0.1%	-249	-0.9%	-552	-2.1%
Adults (25 or older)						
Scenario B1	-80	-0.1%	-282	-0.2%	-269	-0.2%
Scenario B2	-23	0.0%	-167	-0.1%	-377	-0.3%
Scenario D1	-80	-0.1%	-167	-0.1%	-154	-0.1%
Scenario D2	-14	0.0%	-97	-0.1%	-212	-0.1%

Source: ECOnorthwest analysis. Colorado Department of Labor and Employment, QCEW, 2023

Exhibit 46. Number and Share of Workers who could see Increased Earnings, Relative to Baseline, Municipalities Combined

SCENARIO	2030		2035	
All affected workers				
Scenario B1	15,805	8.0%	26,784	13.5%
Scenario B2	5,108	2.6%	26,778	13.5%
Scenario D1	6,969	3.5%	14,629	7.4%
Scenario D2	1,848	0.9%	14,620	7.4%
Directly affected workers				
Scenario B1	8,116	4.1%	17,107	8.7%
Scenario B2	2,242	1.1%	17,102	8.7%
Scenario D1	3,056	1.5%	7,933	4.0%
Scenario D2	815	0.4%	7,927	4.0%
Potentially affected workers				
Scenario B1	7,689	3.9%	9,677	4.9%
Scenario B2	2,866	1.4%	9,675	4.9%
Scenario D1	3,912	2.0%	6,695	3.4%
Scenario D2	1,033	0.5%	6,693	3.4%

Source: ECOnorthwest analysis. Colorado Department of Labor and Employment, QCEW, 2023

Exhibit 47. Share of Workers who could see Increased Earnings, by Selected Industry, Municipalities Combined

NAICS CODE	INDUSTRY NAME	INDUSTRY WORKERS	2030				2035	
			B1	B2	D1	D2	UBC	DENVER
11	Agriculture, Forestry, Fishing and Hunting	661	13.8%	4.5%	6.0%	1.7%	23.3%	12.7%
23	Construction	7,402	7.5%	2.4%	3.3%	0.9%	12.7%	7.0%
31	Manufacturing	4,252	8.5%	2.8%	3.7%	1.0%	14.3%	7.8%
311	Food Manufacturing	3,126	10.9%	3.5%	4.8%	1.3%	18.5%	10.1%
32,33	Manufacturing	19,118	6.7%	2.2%	3.0%	0.8%	11.4%	6.2%
42	Wholesale Trade	7,354	7.1%	2.3%	3.2%	0.8%	12.1%	6.6%
44,45	Retail Trade	16,908	12.6%	4.1%	5.6%	1.5%	21.4%	11.7%
445110	Grocery Stores	2,974	14.8%	4.8%	6.6%	1.7%	25.1%	13.7%
48,49,22	Transportation and Warehousing; Utilities	2,500	8.8%	2.8%	3.9%	1.0%	14.9%	8.2%
51	Information	8,191	4.3%	1.4%	1.9%	0.5%	7.3%	4.0%
52,53	Finance and Real Estate	6,629	4.3%	1.4%	1.9%	0.5%	7.3%	4.0%
54	Professional, Scientific, and Technical Services	35,915	3.5%	1.1%	1.6%	0.4%	6.0%	3.3%
56	Admin. and Waste Mngmt. Services	6,431	10.8%	3.5%	4.8%	1.3%	18.3%	10.0%
61	Educational Services	17,785	7.6%	2.5%	3.4%	0.9%	12.9%	7.0%
62	Health Care and Social Assistance	23,259	9.3%	3.0%	4.1%	1.1%	15.7%	8.6%
71	Arts, Entertainment, and Recreation	3,113	10.3%	3.3%	4.6%	1.2%	17.5%	9.5%
72	Accommodation and Food Services (minus Restaurants)	2,489	11.4%	3.7%	5.0%	1.3%	19.2%	10.5%
72251	Restaurants	14,165	17.4%	5.6%	7.7%	2.0%	29.5%	16.1%
81	Other Services (except Public Administration)	5,766	15.1%	4.9%	6.6%	1.8%	25.5%	13.9%

Source: ECOnorthwest analysis, Colorado Department of Labor and Employment, 2023
Note: UBC stands for Unincorporated Boulder County Scenarios. Results in 2035 do not vary by scenario (B1,B2, etc.) because each scenario reaches the same wage level in 2035.

FAMILY INCOME

To calculate how an increase in the minimum wage under the four scenarios would affect average family income we follow the approach of the Congressional Budget Office (CBO), in which impacts are quantified by income levels relative to poverty. We do so for two reasons.

First, families with incomes near or slightly above the Federal Poverty Level (FPL)[103] are likely to benefit more from an increase in the minimum wage than families with incomes that are several multiples of the FPL, and we want to capture this difference in our estimates. Second, our economic impacts analysis is based not just on increases in family income, but also on the extent to which families spend their additional income. Families with lower incomes spend a higher portion of their incomes compared with families with higher incomes and, as a result, the spending multiplier will be higher for low-income families than for high-income families. Stratifying our impacts on families by income level allows us to take these different spending multipliers into account in the analysis.

An increase in the minimum wage raises average annual real income for all families with incomes below three times the FPL. The impact is largest among those with incomes below FPL, as might be expected. The Unincorporated Boulder County impacts are roughly double that of the Denver-based scenarios in 2035. Additionally, Scenarios B1 and B2 produce the same impacts by 2035, as do both Denver-based scenarios. Under Scenario B1, average family income increases are largest, with an increase of $152 in 2030 for families below FPL and increases between $77 and $86 for families with incomes between 100 and 199 percent of FPL. Exhibit 48 details the estimated increase in average annual family income by poverty level.

Exhibit 48. Effect of Increases in the Minimum Wage on Average Annual Family Income, Region

SCENARIO	SCENARIO B1		SCENARIO B2		SCENARIO D1		SCENARIO D2	
2030								
Less than 100% of FPL	$152	1.9%	$36	0.5%	$58	0.7%	-----	-----
100% to 149% of FPL	$77	0.4%	$18	0.1%	$30	0.1%	-----	-----
150% to 199% of FPL	$84	0.3%	$20	0.1%	$32	0.1%	-----	-----
200% to 299% of FPL	$86	0.2%	$20	0.0%	$33	0.1%	-----	-----
300% to 499% of FPL	$0	0.0%	$0	0.0%	$0	0.0%	-----	-----
500% or more of FPL	-$95	0.04%	-$23	0.01%	-$36	0.02%	-----	-----
2035								
Less than 100% of FPL	$320	4.1%	$320	4.1%	$176	2.2%	$176	2.2%
100% to 149% of FPL	$318	1.5%	$318	1.5%	$134	0.6%	$133	0.6%
150% to 199% of FPL	$291	0.9%	$291	0.9%	$130	0.4%	$130	0.4%
200% to 299% of FPL	$182	0.4%	$182	0.4%	$100	0.2%	$100	0.2%
300% to 499% of FPL	$0	0.0%	$0	0.0%	$0	0.0%	$0	0.0%
500% or more of FPL	-$456	-0.2%	-$456	-0.2%	-$183	-0.1%	-$183	-0.1%

Source: ECOnorthwest analysis.
Note: Under Scenario D2, families are not expected to experience a meaningful change in average annual real income in 2030.

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[103] The 2024 FPL for a family of four in the 48 contiguous states is $31,200 (ASPE., 2024). "Poverty Guidelines." Washington, DC: U.S. Department of Health and Human Services. https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines).

HOURS WORKED (QUALITATIVE ASSESSMENT)

The number of hours that an employee is a function of both labor demand (employer preferences) and labor supply (worker preferences). Many factors affect both, including minimum wage laws. A key consideration is that an increase or decrease in hours worked in response to an increase in the minimum wage does not necessarily imply a reduction in worker wellbeing. For some workers, a higher minimum wage provides an incentive to work more hours, as compensation is higher for each hour of leisure that is given up. For other workers, a higher minimum wage provides an opportunity to earn the same amount of income with fewer hours of work. For example, one study found that increases in the minimum wage increase the amount of time that low-educated mothers spend on childcare.[104] The research in this space generally shows no significant change in the number of hours worked following wage increases, though industry-specific specific studies have documented marginal reductions. In particular, workers in labor-intensive industries, such as hospitality, retail, and food services, have experienced modest reductions in hours worked in response to increases in the minimum wage.[105, 106] Research indicates that while some firms may reduce hours in response to a higher minimum wage, the overall effect is likely small, and the overall effects on well-being are ambiguous.

THE BENEFITS CLIFF (QUALITATIVE ASSESSMENT)

One concern for workers is that an increase in the minimum wage could price them out of means-tested government programs, an effect known as a "benefits cliff." An increase in the minimum wage could therefore potentially reduce the value of their overall compensation from work. The research on this topic is mixed. Several studies have demonstrated that increases in the minimum wage reduce program enrollment.[107] Other studies find that, while enrollment in

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[104] Gearhart, R., Sonchak-Ardan, L., and Thibault, R. (2023). The impact of minimum wage on parental time allocation to children: evidence from the American Time Use Survey." Review of Economics of the Household. https://link.springer.com/article/10.1007/s11150-022-09620-y.

[105] Zavodny, M. (2000). "The Effect of The Minimum Wage On Employment and Hours." Labour Economics. https://www.sciencedirect.com/science/article/abs/pii/S092753710000021X.; Connolly, S. and Gregory, M. (2002). "The National Minimum Wage and Hours of Work: Implications for Low Paid Women." Oxford Bulletin of Economics and Statistics.; Bryan, M. Salvatori, A., and Taylor, M. (2013). "The Impact of the National Minimum Wage on Employment Retention, Hours and Job Entry." Institute for Social and Economic Research, University of Essex. https://assets.publishing.service.gov.uk/media/5a7ca2b3e5274a2f304ef1be/National_minimum_wage-_effect_on_employment_retention__hours_and_job_entry.pdf.; Dube, A., Naidu, S., and Reich, M. (2007). "The Economic Effects of a Citywide Minimum Wage." ILR Review. https://journals.sagepub.com/doi/abs/10.1177/001979390706000404.

[106] Redmond, P. and McGuinness, S. (2023). "The Impact of a Minimum Wage Increase on Hours Worked: Heterogeneous Effects by Gender and Sector." IZA Institute of Labor Economics. https://www.econstor.eu/bitstream/10419/272658/1/dp16031.pdf.; Mastracci, S. H. (2008). "Effects of state minimum wage increases on employment, hours, and earnings of low-wage workers in Illinois." The Journal of Regional Analysis & Policy. https://ageconsearch.umn.edu/record/133004?v=pdf.; Sabia, J. J. (2009). "The Effects of Minimum Wage Increases on Retail Employment and Hours: New Evidence from Monthly CPS Data." Journal of Labor Research. https://link.springer.com/article/10.1007/s12122-008-9054-1.; Dube, A., Lester, T. W., and Reich, M. (2010). "Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties." The Review of Economics and Statistics. https://direct.mit.edu/rest/article-abstract/92/4/945/57855/Minimum-Wage-Effects-Across-State-Borders.; Burauel, P., Caliendo, M., Grabka, M. M., Obst, C., Preuss, M., and Schröder, C. (2018). "The Impact of the Minimum Wage on Working Hours." Journal of Economics and Statistics. https://www.degruyter.com/document/doi/10.1515/jbnst-2018-0081/html.; Jardim, E., Long, M. C., Plotnick, R., van Inwegen, E. Vigdor, J., and Wething, H. (2018). "Minimum wage increases, wages, and low-wage employment: evidence from Seattle." NBER. https://www.nber.org/system/files/working_papers/w23532/w23532.pdf.

[107] Reich, M. and West, R. (2015). "The Effects of Minimum Wages on Food Stamp Enrollment and Expenditures." Industrial Relations. https://onlinelibrary.wiley.com/doi/abs/10.1111/irel.12110.; Blavin, F. and Gangopadhyaya,

and benefits from some programs might decrease, enrollment in other programs can increase, offsetting the former effect.[108] For example, individuals who no longer qualify for Medicaid after an increase in the minimum wage would still likely qualify for subsidized insurance under the Affordable Care Act. Based on this literature, the net impact of an increase in the minimum wage on benefit eligibility, and the amount received from public programs, is expected to be modest.

Consistent with these studies, a recent research effort specific to Boulder County finds that changes in the minimum wage in 2022 are not expected to have a significant impact on the ability of low-income individuals to access public benefits.[109] One reason is that benefit thresholds are generally low, so many minimum wage workers have earnings that exceed the amount necessary to qualify for public benefits. Also, among those who would lose benefits due to an increase in the minimum wage, the amount of income gained via the higher minimum wage exceeds the amount of benefits that are lost. Viewed this way, the issue of cliff effects pertains to those who would see a net reduction in income (i.e., the dollar amount of reduced benefits exceeds the dollar amount of increased earnings). A detailed analysis of this group of affected workers is complicated by the potential for behavioral responses among low-income workers. For example, an increase in the minimum wage could influence low-income individuals' willingness to navigate the administrative requirements to continue to receive public benefits. More generally, such an analysis would need to account for any discrepancies between program eligibility and enrollment, as those who are eligible but not enrolled would arguably not be affected. Finally, to the extent that cliff effects exist, policymakers could revise eligibility criteria to mitigate any impacts.

Taken as a whole, one recommendation from the literature is that the existence of cliff effects is not a reason to forgo an increase in the minimum wage; rather, the existence of cliff effects is a reason to change eligibility criteria for public programs.[110]

A. (2022). "How the Minimum Wage Affects the Health Insurance Coverage, Safety Net Program Participation, and Health of Low-Wage Workers and Their Families: A Review of Recent Literature." The Urban Institute. https://www.urban.org/sites/default/files/2022-07/How%20the%20Minimum%20Wage%20Affects%20Low-Wage%20Workers%20and%20Their%20Families%20v2.pdf.

[108] Sabia, J. J., and Nguyen, T. T. (2015). "The Effects of Minimum Wage Increases on Means-Tested Government Assistance." Employment Policies Institute. https://www.epionline.org/app/uploads/2015/12/EPI_MW_GovtAssist_Study_V2.pdf.; Lathrop, Y. (2020). "Raising the Minimum Wage Leads to Significant Gains for Workers, Not to 'Benefits Cliffs.'" National Employment Law Project. https://www.nelp.org/app/uploads/2020/09/Policy-Brief-Raising-Minimum-Wage-Leads-Significant-Gains-Workers-Not-Benefits-Cliffs.pdf.; Anderson, T., Coffrey, A., Daly, H., Hahn, H., Maag, E., and Werner, K. (2022). "Balancing at the Edge of the Cliff: Experiences and Calculations of Benefit Cliffs, Plateaus, and Trade-Offs." The Urban Institute. https://www.urban.org/sites/default/files/publication/105321/balancing-at-the-edge-of-the-cliff.pdf.

[109] Brennan, C. (2024). "Slides from Boulder County Myth-busting Event." Colorado Center on Law and Policy (*unpublished*).

[110] Lathrop, Y. (2020). "Raising the Minimum Wage Leads to Significant Gains for Workers, Not to 'Benefit Cliffs.'" New York, NY: National Employment Law Project.

Impacts to Affected Businesses and Industries

An increase in the minimum wage will have a direct impact on businesses' labor costs. Here, we summarize our findings with respect to the magnitude and consequences of such increases.

LABOR AND OPERATING COSTS

We estimate the industry-specific change in payroll costs due to the minimum wage increase, and then estimate the impact of increased labor costs on total operating costs, by industry. Exhibit 49 presents the impacts for all industries combined, and impacts to the restaurant industry, as this industry had the overall highest impacts compared to other industries. Under Unincorporated Boulder County-based scenarios, payroll costs increases are higher than under Denver-based scenarios. Specifically, under Unincorporated Boulder County-based scenarios, payroll costs are estimated to increase 3.1 percent by 2035, and under Denver-based scenarios they are anticipated to increase by 1.8 percent. Labor costs account for 22 percent of operating costs across all industries, so the total operating costs of all industries is estimated to increase by 0.7 percent, under Unincorporated Boulder County-based scenarios, and 0.4 percent under Denver-based scenarios. In the restaurant industry, impacts to payroll costs would be significantly larger, ranging from a 12.9 to 21.7 percent increase by 2035. This would cause an increase in total operating costs of between 4.0 and 6.7 percent.

Exhibit 49. Effect of the Minimum Wage Increase on Payroll and Operating Costs, Municipalities Combined

SCENARIO	CHANGE IN PAYROLL COST		CHANGE IN OPERATING COSTS	
	2030	2035	2030	2035
All Industries				
Scenario B1	2.7%	3.1%	0.6%	0.7%
Scenario B2	1.3%	3.1%	0.3%	0.7%
Scenario D1	1.6%	1.8%	0.4%	0.4%
Scenario D2	0.8%	1.8%	0.2%	0.4%
Restaurants				
Scenario B1	18.7%	21.7%	5.7%	6.7%
Scenario B2	9.3%	21.7%	2.9%	6.7%
Scenario D1	11.1%	12.9%	3.4%	4.0%
Scenario D2	5.7%	12.9%	1.8%	4.0%

Source: ECOnorthwest analysis

EMPLOYEE RETENTION (QUALITATIVE ASSESSMENT)

Studies that have examined the impact of the minimum wage on worker turnover have by and large shown that turnover declines following an increase in the minimum wage.[111] This finding is

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[111] Jardim, E. Long, M. C., Plotnick, R., van Inwegen, E., Vigdor, J., and Wething, H. (2022). "Minimum-Wage Increases and Low-Wage Employment: Evidence from Seattle." American Economic Journal: Economic Policy. https://www.aeaweb.org/articles?id=10.1257/pol.20180578.; Rao, N. and Risch, M. W. (2024). "Who's Afraid of the Minimum Wage? Measuring the Impacts on Independent Businesses Using Matched U.S. Tax Returns." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4781658.; Dube, A., Naidu, S., and Reich, M. (2007). "The Economic Effects of a Citywide Minimum Wage." ILR Review.

consistent with the idea that employees feel more adequately compensated for their work following an increase in the minimum wage and, as a result, do not seek out better paying jobs. Another explanation is that employee productivity and performance improves when worker compensation is increased following higher minimum wages. This finding regarding worker turnover, however, is not universal, as several studies have concluded that in certain circumstances younger worker turnover rates will increase following increases in the minimum wage.[112] The logic for higher levels of turnover is that, following a minimum wage increase, employees seek opportunities for higher wages throughout the economy. On balance, the evidence suggests that business owners are likely to experience a lower level of employee turnover following an increase in the minimum wage, and benefit from a retention of firm-specific knowledge among its workers.

WORKER PRODUCTIVITY (QUALITATIVE ASSESSMENT)

One consistent finding in the literature is that minimum wage increases are associated with increases in worker productivity. Disagreement in the literature exists, however, with respect to the mechanism by which this improved productivity operates. Some studies, for example, show that, over time, workers transition to more productive firms following an increase in the minimum wage.[113] One reason is that the minimum wage increases can cause less efficient firms to close, and these firms are replaced by more efficient ones.[114] One study of German minimum wage increases, however, finds that productivity increases are found within-firm, rather than due to worker migration.[115] Within-firm changes may be due in part to increased worker productivity caused by firm reorganization or greater worker motivation (perhaps due to improved feelings of fairness).[116] Alternatively, increased capital usage may lead to productivity increases as minimum wages have been shown to increase research and development and other

https://journals.sagepub.com/doi/abs/10.1177/001979390706000404.; Coviello, D., Deserranno, E., and Persico, N. (2022). "Minimum Wage and Individual Worker Productivity: Evidence from a Large US Retailer." Journal of Political Economy. https://www.journals.uchicago.edu/doi/full/10.1086/720397.

[112] Zavodny, M. (2000). "The Effect of The Minimum Wage On Employment and Hours." Labour Economics. https://www.sciencedirect.com/science/article/abs/pii/S092753710000021X.; Bryan, M. Salvatori, A., and Taylor, M. (2013). "The Impact of the National Minimum Wage on Employment Retention, Hours and Job Entry." Institute for Social and Economic Research, University of Essex. https://assets.publishing.service.gov.uk/media/5a7ca2b3e5274a2f304ef1be/National_minimum_wage-_effect_on_employment_retention__hours_and_job_entry.pdf.

[113] Engbom, N. and Moser, C. (2021). "Earnings inequality and the minimum wage: evidence from Brazil." NBER. https://www.nber.org/system/files/working_papers/w28831/w28831.pdf.; Dustman, C., Lindner, A., Schönberg, U., Umkehrer, M., and vom Berge, P. (2021). "Reallocation effects of the minimum wage." The Quarterly Journal of Economics. https://academic.oup.com/qje/article/137/1/267/6355463.

[114] Aaronson, D., French, E., Sorkin, I., and To, T. (2018). "Industry dynamics and the minimum wage: a putty-clay approach." International Economic Review. https://onlinelibrary.wiley.com/doi/pdf/10.1111/iere.12262.; Luca, D. L., and Luca, M. (2019). "Survival of the Fittest: The Impact of the Minimum Wage on Firm Exit." NBER. https://www.nber.org/system/files/working_papers/w25806/w25806.pdf.; Rao, N. and Risch, M. W. (2024). "Who's Afraid of the Minimum Wage? Measuring the Impacts on Independent Businesses Using Matched U.S. Tax Returns." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4781658.

[115] Haelbig, M., Mertens, M., and Müller, S. (2023). "Minimum Wages, Productivity, and Reallocation." IZA Institute of Labor Economics. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4457826.

[116] Riley, R. and Bondibene, C. R. (2017). "Raising the standard: Minimum wages and firm productivity." Labour Economics. https://www.sciencedirect.com/science/article/abs/pii/S0927537116303487.; Coviello, D., Deserranno, E., and Persico, N. (2022). "Minimum Wage and Individual Worker Productivity: Evidence from a Large US Retailer." Journal of Political Economy. https://www.journals.uchicago.edu/doi/full/10.1086/720397.; Kim, H. S., and Jang, S. (2019). "Minimum Wage Increase and Firm Productivity: Evidence from the Restaurant Industry." Tourism Management. https://www.sciencedirect.com/science/article/abs/pii/S0261517718302644.

capital investment.[117] Collectively, minimum wages can change how businesses operate, and these changes can improve workers' productivity and mitigate increases in payroll costs.

BUSINESS FAILURES (QUALITATIVE ASSESSMENT)

The increased costs of production resulting from an increase in the minimum wage could be significant enough to cause a business to close. The economics literature on this topic suggests that some existing businesses might be unable to adapt to an economic environment with higher minimum wages.[118] As a result, firms that operate on tight margins could be replaced by new ones with production functions that can accommodate higher minimum wages.[119] This disruption to existing businesses is not necessarily detrimental to the market. Firms that are perceived as providing a higher quality product, and therefore more able to pass along price increases, and firms that operate most efficiently are less likely to fail.[120] Thus, while firm exits are expected to increase in the near term following an increase in the minimum wage, in the medium- to longer-term, the market will consist of firms that can sustain the newly-established minimum wage.

BUSINESS MIGRATION (QUALITATIVE ASSESSMENT)

The impact of an increase in the minimum wage on business migration, conceptually, is ambiguous. On the one hand, minimum wage differentials between states or cities could incentivize firms to relocate to an area that offers greater profitability. On the other hand, moving towards an area with lower wages could also mean moving to an area with lower demand for a business's products, as well as away from existing customers. The literature in this space is limited and suggests that business relocations following an increase in the minimum wage are rare.[121] That said, studies have shown that increases in the minimum wage can affect the location decisions of *new* businesses.[122] Specific to migration, however, relocations of existing businesses are unlikely; businesses are more likely to remain operational and adjust to the new minimum wage environment, or close.

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[117] Nguyen, D. X. (2019). "Minimum Wages and Firm Productivity: Evidence from Vietnamese Manufacturing Firms." International Economic Journal. https://www.tandfonline.com/doi/abs/10.1080/10168737.2019.1624806.; Sun, Y. (2022). "Effects of Minimum Wage on Enterprise Productivity—Empirical Analysis Based on Database of Industrial Enterprises." Innovative Computing. https://link.springer.com/chapter/10.1007/978-981-16-4258-6_114.

[118] Aaronson, D., French, E., Sorkin, I., and To, T. (2018). "Industry dynamics and the minimum wage: a putty-clay approach." International Economic Review. https://onlinelibrary.wiley.com/doi/pdf/10.1111/iere.12262.

[119] Aaronson, D., French, E., Sorkin, I., and To, T. (2018). "Industry dynamics and the minimum wage: a putty-clay approach." International Economic Review. https://onlinelibrary.wiley.com/doi/pdf/10.1111/iere.12262.

[120] Luca, D. L., and Luca, M. (2019). "Survival of the Fittest: The Impact of the Minimum Wage on Firm Exit." NBER. https://www.nber.org/system/files/working_papers/w25806/w25806.pdf.; Rao, N. and Risch, M. W. (2024). "Who's Afraid of the Minimum Wage? Measuring the Impacts on Independent Businesses Using Matched U.S. Tax Returns." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4781658

[121] Li, X., Shi, D., and Zhou, S. (2023). "The minimum wage and the locations of new business entries in China: Estimates based on a refined border approach." *Regional Science and Urban Economics*. https://www.sciencedirect.com/science/article/abs/pii/S016604622300011X.

[122] Rohlin, S. M. (2009). "The Impact of Government Policies on the Location Decisions of New Business." PhD Dissertation, Syracuse University. https://surface.syr.edu/ecn_etd/5/.

Impacts to the Community and Regional Economy

In this section we examine impacts to poverty rates, prices, and economic output. We rely in large part on the well-respected and widely-used IMPLAN (for Impact Analysis for PLANing) input-output modeling framework to quantify these impacts. The IMPLAN analysis is also informed by estimates of changes in wages and employment derived from the research literature. We estimate price effects directly, based on the literature.

POVERTY RATES

Relative to baseline, an additional 481 individuals would be lifted out of poverty by 2030 under Scenario B1 and an additional 103 individuals would be lifted out of poverty under Scenario B2 (see Exhibit 50). Under both scenarios, 987 would be lifted out of poverty by 2035. Under both Denver-based scenarios, 522 individuals would be lifted out of poverty by 2035. In terms of rates, Unincorporated Boulder County scenarios would reduce the poverty rate by approximately one half of one percentage point (i.e., from approximately 10 percent to 9.5 percent). Under Denver-based scenarios, the poverty rate would be reduced by approximately two tenths of one percentage point. The reductions in poverty would disproportionately benefit children relative to adults would benefit individuals without a high school diploma relative to those with higher levels of educational attainment.

Exhibit 50. Effect of Minimum Wage Increase on Poverty, Municipalities Combined

SCENARIO	2030	2035
Scenario B1	-481	-987
Scenario B2	-103	-987
Scenario D1	-166	-522
Scenario D2	0	-522

Source: ECOnorthwest analysis

PRICES

We make a low and high estimate of potential price increases due to the minimum wage increase. Exhibit 51 presents the upper estimate of cumulative price increases relative to baseline in 2025, 2030, and 2035. Prices are estimated to increase 0.094 percent relative to baseline through 2030 under Scenario B1, after which price increases will follow those of the baseline scenario. Under Scenario B2, prices increase more slowly than Scenario B2, and end up 0.092 percent higher than the baseline by 2035. Prices could be 0.061 percent higher than the baseline in 2035 under Scenario D1 or 0.058 percent under Scenario D2.

The main takeaways from the price impacts analysis are: 1) prices in the Mountain region and the Denver-Aurora-Lakewood area are currently above those of the West Region and the nation as a whole, and 2) prices would increase further under all four scenarios, albeit with magnitudes that are less than one tenth of one percent by 2035. The largest estimated increase is 0.094 percent above baseline price increases. Even the largest of these cumulative 10-year changes impacts, about 0.1 percent, when considered on an annual basis amount to less than one one-

hundredth of typical inflation in the region.

Exhibit 51. Cumulative Effect of Minimum Wage Increase on Prices, Municipalities Combined

SCENARIO	2025	2030	2035
Scenario B1	0.028%	0.094%	0.094%
Scenario B2	0.008%	0.050%	0.092%
Scenario D1	0.028%	0.061%	0.061%
Scenario D2	0.005%	0.032%	0.058%

Source: ECOnorthwest analysis

ECONOMIC OUTPUT

We use IMPLAN economic modeling software to estimate the impacts of our four scenarios on economic output in the region. IMPLAN is a widely recognized input-output modeling framework designed to estimate the economic impacts of firm expenditures or other changes in an economy. Impacts are measure in terms of output and jobs, with output representing the value of goods and services produced and jobs representing full-year equivalents (FYE).

In this section, we describe the IMPLAN results with respect to economic output. Tax revenues are covered in the next section. Under both the Unincorporated Boulder County-based scenarios and the Denver-based scenarios, economic output increases minimally or remains unchanged by 2030, but then turns slightly negative by 2035. This finding is driven by the way that the minimum wage affects average real family income. As described above, households in the highest group (i.e., with annual incomes equal to five times the FPL or more) are expected to experience a slight reduction in real family income, largely due to price increases. Further, families with incomes between three and five times of FPL are expected to have no change in real income. Because more households have incomes above three times the FPL than below three times the FPL (120,548 compared with 52,557), and because their incomes are higher, the reduction in income among higher-income households, aggregated, leads to a slight reduction in economic output.

Importantly, the magnitude of the impact is small relative to the size of the local economy. Economic output for the five municipalities is approximately $21 billion and the reduction in economic output from the increase in the minimum wage ranges from -0.015 percent to -0.055 percent of local GDP (see Exhibit 52).

Exhibit 52. Effect of Minimum Wage Increase on Economic Output in 2035, Municipalities Combined

SCENARIO	CHANGE IN ECONOMIC OUTPUT	PERCENT CHANGE IN LOCAL GDP
Unincorporated Boulder County-based	-$11.6 million	-0.055%
Denver-based	-$3.1 million	-0.015%

Source: ECOnorthwest analysis

Government Revenue

LOCAL TAX REVENUE

Among other outputs, IMPLAN estimates state and local taxes and fees, including production business taxes, personal income taxes, social insurance (employer and employee contributions) taxes, and various other taxes, fines, licenses, and fees paid by businesses and households. In 2030, our IMPLAN analysis shows that local (county and municipal) tax revenues will increase by between roughly $5,000 (Scenario B2) and $20,850 (Scenario B1). Also as noted above, our IMPLAN analyses show that economic output could decline slightly as a result of a local minimum wage increase. In line with this finding, the IMPLAN model also reveals a very slight reduction in state and local tax revenues. More specifically, local (county and municipal) tax revenues are expected to decline by approximately $98,000 by 2035 using the Denver-based scenarios and by approximately $386,000 by 2035 using the Unincorporated Boulder County-based scenarios. Again, the impact of this reduction in revenues on local government budgets is negligible. Increasing costs of services due to increased payroll costs would likely have more important effects on municipal budgets. The cost of contracting could also be an important factor, as described below.

COST OF GOVERNMENT CONTRACTS (QUALITATIVE ASSESSMENT)

Government expenditures will also be affected by an increase in the minimum wage. When the U.S. Office of Personnel Management increased the minimum wage for federal civilian employees to $15 an hour, for example, 67,000 federal employees saw their wages increase.[123] Government expenditures can increase beyond the costs of public employees' compensation because of higher payroll costs among government contractors. The literature on the impact of prevailing wage laws is mixed. Some studies show that prevailing wage laws do not significantly increase costs, however, other studies find the opposite. [124,125] Studies that focus on prevailing wage laws are useful but do not wholly capture the potential impacts that an increase in the

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[123] U.S. Office of Personnel Management. (2022). "RELEASE: OPM Announces $15 Minimum Wage for U.S. Federal Civilian Employees." https://www.opm.gov/news/releases/2022/01/release-opm-announces-dollar15-minimum-wage-for-us-federal-civilian-employees/.

[124] Duncan, K., Phillips, P., and Prus, M. (2014). "Prevailing Wage Regulations and School Construction Costs: Cumulative Evidence from British Columbia." Industrial Relations: A Journal of Economy and Society. https://onlinelibrary.wiley.com/doi/abs/10.1111/irel.12072.; Duncan, K. and Ormiston, R. (2019). "What Does the Research Tell Us about Prevailing Wage Laws?" https://journals.sagepub.com/doi/abs/10.1177/0160449X18766398.; Duncan, K., Phillips, P., and Prus, M. (2012). Engineering, Construction and Architectural Management. https://www.emerald.com/insight/content/doi/10.1108/09699981211219634/full/html.; Duncan, K. C., Gigstad, J. L., and Manzo, F. P. (2022). "Prevailing Wage Repeal, Highway Construction Costs, and Bid Competition in Kentucky: A Difference-in-Differences and Fixed Effects Analysis." Public Works Management & Policy. https://journals.sagepub.com/doi/abs/10.1177/1087724X221088887.

[125] Dunn, S. Quigley, J. M., and Rosenthal, L. R. (2005). "The Effects of Prevailing Wage Requirements on the Cost of Low-Income Housing." ILR Review. https://journals.sagepub.com/doi/abs/10.1177/001979390505900108.; Hinkel, M. and Belman, D. (2021). "Should prevailing wages prevail? Re-examining the effect of prevailing wage laws on affordable housing construction costs." British Journal of Industrial Relations. https://onlinelibrary.wiley.com/doi/abs/10.1111/bjir.12663.; Harris, T. R., Mukhopadhyay, S., and Wiseman, N. (2017). "An Application of Difference-in-Difference-Difference Model: Effects of Prevailing Wage Legislation in Mountain States of the United States." Public Works Management & Policy. https://journals.sagepub.com/doi/abs/10.1177/1087724X16665369.

minimum wage might have on the cost to governments of contracted services. Our conclusion is that the increased cost to governments from contractors would likely resemble the increase in payroll costs discussed in this report.

It is also worth noting that some government expenditures could decline with an increase in the minimum wage, potentially offsetting a portion of governments' higher payroll and contracting costs. While the literature remains mixed, some studies have found that increases in the minimum wage could decrease the cost of administering SNAP and other federal programs.[126] That said, if a loss of federal support increases the burden on local government services, expenditures could actually increase further.

Summary Dashboard

The various trade-offs associated with each scenario are displayed as a dashboard in Exhibit 53. Tradeoffs are measured relative to the status quo—maintaining the state mandated minimum wage, adjusted for anticipated inflation. Outcomes that are positively affected by an increase in the minimum wage—per a given scenario—are shown in green; those that are negatively affected are shown in red. The lighter the shade, the more moderate the impact; the darker the shade, the more pronounced the impact. Outcomes that are unaffected are denoted in yellow. In the case of quantitatively-assessed outcomes, the shades of color are approximately proportional to the largest impact for that outcome. In the case of qualitatively-assessed outcomes, the shades of color are based on magnitudes reported in the relevant economics literature. Looking horizontally, the dashboard shows how each scenario compares over time (2025, 2030, and 2035) for a given outcome. Looking vertically, the dashboard shows how all outcomes, collectively, are affected by a given scenario.

Caution should be used when combining impacts across scenarios or outcomes for several reasons. First, the outcomes analyzed do not necessarily apply to the same people. So a positive impact to one individual or group of individuals does not necessarily offset a negative impact of the same magnitude to another individual or group of individuals. Similarly, looking vertically, a scenario with more green cells than red ones does not necessarily have a net positive impact, and vice versa. Further, a scenario with more green cells relative to red ones is not necessarily better than one with fewer green cells relative to red ones, because some outcomes might not be directly comparable to others.

As such, this dashboard should be viewed as a guide for decision-makers that provides a general assessment of the positive and negative impacts associated with the four scenarios of interest. The dashboard should not be used to "score" scenarios computationally based on shades of green and red.

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[126] Reich, M. and West, R. (2015). "The Effects of Minimum Wages on Food Stamp Enrollment and Expenditures." Industrial Relations. https://onlinelibrary.wiley.com/doi/abs/10.1111/irel.12110.; Blavin, F. and Gangopadhyaya, A. (2022). "How the Minimum Wage Affects the Health Insurance Coverage, Safety Net Program Participation, and Health of Low-Wage Workers and Their Families: A Review of Recent Literature." The Urban Institute. https://www.urban.org/sites/default/files/2022-07/How%20the%20Minimum%20Wage%20Affects%20Low-Wage%20Workers%20and%20Their%20Families%20v2.pdf.

What the dashboard makes clear is that no magic bullet exists—trade-offs exist under each scenario. In cases where the positive impacts are maximized, so are the negative ones; in cases where the negative impacts are minimized, so are the positive ones. The optimal policy, therefore, depends on how much weight the affected municipalities place on the various outcomes.

Exhibit 53. Effect of Increases in the Minimum Wage, 2025, 2030, and 2035 - Dashboard

	2025				2030				2035			
	Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios		Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios		Denver-Based Scenarios		Unincorp. Boulder County-Based Scenarios	
	D1	D2	B1	B2	D1	D2	B1	B2	D1	D2	B1	B2
Impacts to Workers												
Workers with increased earnings (000s)												
Directly affected workers												
Potentially affected workers												
Net change in employment												
Net change in hours worked*												
Workers' earnings												
Change in real annual income												
Families with income < 100% FPL												
Families with income between 100% to 300% FPL												
Families with income between 300% to 500% FPL												
Families with income > 500% FPL												
Impacts to Businesses												
Operating costs												
Change in payroll costs												
Change in operating costs												
Prices												
Percentage of workers getting a raise												
Employee retention*												
Worker productivity*												
Business productivity and profits												
Business failures*												
Business migration*												
Impacts to Region												
Consumption												
GDP												
Number of people in poverty (000s)												
Unemployment												
Subsitution away from unskilled labor												
Wage inequality (tighter wage distribution)												
Impacts to Governments												
Impact to local government revenues												
Impact to local government expenses												

Source: ECOnorthwest. *Qualitative assessment

Notes: Tradeoffs are measured relative to the status quo—maintaining the state mandated minimum wage, adjusted for anticipated inflation. Outcomes that are positively affected by an increase in the minimum wage—per a given scenario—are shown in green; those that are negatively affected are shown in red. The lighter the shade, the more moderate the impact; the darker the shade, the more pronounced the impact. Outcomes that are unaffected are denoted in yellow. In the case of quantitatively-assessed outcomes, the shades of color are approximately proportional to the largest impact for that outcome. In the case of qualitatively-assessed outcomes, the shades of color are based on magnitudes reported in the relevant economics literature. Looking horizontally, the dashboard shows how each scenario compares over time (2025, 2030, and 2035) for a given outcome. Looking vertically, the dashboard shows how all outcomes, collectively, are affected by a given scenario

6. Recommendations

The economic impacts associated with increasing the minimum wage are best viewed as a set of trade-offs to individuals, businesses, governments, and the community. As such, an optimal minimum wage target should take into account the full set of benefits and costs, as well as their size and distribution, because the benefits and costs can differ in magnitude and apply to different people. Moreover, an optimal minimum wage target depends on the preferences of a community. These preferences are critical because policymakers have to assign a relative value or weight to each trade-off, implicitly or explicitly, to determine which policy option is best for their community. Notably, communities can differ with respect to what minimum wage policy has the highest net positive impact, not just because of any community-specific costs and benefits, but also because of the preferences and values of the people living in the community. In short, no minimum wage target is universally optimal; the optimal target is a matter of identifying, quantifying, and then weighing the various trade-offs.

In light of this reality, ECOnorthwest presents the following recommendations regarding the minimum wage target, escalation schedule, and indexing mechanism.

Recommendation #1: Under the assumption that the five municipalities are interested in raising the minimum wage above Colorado's, then two factors—a slower ramp-up and consistency with Unincorporated Boulder County—lead us to recommend Scenario B2, where the regional minimum wage reaches that of Unincorporated Boulder County in 2035.

The slower ramp-up period of Scenario B2 relative to Scenario B1 provides a degree of predictability and certainty that will allow individuals, businesses, and governments to adapt to the new economic landscape with minimal disruption. Along with predictability and certainty, consistency is an important aspect of decision making. Narrowing, and then eliminating, the gap in wages between Unincorporated Boulder County and the five municipalities over the long term will help increase the consistency of the economic landscape across the region. Individuals and businesses in the region will, therefore, all be competing on a level playing field and this dynamic should improve synergies across communities within the county.

Recommendation #2: Conduct a mid-cycle evaluation of Scenario B2 in 2030.

One benefit of proceeding with a slower ramp-up period is that the impact of the policy can be evaluated in mid-cycle to allow for any necessary course corrections. Specifically, the outcomes examined in this report for 2030 can be measured relative to their actual values at that time, and policymakers can then assess the degree to which the benefits and costs of the higher minimum wage target have come to fruition. To the extent that the anticipated outcomes fall short of expectations, the planned escalation in the minimum wage could be adjusted between 2030 and 2035.

<u>Recommendation #3</u>: Index the minimum wage annually based on the regional Consumer Price Index for All Urban Consumers (CPI-U).

The goal of wage indexing is to keep worker compensation in line with other changes in the economy, particularly price increases. For example, a $15.00 hourly wage in 2020 had the same purchasing power as an $18.00 hourly wage in 2024.[127] Wages, as opposed to prices, increased 15.1 percent between 2020 and 2024, or about 5 percentage points below inflation.[128] So, if the $15.00 per hour wage in 2020 kept pace with *wage* increases generally, the corresponding hourly wage rate in 2024 would be $17.25.

Wages can be indexed to prices or wages using established indexes published by the U.S. Bureau of Labor Statistics (BLS). One well-known index for prices is the Consumer Price Index (CPI) and one well-known index for wages is the Employment Cost Index (ECI). Both the CPI and ECI have many variants, such as the CPI for Urban Consumers (CPI-U) or the ECI for wages and salaries, so an overall index can be used or, if preferred, a more specific index can be used. Moreover, BLS publishes price index data on a monthly basis, so minimum wages could be re-calibrated annually, biannually, or even monthly. More frequent adjustment could make sense in a high inflation environment, such as the year 2022.

Given the relatively moderate level of inflation over the past year, our recommendation is to index the minimum wage to prices annually, based on the Consumer Price Index for All Urban Consumers (CPI-U) in the Denver-Aurora-Lakewood area.[129] The regional value for the CPI-U is important because the cost of living in Colorado is higher than that of the country as a whole and, going forward, changes in the CPI could differ between Colorado and the US.

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[127] The actual increase in the Consumer Price Index (CPI) is 19.6 percent (U.S. Bureau of Labor Statistics. (2024). CPI Inflation Calculator. https://data.bls.gov/cgi-bin/cpicalc.pl?cost1=100.00&year1=202001&year2=202401.)

[128] Federal Reserve Bank of St. Louis. (2024). Employment Cost Index: Wages and Salaries: Private Workers."https://fred.stlouisfed.org/series/ECIWAG.

[129] U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area – May 2024." Washington, DC: U.S. Department of Labor. https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm.

7. Appendix A: Questionnaire Analysis

Primary Results

The minimum wage questionnaire garnered 993 responses. Across both English (94 percent of the total) and Spanish (6 percent of the total), 84 percent of respondents answered all of the questions. The analysis below includes responses across both languages. A majority of the partial responses were mostly complete. The analysis includes responses from incomplete questionnaires to provide as much information as possible regarding respondent's opinions. As a result, respondent totals will not match across all exhibits. Most charts include response counts in parentheses.

In addition, some respondents did not answer all questions consistently. For example, one question asked respondents what kind of employment best describes their own, to which 246 responded "business owner." However, a later question directly asked "Are you a business owner?" to which 275 responded affirmatively. Therefore, depending on the exhibit, the total number of business owners may vary.

The minimum wage questionnaire asked respondents to indicate their preference regarding increasing the local minimum wage. Respondents were given three specific scenarios for an increase as well as an open-ended option to provide a different preferred increase. Respondents were also able to indicate a preference for no increase, and to express no opinion regarding an increase. The minimum wage increase scenarios were as follows:

1. Match unincorporated Boulder County ($15.69 in 2024, increasing every year to reach a minimum wage of $25 by 2030 and increasing based on inflation after that)

2. Match the City/County of Denver's minimum wage ($18.29 in 2024, increasing each year based on inflation)

3. Match the current Boulder County staff hourly wage ($23.23 in 2024)

4. Some other increase provided as a write-in response

Combining all responses that indicated support for an increase indicates that those who support some kind of increase (561 respondents, or 58 percent) significantly outnumber those who support keeping the minimum wage as is (36 percent), as shown in Exhibit A1. A minority of respondents (7 percent) favored some other action, such as abolishing the minimum wage entirely. In general, however, these latter responses could not easily be categorized as in favor of or opposed to an increase.[130]

Exhibit A1. Do questionnaire respondents favor increasing the minimum wage, or keeping it the same?

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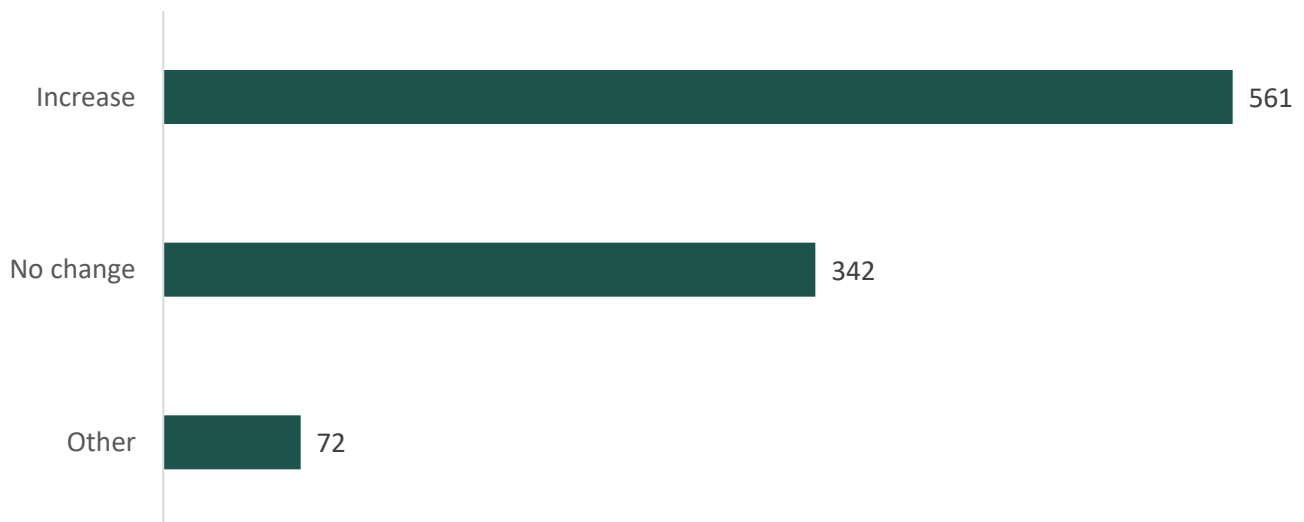
130 About half of those who responded "other" could be recategorized as in favor or opposed to a minimum wage increase. The remaining half (72) expressed unclear or altogether different views, such as support for eliminating the minimum wage

Exhibit A2 shows the level of support by reported location of work. This exhibit includes individuals who reported "business owner" as their employment type and who identified a location of work. It excludes self-identified business owners who did not report an employment type or location, as well as respondents who reported work only in other areas, such as unincorporated Boulder County. In addition, as individuals were allowed to identify multiple work locations an individual's response may appear in multiple locations.

Overall, 57 percent of respondents included in this exhibit supported increasing the minimum wage, similar to the share identified in Exhibit 1. The strongest support came from respondents who reported a work location in the cities of Boulder and Longmont, with 66 percent and 52 percent in favor, respectively. Less the half of respondents from Louisville, Erie, and Lafayette supported an increase.

Exhibit A2. How does support for increasing the minimum wage vary by work location?
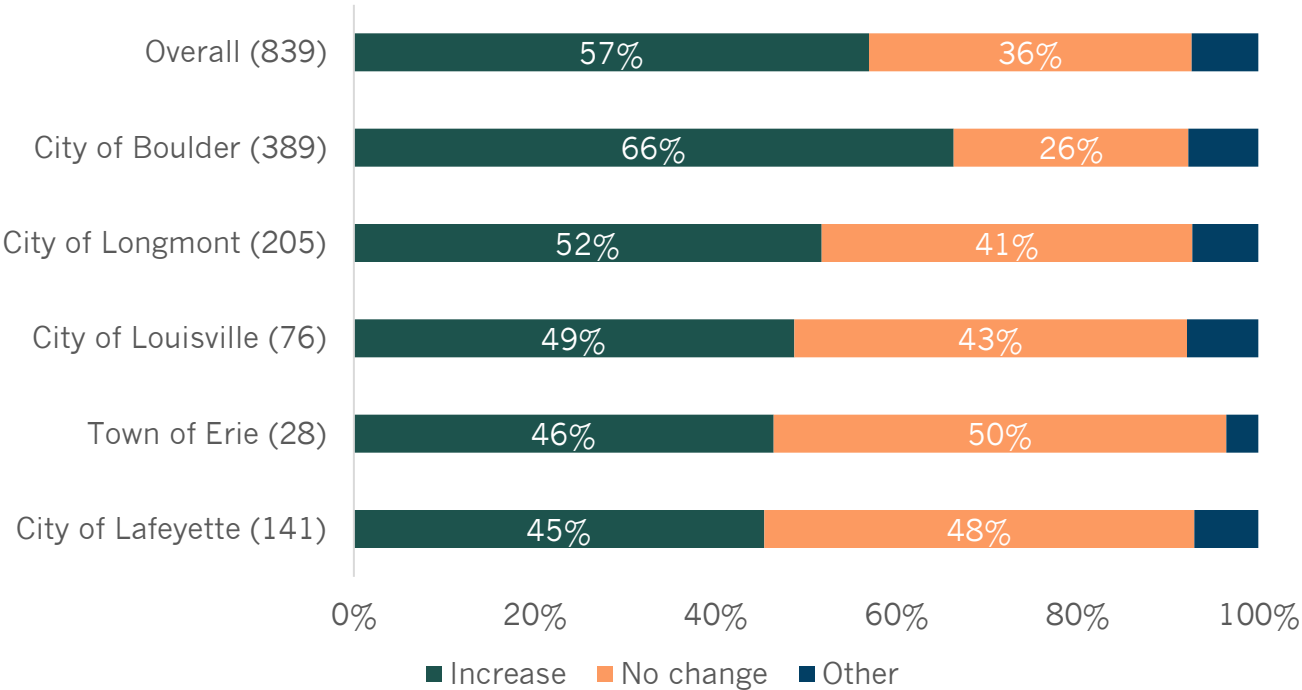
Note: Exhibit excludes responses from individuals who reported working in a location other than one of the five municipalities.

For simplicity, we combined reported employment type into the following categories:

1. Student = Full-time students + part-time students

2. Self-employed = Self-employed + consultants

3. Wage worker = Full-time + part-time employees

4. Retired = Retired + fixed-income respondents

Exhibit A3 displays support for a minimum wage increase by category of employment. The chart excludes individuals who did not report an employment type, such as some self-identified business owners. As respondents were allowed to identify multiple employment types, an individual's response may appear in multiple categories, leading to the higher overall response count.

The questionnaire revealed broad support for increasing the minimum wage across many employment types, with the significant exception of business owners. This latter group strongly favored no change to the minimum.

Exhibit A3. How does support for a minimum wage vary by type of employment?

	Increase	No change	Other
Overall (1108)	58%	34%	
Students (42)	90%	5%	
Self-employed (87)	70%	17%	
Unemployed (25)	68%	28%	
Wage workers (574)	68%	25%	
Retirees (134)	58%	32%	
Business owners (246)	24%	66%	
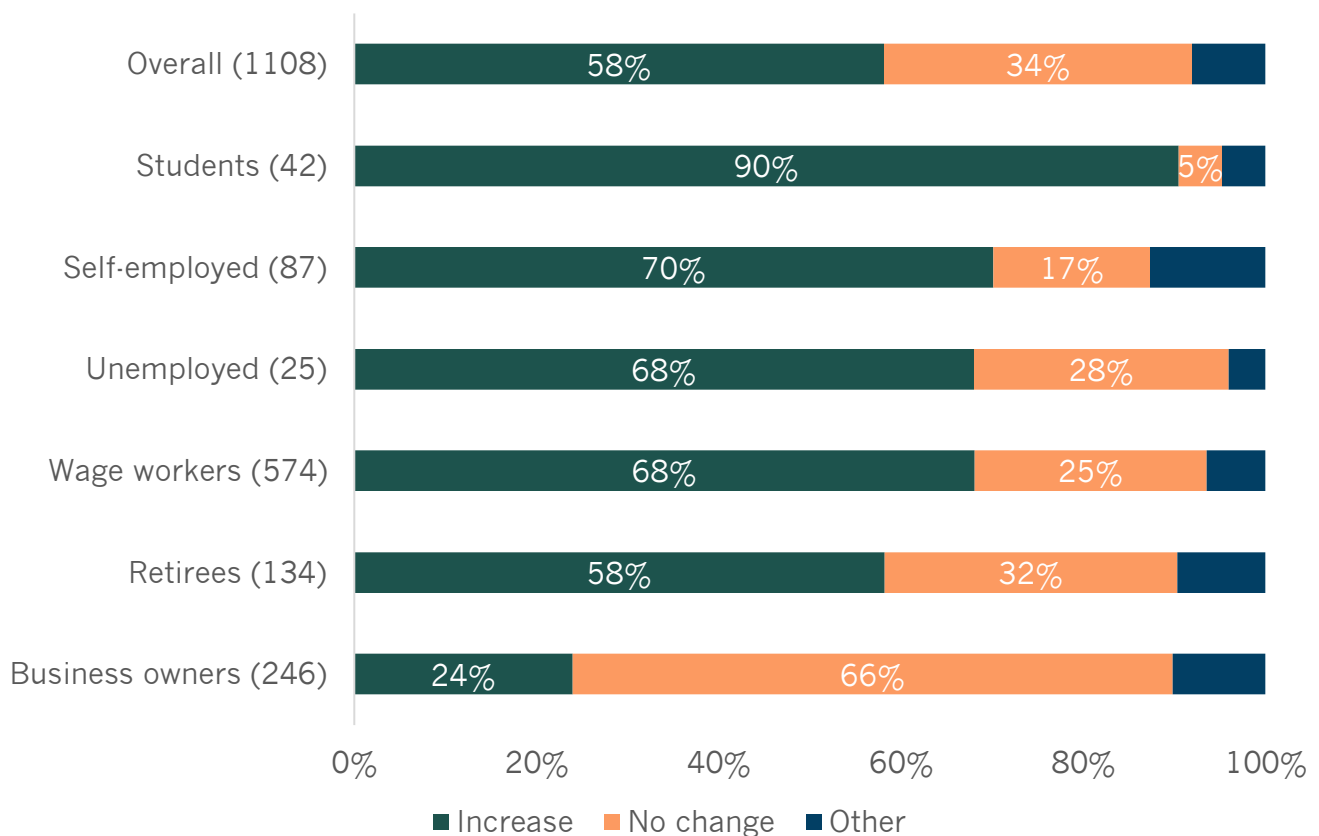
Exhibit A4 shows the number of employees that business owners in the questionnaire reported having, and their support for increasing the minimum wage. The results show no discernible pattern between business size and support for increasing the minimum wage, although it is notable that the owners of the largest businesses (over 250 employees) are nearly evenly split on the question.

Exhibit A4. How does business size affect business owners' support for increasing the minimum wage?
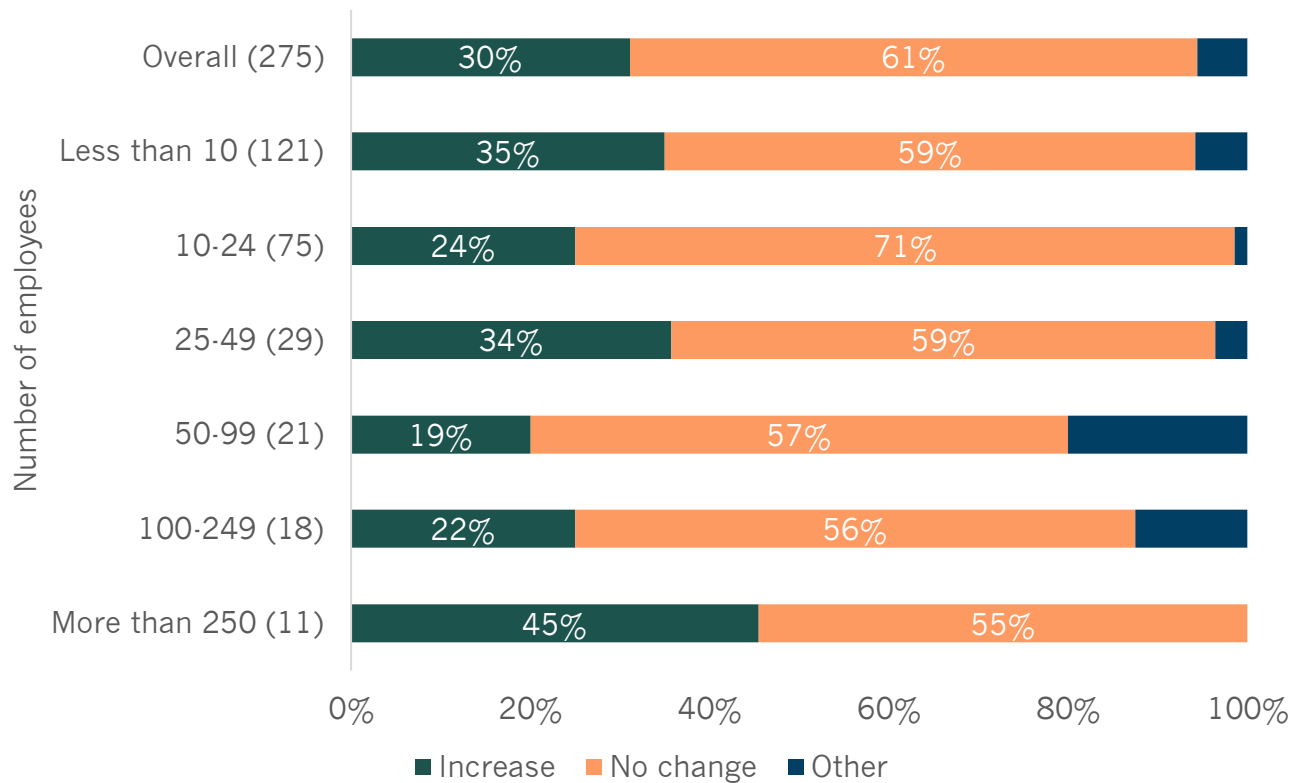
Exhibit A5 shows the percent of questionnaire respondents who are business owners in each of the study areas, including both self-identified business owners and individuals who reported "business owner" as their type of employment (two different questions) (parentheses show the number of business owners in each area). An individual's responses may appear in multiple categories.

Exhibit A5 provides additional context for differences across municipality reported in Exhibit A3. Although Longmont appears an exception, a higher prevalence of business owners in a municipality generally correlates with lower support for a minimum wage increase.

Exhibit A5. What percent of respondents from the study area are business owners?

Study Area	Percent
Overall (260)	31%
City of Lafeyette (69)	49%
Town of Erie (13)	46%
City of Louisville (30)	39%
City of Longmont (54)	26%
City of Boulder (94)	24%
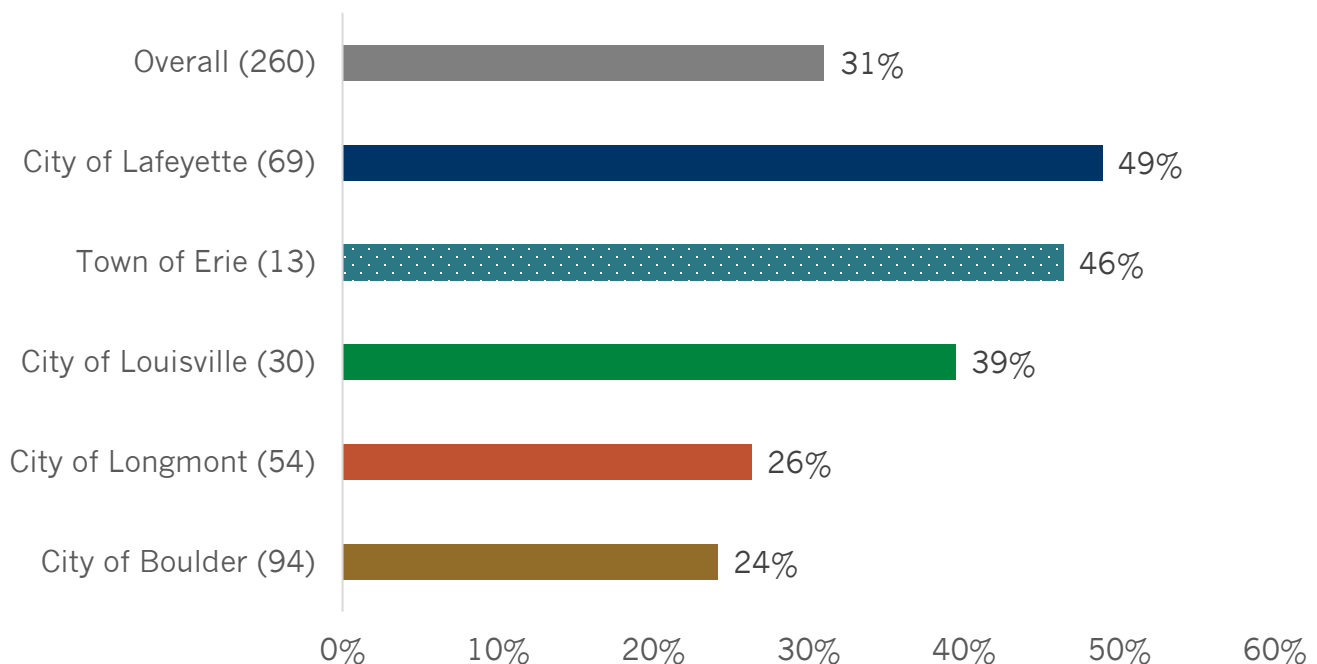
Exhibit A6 shows support for increasing the minimum wage by reported industry of employment. An individual's responses may appear in multiple categories. Workers in some relatively low-wage industries, such as retail, indicated relatively low support for an increase.

Exhibit A6. How does support for increasing the minimum wage vary by job industry?

Industry	Increase	No change	Other
Overall (1192)	58%	34%	
Homemaker (17)	94%	6%	
Nonprofit (100)	80%	15%	
Education (96)	72%	23%	
Arts (39)	72%	21%	
Healthcare (58)	71%	26%	
Government (109)	69%	28%	
Childcare (30)	67%	27%	
Construction (17)	59%	24%	
Other (130)	60%	31%	
Administration (128)	53%	37%	
Transportation (22)	50%	45%	
Tech (87)	51%	36%	
Hospitality (159)	43%	47%	
Retail (110)	45%	48%	
Landscaping (13)	38%	54%	
Manufacturing (43)	35%	56%	
Finance (11)	36%	55%	
Real Estate (9)	33%	67%	
Agriculture (14)	29%	64%	

■ Increase ■ No change ■ Other

Exhibit A7 provides context for the patterns exhibited in the prior exhibit. Perhaps surprisingly, questionnaire responses indicate the strongest support for increasing the minimum wage is among higher wage earners. Narrow majorities of lower wage workers (making up to $16 per hour) support increasing the minimum wage, while roughly two-thirds of higher wage workers (making between $16 and $40 per hour) support an increased minimum wage. Among lower

wage workers who do not support increasing the minimum wage, approximately 30 percent work in the restaurant industry and are likely earning tips on top of their reported wage.

Exhibit A7. How does support for increasing the minimum wage vary by worker's hourly wage?
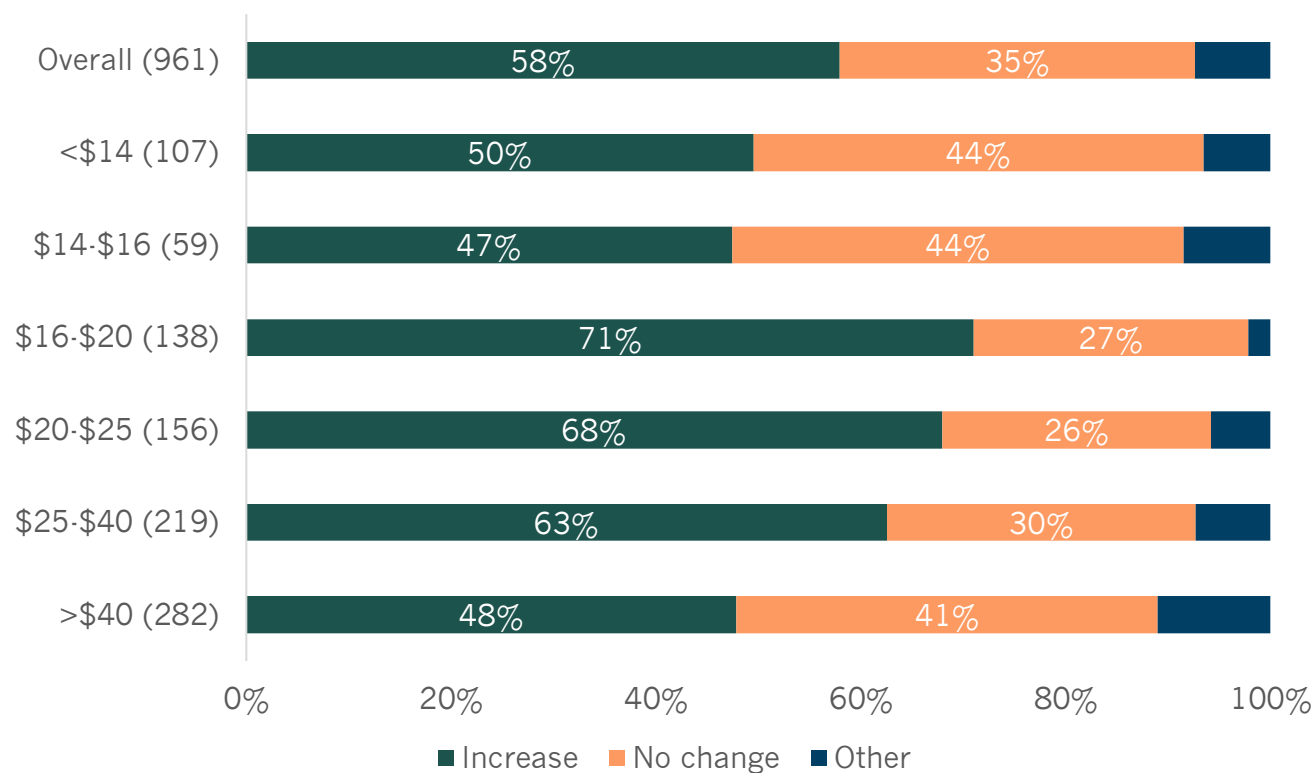
Exhibit A8 shows the most favored wage increase scenario was to match Boulder County staff wages of $23.23 per hour (37 percent support). However, there does not appear to be a clear consensus as which scenario is best, as the City/County of Denver (29 percent support) and unincorporated Boulder County's (27 percent support) scenarios also received significant support. A small minority of respondents (7 percent) wrote in support for other wage increases.

Exhibit A8. Among supporters of an increased minimum wage, what is the preferred new wage?

Category	Value
Match the current Boulder County staff hourly wage ($23.23 in 2024)	190
Match the City/County of Denver's minimum wage ($18.29 in 2024, increasing each year based on inflation)	147
Match unincorporated Boulder County ($15.69 in 2024, increasing every year to reach a minimum wage of $25 by 2030 and increasing based on inflation after that)	137
Other increase	33
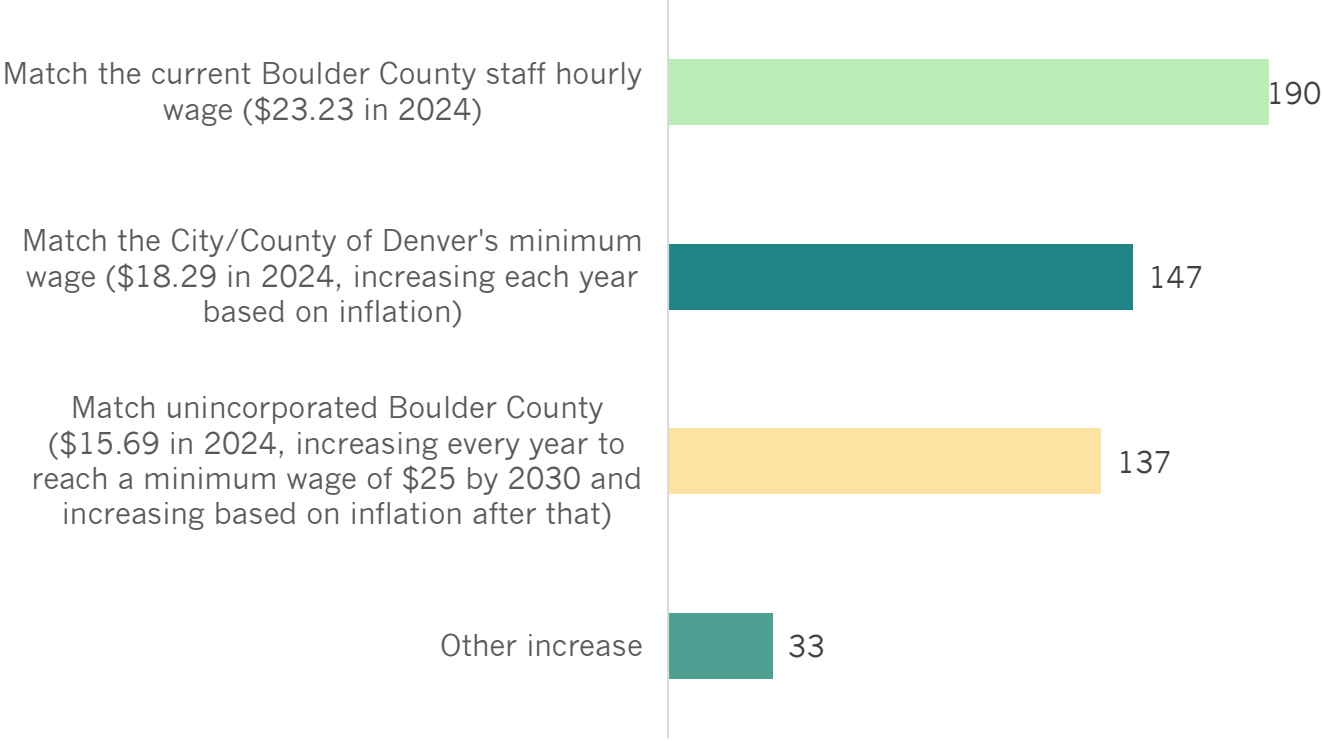
Separating supporters of each minimum wage increase level by their employment type shows some interesting variation (see Exhibit A9). For example, among business owners who support increasing the minimum wage, the most favored scenario was to match Denver's wage of $18.29 per hour in 2024 (and increasing based on inflation thereafter). An individual's responses may appear in multiple categories.

Exhibit A9. Among supporters of an increased minimum wage, what is the preferred new wage according to employment type?

Legend: ■ Boulder County staff ■ Denver County ■ Unincorporated Boulder County ■ Other increase

Employment type	Boulder County staff	Denver County	Unincorporated Boulder County	Other increase
Overall (644)	41%	28%	28%	
Unemployed (17)	47%	41%	12%	
Wage workers (391)	42%	26%	25%	
Retirees (78)	38%	18%	42%	
Self-employed (61)	38%	31%	25%	
Students (38)	37%	29%	29%	
Business owners (59)	19%	41%	27%	
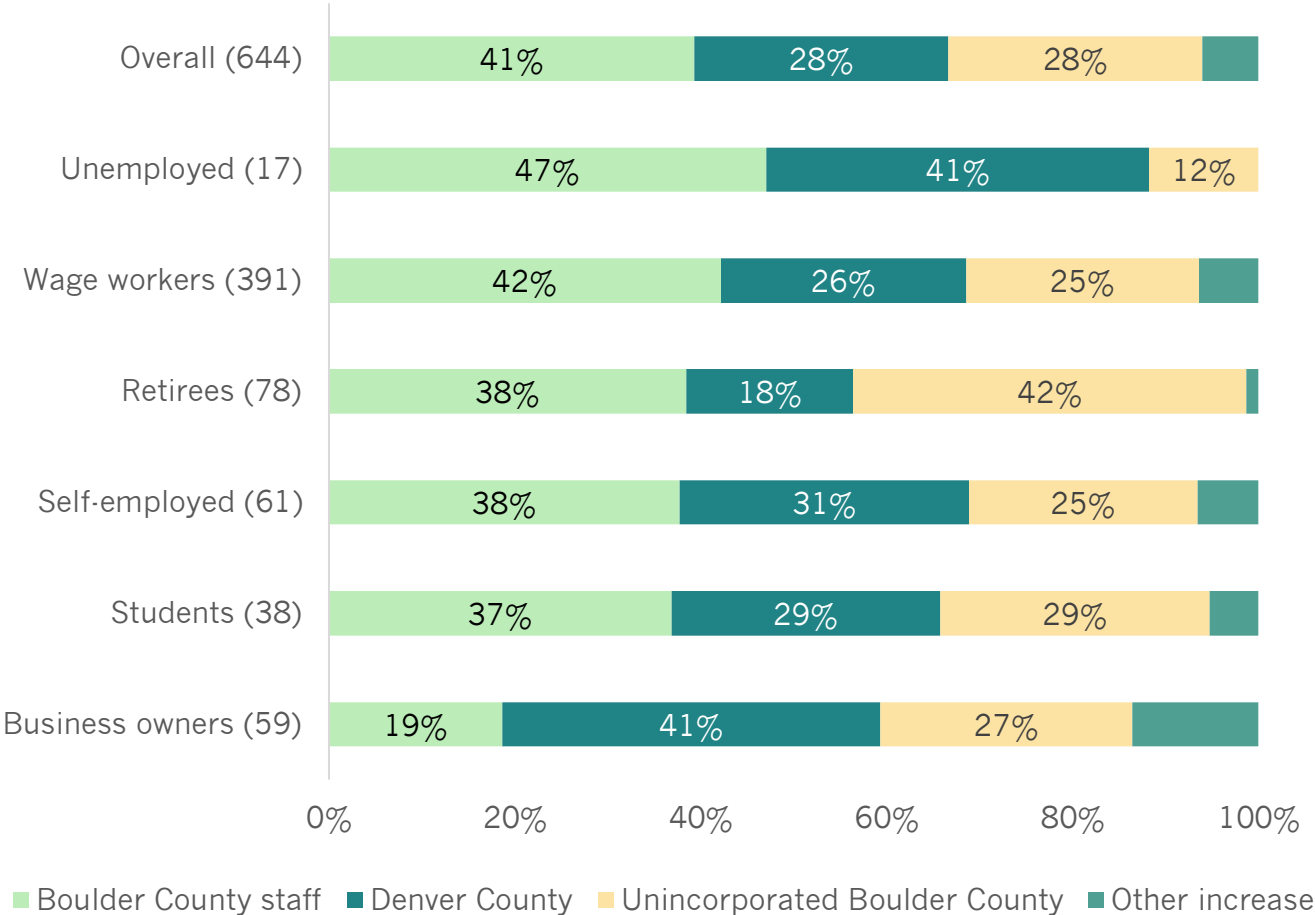
Finally, Exhibit A10 displays respondents' preferences over minimum wage increase scenarios by reported location of work ("Study area" refers to the five municipalities party to the minimum wage economic analysis).

Exhibit A10. Among supporters of an increased minimum wage, what is the preferred new wage according to work location?

Work location	Boulder County staff	Denver County	Unincorporated Boulder County	Other increase
Overall (568)	39%	30%	24%	
Study area (478)	40%	30%	24%	
Outside study area (90)	33%	28%	27%	
Town of Erie (13)	46%	23%	23%	
City of Boulder (258)	45%	28%	20%	
City of Lafeyette (64)	36%	30%	30%	
Outside Boulder County (60)	35%	22%	30%	
City of Longmont (106)	34%	34%	28%	
Unincorporated Boulder County (26)	31%	35%	23%	
City of Louisville (37)	27%	38%	27%	
Town of Superior (4)	25%	75%	0%	

Additional Detail

Exhibit A11. Which statement best describes your feeling about a possible change in the minimum wage?

We should match unincorporated Boulder County ($15.69 in 2024, increasing every year to reach a minimum wage of $25 by 2030 and increasing based on inflation after that) — 146

We should match the current Boulder County staff hourly wage ($23.23 in 2024) — 224

We should match the City/County of Denver's minimum wage ($18.29 in 2024, increasing each year based on inflation) — 158

Other — 106

Local elected officials should not change the minimum wage — 317

I do not have an opinion — 24

Exhibit A12. If you are employed, where do you work?

Location	Value
Boulder	348
Longmont	200
Unemployed	138
Lafeyette	137
Outside Boulder County	94
Louisville	72
Unincorporated Boulder County	56
Erie	26
Superior	7
Nederland	2
Ward	0
Lyons	0
Jamestown	0
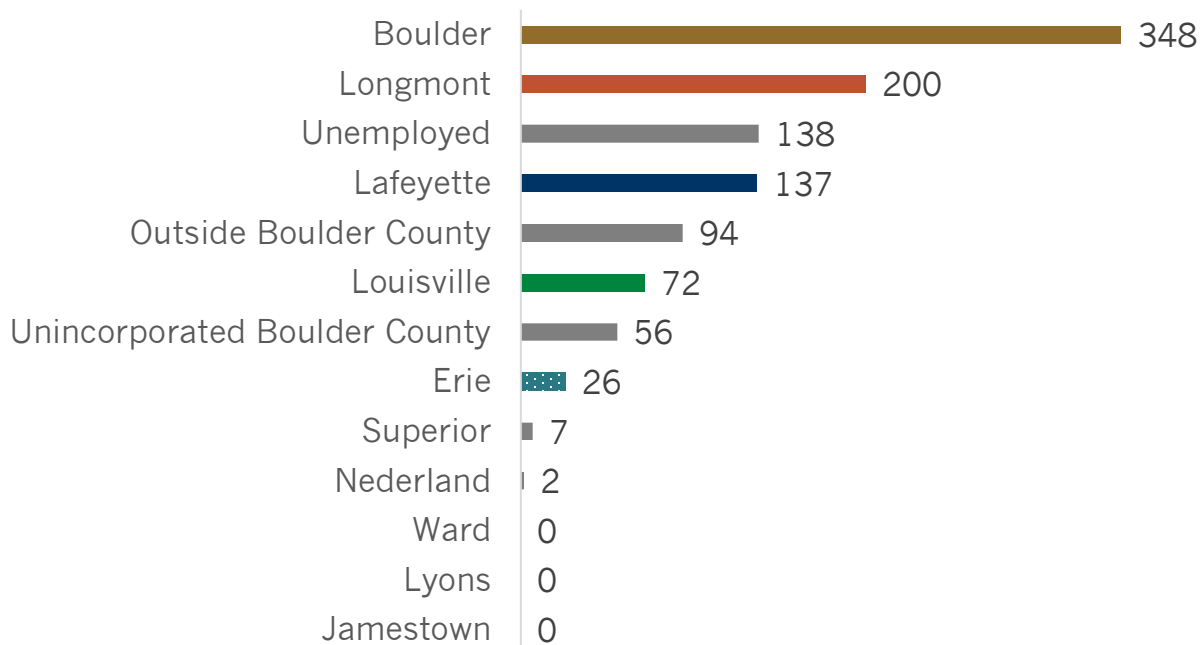
Exhibit A13. Which of the following describe you?

Description	Value
Full Time Employee	402
Business Owner	246
Part Time Employee	124
Retired	100
Self-Employed	51
Fixed Income	34
Contractor	28
Full Time Student	24
Unemployed	21
Other	16
Part Time Student	13
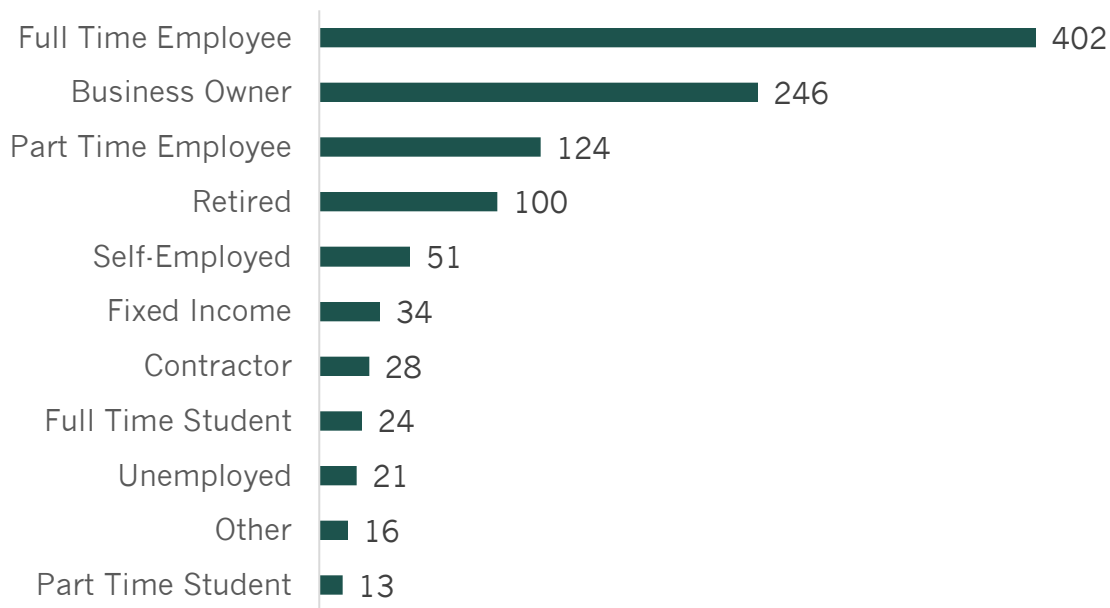
Exhibit A14. Which of these best describes your job?

Category	Value
Other	187
Administration	123
Government	105
Retail	102
Restaurant	99
Nonprofit	93
Education	87
Tech	83
Hospitality	59
Healthcare	53
Manufacturing	37
Arts/Entertainment	37
Child care	25
Transportation	21
Construction	16
Landscaping	12
Homemaker	8
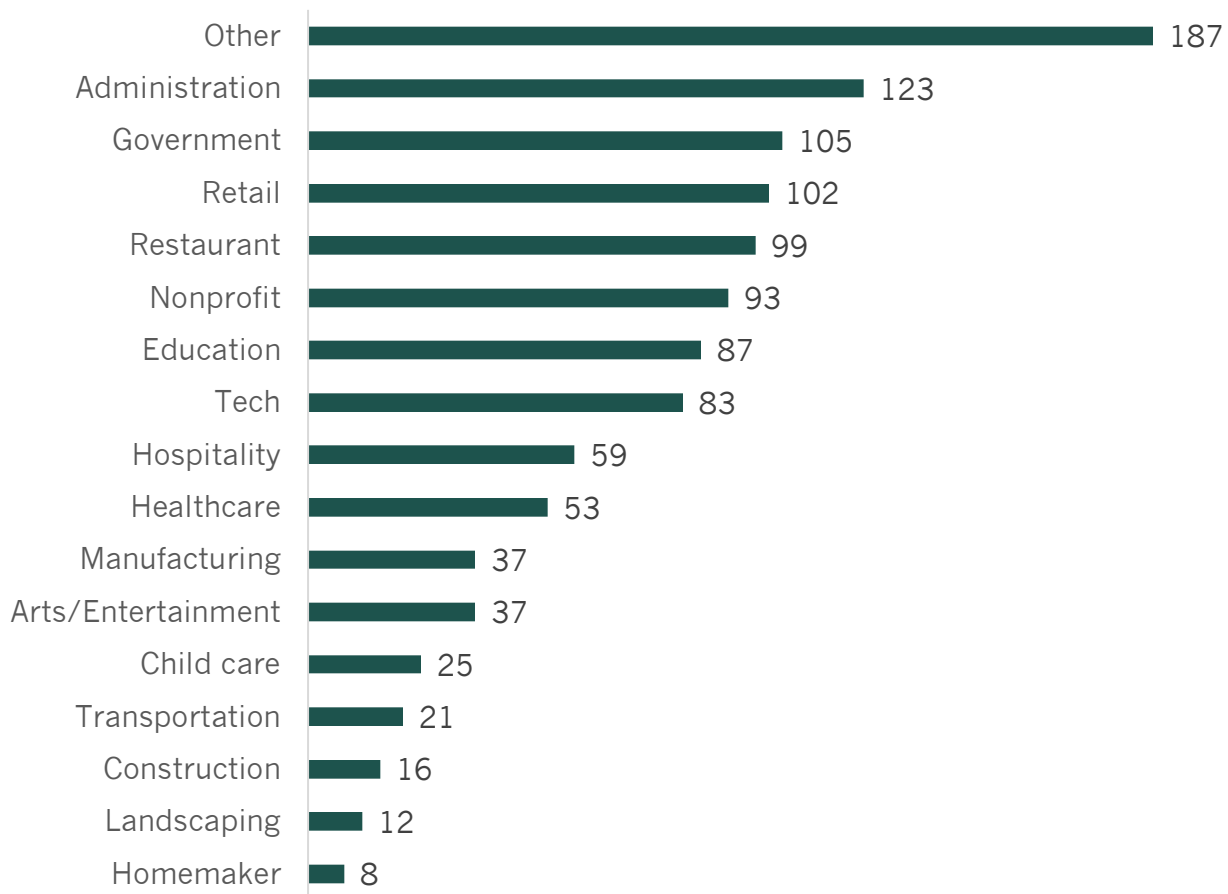
Exhibit A15. Which category includes your hourly wage before taxes, deductions and tips?

Category	Value
Less than $14.42	100
$14.42 - $15.69	50
$15.70 - $19.99	121
$20.00 - $25.00	140
$25.00 - $40.00	209
Over $40.00	281
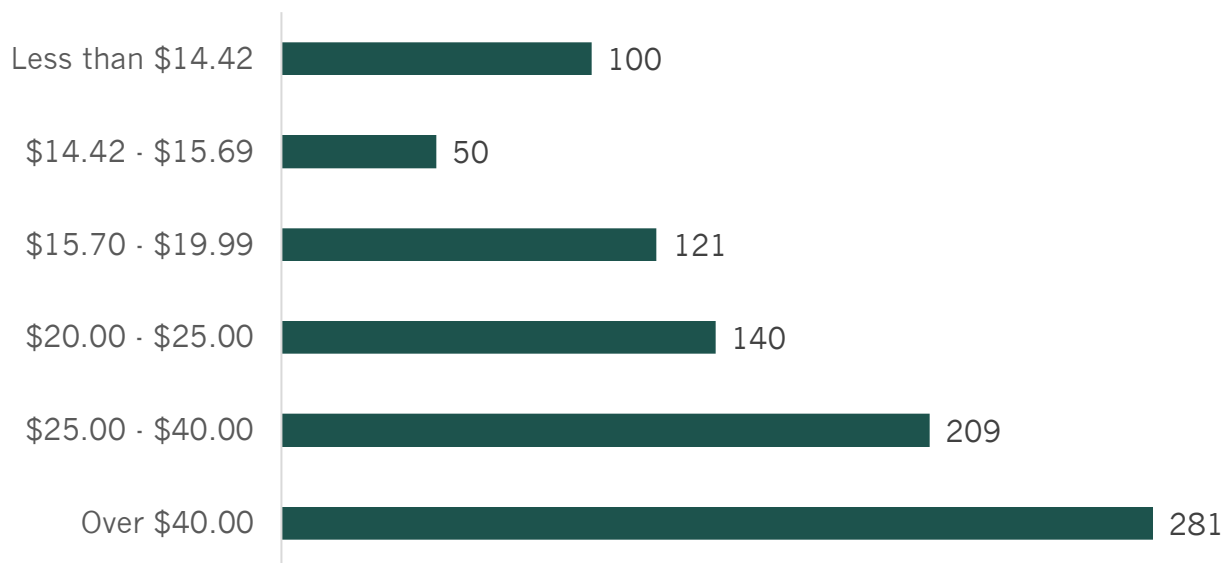
Exhibit A16. Are you a business owner?

No	609
Yes	309
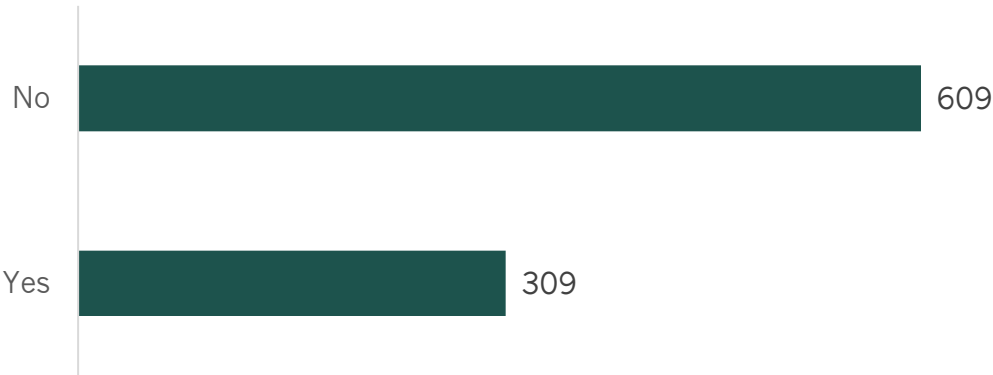
BUSINESS OWNER RESPONSES

Exhibit A17. In which Boulder County cities/towns is your business or organization located? (respondents could select multiple cities/towns)

City of Boulder	132
City of Lafayette	85
City of Longmont	77
City of Louisville	50
Outside of Boulder County	42
Unincorporated Boulder County	37
Town of Erie	26
Town of Superior	13
Town of Nederland	7
Town of Lyons	7
Town of Ward	3
Town of Jamestown	2
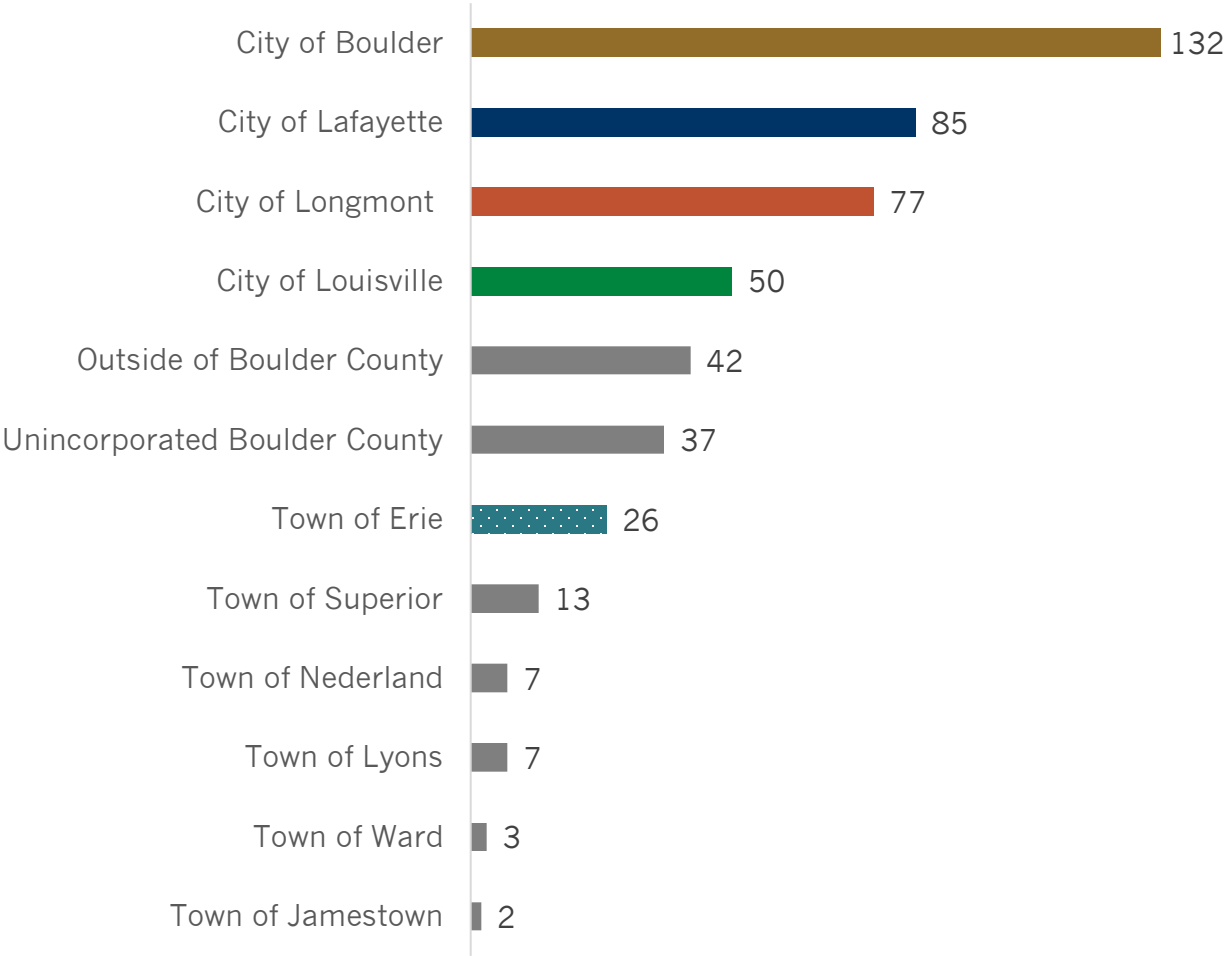
Exhibit A18. Please indicate the type of business you own

Type	Count
Retail	63
Other	62
Restaurant	54
Hospitality	25
Nonprofit	21
Manufacturing	20
Arts/Entertainment	16
Education	14
Childcare	14
Tech	12
Healthcare	11
Construction	9
Administration/Support	9
Landscape/Garden	8
Government	7
Transportation	5
House Cleaning	2
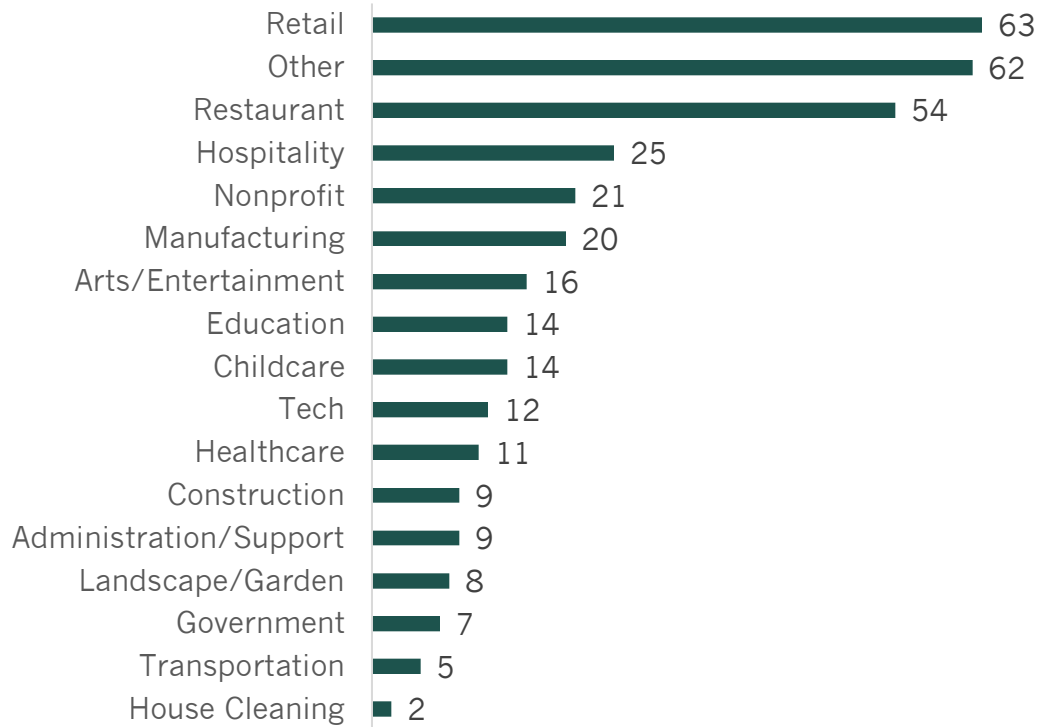
Exhibit A19. What category includes the hourly wage for your lowest paid employees before taxes, deductions and tips?

Category	Count
Less than $14.42/hour	30
$14.42 - $15.69/hour	71
$15.70 - $19.99/hour	90
$20.00 - $25.00/hour	49
$25.00 - $40.00/hour	17
Over $40.00/hour	20
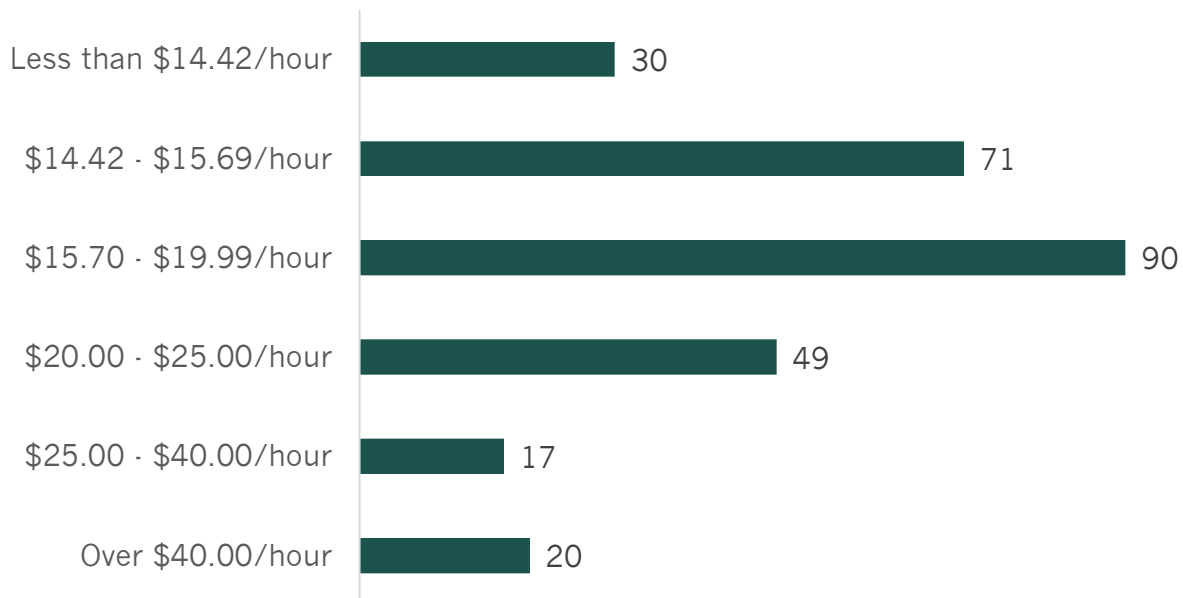
Exhibit A20. How long has your business been in operation?

Duration	Count
Less than a year	9
1-3 years	27
3-5 years	20
6-10 years	47
11-19 years	54
More than 20 years	118
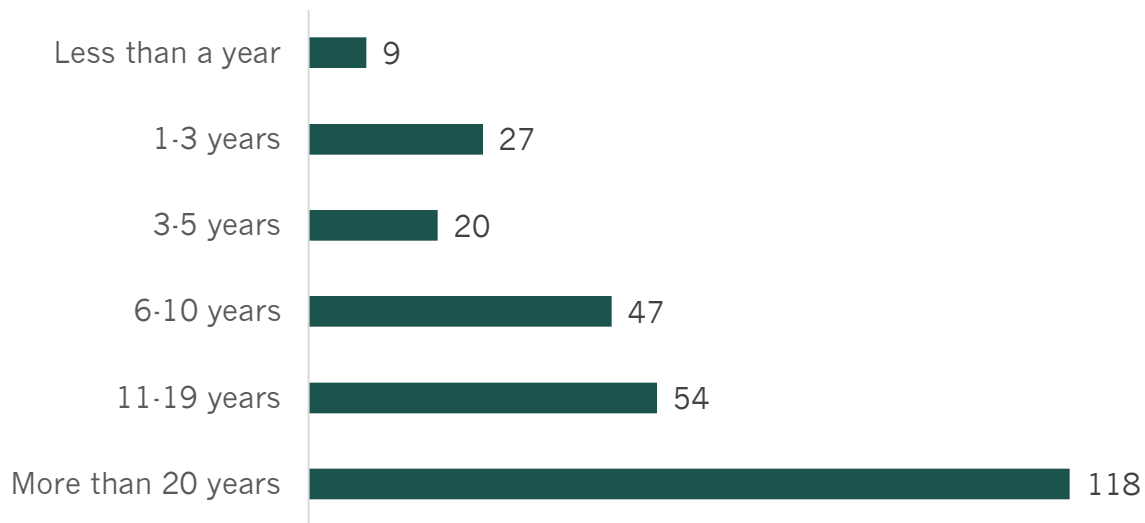
Exhibit A21. How many workers do you employ?

Workers	Count
Less than 10	121
10-24	75
25-49	29
50-99	21
100-249	18
More than 250	11
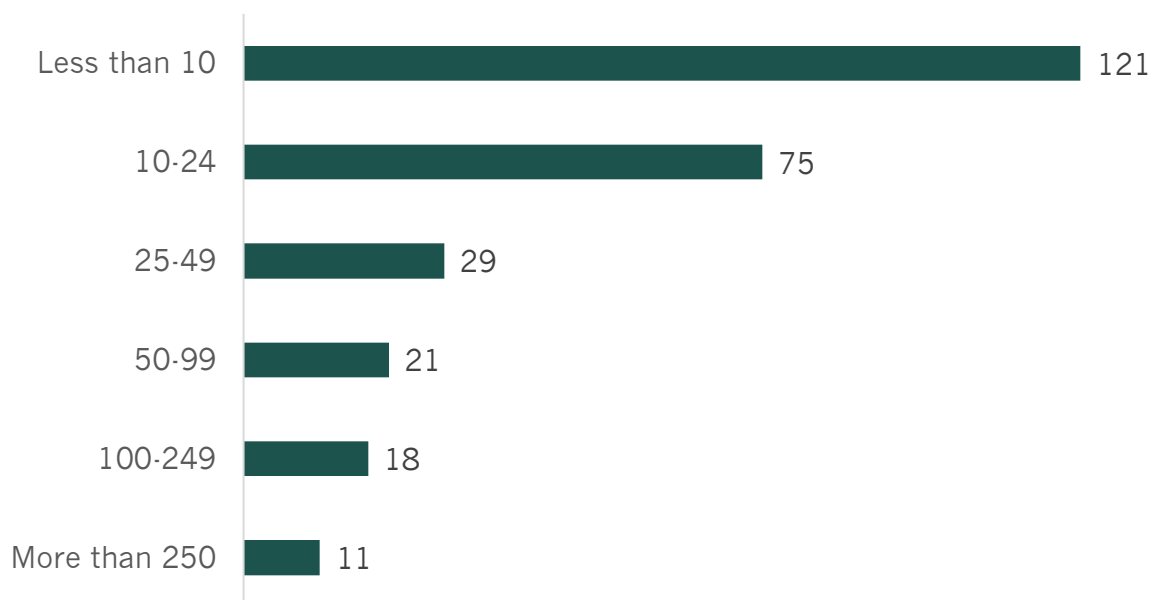
8. Appendix B: Additional Material

Existing Conditions Additional Material

Exhibit B1. Population and Worker Statistics in Relevant PUMAs

METRIC	PUMA A	PUMA B	PUMA C	PUMA D	ALL
Full Population					
Total Population	121,470	123,484	120,216	171,852	537,022
Employed Population	68,698	68,107	64,262	96,716	297,783
Employed Population Share	57%	55%	53%	56%	55%
Share White	79%	73%	59%	72%	71%
Share Hispanic	9%	20%	35%	14%	19%
Share Asian, Black, Other Non-Hispanic	13%	7%	6%	14%	11%
Share Less than 18	12%	19%	28%	22%	20%
Share 18 to 24	29%	9%	9%	7%	13%
Share 25 to 64	45%	53%	53%	56%	52%
Share 65+	14%	20%	10%	15%	15%
Share High School Diploma or Lower	21%	38%	50%	33%	34%
Share Some College no degree	27%	16%	16%	13%	17%
Share Associate Degree	2%	6%	7%	7%	6%
Share Bachelor's Degree	26%	26%	16%	27%	24%
Share Graduate/Professional Degree	24%	14%	10%	20%	17%
Share Below Poverty Line	22%	9%	5%	6%	10%
Share of 16-64 Year Olds Working Full-time	40%	56%	58%	62%	54%
Among Workers with Wages					
Median Annual Wage	$33,354	$52,116	$52,116	$67,750	$52,116
Median Hourly Wage	$23.05	$26.73	$26.06	$34.03	$27.56
Share Earning the Minimum Wage or Less	29%	17%	16%	16%	20%
Share Employed in Low Wage Industries	33%	28%	31%	29%	30%
Share Employed in Low Wage Occupations	29%	26%	29%	19%	25%
Municipality Population Share					
Erie	0%	42%	58%	0%	100%
Boulder	95%	0%	0%	0%	95%
Lafayette	7%	3%	0%	89%	100%
Longmont	0%	99%	1%	0%	100%
Louisville	22%	0%	0%	78%	100%
Share of PUMA Population in the Five Municipalities					
	87%	89%	18%	26%	54%

Source: U.S. Census Bureau, ACS PUMS, 2022 1-year estimates

Exhibit B2. Employment and Wages by Industry, Boulder County

INDUSTRY	AVERAGE ANNUAL EMPLOYMENT	AVERAGE ANNUAL PAY	AVERAGE HOURLY WAGE
Professional and Technical Services	35,346	$147,527	$70.93
Health Care and Social Assistance	22,705	$67,161	$32.29
Manufacturing	21,230	$98,028	$47.13
Accommodation and Food Services	17,250	$30,624	$14.72
Retail Trade	16,824	$43,257	$20.80
Information	8,557	$202,119	$97.17
Wholesale Trade	7,335	$140,240	$67.42
Construction	5,713	$73,838	$35.50
Administrative and Waste Services	5,697	$61,420	$29.53
Other Services	5,649	$56,962	$27.39
Finance and Insurance	4,123	$155,835	$74.92
Arts, Entertainment, and Recreation	3,592	$34,129	$16.41
Educational Services	3,568	$51,117	$24.58
Real Estate and Rental and Leasing	2,643	$75,230	$36.17
Management of Companies and d Enterprises	1,899	$152,453	$73.29
Transportation and Warehousing	1,559	$56,480	$27.15
Agriculture, Forestry, Fishing & Hunting	634	$45,089	$21.68
Utilities	420	$164,132	$78.91
Mining	195	$129,939	$62.47
Unclassified	72	$85,666	$41.19
Total/Weighted Average	**129,665**	**$94,425**	**$45.40**

Source: Colorado Department of Labor and Employment, QCEW, 2023

Exhibit B3. Employment and Wages by Industry, Boulder County

OCCUPATION	AVERAGE ANNUAL EMPLOYMENT	AVERAGE ANNUAL PAY	MEDIAN HOURLY WAGE
Business and Financial Operations	19,760	$91,229	$43.86
Sales and Related	19,640	$47,570	$22.87
Office and Administrative Support	19,360	$50,066	$24.07
Food Preparation and Serving Related	17,660	$37,440	$18.00
Computer and Mathematical	17,320	$131,144	$63.05
Management	12,750	$157,726	$75.83
Educational Instruction and Library	12,160	$65,312	$31.40
Healthcare Practitioners and Technical	9,990	$94,349	$45.36
Architecture and Engineering	8,960	$105,310	$50.63
Production	8,730	$47,611	$22.89
Transportation and Material Moving	7,290	$46,301	$22.26
Life, Physical, and Social Science	5,950	$103,958	$49.98
Healthcare Support	5,260	$43,056	$20.70
Installation, Maintenance, and Repair	4,770	$61,443	$29.54
Personal Care and Service	4,680	$39,416	$18.95
Arts, Design, Entertainment, Sports, and Media	4,450	$75,192	$36.15
Building and Grounds Cleaning and Maintenance	4,310	$42,349	$20.36
Construction and Extraction	4,030	$59,946	$28.82
Community and Social Service	3,210	$64,064	$30.80
Protective Service	2,180	$65,790	$31.63
Legal	1,770	$96,179	$46.24
Farming, Fishing, and Forestry	220	$43,784	$21.05
Total/Weighted Average	**194,440**	**$75,565**	**$36.33**

Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics (OES), 2023

Comparative Analysis Methods and Additional Details

PROCESS FOR SELECTING COMPARISON REGIONS

We identified a list of cities and counties that that, to the extent possible, resemble one or of the study's five municipalities in dimensions such as population, industry composition, demographic characteristics, and minimum-wage-law timeline. We examined available data about the comparison cities and counties for periods before and after their minimum wage laws were enacted. The collected data provide insight into how cities and counties have fared after minimum wage increases.

As of June 1, 2024, 67 municipalities and counties have minimum wage laws distinct from their state's law. Compared to 2012 this represents a more than tenfold increase in number of localities implementing such a law. These localities comprise the initial pool of comparison regions. The first step in our selection process was to exclude places with minimum wage laws passed prior to 2014 or after 2018, as well as places that increased the minimum wage after 2018. These restrictions allow for sufficient data availability before and after the first increase. This step filtered out about half of the localities that had increased their minimum wage.

Although three of the five municipalities have smaller populations, we further restricted the pool of comparison regions to those with populations greater than 65,000, due to data availability. We chose from the remaining list of cities/counties based on their population and industry mix relative to the study municipalities and whether the location had a published study on minimum wage effects. Compiling the top two industries by employment in each the five study municipalities yields the following four industries: Educational services; Professional, scientific, and technical services; Manufacturing; Health care, and social assistance. We prioritized comparison regions where employment aligned with this list. Geographic diversity was the final selection criteria, in part because most regions with their own minimum wage laws are in California and we wanted to avoid over-representation of regions dependent on conditions in a single state.

The selection criteria resulted in a list of the following 10 cities and counties:
- *Flagstaff, AZ*
- *Alameda, CA*
- *Milpitas, CA*
- *San Mateo, CA*
- *Santa Clara, CA*
- *Cook County, IL*
- *Montgomery County, MD*
- *Minneapolis, MN*
- *Santa Fe County, NM*
- *Seattle, WA*

Exhibit B4 provides summary information about the minimum wage increases and demographics of the region. Seven states are represented. Minimum wages before the first

increase ranged from $7.50 to $12.00 while "full" goal wages ranged from $10.66 to $15.00. The last four columns of the table provide demographic shares from each region's "midpoint year", the year halfway between the year the law was enacted and the year the target wage was reached.

Exhibit B4. Demographic and Wage Information for Comparison Locations

Cities	Population (Mid-point)	Minimum Wage Enacted Year	Wage before first increase	Year of First Increase	Year of First Increase Wage	Full Wage Year	Full Wage Year Wage	Mid-point Year	Age 19 & under (Mid-point)	Age 55 and above (Mid-point)	Associate and above (Mid-point)	% BIPOC (Mid-point)
Arizona	7,278,717				N/A			2019	25.3	30.0	38.8	46.0
Flagstaff, AZ	75,044	2016	$ 10.0	2017	$ 10.5	2021	$ 15.0	2019	30.5	18.1	59.5	36.6
California	39,512,223				N/A			2018	25.1	26.9	42.9	63.7
Alameda, CA	77,630	2018	$ 12.0	2019	$ 13.5	2020	$ 15.0	2019	22.3	29.6	62.5	59.2
Milpitas, CA	80,424	2017	$ 10.5	2017	$ 11.0	2019	$ 15.0	2018	24.4	23.8	58.9	90.3
San Mateo, CA	105,016	2016	$ 10.0	2017	$ 12.0	2019	$ 15.0	2018	21.4	29.0	63.7	55.2
Santa Clara, CA	127,131	2015	$ 9.0	2016	$ 11.0	2019	$ 15.0	2017	22.7	21.6	62.3	70.5
Illinois	12,741,080				N/A			2018	25.2	28.7	43.2	39.0
Cook County, IL	5,180,493	2016	$ 8.3	2017	$ 10.0	2020	$ 13.0	2018	24.1	26.8	45.7	58.0
Maryland	6,045,680				N/A			2019	24.6	29.4	47.8	49.9
Montgomery County, MD	1,050,688	2017	$ 11.5	2018	$ 12.3	2021	$ 15.0	2019	25.3	29.2	63.2	57.4
Minnesota	5,639,632				N/A			2019	25.6	29.9	48.7	20.9
Minneapolis, MN	429,605	2017	$ 7.8	2018	$ 10.0	2022	$ 15.0	2019	23.8	20.1	59.9	39.6
New Mexico	2,085,572				N/A			2014	26.8	28.3	34.5	61.2
Santa Fe County, NM	148,164	2014	$ 7.5	2014	$ 10.7	2014	$ 10.7	2014	21.4	36.2	44.5	57.2
Washington	7,288,000				N/A			2016	24.9	27.8	45	30.5
Seattle, WA	704,358	2014	$ 9.5	2015	$ 11.0	2017	$ 15.0	2016	17.9	23.5	69.9	35.5

Source: American Community Survey 1-Year Estimates, Tables DP05, DP02, DP03, Various Years; UC Berkeley Inventory of US City and County Minimum Wage Ordinance

Regional Minimum Wage Impact Analysis

The information presented here provides additional details on the methodology and results of the impact analysis. Table 1 through Table 3 correspond to the minimum wage scenarios presented in Exhibits 42 through 44.

EMPLOYMENT AND EARNINGS METHODS

The first step in evaluating the impact of an increase in the minimum wage on employment is to determine an appropriate elasticity, defined as the percentage change in employment associated with a percentage change in the minimum wage. Elasticity estimates for directly affected workers vary widely in the literature, from -1.70 (i.e., a 10 percent increase in the minimum wage would result in a 17 percent reduction in employment for directly affected workers) to *positive* 0.40 (i.e., a 10 percent increase in the minimum wage would result in a four percent increase in employment for directly affected workers) (Table 4). The Congressional Budget Office (CBO) identifies a median elasticity estimate for directly-affected workers of -.25, and a -0.004 elasticity for all adult workers.[131] Importantly, the elasticity for younger workers (teenagers, in particular) is substantially higher than the elasticity for adults generally. CBO estimates that elasticities for all teenagers (directly and potentially affected) is equal to -0.111 (Table 5).

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[131] Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf.

The next step of the analysis is to apply the corresponding elasticities to current employment levels within each of the five municipalities. To account for the fact that elasticities vary by age, we also examine employment by age: teenagers (16-19 years old), young adults (20-24 years old), and adults (25 years and older).

EMPLOYMENT AND EARNINGS DETAILED RESULTS

Tables 6a and 6b provide the modeled effects on employment by age group of worker for each scenario for 2025, 2030, and 2035, relative to the baseline status quo. Table 6a shows employment changes by age. The tables present low, middle, and high estimates for these effects with the range between low and high driven by the range of results observed in the literature.

Current (2023) employment across the five municipalities is estimated to be 197,714 based on data from the 2023 Quarterly Census of Employment and Wages distributed by the Colorado Department of Labor and Employment. Employment for each of the five municipalities is as follows: Boulder (106,847, 54.0%); Longmont (49,244, 24.9%); Erie (6,388, 3.2%); Lafayette (15,332, 7.8%); and Louisville (19,902, 10.1%). By age group, teenagers made up 10.7 percent (21,242) of the employed population, young adults made up 13.2 percent (26,401) of the employed population, and adults 25 years and older made-up 76.1 percent (150,071) of the employed population.

Taking the Unincorporated Boulder County scenarios first, we find that under Scenario B1 377 teenagers out of 21,242 (1.8%) would be laid off in 2025 relative to baseline, 1,067 (5.0%) would be laid off by 2030 relative to baseline, and 989 (4.7%) would be laid off by 2035 relative to baseline (Tables 6a and 6b). Under Scenario B2, 86 teenagers (0.4%) would be laid off by 2025 relative to baseline, 643 (3.0%) would be laid off by 2030 relative to baseline, and 1,477 (7.0%) would be laid off by 2035 relative to baseline. Among adults aged 25 years and older, less than 0.3 percent of workers would be laid off under either scenario through 2035. The number of workers laid off out of 197,714 relative to baseline is 282 in 2030 and 269 in 2035 under Scenario B1, and 167 in 2030 and 377 in 2035 under Scenario B2.

The impacts on employment under the Denver-based minimum wage scenarios, D1 and D2, are less pronounced than those under the Unincorporated Boulder County scenarios, as might be expected given that Denver's minimum wage in 2035 is scheduled to be below that of Unincorporated Boulder County ($25.32 and $28.98, respectively). That said, the impacts on employment for 2025 are the same for D1 and B1 because both are based on the maximum allowable annual increase under law of 15-percent. By 2030, however, Scenario D1 is projected to result in 772 teenagers (3.6%) being laid off relative to baseline in 2030 and 694 teenagers (3.3%) relative to baseline in 2035. The analogous numbers for Scenario D2 are 386 (1.8%) in 2030 and 859 (4.1%) in 2035. Similarly to the Unincorporated Boulder County-based scenarios, the percentage of adults experiencing a layoff is low—less than 0.2 percent—under the Denver-based scenarios. In terms of counts, under Scenario D1 the number of additional adults would be expected to be laid off relative to baseline is 167 in 2030 and 154 in 2035. For Scenario D2, the numbers are 97 in 2030 and 212 in 2035.

Many workers that remain employed, with earnings at or below the minimum wage will experience an increase in earnings. Under Scenario B1, approximately eight percent of workers (15,805) would experience an increase in earnings by 2030 and 14 percent of workers (26,784) would experience an increase by 2035 (Tables 7a and 7b). Under Scenario B2, 2.6 percent of workers (5,108) would experience an increase in earnings by 2030, and 14 percent (26,778) would experience an increase in earnings by 2035. Therefore, under the Unincorporated Boulder County-based scenarios, in 2035, the percentage of all workers experiencing a layoff is approximately one percent and the percentage of all workers experiencing an increase in earnings is 14 percent.

Just as the negative impacts on employment under the Denver-based scenarios are lower than those for the Unincorporated Boulder County scenarios, so are the positive ones with respect to the number of workers experiencing an increase. Under Scenario D1, approximately four percent of workers (3.5%, 6,968) would experience an increase in earnings above baseline by 2030, as would seven percent by 2035 (7.4%, 14,628). Under Scenario D2, one percent of workers (0.9%, 1,848) would experience an increase in earnings above baseline by 2030, as would seven percent by 2035 (7.4%, 14,620). Therefore, under the Denver-based scenarios, the percentage of all workers experiencing a layoff is approximately one half of one percent and the percentage of workers experiencing as increase in earnings is approximately seven percent. All estimates presented in this section are based on a middle estimate across all five cities. We have also estimated low and high estimates based on impact ranges from the literature, and we have estimated impacts for each of the five municipalities individually. These detailed results can be found in Tables 6a,b and Tables 7a,b.

FAMILY INCOME

To calculate how an increase in the minimum wage under the four scenarios would affect average family income we follow the approach of CBO, in which impacts are quantified by income levels relative to poverty. We do so for two reasons. First, families with incomes near or slightly above the Federal Poverty Level (FPL) are likely to benefit more from an increase in the minimum wage than families with incomes that are several multiples of the FPL, and we want to capture this difference in our estimates. Second, our IMPLAN economic impacts analysis (IMPLAN stands for IMpact analysis for PLANning) is based not just on increases in family income, but also on the extent to which families spend their additional income. Families with lower incomes spend a higher portion of their incomes compared with families with higher incomes and, as a result, the spending multiplier will be higher for low-income families than for high-income families. Stratifying our impacts on families by income level allows us to take these different spending multipliers into account for our IMPLAN analysis.

Following the general approach by CBO, we stratify households in all five municipalities according to their incomes relative to poverty (< 1.00 FPL; 1.00 to 1.49 FPL; 1.50 to 1.99 FPL; 2.00 to 2.99 FPL; 3.00 to 4.99 FPL; and 5.00 or more of FPL) (Table 8a). An increase in the minimum wage raises average annual real income for all families with incomes below three times the FPL. The impact is largest among those with incomes below FPL, as might be

expected. Under Scenario B1, average family income increases by $152 in 2030 for families below FPL, and increases between $77 and $86 for families with incomes between 1.00 and 2.99 of FPL. Families between 3.00 and 4.99 of FPL are projected to have no meaningful change in income in 2030 and those families with 5.00 or more of FPL are expected to have a reduction in real annual income of $95. (The reduction in inflation-adjusted income ("real" income) occurs because of price increases.) By 2035 under Scenario B1, families with incomes less than 1.99 of FPL are expected to experience an increase in real annual income between $291 and $320. Those with incomes between 2.00 and 2.99 of FPL are expected to experience an increase of $182 in 2035. Families with incomes between 3.00 and 4.99 of FPL are expected to have no meaning change in their incomes, and those with incomes of 5.00 of FPL or more are expected to experience a reduction of $456.

The impact to average annual real family income under Scenario B2 in 2030 are approximately one quarter of those under Scenario B1 (Table 8b), as might be expected. The impacts in 2035 are the same for Scenario B1 and B2, as noted above, because by 2035 the minimum wage is the same under both scenarios.

Under Denver-based Scenario D1, families with incomes below the FPL are expected to experience an increase in average annual real family income of $58 in 2030. Families with incomes between 1.00 and 2.99 of FPL are expected to experience an increase in average real family income between $30 and $33. Similar to the impacts for Unincorporated Boulder County, families with incomes between 3.00 and 4.99 FPL are expected to have no meaningful change in family income, whereas those with incomes five or more times as high as the FPL are expected to experience a reduction of $36 on average in 2030. Under Scenario D2, families are not expected to experience a meaningful change in average annual real income in 2030.

By construction, the minimum wage in 2035 is the same under both Scenario D1 and D2, so the impacts to average annual real family income are expected to be the same as well. Families with incomes below the FPL are expected to experience an increase of $176, whereas families with incomes between 1.00 FPL and 2.99 FPL are expected to experience an increase between $100 and $133. Families with household incomes between 3.00 and 4.99 FPL are no expected to experience no change while those with incomes five times FPL or higher are expected to have a reduction of $183.

To summarize, across all four scenarios, families with incomes below 2.99 FPL are expected to experience an increase in average annual real family income by 2035, while families with incomes five times or more of FPL are expected to experience a reduction. As described below, the aggregate impact of these changes is negative, in large part because the number of families with incomes three times FPL or higher is much larger than the number of families below this threshold (120,548 compared with 52,557).

LABOR AND OPERATING COSTS

Just as elasticities can be used to assess impacts to workers, elasticities can be used to assess impacts to businesses. First, by industry, we apply industry-specific elasticities from a

University of California-Berkeley study to estimate how the minimum wage increases for each of our scenarios impacts industry-specific payroll costs.[132] We then estimate, by industry, the change in total operating costs for each scenario by multiplying our estimated percentage increase in payroll costs by the fraction of total operating costs attributed to labor.

Under Scenario B1, across all industries payroll costs are expected to increase by 2.7 percent above baseline as of 2030 and 3.1 percent above baseline as of 2035 (Table 10a). The fraction of total operating costs attributed to labor is estimated to be 22.1 percent across all industries, so the impact of Scenario B1 on total operating costs is 0.6 percent as of 2030 and 0.7 as of 2035. Under Scenario B2, across industries, payroll costs are expected to increase by 1.3 percent, and match those under Scenario B1 as of 2035.

The average change in payroll costs across all industries masks wide variation in impacts across industries. For example, under both Scenario B1 and B2, payroll costs by 2035 are expected to increase 21.7 percent for restaurants, 13.2 percent for grocery stores, 12.0 percent for services, and 7.1 percent for food manufacturing. The associated operating costs are 6.7 percent for restaurants, 1.6 percent for grocery stores, 4.1 percent for services, and 0.8 percent for food manufacturing.

For the Denver-based scenarios, the average change in payroll costs across all industries is about 60 percent that of the Unincorporated Boulder County-based scenarios as of 2035. Under Scenario D1, across all industries payroll costs are expected to increase 1.6 percent above baseline in 2030 and 1.8 percent above baseline in 2035 (Table 10b). Under Scenario D2, across all industries payroll costs are expected to increase 0.8 percent above baseline in 2030 and 1.8 percent above baseline in 2035. The increase in operating costs is approximately one-fifth of these percentages. Like the Boulder County-based scenarios, wide variation exists across industry with the largest increases for restaurants, grocery stores, services, and food manufacturing.

The extent to which these increased operating costs translate into higher prices depends on many factors, including consumers' price elasticity of demand for products in these industries.

PERCENTAGE OF WORKERS WITH INCREASED EARNINGS

To evaluate the percentage of workers with increased earnings by industry we combine our findings for directly-affected and potentially-affected workers in Tables 7a and 7b with the industry-specific analysis from the Berkeley study. [133] Consistent with our previous findings, under Scenario B1, eight percent of workers across all industries are expected to experience an increase in earnings by 2030 and 14 percent are expected to experience an increase in earnings by 2035 (Tables 11a and 11b). In comparison, under Scenario B2, approximately three percent

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[132] Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment. https://irle.berkeley.edu/wp-content/uploads/2016/03/The-Effects-of-a-15-Minimum-Wage-in-New-York-State.pdf.

[133] Potentially-affected workers are those who have wages that exceed the proposed minimum wage. These workers are expected to also experience an increase in earnings because of ripple effects within an organization that retain differences in pay across workers.

(2.7%) of workers are expected to experience an increase in earnings by 2030 and 14 percent are expected to experience an increase by 2035 (equivalent to Scenario B1).

Industries with the highest percentage of workers expected to experience an increase in earnings by 2035 under the Unincorporated Boulder County-based scenarios are as follows: restaurants (29.5%), other services (25.5%), grocery stores (25.1%), and retail trade (21.4%).

Under the Denver-based scenarios, the percentage of workers expected to experience an increase in earnings in 2030 is 3.8 percent under Scenario D1 and 1.0 percent under Scenario D2. Under both scenarios, 7.9 percent of workers are expected to experience an increase in earnings by 2035. This percentage, therefore, is roughly one half the impact of the Unincorporated Boulder County-based scenarios, described above. Similar to Scenarios B1 and B2, the largest impacts would take place for workers in the following industries: restaurants (16.1%), other services (13.9%), grocery stores (13.7%), and retail trade (11.7%).

PRICES

The price effects of minimum wage increases can be assessed using elasticities, much in the same way that elasticities are used to measure the impacts on employment. In this case, the elasticity measures the percentage change in prices resulting from a percentage change in the minimum wage. MacDonald and Nilsson (2016) evaluated restaurant food prices over nearly three decades and estimated an elasticity of .036 (i.e., that a 10 percent increase in the minimum wage resulted in a 0.36 percent change in prices).[134] The authors noted that their elasticity estimate is equal to approximately one half of the size reported in the literature. We, therefore, estimate the impact on prices using a range from 0.36—the value estimated by MacDonald and Nilsson—and 0.72.

The next part of the analysis of price impacts examines how prices in the Boulder County area compare with prices nationally. One challenge with doing so is that prices have fluctuated substantially over the past five years. The Consumer Price Index for All Urban Consumers (CPI-U) for the Denver-Aurora-Lakewood region was 1.9 percent in 2019, 2.0 percent in 2020, 3.5 percent in 2021, 8.0 percent in 2022, and 5.2 percent in 2023. Most recently, in May 2024, the CPI-U for the Denver-Aurora-Lakewood region was 2.6 percent.[135] The CPI-U for the United States, West Region, and Mountain Region are shown in Table 12a. Since 2020, inflation for the Mountain region exceeded inflation for the West Region and the nation as a whole. In 2023, inflation was 4.1 percent nationally, compared with 4.3 percent in the West Region, and 4.483

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[134] MacDonald, D. and Nilsson, E. (2016). "The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context." Upjohn Institute Working Paper 16-260. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, https://doi.org/10.17848/wp16-260.

[135] U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood, CO." Washington, DC: U.S. Department of Labor, https://www.bls.gov/regions/mountain-plains/news-release/ConsumerPriceIndex_Denver.htm; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index for All Urban Consumers (CPI-U), Denver-Aurora-Lakewood, CO." Series Id: CUURS48BSA0. Washington, DC: U.S. Department of Labor. https://data.bls.gov/timeseries/CUURS48BSA0?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true.

percent in the Mountain Region. As note above, inflation in 2023 for Denver-Aurora-Lakewood was 5.2 percent.

Given the volatility of prices, it is a challenge to benchmark price increases through 2035. For the purposes of our analysis, we start with a national inflation rate of 3.0 percent. We then estimate an inflation rate of 3.267 for the five municipalities based on the relative price difference between the nation as a whole and the region. It turns out that this base inflation rate does not impact our analysis, because our focus is on changes from baseline (i.e., over and above any price increases associated with Colorado's legislated increase in the minimum wage).

Using this approach, prices are expected to increase between 0.047 and 0.094 percent from baseline through 2030 under Scenario B1, after which price increases will follow those of the baseline scenario. Prices are expected to increase between 0.025 and 0.050 percent from baseline through 2030 under Scenario B2, and between .046 and .092 through 2035 (Table 12b).

The impact on inflation is lower for the Denver-based scenarios compared with the Unincorporated Boulder County-based scenarios. Prices would increase between 0.03 percent and 0.061 percent by 2030 under Scenario D1, at which point prices move in lockstep with the Colorado-based baseline. Under Scenario D2, prices increase between 0.016 percent and 0.032 percent by 2030 and then, over the subsequent five years, match the increase in prices of Scenario D1.

The main takeaways from the price impacts analysis are: 1) prices in the Mountain region and the Denver-Aurora-Lakewood area are currently above those of the West Region and the nation as a whole, and 2) prices would increase further under all four scenarios, albeit with magnitudes that are less than one tenth of one percent by 2035. The largest estimated increase is 0.092 percent on a base price increase of 3.267 percent.

ECONOMIC OUTPUT

We use IMPLAN economic modeling software to estimate the impacts of our four scenarios on economic output in the region. IMPLAN is a widely recognized input-output modeling framework designed to estimate the economic impacts of firm expenditures or other changes in an economy. Impacts are measure in terms of output and jobs, with output representing the value of goods and services produced and jobs representing full-year equivalents (FYE).

In general terms, the IMPLAN model works by tracing how spending circulates throughout the economy within a study area, such as a county, by estimating the mathematical relationships between industries, labor, households, and consumers. The key is that changes in one sector or multiple sectors trigger changes in demand and supply throughout the economy. As these changes propagate through the economy via supply- and demand chain linkages, the equilibrium quantities of inputs and outputs are all altered. The resulting multiplier effects continue until the initial change in demand leaks out of the economy in the form of savings, taxes, and imports.

The IMPLAN model takes into account three levels of economic impacts: direct, indirect, and induced. For the purpose of this analysis, we are interested in the induced impacts that stem from any change in households' purchases of goods and services due to the increase in the minimum wage. These induced effects are often referred to as consumption-driven impacts.

For the purposes of this analysis, we focus on two impacts calculated using the IMPLAN model: economic output and tax revenue generation. Economic output represents the value of goods and services produced, and is the broadest measure of economic activity. Output can roughly be thought of as sales. Tax revenue generation includes state and local taxes and fees, including production business taxes, personal income taxes, social insurance (employer and employee contributions) taxes, and various other taxes, fines, licenses, and fees paid by businesses and households.

In this section, we describe the IMPLAN results with respect to economic output. Tax revenues are covered in the next section. Under both the Unincorporated Boulder County-based scenarios and the Denver-based scenarios, economic output increases minimally or remains unchanged by 2030, but then turns slightly negative by 2035. This finding is driven by the way that the minimum wage affects average real family income.

As described above, households in the highest group (i.e., with annual incomes equal to five times the FPL or more) are expected to experience a slight reduction in real family income, largely due to price increases. Further, families with incomes between three and five times of FPL are expected to have no change in real income. Because more households have incomes above three times the FPL than below three times the FPL (120,548 compared with 52,557), and because their incomes are higher, the reduction in income among higher-income households, aggregated, leads to a slight reduction in economic output.

Importantly, the magnitude of the impact is small relative to the size of the local economy. In particular, the Denver-based scenarios lead to a $3.1 million reduction in economic output by 2035 and the Unincorporated Boulder County-based scenarios lead to an $11.6 million reduction in economic output by 2035. Economic output for the five municipalities is approximately $21 billion, based on the GDP of Colorado ($428 billion) and the portion of Colorado's population in the five municipalities (4.9%). In percentage terms, therefore, the reduction in economic output from the increase in the minimum wage ranges from -0.015 percent to -0.055 percent of local GDP. Still, raising the minimum wage is expected to reduce the size of the local economy, albeit slightly.

Table 1: Minimum Wages, Colorado, Denver, and Unincorporated Boulder County

	Standard			Tipped		
	Dollar	% Change		Dollar	% Change	
		Annual	Cumulative		Annual	Cumulative
Colorado						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$14.85	3.0%	3.0%	$11.83	3.8%	3.8%
2026	$15.30	3.0%	6.1%	$12.28	3.8%	7.7%
2027	$15.76	3.0%	9.3%	$12.74	3.7%	11.7%
2028	$16.23	3.0%	12.6%	$13.21	3.7%	15.9%
2029	$16.72	3.0%	15.9%	$13.70	3.7%	20.1%
2030	$17.22	3.0%	19.4%	$14.20	3.7%	24.5%
2031	$17.73	3.0%	23.0%	$14.71	3.6%	29.1%
2032	$18.27	3.0%	26.7%	$15.25	3.6%	33.7%
2033	$18.81	3.0%	30.5%	$15.79	3.6%	38.6%
2034	$19.38	3.0%	34.4%	$16.36	3.6%	43.5%
2035	$19.96	3.0%	38.4%	$16.94	3.6%	48.6%
Denver						
2023	$17.29	-------	-------	$14.27	-------	-------
2024	$18.29	5.8%	-------	$15.27	7.0%	-------
2025	$18.84	3.0%	3.0%	$15.82	3.6%	3.6%
2026	$19.40	3.0%	6.1%	$16.38	3.6%	7.3%
2027	$19.99	3.0%	9.3%	$16.97	3.6%	11.1%
2028	$20.59	3.0%	12.6%	$17.57	3.5%	15.0%
2029	$21.20	3.0%	15.9%	$18.18	3.5%	19.1%
2030	$21.84	3.0%	19.4%	$18.82	3.5%	23.2%
2031	$22.49	3.0%	23.0%	$19.47	3.5%	27.5%
2032	$23.17	3.0%	26.7%	$20.15	3.5%	32.0%
2033	$23.86	3.0%	30.5%	$20.84	3.4%	36.5%
2034	$24.58	3.0%	34.4%	$21.56	3.4%	41.2%
2035	$25.32	3.0%	38.4%	$22.30	3.4%	46.0%
Unincorporated Boulder County						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$15.69	14.9%	-------	$12.67	19.2%	-------
2025	$16.57	5.6%	5.6%	$13.55	6.9%	6.9%
2026	$17.99	8.6%	14.7%	$14.97	10.5%	18.2%
2027	$19.53	8.6%	24.5%	$16.51	10.3%	30.3%
2028	$21.21	8.6%	35.2%	$18.19	10.2%	43.6%
2029	$23.03	8.6%	46.8%	$20.01	10.0%	57.9%
2030	$25.00	8.6%	59.3%	$21.98	9.8%	73.5%
2031	$25.75	3.0%	64.1%	$22.73	3.4%	79.4%
2032	$26.52	3.0%	69.0%	$23.50	3.4%	85.5%
2033	$27.32	3.0%	74.1%	$24.30	3.4%	91.8%
2034	$28.14	3.0%	79.3%	$25.12	3.4%	98.2%
2035	$28.98	3.0%	84.7%	$25.96	3.4%	104.9%

Sources: Economic Policy Institute. (2024). "Minimum Wage Tracker," https://www.epi.org/minimum-wage-tracker/#/min_wage/Colorado/Denver; GovDocs. (2024). "Boulder County, Colo., Minimum Wage Ordinance." https://www.govdocs.com/boulder-county-colo-minimum-wage-ordinance/; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area - March 2024," https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm.
Notes: Values for tipped workers are based on the published rate for 2024, with future growth tied to the growth rate for standard workers.

Table 2: Minimum Wage Scenarios for Reaching Unincorporated Boulder County's Minimum Wage

Year	Standard			Tipped		
		% Change			**% Change**	
	Dollar	**Annual**	**Cumulative**	**Dollar**	**Annual**	**Cumulative**
Baseline (Colorado)						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$14.85	3.0%	3.0%	$11.83	3.8%	3.8%
2026	$15.30	3.0%	6.1%	$12.28	3.8%	7.7%
2027	$15.76	3.0%	9.3%	$12.74	3.7%	11.7%
2028	$16.23	3.0%	12.6%	$13.21	3.7%	15.9%
2029	$16.72	3.0%	15.9%	$13.70	3.7%	20.1%
2030	$17.22	3.0%	19.4%	$14.20	3.7%	24.5%
2031	$17.73	3.0%	23.0%	$14.71	3.6%	29.1%
2032	$18.27	3.0%	26.7%	$15.25	3.6%	33.7%
2033	$18.81	3.0%	30.5%	$15.79	3.6%	38.6%
2034	$19.38	3.0%	34.4%	$16.36	3.6%	43.5%
2035	$19.96	3.0%	38.4%	$16.94	3.6%	48.6%
Scenario B1						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$16.58	15.0%	15.0%	$13.56	19.0%	19.0%
2026	$17.99	8.5%	24.8%	$14.97	10.4%	31.3%
2027	$19.53	8.6%	35.4%	$16.51	10.3%	44.8%
2028	$21.21	8.6%	47.1%	$18.19	10.2%	59.6%
2029	$23.03	8.6%	59.7%	$20.01	10.0%	75.5%
2030	$25.00	8.6%	73.4%	$21.98	9.8%	92.8%
2031	$25.75	3.0%	78.6%	$22.73	3.4%	99.4%
2032	$26.52	3.0%	83.9%	$23.50	3.4%	106.2%
2033	$27.32	3.0%	89.4%	$24.30	3.4%	113.1%
2034	$28.14	3.0%	95.1%	$25.12	3.4%	120.3%
2035	$28.98	3.0%	101.0%	$25.96	3.4%	127.7%
Scenario B2						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$15.36	6.6%	6.6%	$12.34	8.3%	8.3%
2026	$16.37	6.6%	13.5%	$13.35	8.2%	17.1%
2027	$17.44	6.6%	21.0%	$14.42	8.0%	26.5%
2028	$18.59	6.6%	28.9%	$15.57	7.9%	36.5%
2029	$19.80	6.6%	37.3%	$16.78	7.8%	47.2%
2030	$21.10	6.6%	46.3%	$18.08	7.7%	58.6%
2031	$22.48	6.6%	55.9%	$19.46	7.6%	70.7%
2032	$23.96	6.6%	66.1%	$20.94	7.6%	83.7%
2033	$25.53	6.6%	77.0%	$22.51	7.5%	97.4%
2034	$27.20	6.6%	88.6%	$24.18	7.4%	112.1%
2035	$28.98	6.6%	101.0%	$25.96	7.4%	127.7%

Sources: Economic Policy Institute. (2024). "Minimum Wage Tracker," https://www.epi.org/minimum-wage-tracker/#/min_wage/Colorado; GovDocs. (2024). "Boulder County, Colo., Minimum Wage Ordinance." https://www.govdocs.com/boulder-county-colo-minimum-wage-ordinance/; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area - March 2024," https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm.

Notes: Values for tipped workers are based on the published rate for 2024, with future growth tied to the growth rate for standard workers.

Table 3: Minimum Wage Scenarios for Reaching Denver's Minimum Wage

Year	Standard			Tipped		
	Dollar	Pct Change		Dollar	Pct Change	
		Annual	Cumulative		Annual	Cumulative
Baseline (Colorado)						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$14.85	3.0%	3.0%	$11.83	3.8%	3.8%
2026	$15.30	3.0%	6.1%	$12.28	3.8%	7.7%
2027	$15.76	3.0%	9.3%	$12.74	3.7%	11.7%
2028	$16.23	3.0%	12.6%	$13.21	3.7%	15.9%
2029	$16.72	3.0%	15.9%	$13.70	3.7%	20.1%
2030	$17.22	3.0%	19.4%	$14.20	3.7%	24.5%
2031	$17.73	3.0%	23.0%	$14.71	3.6%	29.1%
2032	$18.27	3.0%	26.7%	$15.25	3.6%	33.7%
2033	$18.81	3.0%	30.5%	$15.79	3.6%	38.6%
2034	$19.38	3.0%	34.4%	$16.36	3.6%	43.5%
2035	$19.96	3.0%	38.4%	$16.94	3.6%	48.6%
Scenario D1						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$16.58	15.0%	15.0%	$13.56	19.0%	19.0%
2026	$19.07	15.0%	32.3%	$16.05	18.3%	40.8%
2027	$19.99	4.8%	38.6%	$16.97	5.7%	48.9%
2028	$20.59	3.0%	42.8%	$17.57	3.5%	54.1%
2029	$21.21	3.0%	47.1%	$18.19	3.5%	59.5%
2030	$21.84	3.0%	51.5%	$18.82	3.5%	65.1%
2031	$22.50	3.0%	56.0%	$19.48	3.5%	70.9%
2032	$23.17	3.0%	60.7%	$20.15	3.5%	76.8%
2033	$23.87	3.0%	65.5%	$20.85	3.4%	82.9%
2034	$24.59	3.0%	70.5%	$21.57	3.4%	89.2%
2035	$25.32	3.0%	75.6%	$22.30	3.4%	95.6%
Scenario D2						
2023	$13.65	-------	-------	$10.63	-------	-------
2024	$14.42	5.6%	-------	$11.40	7.2%	-------
2025	$15.18	5.3%	5.3%	$12.16	6.6%	6.6%
2026	$15.97	5.3%	10.8%	$12.95	6.6%	13.6%
2027	$16.81	5.3%	16.6%	$13.79	6.5%	21.0%
2028	$17.70	5.3%	22.7%	$14.68	6.4%	28.7%
2029	$18.63	5.3%	29.2%	$15.61	6.3%	36.9%
2030	$19.60	5.3%	35.9%	$16.58	6.3%	45.5%
2031	$20.63	5.3%	43.1%	$17.61	6.2%	54.5%
2032	$21.72	5.3%	50.6%	$18.70	6.2%	64.0%
2033	$22.86	5.3%	58.5%	$19.84	6.1%	74.0%
2034	$24.06	5.3%	66.8%	$21.04	6.1%	84.5%
2035	$25.32	5.3%	75.6%	$22.30	6.0%	95.6%

Sources: Economic Policy Institute. (2024). "Minimum Wage Tracker," https://www.epi.org/minimum-wage-tracker/#/min_wage/Colorado; U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index, Denver-Aurora-Lakewood area - March 2024," https://www.bls.gov/regions/mountain-plains/news-release/consumerpriceindex_denver.htm

Notes: Values for tipped workers are based on the published rate for 2024, with future growth tied to the growth rate for standard workers.

Table 4: Congressional Budget Office Summary of Short-Run and Long-Run Elasticities for All Directly Affected Workers, Selected Studies

Study	Short-Run Elasticities	Ratio of Long-Run to Short-Run Elasticities
Cengiz, et al. (2019)	0.40	1.0
Cengiz (2019)	0.30	1.0
Derenoncourt and Montialoux (2018)	0.20	1.0
Bailey, DiNardo, and Stuart (2018)	-0.10	2.0
Aaronson, French, and Sorkin (2018)	-0.20	2.0
Neumark, Schweltzer, and Wascher (2004)	-0.20	-----
CBO Median Estimate	-0.25	1.5
Gopalan, et al. (2018)	-0.90	-----
Monras (2019)	-1.00	1.5
Meer and West (2015)	-1.20	1.7
Jardim, et al. (2018)	-1.70	-----
Clemens and Wither (2016)	-1.70	-----

Source: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf.

Table 5: Congressional Budget Office Minimum Wage Employment Elasticities for Teenagers, Young Adults, and Adults, by CBO Scenario

Group	RMWEA COLA (r=3.0%)	CBO #1 ($10 Option; r=5.51%)	CBO #2 ($12 Option; r=8.76%)	CBO #3 ($15 Option; r=12.88%)	RMWEA Maximum (r=15%)
Teenagers					
Directly affected workers					
Median estimate		-0.653	-0.721	-0.829	
Range					
Low		0.001	0.001	0.001	
High		-1.306	-1.442	-1.658	
All workers					
Median estimate	-0.092	-0.100	-0.111	-0.128	-0.137
Range					
Low	0.001	0.001	0.001	0.001	0.001
High	-0.185	-0.201	-0.222	-0.255	-0.272
Young Adults					
Directly affected workers					
Median estimate		-0.433	-0.478	-0.549	
Range					
Low		0.001	0.001	0.001	
High		-0.971	-1.072	-1.232	
All workers					
Median estimate	-0.047	-0.052	-0.058	-0.066	-0.070
Range					
Low	0.001	0.001	0.001	0.001	0.001
High	-0.097	-0.106	-0.117	-0.134	-0.143
Adults					
Directly affected workers					
Median estimate		-0.212	-0.234	-0.269	
Range					
Low		0.001	0.001	0.001	
High		-0.635	-0.701	-0.806	
All workers					
Median estimate	-0.002	-0.003	-0.004	-0.004	-0.004
Range					
Low	0.001	0.001	0.001	0.001	0.001
High	-0.009	-0.010	-0.011	-0.013	-0.014

Source: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf.

Table 6a: Effects of Increases in the Minimum Wage on Employment, Unincorporated Boulder County-Based Scenarios, 2025, 2030, and 2035

	Current Employment	2025		2030		2035	
		Scenario B1	Scenario B2	Scenario B1	Scenario B2	Scenario B1	Scenario B2
All Five Municipalities	**197,714**						
Teenagers (16-19)	21,242						
Low		1	0	4	3	4	7
Middle		-377	-86	-1,067	-643	-989	-1,477
High		-749	-172	-2,122	-1,285	-1,965	-2,953
Young Adults (20-24)	26,401						
Low		2	0	5	4	5	8
Middle		-242	-55	-688	-414	-638	-951
High		-489	-112	-1,385	-838	-1,282	-1,926
Adults (25 or older)	150,071						
Low		9	3	29	20	26	47
Middle		-80	-23	-282	-167	-269	-377
High		-274	-60	-753	-450	-698	-1,034
Boulder	**106,847**						
Teenagers (16-19)	11,479						
Low		1	0	2	2	2	4
Middle		-204	-46	-577	-348	-535	-798
High		-405	-93	-1,147	-695	-1,062	-1,596
Young Adults (20-24)	14,268						
Low		1	0	3	2	2	4
Middle		-131	-30	-372	-224	-345	-514
High		-265	-61	-749	-453	-693	-1,041
Adults (25 or older)	81,100						
Low		5	1	16	11	14	25
Middle		-43	-12	-152	-90	-145	-204
High		-148	-32	-407	-243	-377	-559
Erie	**6,388**						
Teenagers (16-19)	686						
Low		0	0	0	0	0	0
Middle		-12	-3	-34	-21	-32	-48
High		-24	-6	-69	-42	-63	-95
Young Adults (20-24)	853						
Low		0	0	0	0	0	0
Middle		-8	-2	-22	-13	-21	-31
High		-16	-4	-45	-27	-41	-62
Adults (25 or older)	4,849						
Low		0	0	1	1	1	2
Middle		-3	-1	-9	-5	-9	-12
High		-9	-2	-24	-15	-23	-33
Longmont	**49,244**						
Teenagers (16-19)	5,291						
Low		0	0	1	1	1	2
Middle		-94	-21	-266	-160	-246	-368
High		-187	-43	-529	-320	-489	-736
Young Adults (20-24)	6,576						
Low		0	0	1	1	1	2
Middle		-60	-14	-171	-103	-159	-237
High		-122	-28	-345	-209	-319	-480
Adults (25 or older)	37,378						
Low		2	1	7	5	6	12
Middle		-20	-6	-70	-42	-67	-94
High		-68	-15	-188	-112	-174	-257
Lafayette	**15,332**						
Teenagers (16-19)	1,647						
Low		0	0	0	0	0	1
Middle		-29	-7	-83	-50	-77	-115
High		-58	-13	-165	-100	-152	-229
Young Adults (20-24)	2,047						
Low		0	0	0	0	0	1
Middle		-19	-4	-53	-32	-50	-74
High		-38	-9	-107	-65	-99	-149
Adults (25 or older)	11,637						

	Current Employment	2025 Scenario D1	2025 Scenario D2	2030 Scenario D1	2030 Scenario D2	2035 Scenario D1	2035 Scenario D2
Low		1	0	2	2	2	4
Middle		-6	-2	-22	-13	-21	-29
High		-21	-5	-58	-35	-54	-80
Louisville (est.)	**19,903**						
Teenagers (16-19)	2,138						
Low		0	0	0	0	0	1
Middle		-38	-9	-107	-65	-100	-149
High		-75	-17	-214	-129	-198	-297
Young Adults (20-24)	2,658						
Low		0	0	1	0	0	1
Middle		-24	-6	-69	-42	-64	-96
High		-49	-11	-139	-84	-129	-194
Adults (25 or older)	15,107						
Low		1	0	3	2	3	5
Middle		-8	-2	-28	-17	-27	-38
High		-28	-6	-76	-45	-70	-104

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf.; Colorado Department of Labor and Employment, QCEW, 2023

Table 6b: Effects of Increases in the Minimum Wage on Employment, Denver-Based Scenarios, 2025, 2030, and 2035

	Current Employment	2025 Scenario D1	2025 Scenario D2	2030 Scenario D1	2030 Scenario D2	2035 Scenario D1	2035 Scenario D2
All Five Municipalities	**197,714**						
Teenagers (16-19)	21,242						
Low		1	0	3	2	2	4
Middle		-377	-53	-772	-386	-694	-859
High		-749	-106	-1,531	-773	-1,373	-1,719
Young Adults (20-24)	26,401						
Low		2	0	3	2	3	5
Middle		-242	-34	-494	-249	-444	-552
High		-489	-69	-1,000	-504	-898	-1,121
Adults (25 or older)	150,071						
Low		9	2	18	12	15	28
Middle		-80	-14	-167	-97	-154	-212
High		-274	-37	-560	-271	-504	-602
Boulder	**106,847**						
Teenagers (16-19)	11,479						
Low		1	0	1	1	1	2
Middle		-204	-29	-417	-209	-375	-464
High		-405	-58	-827	-418	-742	-929
Young Adults (20-24)	14,268						
Low		1	0	2	1	1	3
Middle		-131	-19	-267	-134	-240	-298
High		-265	-38	-541	-272	-485	-606
Adults (25 or older)	81,100						
Low		5	1	10	7	8	15
Middle		-43	-7	-90	-52	-83	-114
High		-148	-20	-303	-146	-272	-325
Erie	**6,388**						
Teenagers (16-19)	686						
Low		0	0	0	0	0	0
Middle		-12	-2	-25	-12	-22	-28
High		-24	-3	-49	-25	-44	-56
Young Adults (20-24)	853						
Low		0	0	0	0	0	0

Category	Count						
Middle		-8	-1	-16	-8	-14	-18
High		-16	-2	-32	-16	-29	-36
Adults (25 or older)	**4,849**						
Low		0	0	1	0	0	1
Middle		-3	0	-5	-3	-5	-7
High		-9	-1	-18	-9	-16	-19
Longmont	**49,244**						
Teenagers (16-19)	**5,291**						
Low		0	0	1	0	1	1
Middle		-94	-13	-192	-96	-173	-214
High		-187	-27	-381	-193	-342	-428
Young Adults (20-24)	**6,576**						
Low		0	0	1	1	1	1
Middle		-60	-9	-123	-62	-111	-138
High		-122	-17	-249	-126	-224	-279
Adults (25 or older)	**37,378**						
Low		2	0	5	3	4	7
Middle		-20	-3	-42	-24	-38	-53
High		-68	-9	-139	-67	-126	-150
Lafayette	**15,332**						
Teenagers (16-19)	**1,647**						
Low		0	0	0	0	0	0
Middle		-29	-4	-60	-30	-54	-67
High		-58	-8	-119	-60	-106	-133
Young Adults (20-24)	**2,047**						
Low		0	0	0	0	0	0
Middle		-19	-3	-38	-19	-34	-43
High		-38	-5	-78	-39	-70	-87
Adults (25 or older)	**11,637**						
Low		1	0	1	1	1	2
Middle		-6	-1	-13	-8	-12	-16
High		-21	-3	-43	-21	-39	-47
Louisville (est.)	**19,903**						
Teenagers (16-19)	**2,138**						
Low		0	0	0	0	0	0
Middle		-38	-5	-78	-39	-70	-86
High		-75	-11	-154	-78	-138	-173
Young Adults (20-24)	**2,658**						
Low		0	0	0	0	0	0
Middle		-24	-3	-50	-25	-45	-56
High		-49	-7	-101	-51	-90	-113
Adults (25 or older)	**15,107**						
Low		1	0	2	1	2	3
Middle		-8	-1	-17	-10	-15	-21
High		-28	-4	-56	-27	-51	-61

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; Colorado Department of Labor and Employment, QCEW, 2023

Table 7a: Number of Workers Who Could See Increases in Earnings in an Average Week, Unincorporated Boulder County-Based Scenarios, 2030 and 2035

	Current Employment	2030		2035	
		Scenario B1	Scenario B2	Scenario B1	Scenario B2
All Five Municipalities	**197,714**				
Directly affected workers		8,116	2,242	17,107	17,102
Potentially affected workers		7,689	2,866	9,677	9,675
Boulder	**106,847**				
Directly affected workers		4,386	1,212	9,245	9,242
Potentially affected workers		4,155	1,549	5,229	5,229
Erie	**6,388**				
Directly affected workers		262	72	553	553
Potentially affected workers		248	93	313	313
Longmont	**49,244**				
Directly affected workers		2,021	558	4,261	4,260
Potentially affected workers		1,915	714	2,410	2,410
Lafayette	**15,332**				
Directly affected workers		629	174	1,327	1,326
Potentially affected workers		596	222	750	750
Louisville	**19,903**				
Directly affected workers		817	226	1,722	1,722
Potentially affected workers		774	288	974	974

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; Colorado Department of Labor and Employment, QCEW, 2023

Table 7b: Number of Workers Who Could See Increases in Earnings in an Average Week, Denver-Based Scenarios, 2030 and 2035

	Current Employment	2030		2035	
		Scenario D1	Scenario D2	Scenario D1	Scenario D2
All Five Municipalities	**197,714**				
Directly affected workers		3,056	815	7,933	7,927
Potentially affected workers		3,912	1,033	6,695	6,693
Boulder	**106,847**				
Directly affected workers		1,652	441	4,287	4,284
Potentially affected workers		2,114	558	3,618	3,617
Erie	**6,388**				
Directly affected workers		99	26	256	256
Potentially affected workers		126	33	216	216
Longmont	**49,244**				
Directly affected workers		761	203	1,976	1,974
Potentially affected workers		974	257	1,668	1,667
Lafayette	**15,332**				
Directly affected workers		237	63	615	615
Potentially affected workers		303	80	519	519
Louisville	**19,903**				
Directly affected workers		308	82	799	798
Potentially affected workers		394	104	674	674

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; Colorado Department of Labor and Employment, QCEW, 2023

Table 8a: Effect of Increases in the Minimum Wage on Average Annual Real Family Income, Unincorporated Boulder County-Based Scenarios, 2030 and 2035

FPL Level	Average Real Family Income (Estimated) ($2024)a	Change in Average Annual Real Family Income			
		Scenario B1		Scenario B2	
		Dollars	Percent	Dollars	Percent
2030					
Less than 1.0 of FPL	$7,907	$151.66	1.92%	$35.96	0.45%
1.00 to 1.49 of FPL	$21,764	$77.28	0.36%	$18.32	0.08%
1.50 to 1.99 of FPL	$32,259	$84.45	0.26%	$20.02	0.06%
2.00 to 2.99 of FPL	$46,717	$86.07	0.18%	$20.41	0.04%
3.00 to 4.99 of FPL	$80,363	$0.00	0.00%	$0.00	0.00%
5.00 or more of FPL	$216,446	-$95.41	-0.04%	-$22.62	-0.01%
2035					
Less than 1.0 of FPL	$7,907	$320.42	4.05%	$320.35	4.05%
1.00 to 1.49 of FPL	$21,764	$317.94	1.46%	$317.85	1.46%
1.50 to 1.99 of FPL	$32,259	$291.10	0.90%	$291.01	0.90%
2.00 to 2.99 of FPL	$46,717	$181.84	0.39%	$181.80	0.39%
3.00 to 4.99 of FPL	$80,363	$0.00	0.00%	$0.00	0.00%
5.00 or more of FPL	$216,446	-$456.19	-0.21%	-$456.05	-0.21%

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; FRED Economic Data. (2024). "Employment Cost Index: Wages and Salaries: Private Industry Workers." St. Louis, MO: Federal Reserve Bank of St. Louis.

Notes: Based on the increase in the Employment Cost Index (ECI) between Q1 2018 (129.8) and Q1 2024 (162.5). The increase in the ECO over this time period (25.2%) is comparable to the increase in the CPI-U between January 2018 (248.859) and March 2018 (312.23) (25.5%).

Table 8b: Effect of Increases in the Minimum Wage on Average Annual Real Family Income, Denver-Based Scenarios, 2030 and 2035

FPL Level	Average Real Family Income (Estimated) ($2024)a	Change in Average Annual Real Family Income			
		Scenario D1		Scenario D2	
		Dollars	Percent	Dollars	Percent
2030					
Less than 1.0 of FPL	$7,907	$57.99	0.73%	-----	-----
1.00 to 1.49 of FPL	$21,764	$29.55	0.14%	-----	-----
1.50 to 1.99 of FPL	$32,259	$32.29	0.10%	-----	-----
2.00 to 2.99 of FPL	$46,717	$32.91	0.07%	-----	-----
3.00 to 4.99 of FPL	$80,363	$0.00	0.00%	-----	-----
5.00 or more of FPL	$216,446	-$36.48	-0.02%	-----	-----
2035					
Less than 1.0 of FPL	$7,907	$175.63	2.22%	$175.52	2.22%
1.00 to 1.49 of FPL	$21,764	$133.50	0.61%	$133.36	0.61%
1.50 to 1.99 of FPL	$32,259	$129.86	0.40%	$129.73	0.40%
2.00 to 2.99 of FPL	$46,717	$99.67	0.21%	$99.61	0.21%
3.00 to 4.99 of FPL	$80,363	$0.00	0.00%	$0.00	0.00%
5.00 or more of FPL	$216,446	-$182.93	-0.08%	-$182.73	-0.08%

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; FRED Economic Data. (2024). "Employment Cost Index: Wages and Salaries: Private Industry Workers." St. Louis, MO: Federal Reserve Bank of St. Louis.

Notes: Based on the increase in the Employment Cost Index (ECI) between Q1 2018 (129.8) and Q1 2024 (162.5). The increase in the ECO over this time period (25.2%) is comparable to the increase in the CPI-U between January 2018 (248.859) and March 2018 (312.23) (25.5%).

Table 9a: Effect of Increases in the Minimum Wage on the Number of People in Poverty, by City, Demographic Characteristics, Unincorporated Boulder County-Based Scenarios, 2030 and 2035

| | Population (Estimated) | | Change in the Number of People in Poverty | | | |
| | | | 2030 | | 2035 | |
	Number	Percent	Scenario B1	Scenario B2	Scenario B1	Scenario B2
All Five Municipalities						
All	286,542	100%	-481	-103	-987	-987
Age						
0 to 19	69,526	24%	-164	-26	-445	-445
20 to 64	176,561	62%	-249	-51	-530	-530
65 or older	40,455	14%	0	0	0	0
Sex						
Male	144,421	50%	-249	-51	-530	-530
Female	142,121	50%	-233	-51	-457	-457
Educational Attainment						
Less than high school	8,758	3%	-265	-51	-602	-602
High school diploma or some college	62,309	22%	-217	-51	-385	-385
Bachelor's degree or more	113,482	40%	-16	0	-72	-72
Hours Worked per Week						
Fewer than 35	50,690	18%	-48	0	-217	-217
35 or more	116,127	41%	-201	-51	-313	-313
None (Children and nonworking adults)	119,725	42%	-249	-51	-530	-530
Boulder						
All	106,598	100%	-179	-38	-367	-367
Age						
0 to 19	23,644	22%	-30	-10	-134	-166
20 to 64	69,970	66%	-92	-19	-197	-197
65 or older	12,984	12%	0	0	0	0
Sex						
Male	55,075	52%	-92	-19	-197	-197
Female	51,523	48%	-87	-19	-170	-170
Educational Attainment						
Less than high school	1,869	2%	-98	-19	-224	-224
High school diploma or some college	12,229	11%	-81	-19	-143	-143
Bachelor's degree or more	46,028	43%	-6	0	-27	-27
Hours Worked per Week						
Fewer than 35	27,561	26%	-18	0	-81	-81
35 or more	40,140	38%	-75	-19	-116	-116
None (Children and nonworking adults)	38,897	36%	-92	-19	-197	-197
Erie						
All	30,447	100%	-51	-11	-105	-105
Age						
0 to 19	9,679	32%	-8	-3	-38	-47
20 to 64	17,794	58%	-26	-5	-56	-56
65 or older	2,974	10%	0	0	0	0

Sex						
Male	14,929	49%	-26	-5	-56	-56
Female	15,518	51%	-25	-5	-49	-49
Educational Attainment						
Less than high school	545	2%	-28	-5	-64	-64
High school diploma or some college	6,322	21%	-23	-5	-41	-41
Bachelor's degree or more	12,758	42%	-2	0	-8	-8
Hours Worked per Week						
Fewer than 35	3,848	13%	-5	0	-23	-23
35 or more	12,780	42%	-21	-5	-33	-33
None (Children and nonworking adults)	13,819	45%	-26	-5	-56	-56
Longmont						
All	98,282	100%	-165	-35	-339	-339
Age						
0 to 19	22,928	23%	-27	-9	-124	-153
20 to 64	58,403	59%	-85	-18	-182	-182
65 or older	16,951	17%	0	0	0	0
Sex						
Male	48,880	50%	-85	-18	-182	-182
Female	49,402	50%	-80	-18	-157	-157
Educational Attainment						
Less than high school	5,242	5%	-91	-18	-206	-206
High school diploma or some college	32,146	33%	-74	-18	-132	-132
Bachelor's degree or more	31,887	32%	-5	0	-25	-25
Hours Worked per Week						
Fewer than 35	12,479	13%	-16	0	-74	-74
35 or more	41,569	42%	-69	-18	-107	-107
None (Children and nonworking adults)	44,234	45%	-85	-18	-182	-182
Lafayette						
All	30,295	100%	-51	-11	-104	-104
Age						
0 to 19	7,501	25%	-8	-3	-38	-47
20 to 64	18,385	61%	-26	-5	-56	-56
65 or older	4,409	15%	0	0	0	0
Sex						
Male	14,949	49%	-26	-5	-56	-56
Female	15,346	51%	-25	-5	-48	-48
Educational Attainment						
Less than high school	894	3%	-28	-5	-64	-64
High school diploma or some college	6,971	23%	-23	-5	-41	-41
Bachelor's degree or more	13,445	44%	-2	0	-8	-8
Hours Worked per Week						
Fewer than 35	3,833	13%	-5	0	-23	-23
35 or more	13,084	43%	-21	-5	-33	-33
None (Children and nonworking adults)	13,378	44%	-26	-5	-56	-56
Louisville						
All	20,920	100%	-35	-7	-72	-72
Age						
0 to 19	5,774	28%	-6	-2	-26	-33

	Number	Percent	Scenario D1	Scenario D2	Scenario D1	Scenario D2
20 to 64	12,009	57%	-18	-4	-39	-39
65 or older	3,137	15%	0	0	0	0
Sex						
Male	10,588	51%	-18	-4	-39	-39
Female	10,332	49%	-17	-4	-33	-33
Educational Attainment						
Less than high school	208	1%	-19	-4	-44	-44
High school diploma or some college	4,641	22%	-16	-4	-28	-28
Bachelor's degree or more	9,364	45%	-1	0	-5	-5
Hours Worked per Week						
Fewer than 35	2,969	14%	-4	0	-16	-16
35 or more	8,554	41%	-15	-4	-23	-23
None (Children and nonworking adults)	9,397	45%	-18	-4	-39	-39

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; FRED Economic Data. (2024). "Employment Cost Index: Wages and Salaries: Private Industry Workers." St. Louis, MO: Federal Reserve Bank of St. Louis.

Table 9b: Effect of Increases in the Minimum Wage on the Number of People in Poverty, by City, Demographic Characteristics, Denver-Based Scenarios, 2030 and 2035

	Population (Estimated)		Change in the Number of People in Poverty			
			2030		2035	
	Number	Percent	Scenario D1	Scenario D2	Scenario D1	Scenario D2
All Five Municipalities						
All	286,542	100%	-166	0	-522	-522
Age						
0 to 19	69,526	24%	-41	0	-187	-187
20 to 64	176,561	62%	-83	0	-271	-271
65 or older	40,455	14%	0	0	0	0
Sex						
Male	144,421	50%	-83	0	-271	-271
Female	142,121	50%	-83	0	-251	-251
Educational Attainment						
Less than high school	8,758	3%	-83	0	-292	-292
High school diploma or some college	62,309	22%	-83	0	-230	-230
Bachelor's degree or more	113,482	40%	0	0	-21	-21
Hours Worked per Week						
Fewer than 35	50,690	18%	0	0	-62	-62
35 or more	116,127	41%	-83	0	-210	-210
None (Children and nonworking adults)	119,725	42%	-83	0	-271	-271
Boulder						
All	106,598	100%	-62	0	-194	-194
Age						
0 to 19	23,644	22%	-15	0	-38	-70
20 to 64	69,970	66%	-31	0	-101	-101
65 or older	12,984	12%	0	0	0	0
Sex						
Male	55,075	52%	-31	0	-101	-101
Female	51,523	48%	-31	0	-93	-93
Educational Attainment						

Less than high school	1,869	2%	-31	0	-109	-108
High school diploma or some college	12,229	11%	-31	0	-86	-86
Bachelor's degree or more	46,028	43%	0	0	-8	-8
Hours Worked per Week						
Fewer than 35	27,561	26%	0	0	-23	-23
35 or more	40,140	38%	-31	0	-78	-78
None (Children and nonworking adults)	38,897	36%	-31	0	-101	-101
Erie						
All	30,447	100%	-18	0	-55	-55
Age						
0 to 19	9,679	32%	-4	0	-11	-20
20 to 64	17,794	58%	-9	0	-29	-29
65 or older	2,974	10%	0	0	0	0
Sex						
Male	14,929	49%	-9	0	-29	-29
Female	15,518	51%	-9	0	-27	-27
Educational Attainment						
Less than high school	545	2%	-9	0	-31	-31
High school diploma or some college	6,322	21%	-9	0	-24	-24
Bachelor's degree or more	12,758	42%	0	0	-2	-2
Hours Worked per Week						
Fewer than 35	3,848	13%	0	0	-7	-7
35 or more	12,780	42%	-9	0	-22	-22
None (Children and nonworking adults)	13,819	45%	-9	0	-29	-29
Longmont						
All	98,282	100%	-57	0	-179	-179
Age						
0 to 19	22,928	23%	-14	0	-35	-64
20 to 64	58,403	59%	-28	0	-93	-93
65 or older	16,951	17%	0	0	0	0
Sex						
Male	48,880	50%	-28	0	-93	-93
Female	49,402	50%	-28	0	-86	-86
Educational Attainment						
Less than high school	5,242	5%	-28	0	-100	-100
High school diploma or some college	32,146	33%	-28	0	-79	-79
Bachelor's degree or more	31,887	32%	0	0	-7	-7
Hours Worked per Week						
Fewer than 35	12,479	13%	0	0	-21	-21
35 or more	41,569	42%	-28	0	-72	-72
None (Children and nonworking adults)	44,234	45%	-28	0	-93	-93
Lafayette						
All	30,295	100%	-18	0	-55	-55
Age						
0 to 19	7,501	25%	-4	0	-11	-20
20 to 64	18,385	61%	-9	0	-29	-29
65 or older	4,409	15%	0	0	0	0
Sex						
Male	14,949	49%	-9	0	-29	-29
Female	15,346	51%	-9	0	-27	-26

Educational Attainment						
Less than high school	894	3%	-9	0	-31	-31
High school diploma or some college	6,971	23%	-9	0	-24	-24
Bachelor's degree or more	13,445	44%	0	0	-2	-2
Hours Worked per Week						
Fewer than 35	3,833	13%	0	0	-7	-7
35 or more	13,084	43%	-9	0	-22	-22
None (Children and nonworking adults)	13,378	44%	-9	0	-29	-29
Louisville						
All	20,920	100%	-12	0	-38	-38
Age						
0 to 19	5,774	28%	-3	0	-8	-14
20 to 64	12,009	57%	-6	0	-20	-20
65 or older	3,137	15%	0	0	0	0
Sex						
Male	10,588	51%	-6	0	-20	-20
Female	10,332	49%	-6	0	-18	-18
Educational Attainment						
Less than high school	208	1%	-6	0	-21	-21
High school diploma or some college	4,641	22%	-6	0	-17	-17
Bachelor's degree or more	9,364	45%	0	0	-2	-1
Hours Worked per Week						
Fewer than 35	2,969	14%	0	0	-5	-4
35 or more	8,554	41%	-6	0	-15	-15
None (Children and nonworking adults)	9,397	45%	-6	0	-20	-20

Source: ECOnorthwest analysis of data from: Congressional Budget Office. (2019). "The Effects on Employment and Family Income of Increasing the Federal Minimum Wage." Washington, DC: Congressional Budget Office, https://www.cbo.gov/system/files/2019-07/CBO-55410-MinimumWage2019.pdf; FRED Economic Data. (2024). "Employment Cost Index: Wages and Salaries: Private Industry Workers." St. Louis, MO: Federal Reserve Bank of St. Louis.

Table 10a: Effect of Increases in the Minimum Wage on Labor and Operating Costs, by Industry, Unincorporated Boulder County-Based Scenarios, 2030 and 2035

| Year | Labor Costs as a % of Operating Costs (Estimated) | 2030 | | | | 2035 | | | |
| | | Scenario B1 | | Scenario B2 | | Scenario B1 | | Scenario B2 | |
		Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs
All industries	**22.1%**	**2.7%**	**0.6%**	**1.3%**	**0.3%**	**3.1%**	**0.7%**	**3.1%**	**0.7%**
Nondurable manufacturing	6.9%	3.2%	0.2%	1.6%	0.1%	3.7%	0.3%	3.7%	0.3%
Food manufacturing	10.7%	6.2%	0.7%	3.1%	0.3%	7.1%	0.8%	7.1%	0.8%
Wholesale trade	6.2%	2.2%	0.1%	1.1%	0.1%	2.5%	0.2%	2.5%	0.2%
Retail trade	10.8%	6.6%	0.7%	3.3%	0.4%	7.6%	0.8%	7.6%	0.8%
Grocery stores	12.2%	11.4%	1.4%	5.7%	0.7%	13.2%	1.6%	13.2%	1.6%
Admin. services and waste management	61.1%	4.9%	3.0%	2.4%	1.5%	5.6%	3.4%	5.6%	3.4%
Health care and social assistance	48.4%	2.9%	1.4%	1.5%	0.7%	3.4%	1.6%	3.4%	1.6%
Ambulatory care	52.9%	4.4%	2.3%	2.2%	1.2%	5.1%	2.7%	5.1%	2.7%
Hospitals	44.1%	1.0%	0.4%	0.5%	0.2%	1.1%	0.5%	1.1%	0.5%
Residential care	52.2%	4.8%	2.5%	2.4%	1.2%	5.5%	2.9%	5.5%	2.9%
Restaurants	30.7%	18.7%	5.7%	9.3%	2.9%	21.7%	6.7%	21.7%	6.7%
Other services	33.8%	10.4%	3.5%	5.2%	1.7%	12.0%	4.1%	12.0%	4.1%

Sources: ECOnorthwest analysis of data from: Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment.

Table 10b: Effect of Increases in the Minimum Wage on Labor and Operating Costs, by Industry, Denver-Based Scenarios, 2030 and 2035

Year		2030				2035			
		Scenario D1		**Scenario D2**		**Scenario D1**		**Scenario D2**	
		Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs	Change in Payroll Costs	Change in Operating Costs
All industries	**22.1%**	**1.6%**	**0.4%**	**0.8%**	**0.2%**	**1.8%**	**0.4%**	**1.8%**	**0.4%**
Nondurable manufacturing	6.9%	1.9%	0.1%	1.0%	0.1%	2.2%	0.2%	2.2%	0.2%
Food manufacturing	10.7%	3.7%	0.4%	1.9%	0.2%	4.2%	0.5%	4.2%	0.5%
Wholesale trade	6.2%	1.3%	0.1%	0.7%	0.0%	1.5%	0.1%	1.5%	0.1%
Retail trade	10.8%	3.9%	0.4%	2.0%	0.2%	4.5%	0.5%	4.5%	0.5%
Grocery stores	12.2%	6.8%	0.8%	3.5%	0.4%	7.9%	1.0%	7.9%	1.0%
Administrative services and waste management	61.1%	2.9%	1.8%	1.5%	0.9%	3.3%	2.0%	3.3%	2.0%
Health care and social assistance	48.4%	1.7%	0.8%	0.9%	0.4%	2.0%	1.0%	2.0%	1.0%
Ambulatory care	52.9%	2.6%	1.4%	1.3%	0.7%	3.0%	1.6%	3.0%	1.6%
Hospitals	44.1%	0.6%	0.3%	0.3%	0.1%	0.7%	0.3%	0.7%	0.3%
Residential care	52.2%	2.8%	1.5%	1.5%	0.8%	3.3%	1.7%	3.3%	1.7%
Restaurants	30.7%	11.1%	3.4%	5.7%	1.8%	12.9%	4.0%	12.9%	4.0%
Other services	33.8%	6.2%	2.1%	3.2%	1.1%	7.1%	2.4%	7.1%	2.4%

Sources: ECOnorthwest analysis of data from: Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment.

Table 11a: Effect of Increases in the Minimum Wage on the Number of Workers who could see Increased Earnings, by Selected Industry, Unincorporated Boulder County-Based Scenarios

Industry Code	Industry Description	Percent of Workforce	Number of Workers	Number of Workers who could see Increased Earnings			
				Scenario B1		Scenario B2	
				2030	2035	2030	2035
All Five Municipalities							
11	Agriculture, Forestry, Fishing and Hunting	0.3%	661	91	154	30	154
23	Construction	3.7%	7,402	556	943	180	943
31	Manufacturing	2.2%	4,252	361	610	117	610
311	Food Manufacturing	1.6%	3,126	342	579	110	579
32,33	Manufacturing	9.7%	19,118	1,287	2,180	416	2,179
42	Wholesale Trade	3.7%	7,354	525	890	170	890
44,45	Retail Trade	8.6%	16,908	2,131	3,611	689	3,610
445110	Grocery Stores	1.5%	2,974	441	746	143	746
48,49,22	Transportation and Warehousing; Utilities	1.3%	2,500	220	373	71	373
51	Information	4.1%	8,191	353	598	114	598
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.4%	6,629	284	481	92	481
54	Professional, Scientific, and Technical Services	18.2%	35,915	1,263	2,140	408	2,140
56	Admin. and Support and Waste Mngmt. and Rem. Services	3.3%	6,431	696	1,179	225	1,178
61	Educational Services	9.0%	17,785	1,352	2,290	437	2,290
62	Health Care and Social Assistance	11.8%	23,259	2,153	3,650	696	3,649
71	Arts, Entertainment, and Recreation	1.6%	3,113	321	544	104	543
72	Accommodation and Food Services (minus 72251)	1.3%	2,489	283	479	91	479
72251	Restaurants and Other Drinking and Eating Places	7.2%	14,165	2,466	4,179	797	4,178
81	Other Services (except Public Administration)	2.9%	5,766	869	1,473	281	1,472
Boulder							
11	Agriculture, Forestry, Fishing and Hunting	0.2%	242	33	56	10	56
23	Construction	1.8%	1,915	144	244	46	244
31	Manufacturing	1.4%	1,500	128	215	42	215
311	Food Manufacturing	1.1%	1,123	123	209	40	208
32,33	Manufacturing	9.5%	10,171	684	1,160	221	1,159
42	Wholesale Trade	3.3%	3,558	254	431	82	431
44,45	Retail Trade	7.3%	7,838	987	1,674	319	1,673
445110	Grocery Stores	1.5%	1,608	238	403	77	403
48,49,22	Transportation and Warehousing; Utilities	1.1%	1,129	99	168	32	168

51	Information	6.1%	6,543	281	477	91	477
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.7%	3,960	170	288	55	288
54	Professional, Scientific, and Technical Services	20.9%	22,358	786	1,332	254	1,332
56	Admin. and Support and Waste Mngmt. and Rem. Services	2.3%	2,490	269	456	87	456
61	Educational Services	15.8%	16,894	1,284	2,176	415	2,175
62	Health Care and Social Assistance	8.3%	8,828	818	1,386	264	1,386
71	Arts, Entertainment, and Recreation	1.6%	1,685	174	294	56	294
72	Accommodation and Food Services (minus 72251)	1.5%	1,617	184	312	60	312
72251	Restaurants and Other Drinking and Eating Places	6.5%	6,972	1,213	2,057	392	2,056
81	Other Services (except Public Administration)	3.0%	3,251	490	830	159	830
Erie							
11	Agriculture, Forestry, Fishing and Hunting	.....	.....	.....	.....	.....	.....
23	Construction	11.8%	755	57	96	18	96
31	Manufacturing	0.5%	30	3	4	1	4
311	Food Manufacturing	0.1%	7	1	1	-	1
32,33	Manufacturing	4.1%	262	18	30	6	30
42	Wholesale Trade	2.9%	184	13	22	4	22
44,45	Retail Trade	12.4%	790	99	168	32	168
445110	Grocery Stores	.....	.....	.....	.....	.....	.....
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	1.2%	75	4	5	1	5
52,53	Finance and Insurance; Real Estate and Rental and Leasing	4.0%	252	11	18	4	18
54	Professional, Scientific, and Technical Services	14.4%	920	33	55	11	55
56	Admin. and Support and Waste Mngmt. and Rem. Services	8.7%	555	60	101	20	101
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	7.2%	461	43	72	14	72
71	Arts, Entertainment, and Recreation	4.4%	280	29	49	9	49
72	Accommodation and Food Services (minus 72251)	0.5%	32	3	6	1	6
72251	Restaurants and Other Drinking and Eating Places	8.9%	566	98	167	31	167
81	Other Services (except Public Administration)	5.1%	326	49	83	16	83
Lafayette							
11	Agriculture, Forestry, Fishing and Hunting	0.1%	21	3	5	1	5
23	Construction	5.1%	780	59	100	19	100
31	Manufacturing	1.5%	228	19	33	6	33
311	Food Manufacturing	0.6%	94	11	17	4	17

32,33	Manufacturing	8.4%	1,290	87	147	28	147
42	Wholesale Trade	4.4%	678	48	82	15	82
44,45	Retail Trade	8.5%	1,307	164	279	53	279
445110	Grocery Stores	1.5%	228	33	58	11	58
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	1.2%	185	8	14	3	14
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.1%	478	20	34	6	34
54	Professional, Scientific, and Technical Services	11.0%	1,679	59	101	19	101
56	Admin. and Support and Waste Mngmt. and Rem. Services	4.2%	640	70	118	23	118
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	31.5%	4,829	448	758	145	758
71	Arts, Entertainment, and Recreation	2.5%	390	40	68	13	68
72	Accommodation and Food Services (minus 72251)	0.8%	120	14	23	4	23
72251	Restaurants and Other Drinking and Eating Places	6.8%	1,043	181	307	59	307
81	Other Services (except Public Administration)	1.9%	287	43	73	14	73

Longmont

11	Agriculture, Forestry, Fishing and Hunting	0.8%	398	55	93	18	93
23	Construction	6.2%	3,059	229	390	74	390
31	Manufacturing	2.9%	1,431	121	205	39	205
311	Food Manufacturing	2.1%	1,042	114	193	37	193
32,33	Manufacturing	8.8%	4,354	293	496	95	496
42	Wholesale Trade	4.0%	1,963	140	238	46	238
44,45	Retail Trade	12.1%	5,959	751	1,272	243	1,272
445110	Grocery Stores	1.8%	883	131	221	42	221
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	1.0%	476	20	34	6	34
52,53	Finance and Insurance; Real Estate and Rental and Leasing	2.7%	1,316	56	95	18	95
54	Professional, Scientific, and Technical Services	13.0%	6,379	224	380	72	380
56	Admin. and Support and Waste Mngmt. and Rem. Services	4.9%	2,418	261	443	84	443
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	12.2%	5,985	554	939	179	939
71	Arts, Entertainment, and Recreation	1.2%	594	62	104	20	104
72	Accommodation and Food Services (minus 72251)	1.1%	526	60	101	20	101
72251	Restaurants and Other Drinking and Eating Places	9.0%	4,412	768	1,301	249	1,301
81	Other Services (except Public Administration)	3.2%	1,554	234	397	76	397

Industry Code	Industry Description	Percent of Workforce	Number of Workers	Scenario D1 2030	Scenario D1 2035	Scenario D2 2030	Scenario D2 2035
Louisville							
11	Agriculture, Forestry, Fishing and Hunting	.....	.....	.....	.....	.....	.....
23	Construction	4.5%	893	67	113	22	113
31	Manufacturing	5.3%	1,063	90	153	29	153
311	Food Manufacturing	4.3%	860	94	160	30	160
32,33	Manufacturing	15.3%	3,041	205	347	66	347
42	Wholesale Trade	4.9%	971	69	118	22	118
44,45	Retail Trade	5.1%	1,015	127	216	41	216
445110	Grocery Stores	1.3%	256	38	64	12	64
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	4.6%	911	40	66	13	66
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.1%	623	26	46	8	46
54	Professional, Scientific, and Technical Services	23.0%	4,578	161	273	52	273
56	Admin. and Support and Waste Mngmt. and Rem. Services	1.7%	329	35	60	11	60
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	15.9%	3,156	292	495	95	495
71	Arts, Entertainment, and Recreation	0.8%	164	17	28	6	28
72	Accommodation and Food Services (minus 72251)	1.0%	193	22	37	7	37
72251	Restaurants and Other Drinking and Eating Places	5.9%	1,172	204	346	66	346
81	Other Services (except Public Administration)	1.8%	349	53	89	17	89

Sources: ECOnorthwest analysis of the American Community Survey and Colorado Department of Labor and Employment, QCEW; Reich, M. Allegretto, S., Jacobs, K. and Montialoux, C. (2016). "The Effects of a $15 Minimum Wage in New York State." Berkeley, CA: Institute for Research on Labor and Employment.

Notes: Selected industries are those with documented impacts in the literature; these industries cover 92 percent of employees in the region (92% = 181,938 / 197,714). "·····" denotes no available data.

Table 11b: Effect of Increases in the Minimum Wage on Number of Workers who could see Increased Earnings, by Selected Industry, Denver-Based Scenarios

Industry Code	Industry Description	Percent of Workforce	Number of Workers	Number of Workers who could see Increased Earnings			
				Scenario D1		Scenario D2	
				2030	2035	2030	2035
All Five Municipalities							
11	Agriculture, Forestry, Fishing and Hunting	0.3%	661	40	84	11	84
23	Construction	3.7%	7,402	246	515	65	515
31	Manufacturing	2.2%	4,252	159	333	43	333
311	Food Manufacturing	1.6%	3,126	151	316	40	316
32,33	Manufacturing	9.7%	19,118	568	1,191	151	1,190
42	Wholesale Trade	3.7%	7,354	232	486	61	486
44,45	Retail Trade	8.6%	16,908	940	1,973	249	1,971

445110	Grocery Stores	1.5%	2,974	195	408	52	407
48,49,22	Transportation and Warehousing; Utilities	1.3%	2,500	97	204	26	204
51	Information	4.1%	8,191	156	327	42	326
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.4%	6,629	125	263	33	263
54	Professional, Scientific, and Technical Services	18.2%	35,915	557	1,169	148	1,168
56	Admin. and Support and Waste Mngmt. and Rem. Services	3.3%	6,431	307	644	82	643
61	Educational Services	9.0%	17,785	596	1,251	159	1,250
62	Health Care and Social Assistance	11.8%	23,259	949	1,994	251	1,992
71	Arts, Entertainment, and Recreation	1.6%	3,113	142	297	38	297
72	Accommodation and Food Services (minus 72251)	1.3%	2,489	124	262	33	262
72251	Restaurants and Other Drinking and Eating Places	7.2%	14,165	1,088	2,282	289	2,281
81	Other Services (except Public Administration)	2.9%	5,766	383	804	102	804
Boulder							
11	Agriculture, Forestry, Fishing and Hunting	0.2%	242	14	31	3	31
23	Construction	1.8%	1,915	63	133	17	133
31	Manufacturing	1.4%	1,500	57	117	15	117
311	Food Manufacturing	1.1%	1,123	54	114	14	114
32,33	Manufacturing	9.5%	10,171	302	633	80	633
42	Wholesale Trade	3.3%	3,558	112	235	30	235
44,45	Retail Trade	7.3%	7,838	435	914	115	914
445110	Grocery Stores	1.5%	1,608	105	220	28	220
48,49,22	Transportation and Warehousing; Utilities	1.1%	1,129	43	92	11	92
51	Information	6.1%	6,543	124	260	33	260
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.7%	3,960	75	157	20	157
54	Professional, Scientific, and Technical Services	20.9%	22,358	347	727	92	727
56	Admin. and Support and Waste Mngmt. and Rem. Services	2.3%	2,490	119	249	31	249
61	Educational Services	15.8%	16,894	566	1,188	150	1,188
62	Health Care and Social Assistance	8.3%	8,828	361	757	96	757
71	Arts, Entertainment, and Recreation	1.6%	1,685	76	160	20	160
72	Accommodation and Food Services (minus 72251)	1.5%	1,617	81	170	22	170
72251	Restaurants and Other Drinking and Eating Places	6.5%	6,972	535	1,123	141	1,123
81	Other Services (except Public Administration)	3.0%	3,251	216	453	58	453
Erie							
11	Agriculture, Forestry, Fishing and Hunting	-----	-----	-----	-----	-----	-----
23	Construction	11.8%	755	25	52	6	52
31	Manufacturing	0.5%	30	1	2	1	2

Code	Industry	%					
311	Food Manufacturing	0.1%	7	.	1	.	1
32,33	Manufacturing	4.1%	262	8	16	2	16
42	Wholesale Trade	2.9%	184	6	12	1	12
44,45	Retail Trade	12.4%	790	44	92	11	92
445110	Grocery Stores	.....	.....	.....	.....	.....	.....
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	1.2%	75	2	3	1	3
52,53	Finance and Insurance; Real Estate and Rental and Leasing	4.0%	252	5	10	2	10
54	Professional, Scientific, and Technical Services	14.4%	920	15	30	4	30
56	Admin. and Support and Waste Mngmt. and Rem. Services	8.7%	555	27	55	7	55
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	7.2%	461	19	39	5	39
71	Arts, Entertainment, and Recreation	4.4%	280	13	27	3	27
72	Accommodation and Food Services (minus 72251)	0.5%	32	1	3	.	3
72251	Restaurants and Other Drinking and Eating Places	8.9%	566	43	91	11	91
81	Other Services (except Public Administration)	5.1%	326	21	45	5	45
Lafayette							
11	Agriculture, Forestry, Fishing and Hunting	0.1%	21	2	3	1	3
23	Construction	5.1%	780	26	55	7	55
31	Manufacturing	1.5%	228	8	18	2	18
311	Food Manufacturing	0.6%	94	5	9	2	9
32,33	Manufacturing	8.4%	1,290	38	81	10	81
42	Wholesale Trade	4.4%	678	21	44	5	44
44,45	Retail Trade	8.5%	1,307	72	152	19	152
445110	Grocery Stores	1.5%	228	14	32	4	32
48,49,22	Transportation and Warehousing; Utilities	.....	.....	.....	.....	.....	.....
51	Information	1.2%	185	4	8	1	8
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.1%	478	9	19	2	19
54	Professional, Scientific, and Technical Services	11.0%	1,679	26	55	7	55
56	Admin. and Support and Waste Mngmt. and Rem. Services	4.2%	640	31	64	9	64
61	Educational Services	.....	.....	.....	.....	.....	.....
62	Health Care and Social Assistance	31.5%	4,829	198	414	53	414
71	Arts, Entertainment, and Recreation	2.5%	390	17	37	4	37
72	Accommodation and Food Services (minus 72251)	0.8%	120	6	12	1	12
72251	Restaurants and Other Drinking and Eating Places	6.8%	1,043	80	168	21	168
81	Other Services (except Public Administration)	1.9%	287	19	40	5	40
Longmont							
11	Agriculture, Forestry, Fishing and Hunting	0.8%	398	25	51	7	51

23	Construction	6.2%	3,059	101	213	26	213
31	Manufacturing	2.9%	1,431	53	112	14	112
311	Food Manufacturing	2.1%	1,042	50	105	13	105
32,33	Manufacturing	8.8%	4,354	129	271	34	271
42	Wholesale Trade	4.0%	1,963	62	130	17	130
44,45	Retail Trade	12.1%	5,959	331	695	88	694
445110	Grocery Stores	1.8%	883	58	120	15	120
48,49,22	Transportation and Warehousing; Utilities	-----	-----	-----	-----	-----	-----
51	Information	1.0%	476	9	19	2	19
52,53	Finance and Insurance; Real Estate and Rental and Leasing	2.7%	1,316	25	52	6	52
54	Professional, Scientific, and Technical Services	13.0%	6,379	99	207	26	207
56	Admin. and Support and Waste Mngmt. and Rem. Services	4.9%	2,418	115	242	30	242
61	Educational Services	-----	-----	-----	-----	-----	-----
62	Health Care and Social Assistance	12.2%	5,985	244	513	65	513
71	Arts, Entertainment, and Recreation	1.2%	594	27	57	8	57
72	Accommodation and Food Services (minus 72251)	1.1%	526	27	55	7	55
72251	Restaurants and Other Drinking and Eating Places	9.0%	4,412	339	710	90	710
81	Other Services (except Public Administration)	3.2%	1,554	103	217	28	217

Louisville

11	Agriculture, Forestry, Fishing and Hunting	-----	-----	-----	-----	-----	-----
23	Construction	4.5%	893	30	62	8	62
31	Manufacturing	5.3%	1,063	40	84	11	84
311	Food Manufacturing	4.3%	860	41	87	11	87
32,33	Manufacturing	15.3%	3,041	90	190	24	189
42	Wholesale Trade	4.9%	971	30	65	8	65
44,45	Retail Trade	5.1%	1,015	56	118	15	118
445110	Grocery Stores	1.3%	256	17	35	5	35
48,49,22	Transportation and Warehousing; Utilities	-----	-----	-----	-----	-----	-----
51	Information	4.6%	911	18	36	5	36
52,53	Finance and Insurance; Real Estate and Rental and Leasing	3.1%	623	11	25	3	25
54	Professional, Scientific, and Technical Services	23.0%	4,578	71	149	19	149
56	Admin. and Support and Waste Mngmt. and Rem. Services	1.7%	329	16	33	4	33
61	Educational Services	-----	-----	-----	-----	-----	-----
62	Health Care and Social Assistance	15.9%	3,156	129	270	34	270
71	Arts, Entertainment, and Recreation	0.8%	164	8	15	2	15
72	Accommodation and Food Services (minus 72251)	1.0%	193	10	20	3	20
72251	Restaurants and Other Drinking and Eating Places	5.9%	1,172	90	189	24	189
81	Other Services (except Public Administration)	1.8%	349	23	48	6	48

Table 12a: Effect of Increases in the Minimum Wage on Prices, Unincorporated Boulder County-Based Scenarios

Year	Change in Prices			Scenario B1				Scenario B2			
	United States	West Region	Mountain	Lower		Upper		Lower		Upper	
				Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	0.12%	1.17%	----	----	----	----	----	----	----	----	----
2016	1.26%	1.93%	----	----	----	----	----	----	----	----	----
2017	2.13%	2.84%	----	----	----	----	----	----	----	----	----
2018	2.44%	3.35%	2.19%	2.19%	----	2.19%	----	2.19%	----	2.19%	----
2019	1.81%	2.69%	2.63%	2.63%	----	2.63%	----	2.63%	----	2.63%	----
2020	1.23%	1.74%	2.17%	2.17%	----	2.17%	----	2.17%	----	2.17%	----
2021	4.70%	4.52%	5.03%	5.03%	----	5.03%	----	5.03%	----	5.03%	----
2022	8.00%	8.01%	9.33%	9.33%	----	9.33%	----	9.33%	----	9.33%	----
2023	4.12%	4.29%	4.48%	4.48%	----	4.48%	----	4.48%	----	4.48%	----
2024	3.00%	3.13%	3.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2025	3.00%	3.13%	3.27%	0.01%	0.01%	0.03%	0.03%	0.00%	0.00%	0.01%	0.01%
2026	3.00%	3.13%	3.27%	0.01%	0.02%	0.01%	0.04%	0.00%	0.01%	0.01%	0.02%
2027	3.00%	3.13%	3.27%	0.01%	0.03%	0.01%	0.05%	0.00%	0.01%	0.01%	0.03%
2028	3.00%	3.13%	3.27%	0.01%	0.03%	0.01%	0.07%	0.00%	0.02%	0.01%	0.03%
2029	3.00%	3.13%	3.27%	0.01%	0.04%	0.01%	0.08%	0.00%	0.02%	0.01%	0.04%
2030	3.00%	3.13%	3.27%	0.01%	0.05%	0.01%	0.09%	0.00%	0.03%	0.01%	0.05%
2031	3.00%	3.13%	3.27%	0.00%	0.05%	0.00%	0.09%	0.00%	0.03%	0.01%	0.06%
2032	3.00%	3.13%	3.27%	0.00%	0.05%	0.00%	0.09%	0.00%	0.03%	0.01%	0.07%
2033	3.00%	3.13%	3.27%	0.00%	0.05%	0.00%	0.09%	0.00%	0.04%	0.01%	0.08%
2034	3.00%	3.13%	3.27%	0.00%	0.05%	0.00%	0.09%	0.00%	0.04%	0.01%	0.08%
2035	3.00%	3.13%	3.27%	0.00%	0.05%	0.00%	0.09%	0.00%	0.05%	0.01%	0.09%

Table 12b: Effect of Increases in the Minimum Wage on Prices, Denver-Based Scenarios

Year	Change in Prices			Scenario D1				Scenario D2			
	United States	West Region	Mountain	Lower		Upper		Lower		Upper	
				Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2015	0.12%	1.17%	----	----	----	----	----	----	----	----	----
2016	1.26%	1.93%	----	----	----	----	----	----	----	----	----
2017	2.13%	2.84%	----	----	----	----	----	----	----	----	----
2018	2.44%	3.35%	2.19%	2.19%	----	2.19%	----	2.19%	----	2.19%	----
2019	1.81%	2.69%	2.63%	2.63%	----	2.63%	----	2.63%	----	2.63%	----
2020	1.23%	1.74%	2.17%	2.17%	----	2.17%	----	2.17%	----	2.17%	----
2021	4.70%	4.52%	5.03%	5.03%	----	5.03%	----	5.03%	----	5.03%	----
2022	8.00%	8.01%	9.33%	9.33%	----	9.33%	----	9.33%	----	9.33%	----
2023	4.12%	4.29%	4.48%	4.48%	----	4.48%	----	4.48%	----	4.48%	----
2024	3.00%	3.13%	3.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2025	3.00%	3.13%	3.27%	0.01%	0.01%	0.03%	0.03%	0.00%	0.00%	0.01%	0.01%
2026	3.00%	3.13%	3.27%	0.01%	0.03%	0.03%	0.06%	0.00%	0.01%	0.01%	0.01%
2027	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.01%	0.01%	0.02%
2028	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.01%	0.01%	0.02%
2029	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.01%	0.01%	0.03%
2030	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.02%	0.01%	0.03%
2031	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.02%	0.01%	0.04%
2032	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.02%	0.01%	0.04%
2033	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.02%	0.01%	0.05%
2034	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.03%	0.01%	0.05%
2035	3.00%	3.13%	3.27%	0.00%	0.03%	0.00%	0.06%	0.00%	0.03%	0.01%	0.06%

Sources: ECOnorthwest analysis of data from: U.S. Bureau of Labor Statistics. (2024). "Consumer Price Index for All Urban Consumers (CPI-U): Selected Areas, All Items Index, Not Seasonally Adjusted." Washington, DC: U.S. Department of Labor. https://www.bls.gov/regions/mountain-plains/data/xg-tables/ro7xg01.htm.