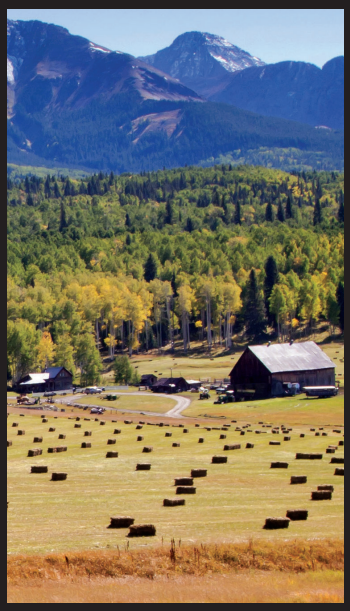
COLORADO PERA ECONOMIC AND FISCAL IMPACTS



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April 2015

COLORADO PERA®

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INTRODUCTION

This study measures the economic and fiscal impacts of the Colorado Public Employees' Retirement Association (PERA) retirement distributions to Colorado recipients and provides a description of PERA members (active and benefit recipients). This April 2015 study is a follow-up to the earlier reports performed in August 2009 and November 2011.

EXECUTIVE SUMMARY

» Colorado Public Employees' Retirement Association (PERA) is the retirement plan for 547 public entities and government agencies within the state of Colorado, with the five divisions comprising the following percentages of total recipients:

1. School Division–54.0%
2. State Division–34.0%
3. Local Government–6.0%
4. Denver Public Schools Division–6.0%
5. Judicial Division–less than 1.0%.

- PERA is important to the state as well as regional and local (county) economies.
- PERA provides retirement distributions of $3.5 billion annually to Colorado residents (based on September 2014 retirement distributions annualized).
- These PERA retirement distributions include only monthly pension retirement distributions, and not health care benefits provided to retirees understating the full advantages the community receives from its PERA recipients.
- For perspective, retirement distributions can be examined on a per capita basis as well as compared to total payroll. Per capita, as opposed to per recipient, retirement distributions average some $655 per person at the state level to more than $1,300 per person in the Pueblo-Southern Mountains Region. When measured against total payroll, retirement distributions amount to 3.5 percent at the state level, and for rural areas, such as the Pueblo-Southern Mountains and San Luis Valley regions, amount to 14.3 and 12.1 percent of local area payroll, respectively.
- During the recession of 2009–2011 the payments driven by the Pueblo-Southern Mountains region benefit recipients, amounted to $274 million, and was key to limiting negative economic impacts in the area.
- PERA distributions are a critical source of reliable, predictable income and provide an "automatic stabilizing effect" on state, regional, and local economies, especially in economic downturns as these moneys provide important stimulus in maintaining market activity.

» Commonly recognized economic impact measures include output, value-added, labor income, and employment. The $3.5 billion in annual PERA distributions to Colorado residents results in $5.2 billion in output (all goods and services transactions), $2.52 billion in value-added (state gross domestic product), $1.46 billion in labor income, (which measures worker impact in wages), and 29,357 jobs. This economic output is an increase from $3.55 billion in 2009, substantially adding to the recovery of the state and local economies from the recent recession.

» When the impact results are analyzed on an industry sector basis, there are five major sectors (Finance and Insurance, Public Sector/Government Enterprises, Health Care and Social Assistance, Retail Trade, and Real Estate and Rental and Leasing), each of which contributes 12 to 13 percent of total value added. Hence, these five sectors account for a total of 60 to 65 percent of the value added to our state economy.

» Substantial variation in impacts is evident at the county level, but the largest value-added and labor income impacts, as measured on a per capita basis, occur in a number of the rural counties.

$3.5 billion in retirement distributions to Colorado residents

$5.2 billion in economic output and helps sustain **29,357 jobs**

ECONOMIC IMPACT

COLORADO PERA BACKGROUND

- Colorado PERA was established by state law in 1931, operates by authority of the Colorado General Assembly, and is administered under Title 24, Article 51 of the Colorado Revised Statutes.
- Initially, PERA covered only state employees, but over the years has expanded to over 550 government agencies and public entities within the state of Colorado including all Colorado school districts, state judicial systems, and many municipal and local governments.
- Retirement distributions are pre-funded: while a member is working, both the member and the employer contribute a fixed percentage of the member's salary to the retirement trust funds. The employee's contribution is 8 percent for most members; the employer's contribution in the early 2000's was approximately 10 percent, but in 2004 and 2006 legislation was passed that required employers to remit additional contributions to PERA. Now, most division employers contribute more than 17 percent plus 1 percent for the health care trust fund. (But in reality, of the 17 percent, 4 percent is to be funded by moneys otherwise available for employee wage increases. Thus, the employers contribution is approximately 13 percent.)
- PERA provides retirement distributions to members at retirement (or if disabled or to a survivor upon member's death). More than 99 percent of PERA members do not participate in Social Security and, therefore, the PERA retirement distribution is designed and funded to provide total retirement moneys consistent with the private sector where retirement is based on a combination of a private plan and Social Security. (Notably, even if a PERA member holds a second job in the private sector and becomes eligible for Social Security, the Windfall Elimination Provision of Social Security typically reduces any Social Security benefits to such individuals by more than half.)
- As of December 31, 2013, PERA's membership included 200,183 active members, 101,420 retirement distribution recipients, and 2,254 survivor benefit recipients. The total retirement distributions to recipients amounted to $3.73 billion (including in-state and out-of-state residents) with an average monthly distribution of $3,068. (For a similar worker in the private sector, one would expect approximately a $1,800 per month payment for Social Security, and the remaining amount to be funded by a 401[k] plan or other savings.)
- The trust funds are invested by PERA under the direction of a Board of Trustees. PERA's investment strategy uses actuarially established investment objectives with long-term goals and policies. As of September 30, 2014 (the most current data available), the five-year annualized return on the portfolio was 10.3 percent and the 30-year annualized return was 9.4 percent.
- As is true for every retirement system, PERA members face the risk that arises from uncertainty regarding life expectancy, financial returns, inflation, etc. However, the structure of PERA allows this risk to be distributed across its members, rather than being concentrated in a few unlucky individuals as is the case for defined contribution plans. This sharing of risk is one the main advantages of defined benefit plans over defined contribution plans.

"MORE THAN 99% OF PERA MEMBERS DO NOT PARTICIPATE IN SOCIAL SECURITY"

PERA ESTABLISHED IN 1931

PERA AND PERSPECTIVE ON THE MAGNITUDE OF PERA PAYMENTS

As noted earlier, initially PERA covered only state employees, but over the years the system has expanded to approximately 550 government agencies and entities within the state of Colorado including all Colorado school districts, the state judicial system, and many municipal and local governments. Denver Public Schools has joined PERA since the August 2009 economic and fiscal impact report. As of December 31, 2013, PERA included 200,183 active members and 101,420 retirement distribution recipients with approximately $3.73 billion in annual retirement distributions (including in-state and out-of-state residents) and an average payment of $3,068 per month.

PERA's membership includes:

- Employees of the State of Colorado
- Teachers
- Judges
- State Troopers
- Many university/ college employees

Hence, PERA covers the workers that provide many of our basic social needs including education, health care, law enforcement, justice, safety, etc.

The largest division of members and retirement distribution recipients is the School Division, followed by the State Division, and then the Local Government division. The Judicial Division is the smallest. A breakdown of active members and retirement distribution recipients by division is identified in Table A below.

550

Government Agencies & Entities in Colorado

The number of active members and retirement distribution recipients has increased over the past two decades from 106,898 active members with 30,537 retirement distribution recipients in 1990 to 200,183 active members with 101,420 retirement distribution recipients in 2013 (see Figure 1 below). The growth in retirement distribution recipients relative to active members is consistent with the demographic phenomena of an increasing number of retirees relative to active workers in our society. (The number of survivor benefit recipients has decreased from 2,458 to 2,254 over the same time frame.) Also of importance, the number of participating employers increased from 342 in 1990 to over 500 in 2013.

FIGURE 1

PERA Active Members and Retirement Distribution Recipients 1990 and 2013

Source: Colorado PERA Comprehensive Annual Financial Reports

TABLE A

PERA Active Members and Retirement Distribution Recipients by Division

	State Division	School Division	Local Government Division	Judicial Division	Denver Public Schools Division	Total
Active members	55,354	117,727	11,954	332	14,816	200,183
Inactive members	63,759	96,832	20,286	5	5,501	186,383
Recipients receiving retirement distributions	33,970	54,741	5,991	309	6,409	101,420
Average monthly benefit (retirement benefits)	$3,185	$2,980	$3,044	$5,077	$3,121	$3,068
Recipients receiving survivor benefits	876	1,067	156	13	142	2,254

Source: Colorado PERA Comprehensive Annual Financial Report for the Fiscal Year Ended December 31, 2013

A key element of PERA funding is the ability to generate income from the investment of employer and employee contributions. A summary of the sources of PERA assets is provided in Figure 2. The largest portion of contributions is investment income amounting to 64 percent.

64 Percent
INVESTMENT INCOME PERA Trust Funds

FIGURE 2

Additions to the PERA Trust Funds
1986 to 2010

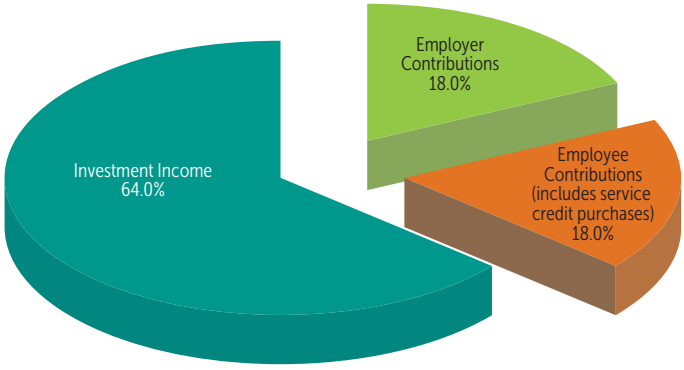
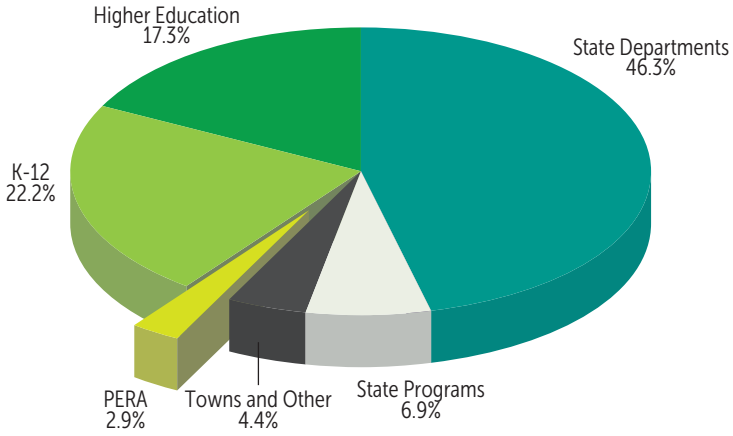


Figure 3 below provides perspective on the relative expense of PERA compared to other state expenditures. PERA employer contributions account for only 2.9 percent of the overall budgets of its participating employers. The per capita costs per Colorado resident to pay for the pension benefits for the state's teachers, law enforcement, judges, etc. (the PERA members) is approximately $280 per year.

2.9 Percent
EMPLOYER CONTRIBUTIONS State Expenditures

FIGURE 3

Colorado State Expenses by Department



The nine regions identified in this research consist of the same counties and designations as utilized by the *Colorado Legislative Council* for its economic forecasts. The map in Figure 4 shows the number of PERA retirement distribution recipients and the total annual PERA payments for each region. (Although smaller numbers of PERA participants reside outside the Metro Denver region, the monetary impact of PERA distributions on maintaining the health of the regions in more rural areas is substantial.)

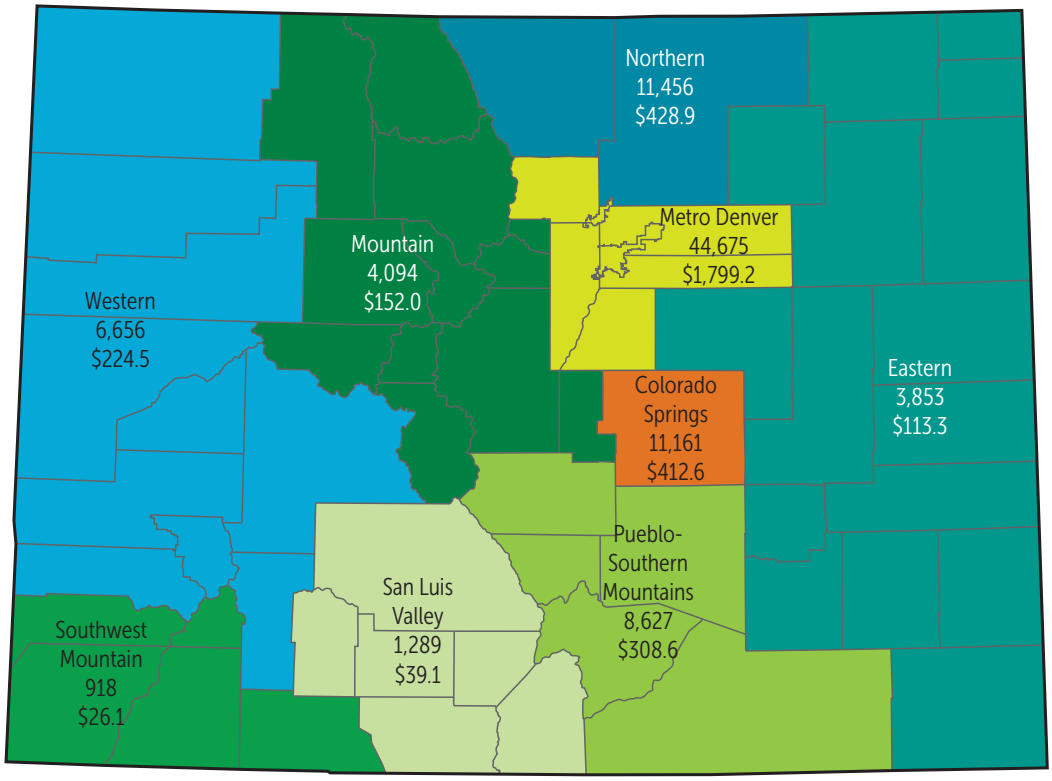
Total PERA retirement distributions paid in 2013 amounted to $3.73 billion. As of September 2014, approximately $3.51 billion (on an annualized basis) was paid by PERA to recipients who continue to reside in Colorado. The 2014 geographic dispersal of PERA retirement distributions by regions is illustrated in Figure 5.

Total retirement distributions are concentrated in the Metro Denver region (see Figure 5).

FIGURE 4

Number of PERA Recipients and Annual PERA Payments by Region

(PERA payments shown in millions)

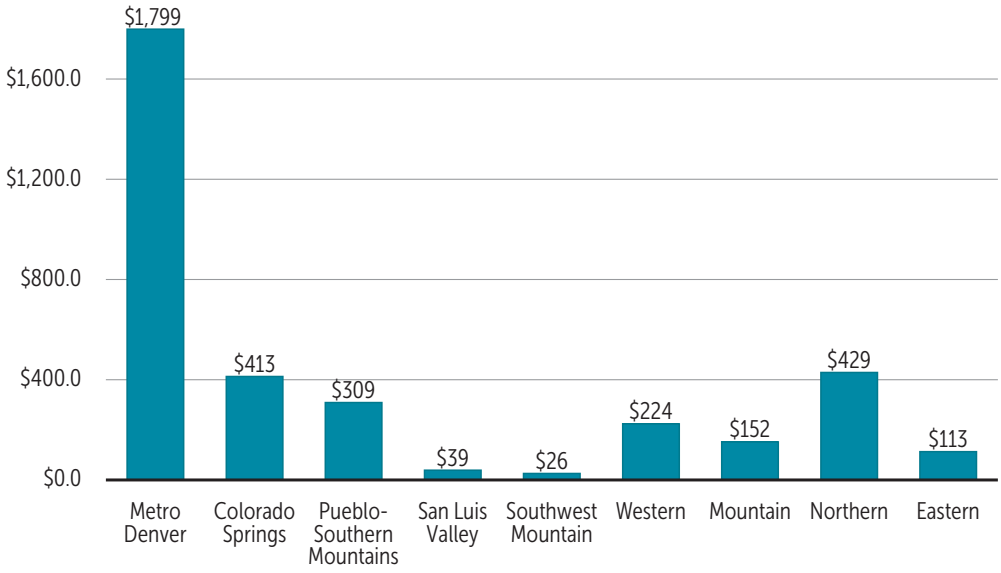


Source: Data from Colorado PERA as of September 2014. Retirement distributions have been annualized.

FIGURE 5

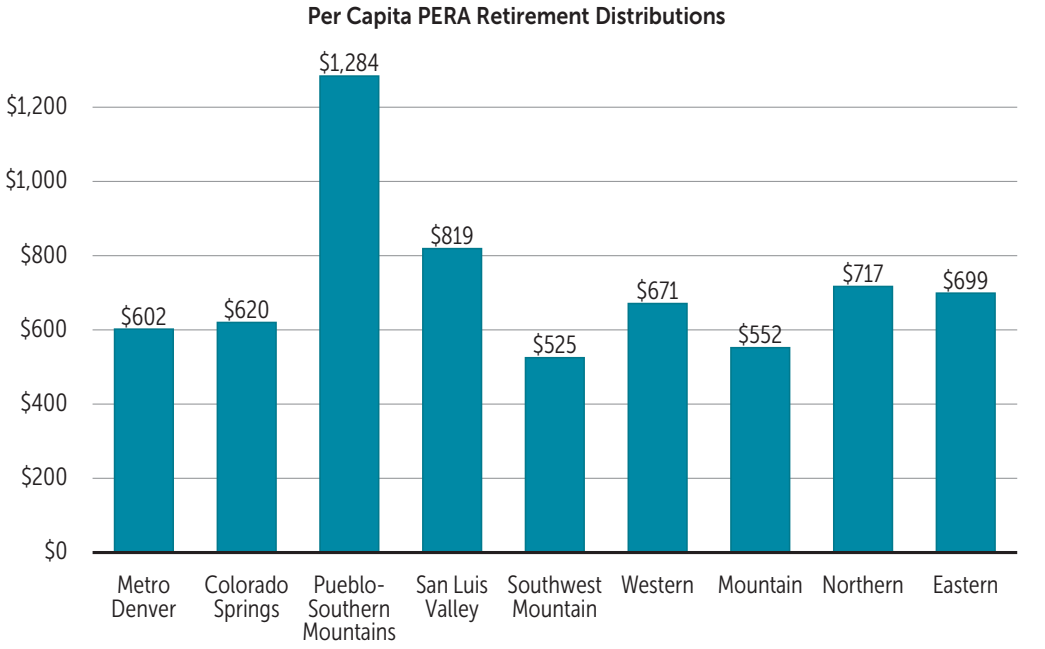
PERA Retirement Distributions by Region

(in millions)



Source: Data from Colorado PERA as of September 2014. Retirement distributions have been annualized.

FIGURE 6



Source: Data from Colorado PERA as of September 2014. Retirement distributions have been annualized.

$1,300

PER YEAR PER PERSON

In the Pueblo-Southern Mountains Region

PERA Retirement Distributions

Figure 6 identifies the PERA retirement distributions on a per capita basis and demonstrates the relative importance of the PERA payments to each region. The per capita measure demonstrates that these payments are important to all regions, but are especially important in rural regions such as the Pueblo-Southern Mountains region where these payments amount to nearly $1,300 per year per person (i.e., when measured by all persons in the region, not only PERA recipients).

TABLE B

PERA Recipient Payments as Percentage of Payroll
(dollars in millions)

State/Region	September 2014 Retirement Distributions Annualized	Annual Payroll (adjusted to 2014)	PERA Payments as Percentage of Payroll
State of Colorado	$3,517.4	$101,891.9	3.5%
Metro Denver	1,799.2	66,491.8	2.7%
Colorado Springs	412.6	9,448.9	4.4%
Pueblo-Southern Mountains	308.6	2,062.1	15.0%
San Luis Valley	39.1	317.3	12.3%
Southwest Mountain	26.1	346.1	7.6%
Western	224.5	4,088.8	5.5%
Mountain	152.0	4,366.0	3.5%
Northern	428.9	8,006.9	5.4%
Eastern	113.3	1,133.5	10.0%

Source: Data from Colorado PERA as of September 2014. Retirement distributions have been annualized. Payroll data from 2012 County Business Patterns, U.S. Census Bureau adjusted to 2014 dollars.

Note: PERA reports there are 407 Colorado residents (less than ½ percent) that could not be mapped to a county (and hence a region) as their address were not recognized by the United States Postal Service.

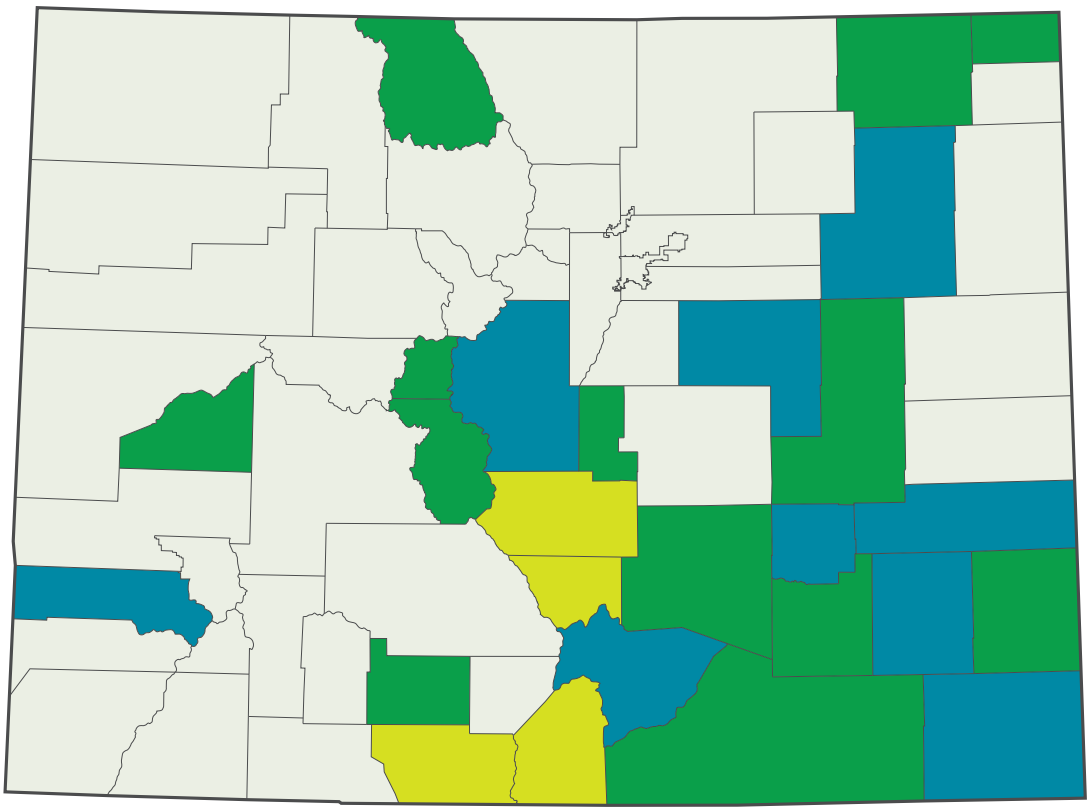
Note: There are statewide payroll dollars of $5.63 billion (in 2014 dollars) (5.5 percent of total) which U.S. Census Bureau does not assign to a specific county and, hence, are not assigned to any region in this analysis.

Table B (page 9) and Figure 7 provide a perspective on the magnitude of PERA payments to recipients relative to the state, regional, and local (county) economies. Annual PERA recipient payments to Colorado residents of $3.51 billion amounts to approximately 3.5 percent of statewide payroll. (Statewide payroll is collected from the County Business Patterns from the U.S. Census Bureau and includes all forms of compensation to those employed.) These data further confirm that PERA payments are especially important in rural regions and less critical, but still important, in the Metro Denver and Mountain regions.

- PERA retirement distributions represent a larger share of the local economy in the less populated regions of San Luis Valley, Pueblo-Southern Mountains, and Eastern.
- In more affluent or urban areas, this percentage is less than 10 percent; however, for a substantial number of rural counties, PERA retirement distributions are in the range of 10 to 25 percent (highlighted in green and blue in the figure above) with some notable exceptions including the counties of Costilla (45.9 percent), Conejos (35.1 percent), Custer (32.8 percent), and Fremont (28.6 percent) (all highlighted in yellow in the figure above).
- PERA retirement distributions are an important source of financial stability in the state economy, especially during times of recession.
- Appendix A includes county-by-county detail.

FIGURE 7

PERA Retirement Distributions Relative to Payroll by County



> "PERA RETIREMENT DISTRIBUTIONS ARE AN IMPORTANT SOURCE OF FINANCIAL STABILITY IN THE STATE ECONOMY, ESPECIALLY DURING TIMES OF RECESSION."

MEASURING ECONOMIC AND FISCAL IMPACTS

When a household receives PERA retirement distributions, it represents an infusion of income into the local economy that creates a chain of economic activities whose total impact is greater than the initial retirement distribution payment. That is, these payments have substantial "ripple" or "multiplier" effects where one recipient's spending becomes someone else's income. With $3.51 billion paid to recipients who reside in Colorado, PERA has a large economic footprint on the state, regional, and local economies.

The impact of the PERA retirement distributions reaches well beyond those who receive the initial retirement distributions (retirees or survivors) as the recipient can fulfill obligations such as purchasing groceries, apparel, gasoline, etc. with these monthly PERA payments. This creates the "multiplier" effect as described and illustrated in Figure 8.

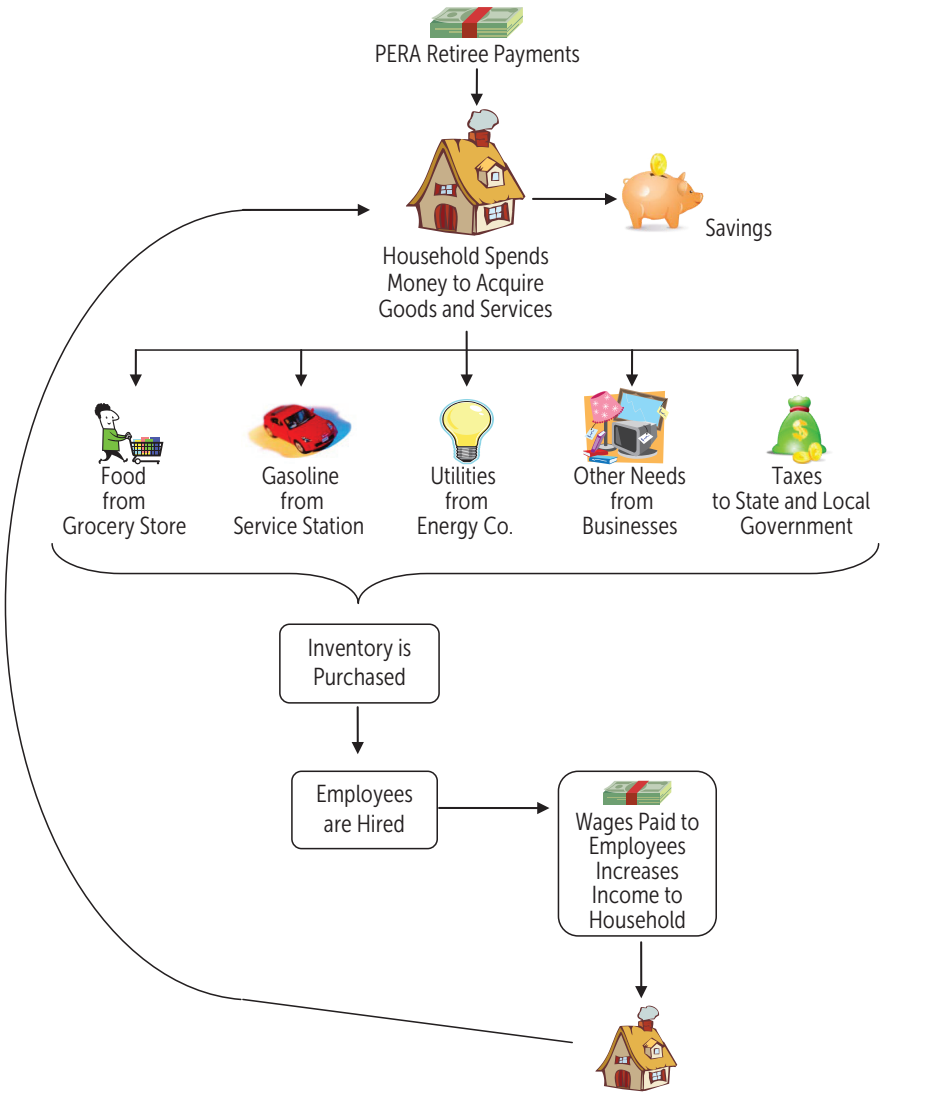
The Multiplier Effect

- PERA makes lifetime monthly distributions to recipients (retirees and survivors).
- PERA recipients spend the monthly moneys on household needs (such as food, gasoline, and utilities) and pay taxes and fees.
- PERA recipients may also "save" some of the monthly moneys and this "savings" leaks out of the multiplier effect, but since most recipients are in the decumulation phase of life, most of the distributions are spent.
- Businesses and/or governments providing those needs use their existing inventory or

"THE IMPACT OF PERA RETIREMENT DISTRIBUTIONS REACHES WELL BEYOND THOSE WHO RECEIVE THE INITIAL RETIREMENT DISTRIBUTIONS"

FIGURE 8

The Multiplier Effect of Household Expenditures



purchase new inventory and may also be required to hire labor to sell or produce their products or provide their services.

- Then business owners as well as their employees obtain income from these purchases (initially by the PERA recipient) and they too then go out and buy goods and services.
- Which, in turn, means added business income and wages/salaries.
- And the cycle repeats.

To measure the multiplier effect, sophisticated mathematical procedures (generally referred to as input-output models) are created to track the flow of dollars through an economy. These input-output models recognize the relationships between industries and institutions (households, business, and government sectors) in the economy of a certain geographic area (state, region, or county). The models incorporate the prevalence of different industry sectors in different geographic regions and recognize certain industries retain more of the dollars within the region than other industries.

For example, money spent on professional services or accommodations/food are more likely to stay within the area and benefit the local community while mining or manufacturing sectors may improve employment and wages, but if much of the product is sent out of the area or the input needs are purchased elsewhere, the economic impact will be more limited. Also, another integral piece of the model is the weighting of different consumer expenditure patterns by income levels.

There are a number of well-recognized input-output models including RIMS II, IMPLAN, REMI, etc. This research utilizes the IMPLAN (formerly an acronym for **IM**pact Analysis for **PLAN**ning) input-output model to estimate the economic and fiscal impact of PERA recipient benefits to the state and regional economies. (Appendix D provides more detailed information regarding the methodology used for this research.)

Key and commonly recognized economic impact measures include output, value-added, labor income, and employment. Definitions and examples for each of these measures are provided and illustrated on pages 12 through 14.

$3.51 billion

Paid to recipients who live in Colorado

"PERA HAS A LARGE ECONOMIC FOOTPRINT ON THE STATE, REGIONAL, AND LOCAL ECONOMIES"

Definitions

OUTPUT

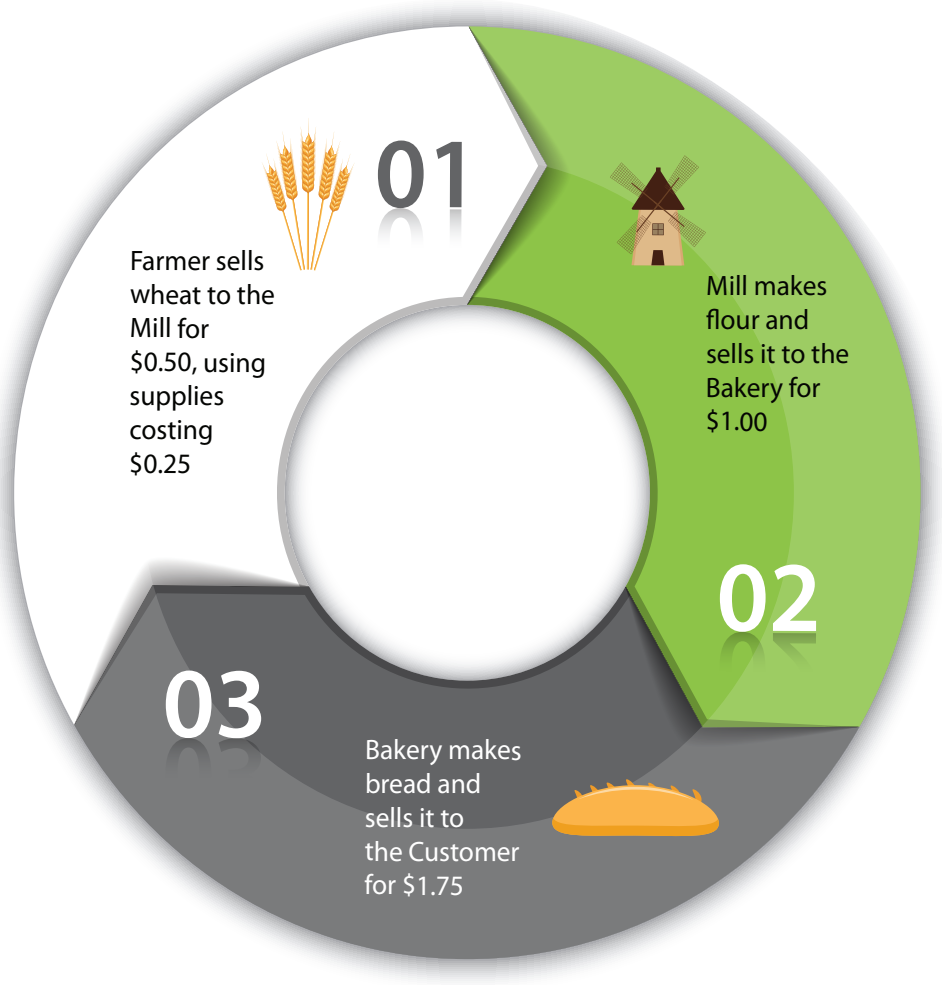
This broad measure includes the total sales or revenues generated by firms, government, and households, from initial stimulus (i.e., the PERA benefit payment) and subsequent expenditures.

VALUE–ADDED

A key economic performance measure that includes only "additions" in the economy, i.e., newly created goods and services resulting from the PERA distribution; not the sum of sales at each transaction, but rather, the component of sales that represents the additional production of goods and services; commonly referred to as Gross Domestic Product (GDP).

Output and Value Added

A classic example is presented to assist in understanding the output and value.



OUTPUT	VALUE-ADDED		
$0.50	($0.50–$0.25)	=	$.25
+ $1.00	+($1.00–$0.50)	=	$.50
+ $1.75	+($1.75–$1.00)	=	$.75
$3.25	**$1.50**		**$1.50**

Definitions

Output and value-added are measures of economic impact that include all types of economic activity. That is, when PERA retirement distribution recipients spend money in grocery stores, retail shops, restaurants, etc., those businesses respond by buying more supplies, utilities, building space, etc. Businesses also respond by hiring more workers. The employment component of the economic impact on workers from a stimulus to the economy, such as the PERA retirement distributions, is of particular interest and is measured by labor income (which measures worker impact in wages) and employment (which measures worker impact in number of jobs).

LABOR INCOME

A component of value-added, labor income, measures the portion of newly created value that is employee compensation and self-employment income required to produce or sell the additional goods and services.

EMPLOYMENT

Employment is the level of full-time and part-time jobs generated by the PERA payments; i.e., ongoing PERA payments support this level of jobs.

PERA ECONOMIC AND FISCAL IMPACTS

PERA retirement distributions are a critical source of reliable, predictable income and provide an "automatic stabilizing effect" on state, regional, and local economies, especially in economic downturns as these moneys provide important stimulus to local and state market activity. As noted in the previous section, these steady monthly retirement distributions are especially vital to small communities due to the lack of diverse local industries where other steady sources of income are not readily available. Households with stable incomes can be counted on to spend on basic needs and other purchases as well as pay taxes and fees generating revenue for state and local governments. In addition, monthly distribution recipients are less subject to extreme economic and life events that would result in the need for government assistance.

The following sections estimate the effect of spending from PERA retirement distributions, including the overall economic impact and by industry sectors, as well as a more narrow analysis of the fiscal impact on state and local government revenues. (For a more detailed description of the methodology used in this analysis, see Appendix E.) The methodology is well accepted and widely used by federal, state, and local governments, research organizations as well as academic institutions and businesses to assess the economic and fiscal impacts of a variety of developments, including numerous analyses of the retirement distributions of publicly funded pension plans. Notable IMPLAN clients include: from the Federal Government, the Bureau of Economic Analysis (BEA) and the Federal Reserve; from the State Government, Colorado Department of Labor and Employment; both University of Colorado and Colorado State University; and from the local private sector, Development Research Partners.)

$267
million
in Tax Revenue

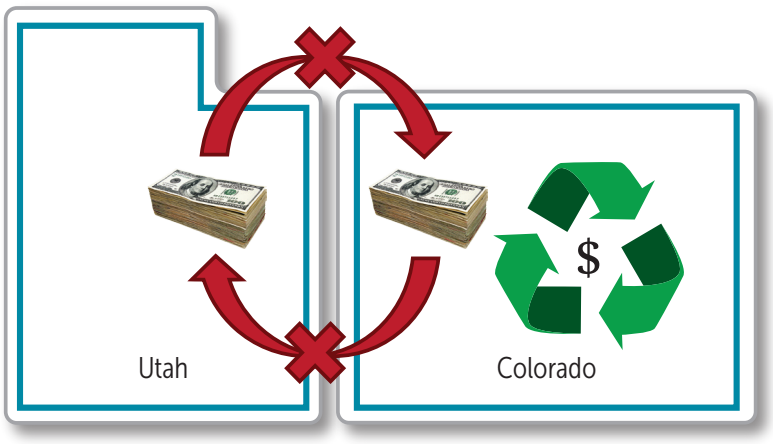
TAX REVENUE

Figure 9 illustrates the economic impacts of PERA on the state of Colorado as calculated using the well-recognized and well-accepted IMPLAN model. The $3.51 billion in annual PERA retirement distributions to Colorado residents results in $5.20 billion in output, $2.52 billion in value-added, $1.46 billion in labor income, 29,357 jobs, and amounts to 1.2 percent of Colorado gross domestic product. Of note, the impact on employment is measured in "annual average jobs" and reflects jobs supported for one year. The ongoing PERA retirement distributions would continue to support these jobs and additional increases in retirement distributions to PERA recipients (such as an increase in the number of recipients or increases in retirement distributions) over subsequent years will, on the margin, add new jobs to the economy. The economic impact to state/local governments amounts to $267 million in tax revenue.

The total output multiplier can be derived by dividing the total economic output ($5.2 billion) by the initial retirement distributions ($3.51 billion) amounting to a multiplier of 1.48. This means that for every dollar spent by a PERA recipient an additional 48 cents is generated in the economy through additional rounds of spending.

FIGURE 9

Multiplier Effect Illustration



The economic impact of PERA retirement distributions is larger than just the initial retirement distribution because of the "multiplier" effect. The multiplier effect occurs when a PERA retiree spends some of his/her retirement distribution on food, for example, which creates income for grocery store employees who, in turn, spend it on clothing, and so on and so on. Hence, the PERA dollars ripple throughout the economy, and the size of the ripple is known as the multiplier.

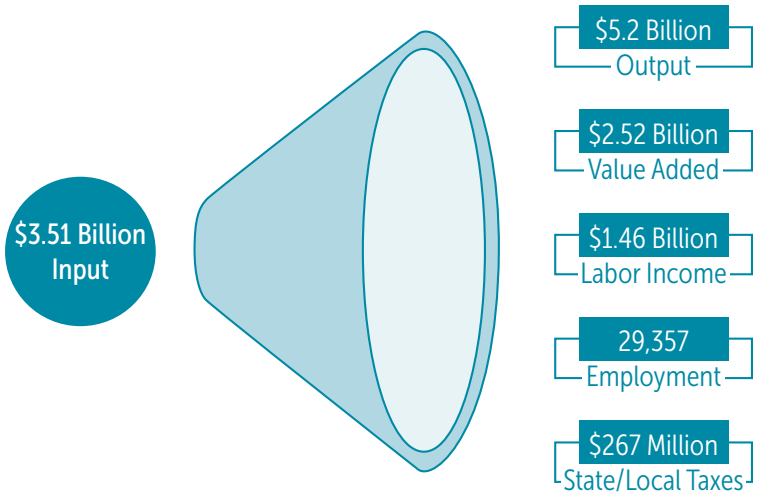
The multiplier effect arises when individuals spend their dollars in specific stores. Consequently, the size of the multiplier is influenced by the particular geographic region being studied, which will include some stores and exclude others. This idea is illustrated in Figure 9 (on page 15) which shows the flow of PERA dollars within Colorado and between Colorado and Utah. When measuring the multiplier using the state of Colorado as the geographic region, only income and purchases within the state are included. If a retiree lives in Colorado but buys in Utah, or lives in Utah and buys in Colorado, those dollars are not included in the multiplier for the state of Colorado. The dollars spent across state lines still generate economic activity, they are just not included in the computation of the state multiplier. Similarly, the multiplier for the Northern region does not included purchases made in the Metro Denver region, and the multiplier for Jefferson County does not include purchases made in Denver County. Consequently, the full multiplier effect to the state, and its regions and localities is even greater than identified in this report.

> "FOR EVERY DOLLAR SPENT BY A PERA RECIPIENT AN ADDITIONAL 48 CENTS IS GENERATED IN THE ECONOMY THROUGH ADDITIONAL ROUNDS OF SPENDING"

MULTIPLIER EFFECT

FIGURE 10

Economic Impact for the State of Colorado



Of note, this analysis is limited to the disbursement of retirement payments to the households, the largest benefit provided by PERA. The economic activity related to other benefits provided by PERA (such as the PERACare subsidy, 401[k] plan, and other voluntary benefit programs) has not been incorporated into this analysis, but would obviously increase the overall economic and fiscal impacts provided by PERA. Notably, the average account balance of PERA defined contribution type plans is approximately $36,000 and there are more than 90,000 accounts.

The salient information for the economic impact by region is best demonstrated by the value-added and labor income measures, beyond the substantial direct fiscal impact.

Total impact at the state and regional levels is largely driven by population and, therefore, the impact figures are further refined by adjusting for population. The following figures demonstrate the impact on a per person basis in the region. (That is, per capita impacts are obtained by dividing total impact by the relevant population base for the state, regions, and counties.) The magnitude of the results varies across regions as each region has different industries and economic infrastructure and, as such, the multiplier effect for each region will differ.

Figures 11 through 14 identify value-added and labor income for the total and per capita impacts for the state and regions. The following figures show that the value-added and labor income impacts follow the same distribution patterns across regions as retirement distributions:

- Naturally, total impacts are greater in the more populated regions.
- The per capita impacts are fairly constant between regions with the exception of the Pueblo-Southern Mountains region where the per capita impact is substantially greater. PERA also plays a particularly important role in the local economics of the Western, Northern, and Eastern regions.
- Not surprisingly, the per capita impacts are smaller in the Mountain region where the prevalence of resort communities likely contribute to a large in-flow of non-resident spending that overshadows the spending of PERA recipients.
- Of note, output and employment impacts attributable to PERA recipient spending exhibit similar patterns at both the state and regional levels.

Figures 11 and 12 identify the total and per capita value-added dollar impact, respectively; while Figures 13 and 14 (on page 18) identify the total and per capita labor income dollar impact, respectively.

FIGURE 11

Total Value-Added for State and Regions
(in millions)

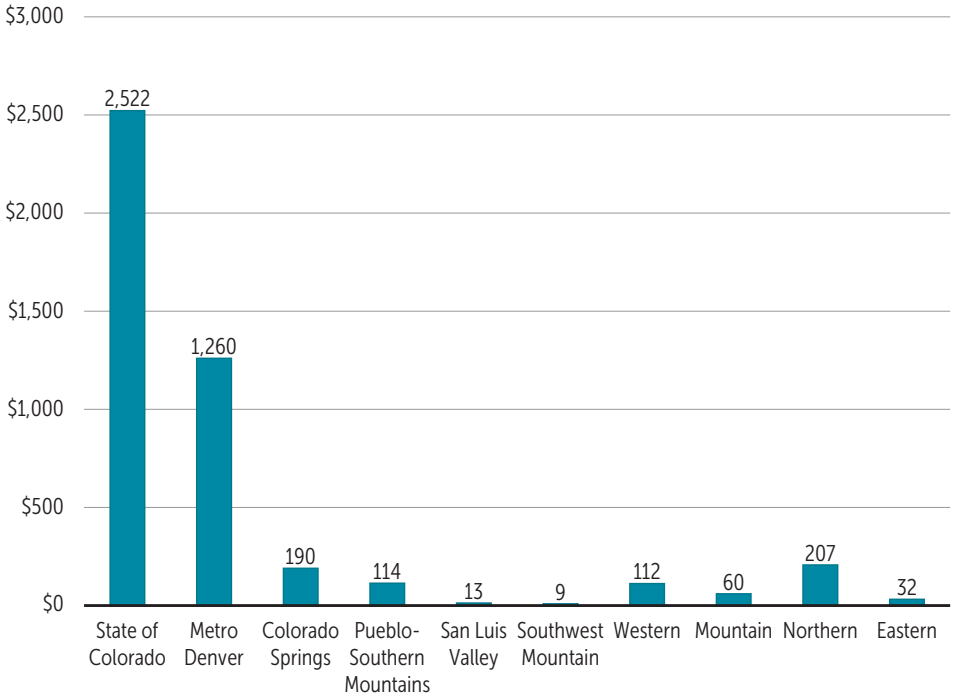


FIGURE 12

Per Capita Value-Added for State and Regions

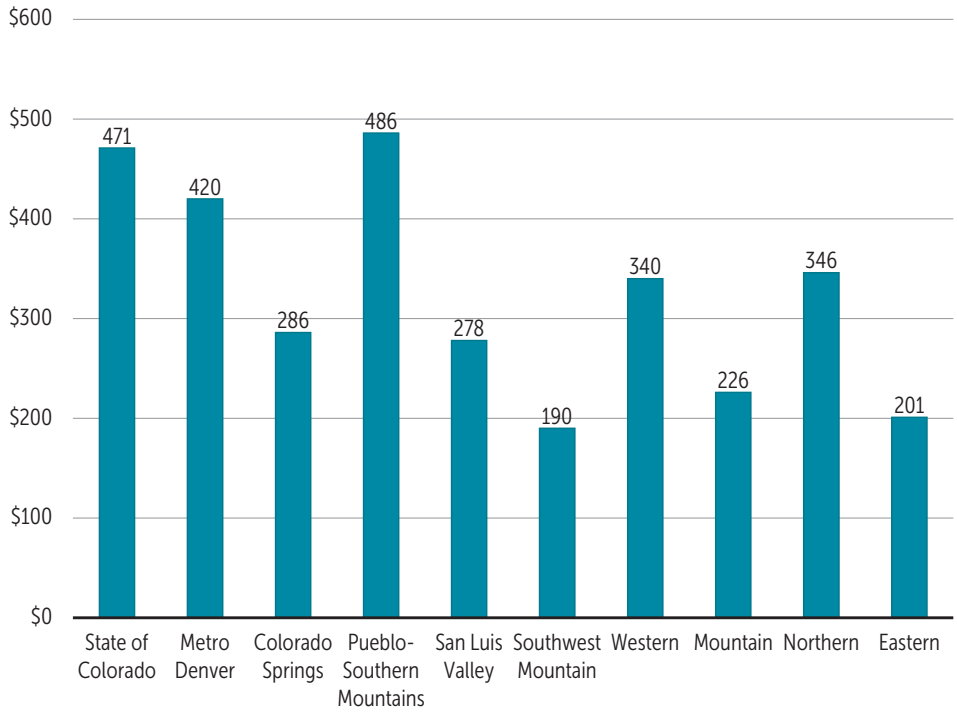


FIGURE 13

Total Labor Income for State and Regions
(dollars in millions)

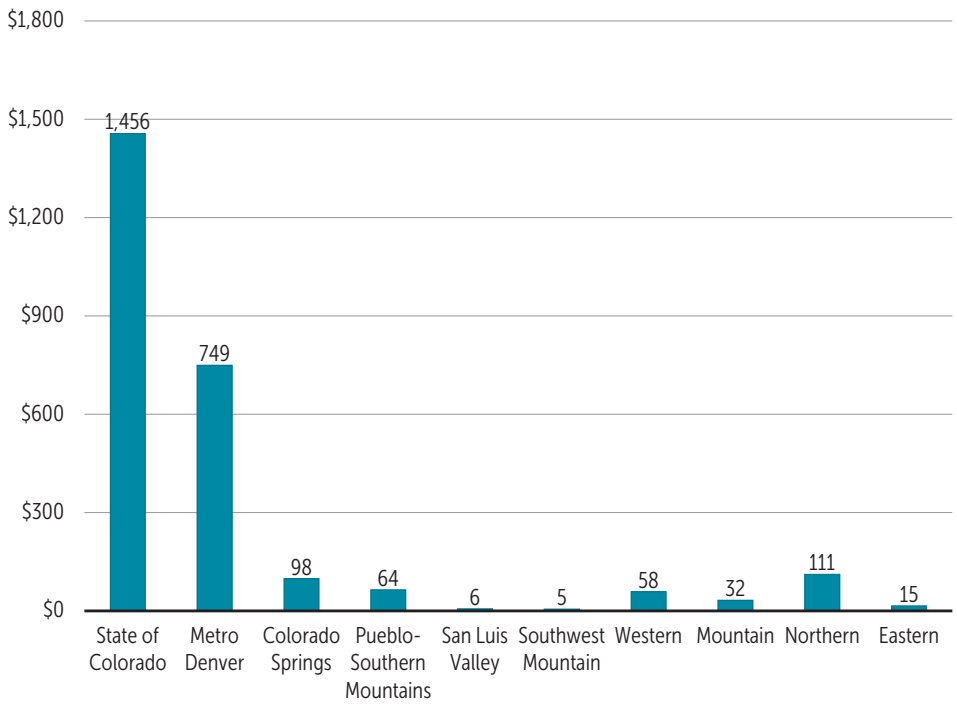
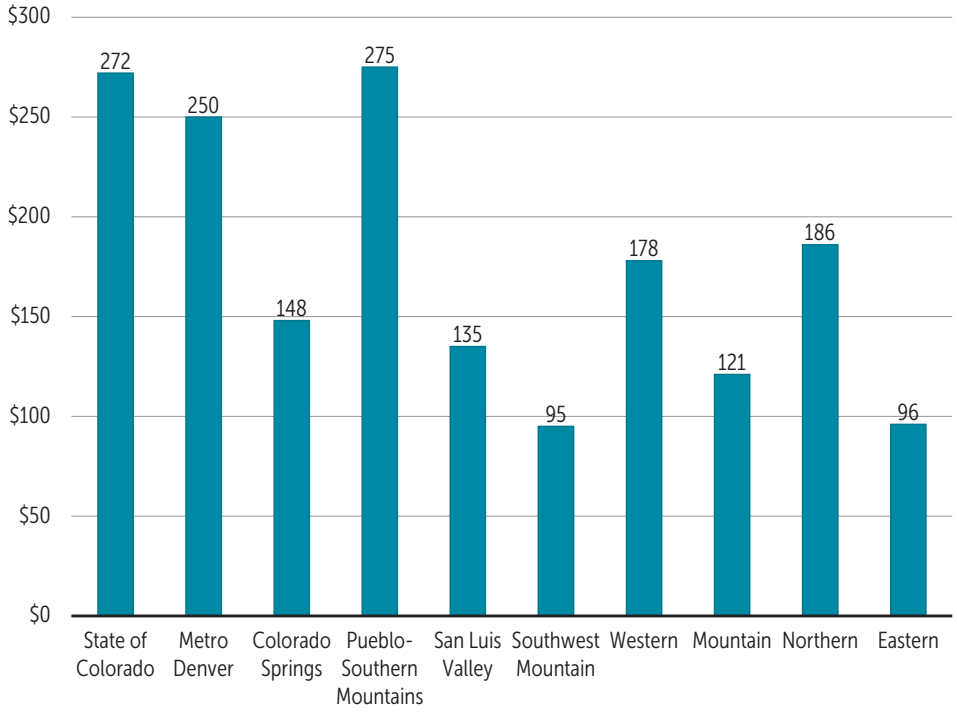


FIGURE 14

Per Capita Labor Income for State and Regions



A summary of the economic impacts identified in Figures 11 to 14 for the state as well as the impacts for each region is provided below in Table C. Notably, and importantly, state impacts are not the sum of the impacts of individual regions/counties. That is, because households make some of their purchases for goods and services outside a certain region/county and, as such, those expenditures are not counted in the economic activity of the region/county where the retirement distribution recipient resides. Given that the state encompasses a larger geographic and, therefore, larger economic area, it will include more economic activity and, hence, the economic impact for the state will be larger than the sum of the counties/regions.

Impacts for 15 counties with the highest per capita value-added are identified in Table D below. The per capita value-added is the highest in Pueblo county at approximately $520 person.

TABLE C

Total Economic Benefit to the State and Regions of PERA Retirement Distributions
(dollars in millions, except employment)

State/Region	September 2014 Retirement Distributions Annualized	Output	Value-Added	Labor Income	Employment
State of Colorado	$3,517.4	$5,211.9	$2,521.6	$1,455.9	29,357
Metro Denver	1,799.2	2,581.1	1,259.9	749.4	13,918
Colorado Springs	412.6	503.4	190.2	98.5	2,463
Pueblo-Southern Mountains	308.6	354.2	113.9	64.5	1,673
San Luis Valley	39.1	43.8	13.0	6.3	183
Southwest Mountain	26.1	29.7	9.3	4.6	131
Western	224.5	277.2	111.5	58.4	1,544
Mountain	152.0	176.5	60.4	32.3	734
Northern	428.9	537.8	207.0	111.3	2,848
Eastern	113.3	124.2	32.0	15.3	459

TABLE D

Total Economic Benefit of PERA Retirement Distributions to 15 Selected Counties
(dollars in millions, except per capita measures)

County	Region	September 2014 Retirement Distributions Annualized	Value-Added	Labor Income	Per Capita Value-Added	Per Capita Labor Income
Pueblo	Pueblo-Southern Mountains	$219.3	$84.3	$50.1	$520	$309
Mesa	Western	114.7	68.7	36.6	461	246
Chaffee	Mountain	24.6	8.4	3.7	453	201
Alamosa	San Luis Valley	16.5	6.6	3.6	413	227
Larimer	Northern	264.2	132.1	71.0	411	221
Boulder	Metro Denver	233.4	127.9	72.5	408	231
Jefferson	Metro Denver	502.4	206.8	119.2	370	213
Fremont	Pueblo-Southern Mountains	62.2	16.9	8.5	362	181
Denver	Metro Denver	343.7	229.4	142.4	346	215
Arapahoe	Metro Denver	350.1	205.2	122.3	333	198
Otero	Eastern	16.8	5.9	3.0	315	162
Custer	Pueblo-Southern Mountains	5.4	1.3	0.4	305	99
Montrose	Western	29.7	12.3	6.3	298	152
El Paso	Colorado Springs	412.6	190.2	98.5	286	148
Logan	Eastern	18.8	6.2	3.4	284	157

Fiscal Impact

Fiscal impact is a component of total economic impact, but measures only the government tax revenues generated by PERA retirement distributions. PERA recipients pay a portion of the PERA retirement distribution in income taxes and also pay additional taxes on goods and services which are subject to sales, use, or property taxes as well as fees for licenses or permits. There are additional taxes and fees paid on the subsequent rounds of spending generated by the multiplier effect. Fiscal impact recognizes expenditures made by state and local governments to hire additional workers, make purchases in the local community for equipment needs, etc. Fiscal impact measures include the income and property taxes paid on the first round of spending plus other taxes and fees paid on subsequent rounds of spending which generates revenues for state and local government budgets.

The fiscal impacts from PERA retirement distributions as measured via the IMPLAN model are noted in Table E. The total impact to state/local governments amounts to $267 million with regions ranging from $1.1 million in Southwest Mountain to $130.2 million in Metro Denver.

TABLE E

Fiscal Impact to the State and Regions
(dollars in millions)

State/Region	Sales Tax	Property Tax	Other Tax (Including Income Tax)	Total State/Local Tax Impact
State of Colorado	$97.6	$92.1	$77.3	$267.0
Metro Denver	46.6	44.0	39.6	130.2
Colorado Springs	8.2	7.7	6.9	22.8
Pueblo-Southern Mountains	4.7	4.4	4.2	13.2
San Luis Valley	0.6	0.6	0.4	1.5
Southwest Mountain	0.4	0.4	0.3	1.1
Western	4.6	4.4	3.2	12.2
Mountain	2.4	2.3	2.3	7.0
Northern	8.9	8.4	7.3	24.6
Eastern	1.6	1.5	1.2	4.2

Economic Impact by Industry Sector

The economic impact measures will vary depending on the composition of industry sectors across the state, regional, and local economies. This research first identifies state Gross Domestic Product (GDP) by industry sector in billions of dollars to provide an overall understanding of the state's economy.

TABLE F

Industry Sectors of the Colorado Economy
(dollars in millions)

Sector	2013 Gross Domestic Product
Government	$36.2
Real Estate and Rental and Leasing	40.2
Professional and Technical Services	26.4
Information	21.6
Manufacturing	21.6
Finance and Insurance	14.5
Health Care and Social Assistance	17.4
Retail Trade	16.1
Wholesale Trade	15.9
Mining	19.8
Construction	11.8
Accommodation and Food Services	9.4
Administrative and Waste Services	8.7
Transportation and Warehousing, excluding Postal Service	8.0
Other Services, except Government	6.5
Management of Companies and Enterprises	6.2
Utilities	3.8
Arts, Entertainment, and Recreation	3.8
Agriculture, Forestry, Fishing, and Hunting	4.2
Educational Services	2.3
Total	**$294.4**

Source: Regional Economic Accounts, Bureau of Economic Analysis

Table F above illustrates GDP for Colorado by industry sector. The top four industries, accounting for over 42 percent of the state's GDP, are:

- Government
- Professional and Technical Services
- Real Estate and Rental and Leasing
- Information

Government is a large sector due, in part, to Denver being a "branch" for a number of federal government and government related agencies (e.g., the Denver Federal Center in Lakewood, U.S. Mint in Denver, etc.).

An additional 40 percent of the state's GDP is provided by:

- Manufacturing
- Health Care and Social Assistance
- Retail Trade
- Finance and Insurance
- Wholesale Trade
- Construction
- Mining

The remaining industry sectors account for approximately 18 percent of state GDP. This distribution is illustrated in figure 15.

Figures 16 through 18 demonstrate the statewide impacts by industry sector. (The data used for these figures are found in Appendix B.) The economic impact by industry sector for Value-Added (i.e., state GDP) is illustrated in Figure 16 below. Although Real Estate and Rental and Leasing, Government, Professional and Technical Services, and Information account for approximately 42 percent of the 2012 state GDP, the economic impact as measured by value-added is greatest in the Finance and Insurance Services, Public Sector Government Enterprises, Health Care and Social Services, Retail Trade, and Real Estate and Rental and Leasing. In fact, only six sectors (Finance and Insurance, Public Sector Government Enterprises, Health Care and Social Assistance, Retail Trade, Real Estate and Rental and Leasing, and Wholesale Trade) account for approximately 67 percent of the Value-Added impact (i.e., contribution to GDP). (The output impact is not illustrated although it has a somewhat broader distribution.) Note, impacts are likely concentrated in the health care sector given that PERA retirement distributions drive household final demand while other sectors of state GDP (Real Estate, Professional Services, etc.) are largely driven by business to business transactions.

> "THE ECONOMIC IMPACT MEASURES WILL VARY DEPENDING ON THE COMPOSITION OF INDUSTRY SECTORS ACROSS THE STATE, REGIONAL, AND LOCAL ECONOMIES"

FIGURE 15

Components of the Colorado Economy

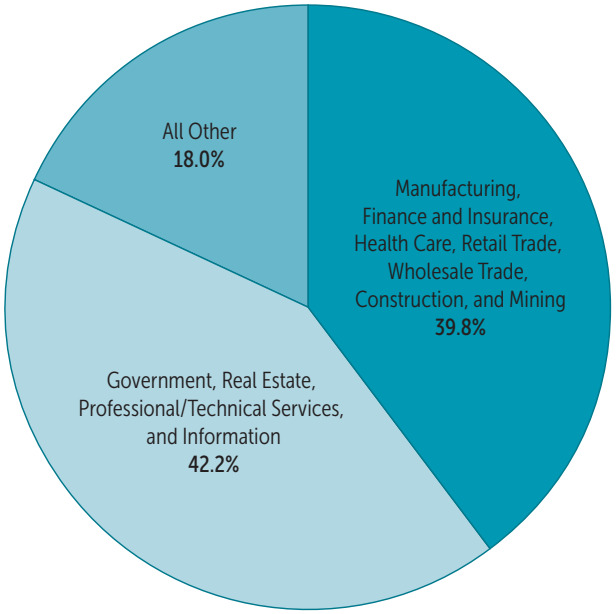


FIGURE 16

Value-Added by Industry Sector—State of Colorado

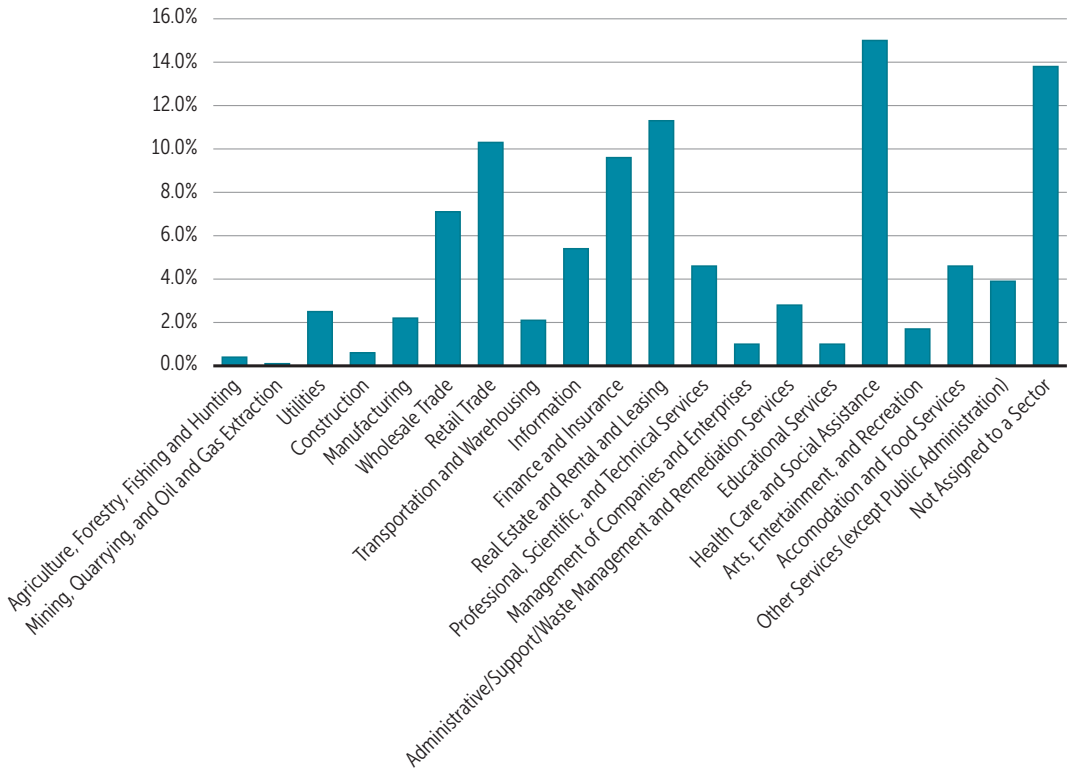


FIGURE 17

Labor Income by Industry Sector—State of Colorado

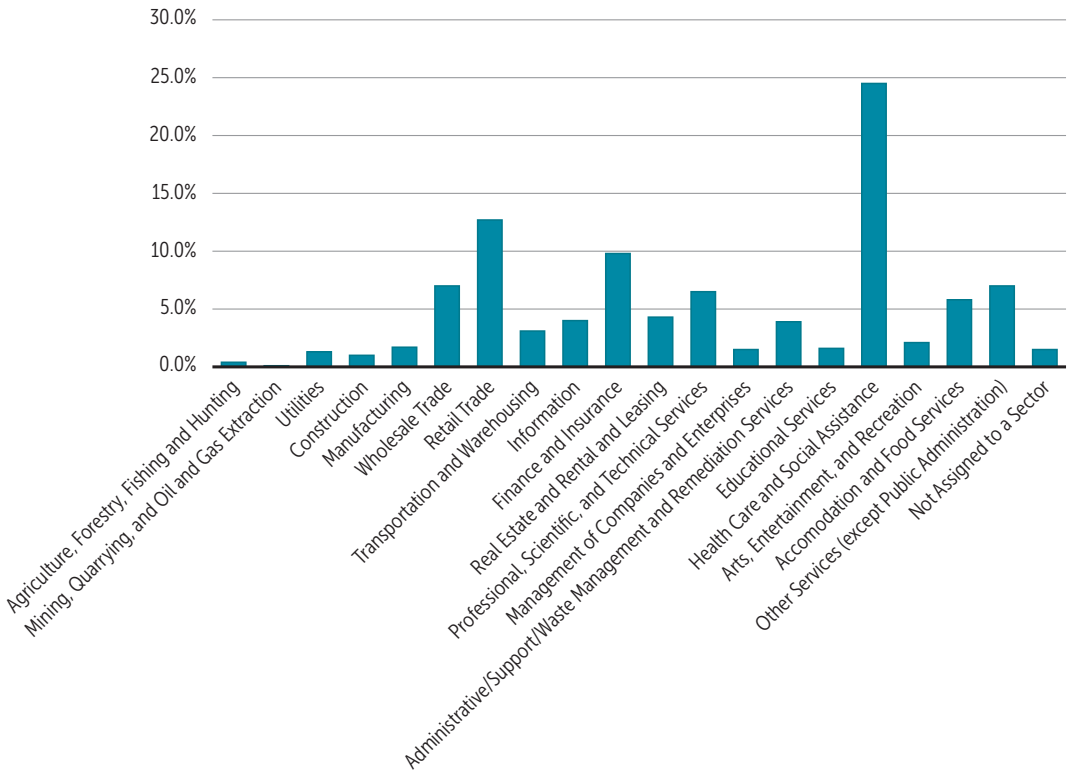


FIGURE 18

Employment by Industry Sector—State of Colorado

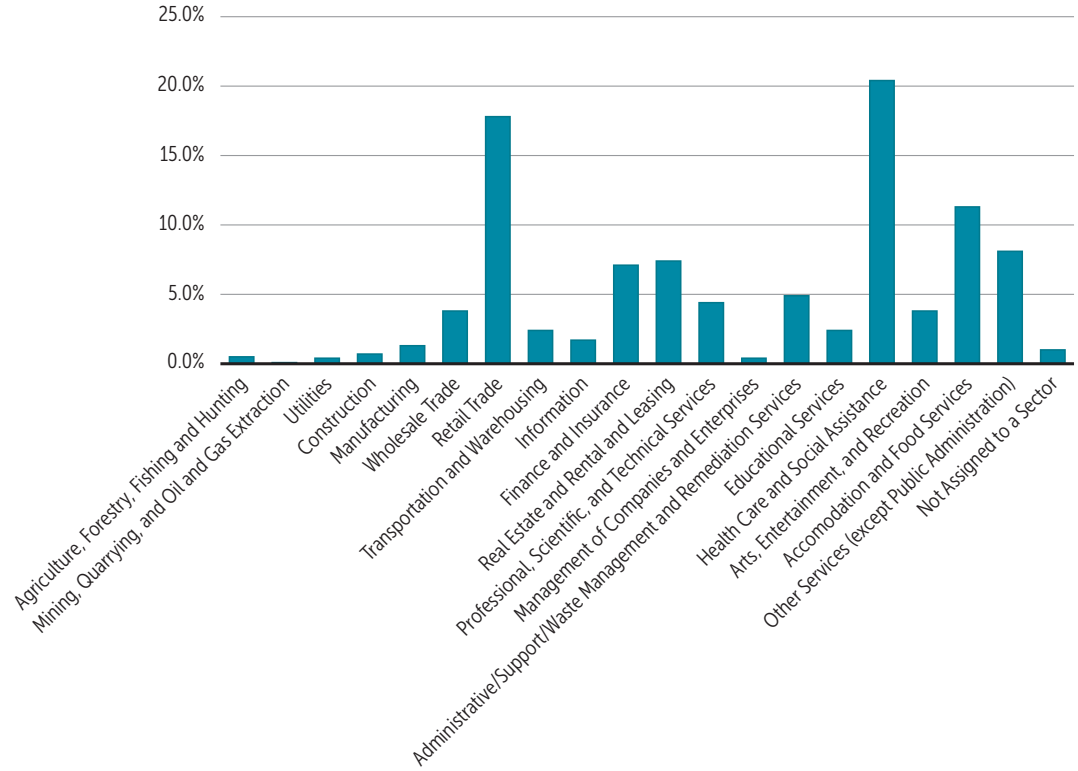


Figure 17 demonstrates the economic impact on labor income at the state level from PERA recipient spending is heavily concentrated in Health Care and Social Assistance (22 percent) with Retail Trade, and Finance and Insurance generating an additional 27 percent of labor income.

Figure 18 identifies the employment impact by sector and shows that two sectors, Retail Trade and Health Care and Social Assistance, account for nearly 40 percent of total employment impacts. This is consistent with their importance to value-added. Together, accommodation and food services and other services account for an additional 20 percent of employment impacts.

Appendix C provides value-added, labor income, and employment impacts at the sector level for each of the nine regions. In each of the regions, the Health Care and Social Assistance sector plays a dominant role, though the Retail Trade sector captures the plurality of impacts in several regions. With regard to value-added impacts, Health Care and Social Assistance is again important ranging from nearly 12 percent to over 20 percent in the Northern region. Of labor income impacts, the amount accounted for by the Health Care and Social Assistance sector ranges from approximately 22 percent in the Metro Denver region to over 36 percent in the Pueblo-Southern Mountains region. In terms of employment impacts, the Retail Trade sector captures a substantial number of jobs (nearly one in four) in all regions, while the Health Care and Social Assistance sector accounts for the second largest job impacts in the all regions, except for the Pueblo-Southern Mountains region. (Approximately one in three jobs in the Pueblo-Southern Mountains Region occurs in the Health Care and Social Assistance sector.)

ABOUT THE RESEARCHERS

Pacey Economics, Inc., located in Boulder, Colorado, has over 35 years of providing consulting services and analyses on an array of economic and business issues. We are a small boutique firm, focused on providing economic analyses for state agencies and private or publicly held companies plus offering economic reports or opinions and expert witness testimony in legal matters.

Over the past decade, Pacey Economics, Inc. has been awarded many state government contracts through a number of different agencies to forecast, analyze, and evaluate programs and legislative changes. The staff contributing to this report are described below.

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PACEY ECONOMICS, INC.

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Jeffery E. Nehls, MA

Kimberly K. Owens, MA

PACEY ECONOMICS, INC.

APPENDICES

Appendix A – PERA Retirement distributions as Percentage of Payroll by County

Appendix B – Economic and Fiscal Impacts by County

Appendix C – Economic Benefits by Industry Sector – State of Colorado

Appendix D – Economic Benefits by Industry Sector – Regional Charts

Appendix E – Statewide Comparisons to Previous Studies

Appendix F – Economic and Fiscal Impact Analysis Detailed Methodology

APPENDIX A

PERA Retirement Distributions as a Percentage of Payroll by County
(sorted by percentage of payroll)

County	Region	Retirement Distributions Annualized *(in thousands)*	Annual Payroll (adjusted to 2014) *(in thousands)*	PERA Retirement Distributions as Percentage of Payroll
Costilla	San Luis Valley	$2,671	$5,815	45.9%
Conejos	San Luis Valley	7,384	21,041	35.1%
Custer	Pueblo-Southern Mountains	5,359	16,331	32.8%
Fremont	Pueblo-Southern Mountains	62,232	217,604	28.6%
Park	Mountain	8,285	35,349	23.4%
Washington	Eastern	4,068	18,134	22.4%
Dolores	Southwest Mountain	1,359	6,297	21.6%
Elbert	Eastern	14,552	72,195	20.2%
Huerfano	Pueblo-Southern Mountains	6,502	35,305	18.4%
Crowley	Eastern	2,919	16,760	17.4%
Baca	Eastern	2,649	15,442	17.2%
Bent	Eastern	2,903	16,956	17.1%
Kiowa	Eastern	1,225	7,688	15.9%
Sedgwick	Eastern	2,023	14,061	14.4%
Chaffee	Mountain	24,561	172,159	14.3%
Las Animas	Pueblo-Southern Mountains	15,183	109,501	13.9%
Lincoln	Eastern	4,869	37,170	13.1%
Otero	Eastern	16,781	128,327	13.1%
Pueblo	Pueblo-Southern Mountains	219,273	1,683,363	13.0%
Teller	Mountain	18,690	144,836	12.9%
Jackson	Mountain	967	7,582	12.8%
Rio Grande	San Luis Valley	9,457	79,172	11.9%
Lake	Southwest Mountain	3,832	32,108	11.9%
Prowers	Eastern	9,217	78,179	11.8%
Logan	Eastern	18,799	166,108	11.3%
Delta	Western	24,225	227,457	10.7%
Hinsdale	Western	491	5,111	9.6%
Ouray	Western	3,089	32,340	9.6%
Saguache	San Luis Valley	2,382	25,652	9.3%
Alamosa	San Luis Valley	16,481	177,818	9.3%
Mineral	San Luis Valley	721	7,817	9.2%
Clear Creek	Mountain	8,785	97,445	9.0%
Montrose	Western	29,743	372,981	8.0%
Phillips	Eastern	2,636	33,816	7.8%
Kit Carson	Eastern	4,795	62,967	7.6%
Yuma	Eastern	6,151	89,386	6.9%
Montezuma	Southwest Mountain	15,628	227,511	6.9%
Archuleta	Southwest Mountain	5,059	75,294	6.7%
Mesa	Western	114,689	1,975,421	5.8%
Gunnison	Western	11,085	193,094	5.7%
Larimer	Northern	264,214	4,749,239	5.6%
Jefferson	Metro Denver	502,366	9,047,136	5.6%
San Juan	Southwest Mountain	269	4,871	5.5%
Morgan	Eastern	18,318	335,572	5.5%
Weld	Northern	164,708	3,257,676	5.1%
Grand	Mountain	10,203	204,744	5.0%
La Plata	Mountain	38,266	779,315	4.9%
Moffat	Western	7,055	147,602	4.8%
El Paso	Colorado Springs	412,625	9,448,897	4.4%
Rio Blanco	Western	5,559	127,292	4.4%
Cheyenne	Eastern	1,395	40,759	3.4%
Douglas	Metro Denver	148,754	4,888,639	3.0%
Adams	Metro Denver	179,889	6,062,134	3.0%
Boulder	Metro Denver	233,400	7,936,556	2.9%
Garfield	Western	25,892	885,590	2.9%
Arapahoe	Metro Denver	350,125	13,952,520.19	2.5%
Summit	Mountain	10,865	476,360	2.3%
Gilpin	Mountain	3,637	168,160	2.2%
San Miguel	Western	2,631	121,880	2.2%
Broomfield	Metro Denver	40,919	2,084,709	2.0%
Routt	Mountain	12,146	715,830	1.7%
Denver	Metro Denver	343,715	22,520,129.54	1.5%
Eagle	Mountain	11,620	1,002,905	1.2%
Pitkin	Mountain	3,982	561,319	0.7%

APPENDIX B

Economic and Fiscal Impacts by County

County	Region	Labor Income	Value Added	Indirect Effect	Induced Effect
Adams	Metro Denver	$43,351,409	$77,125,856	$14,336,299	$18,627,292
Alamosa	San Luis Valley	3,637,259	6,602,026	1,155,364	1,351,169
Arapahoe	Metro Denver	122,336,785	205,218,255	53,810,082	50,985,833
Archuleta	Southwest Mountain	763,903	1,817,250	409,916	300,760
Baca	Eastern	161,188	424,743	41,944	32,854
Bent	Eastern	104,245	334,223	32,040	17,641
Boulder	Metro Denver	72,519,757	127,927,363	33,295,691	30,856,804
Broomfield	Metro Denver	6,407,430	12,309,751	1,932,511	1,369,803
Chaffee	Mountain	3,741,751	8,428,415	2,030,605	1,621,490
Cheyenne	Eastern	54,574	179,534	15,581	8,245
Clear Creek	Mountain	930,961	2,012,844	394,615	235,843
Conejos	San Luis Valley	632,165	1,603,519	205,500	159,706
Costilla	San Luis Valley	126,397	481,647	68,127	27,997
Crowley	Eastern	164,689	552,680	49,457	29,643
Custer	Pueblo-Southern Mountains	436,065	1,344,543	300,034	128,969
Delta	Western	2,482,684	5,503,573	638,909	666,725
Denver	Metro Denver	142,444,487	229,416,709	67,148,049	56,379,270
Dolores	Southwest Mountain	77,755	209,138	26,306	17,257
Douglas	Metro Denver	30,402,610	55,158,110	12,597,183	7,351,900
Eagle	Mountain	3,043,863	5,237,134	1,089,779	1,131,052
El Paso	Colorado Springs	98,468,361	190,195,057	43,945,411	46,826,810
Elbert	Eastern	711,927	2,146,959	233,454	119,003
Fremont	Pueblo-Southern Mountains	8,471,943	16,944,577	2,180,765	2,661,715
Garfield	Western	5,599,730	10,420,413	1,761,932	2,154,449
Gilpin	Mountain	272,431	695,323	94,166	43,389
Grand	Mountain	1,307,502	3,104,590	696,327	449,061
Gunnison	Western	1,655,756	3,768,723	918,472	578,086
Hinsdale	Western	35,089	112,527	30,132	11,023
Huerfano	Pueblo-Southern Mountains	763,956	1,818,156	305,132	255,905
Jackson	Mountain	64,802	170,716	19,780	13,715
Jefferson	Metro Denver	119,220,231	206,799,965	35,855,355	46,707,976
Kiowa	Eastern	74,449	246,439	31,875	15,675
Kit Carson	Eastern	474,777	1,134,295	169,467	136,166
La Plata	Mountain	7,915,406	13,394,898	2,572,697	2,337,857
Lake	Southwest Mountain	528,656	1,073,545	165,770	185,673
Larimer	Northern	71,009,181	132,109,630	32,474,451	36,048,253
Las Animas	Pueblo-Southern Mountains	2,124,253	4,066,777	494,210	656,688
Lincoln	Eastern	484,723	1,147,734	139,807	126,984
Logan	Eastern	3,444,947	6,240,397	915,371	1,265,945
Mesa	Western	36,639,284	68,691,960	16,477,793	20,402,803
Mineral	San Luis Valley	71,456	207,389	46,774	20,953
Moffat	Western	1,285,978	2,410,903	347,598	443,199
Montezuma	Southwest Mountain	3,136,808	5,819,061	962,902	1,266,951
Montrose	Western	6,266,132	12,278,690	2,283,095	2,577,145
Morgan	Eastern	3,019,212	5,888,548	1,188,281	1,074,815
Otero	Eastern	3,019,979	5,874,889	1,021,959	1,203,682
Ouray	Western	358,224	942,275	224,165	118,458
Park	Mountain	441,288	1,460,273	255,894	99,156
Phillips	Eastern	280,012	620,430	128,708	73,302
Pitkin	Mountain	943,246	1,621,239	343,542	203,661
Prowers	Eastern	1,263,924	2,630,850	508,448	406,099
Pueblo	Pueblo-Southern Mountains	50,066,917	84,276,926	12,637,913	21,836,299
Rio Blanco	Western	444,737	1,157,988	165,409	89,145
Rio Grande	San Luis Valley	1,329,945	2,966,188	620,194	466,332
Routt	Mountain	3,364,117	6,178,769	1,461,946	1,371,116
Saguache	San Luis Valley	135,321	358,203	34,776	29,170
San Juan	Southwest Mountain	19,424	63,962	10,690	5,932
San Miguel	Western	437,600	908,777	205,775	139,051
Sedgwick	Eastern	192,605	459,915	72,721	52,682
Summit	Mountain	2,419,066	4,577,659	1,006,005	884,647
Teller	Mountain	2,148,340	4,830,345	784,951	636,854
Washington	Eastern	171,047	556,921	58,234	30,996
Weld	Northern	27,685,705	50,851,544	8,676,443	10,384,223
Yuma	Eastern	725,380	1,544,119	279,055	197,509

APPENDIX B

Economic and Fiscal Impacts by County (continued)

County	Region	Sales Tax	Property Tax	Other Taxes (Including Income Tax)
Adams	Metro Denver	$3,195,216	$3,014,053	$2,359,783
Alamosa	San Luis Valley	263,797	248,543	187,790
Arapahoe	Metro Denver	7,220,593	6,817,326	6,516,428
Archuleta	Southwest Mountain	89,288	84,011	52,596
Baca	Eastern	22,630	21,300	19,453
Bent	Eastern	17,418	16,371	17,077
Boulder	Metro Denver	5,099,138	4,810,955	4,318,476
Broomfield	Metro Denver	496,759	467,891	491,030
Chaffee	Mountain	443,566	417,346	334,206
Cheyenne	Eastern	9,616	9,050	9,250
Clear Creek	Mountain	90,687	85,470	102,768
Conejos	San Luis Valley	73,266	68,930	57,091
Costilla	San Luis Valley	26,127	24,552	18,473
Crowley	Eastern	25,863	24,296	19,591
Custer	Pueblo-Southern Mountains	71,968	67,669	60,314
Delta	Western	262,367	246,967	200,776
Denver	Metro Denver	7,045,672	6,651,342	6,425,016
Dolores	Southwest Mountain	13,008	12,229	9,490
Douglas	Metro Denver	2,469,847	2,330,825	2,331,728
Eagle	Mountain	189,405	178,894	192,740
El Paso	Colorado Springs	8,176,576	7,710,813	6,910,688
Elbert	Eastern	117,464	110,548	144,779
Fremont	Pueblo-Southern Mountains	761,683	716,941	560,381
Garfield	Western	401,985	379,245	394,811
Gilpin	Mountain	29,085	27,365	36,069
Grand	Mountain	149,092	140,344	129,934
Gunnison	Western	169,259	159,280	142,038
Hinsdale	Western	8,898	8,362	5,735
Huerfano	Pueblo-Southern Mountains	90,154	84,810	58,268
Jackson	Mountain	10,384	9,768	7,326
Jefferson	Metro Denver	8,113,661	7,659,513	8,019,111
Kiowa	Eastern	14,103	13,262	9,628
Kit Carson	Eastern	60,125	56,603	42,840
La Plata	Mountain	490,488	462,529	512,169
Lake	Southwest Mountain	53,132	50,016	36,267
Larimer	Northern	5,508,988	5,195,053	4,603,736
Las Animas	Pueblo-Southern Mountains	163,282	153,854	138,087
Lincoln	Eastern	55,308	52,029	40,704
Logan	Eastern	272,328	256,687	205,400
Mesa	Western	2,851,932	2,688,428	1,808,577
Mineral	San Luis Valley	11,162	10,499	6,630
Moffat	Western	91,980	86,805	78,531
Montezuma	Southwest Mountain	250,921	236,480	181,026
Montrose	Western	518,982	488,966	351,342
Morgan	Eastern	251,593	237,104	188,634
Otero	Eastern	262,602	8,031	421,007
Ouray	Western	45,691	1,359	71,019
Park	Mountain	85,685	2,464	137,244
Phillips	Eastern	32,754	983	53,169
Pitkin	Mountain	56,235	1,816	108,994
Prowers	Eastern	130,007	3,927	208,293
Pueblo	Pueblo-Southern Mountains	3,304,343	105,300	6,251,172
Rio Blanco	Western	52,258	1,550	89,709
Rio Grande	San Luis Valley	142,662	4,288	223,648
Routt	Mountain	238,639	7,678	427,925
Saguache	San Luis Valley	17,180	498	30,976
San Juan	Southwest Mountain	3,516	101	5,343
San Miguel	Western	39,421	1,206	71,096
Sedgwick	Eastern	26,397	797	42,716
Summit	Mountain	179,892	5,679	328,495
Teller	Mountain	230,091	7,042	438,662
Washington	Eastern	29,678	870	53,663
Weld	Northern	2,200,240	68,623	4,170,671
Yuma	Eastern	81,595	2,474	131,923

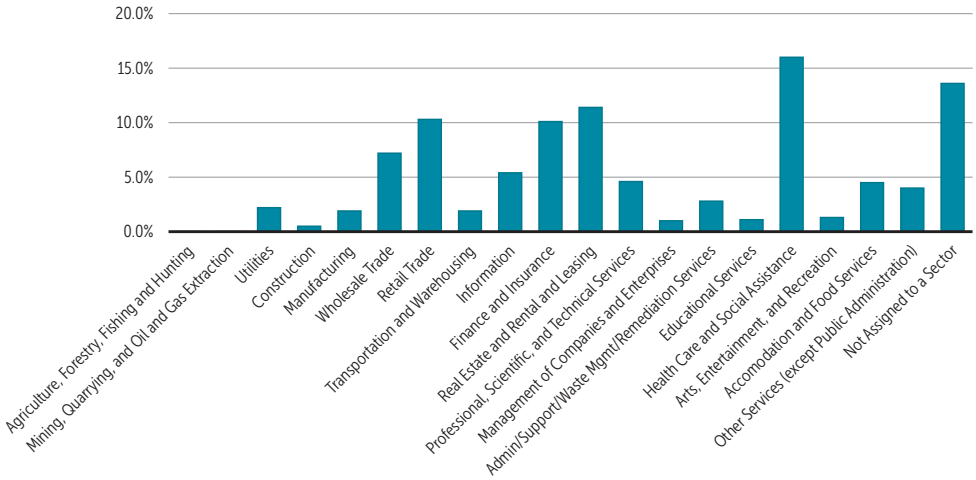
APPENDIX C

PERA Economic Benefits by Industry Sector—State of Colorado
(dollars in millions)

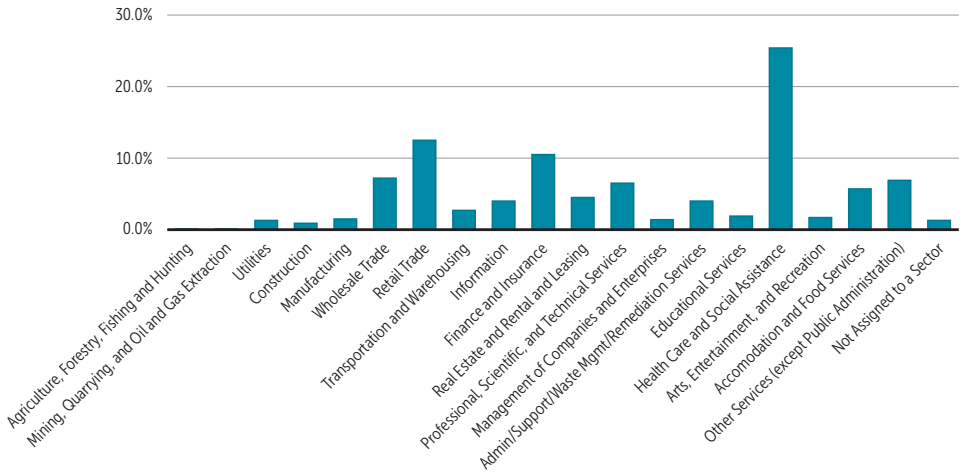
Sector	Output	Value-Added	Labor Income	Employment
Finance and Insurance	$464.1	$241.2	$142.6	2,097
Health Care and Social Assistance	620.7	378.2	356.2	5,980
Public Sector/Government Enterprises	495.0	347.6	21.8	283
Real Estate and Rental and Leasing	363.7	285.9	62.2	2,180
Retail Trade	375.3	260.6	185.0	5,230
Other Services (except Public Administration)	168.3	97.8	101.4	2,391
Accommodation and Food Services	211.6	116.4	84.9	3,324
Information	223.7	136.6	58.4	497
Wholesale Trade	249.6	179.2	102.6	1,103
Manufacturing	185.9	55.8	25.3	383
Professional, Scientific, and Technical Services	175.0	116.9	94.2	1,293
Transportation and Warehousing	100.0	53.8	45.5	705
Administrative and Support and Waste Management and Remediation Services	106.9	70.1	57.2	1,453
Utilities	98.7	62.6	19.0	116
Arts, Entertainment, and Recreation	72.2	42.7	31.1	1,120
Management of Companies and Enterprises	37.6	25.6	22.4	130
Educational Services	43.5	24.1	24.0	710
Construction	27.7	15.3	15.1	210
Agriculture, Forestry, Fishing and Hunting	24.0	9.5	6.3	142
Mining, Quarrying, and Oil and Gas Extraction	3.5	1.6	1.0	11

METRO DENVER

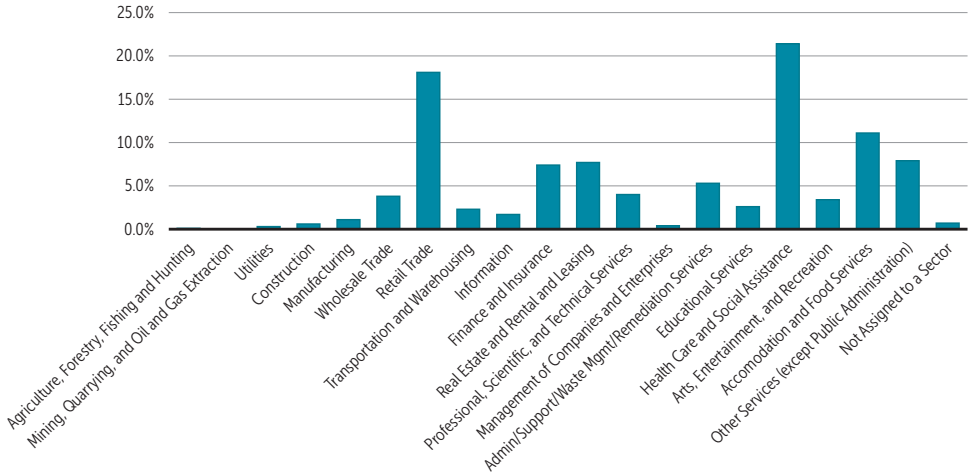
Value-Added by Industry Sector



Labor Income by Industry Sector

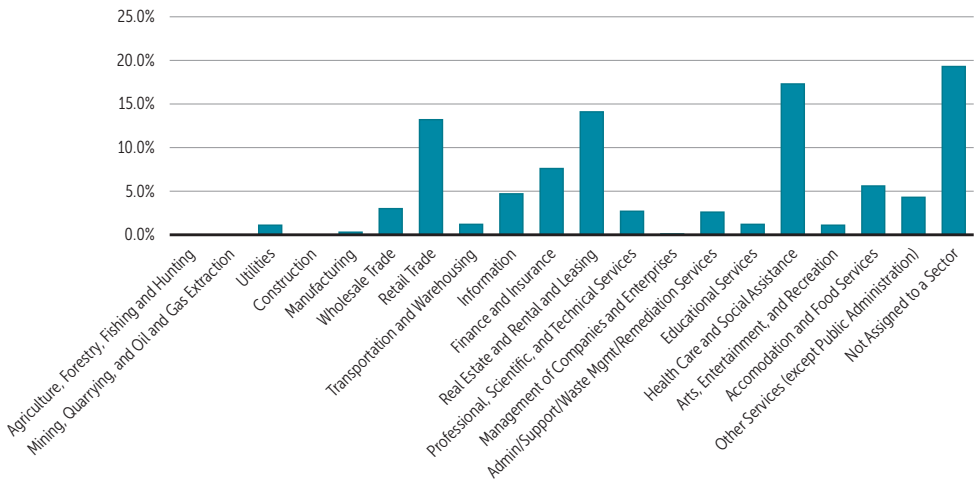


Employment by Industry Sector

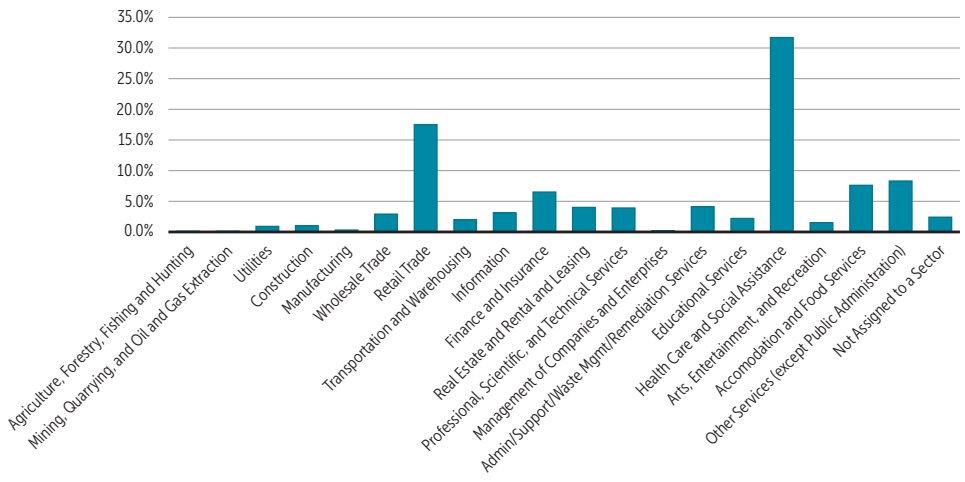


COLORADO SPRINGS

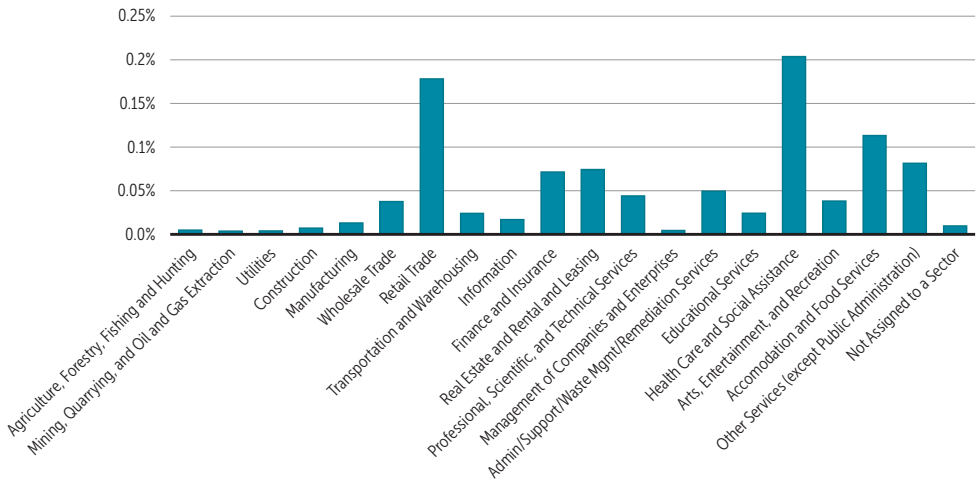
Value-Added by Industry Sector



Labor Income by Industry Sector

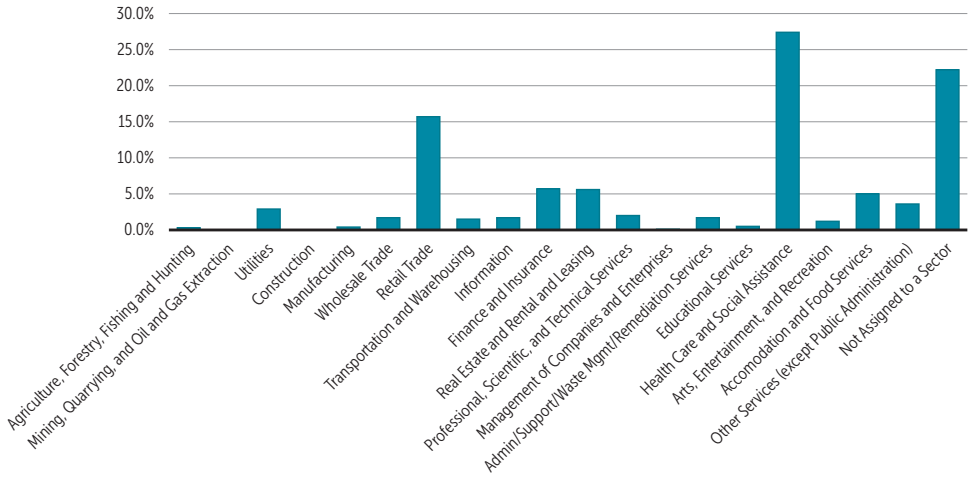


Employment by Industry Sector

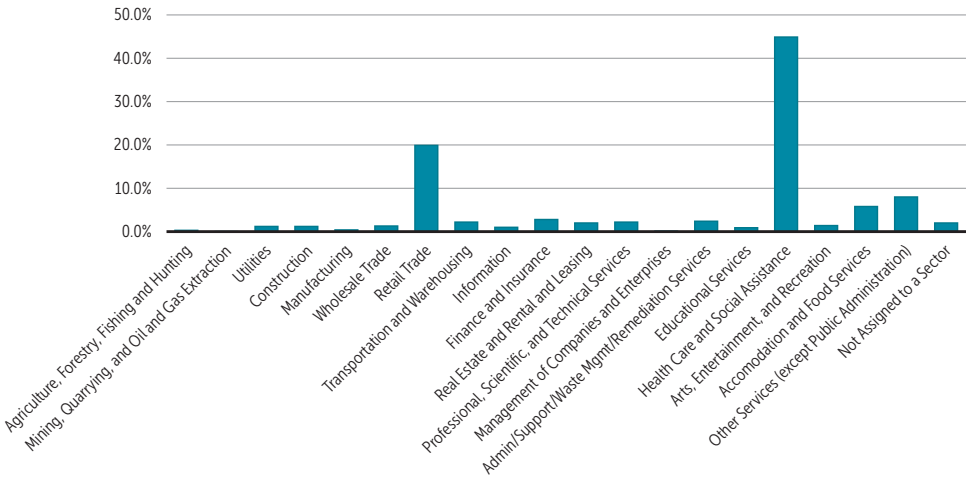


PUEBLO-SOUTHERN MOUNTAINS

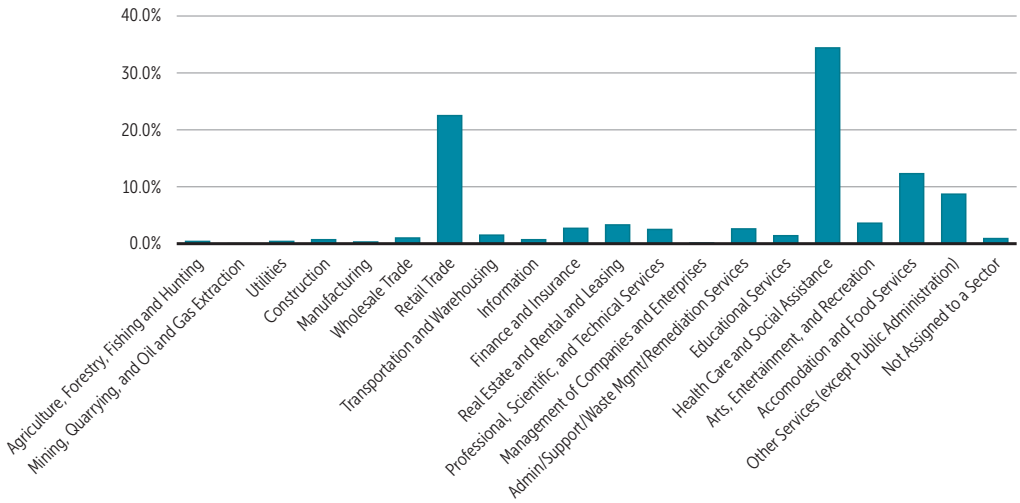
Value-Added by Industry Sector



Labor Income by Industry Sector

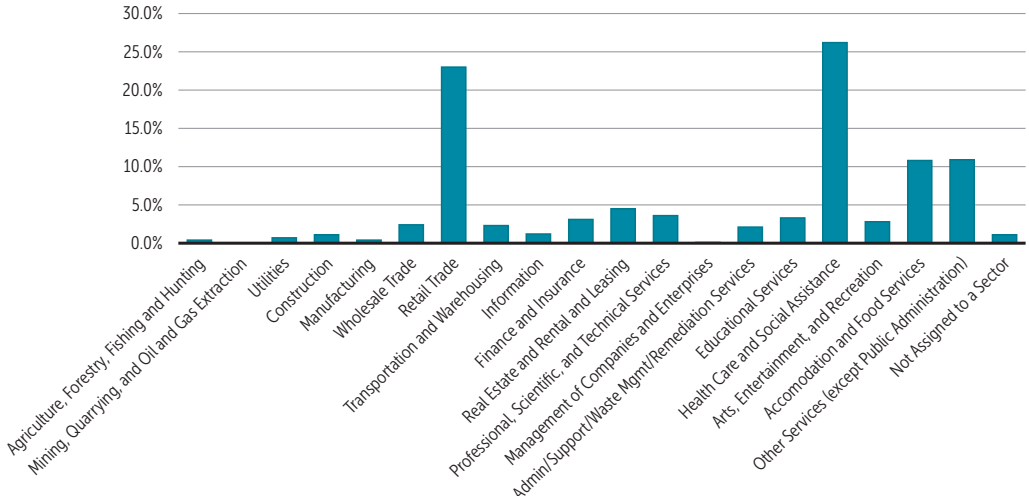


Employment by Industry Sector

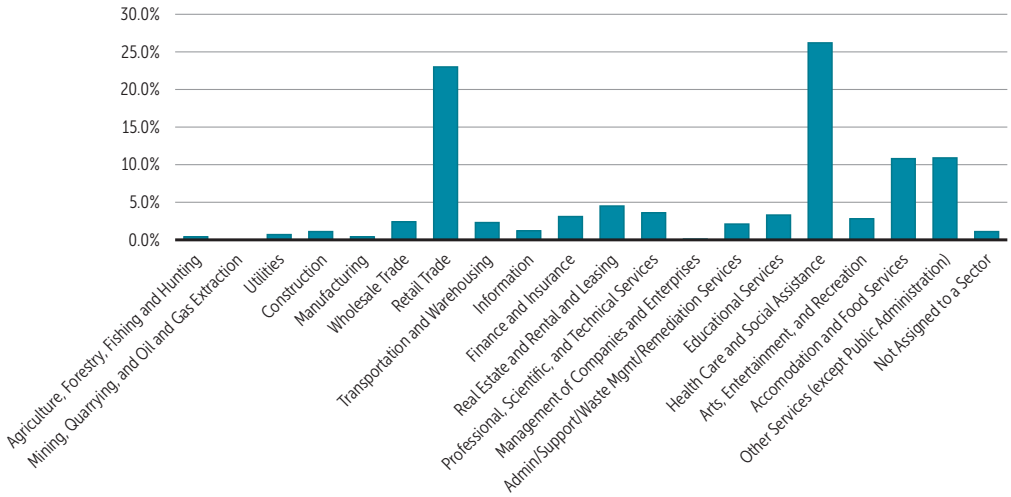


SAN LUIS VALLEY

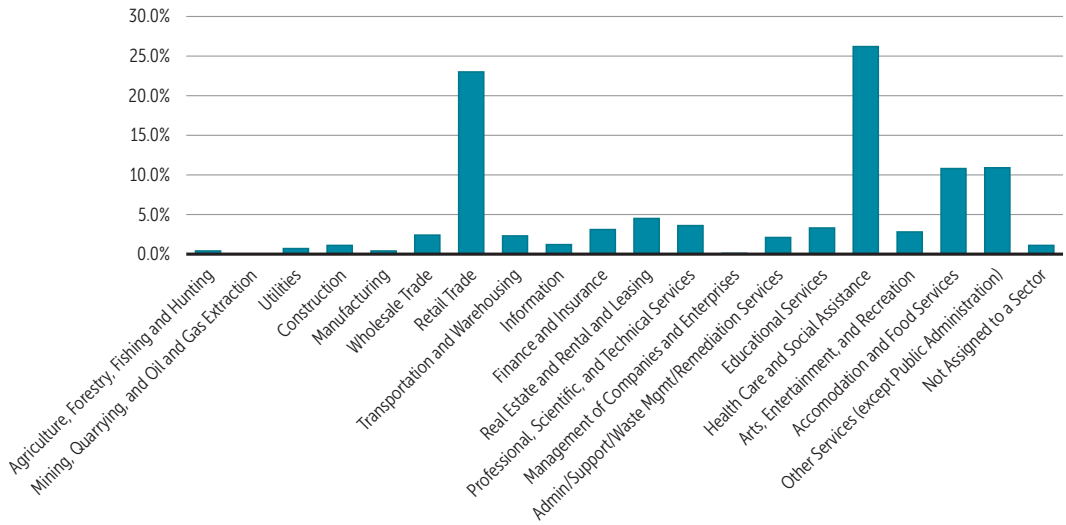
Value-Added by Industry Sector



Labor Income by Industry Sector

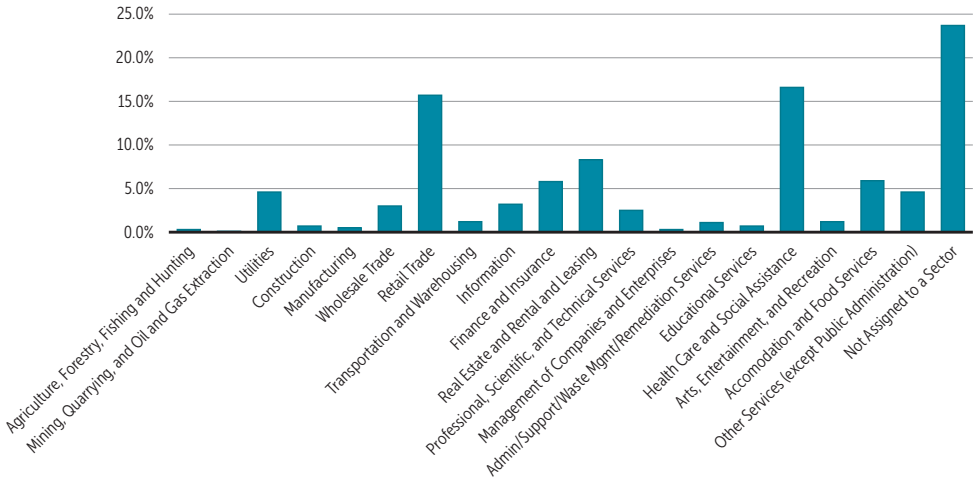


Employment by Industry Sector

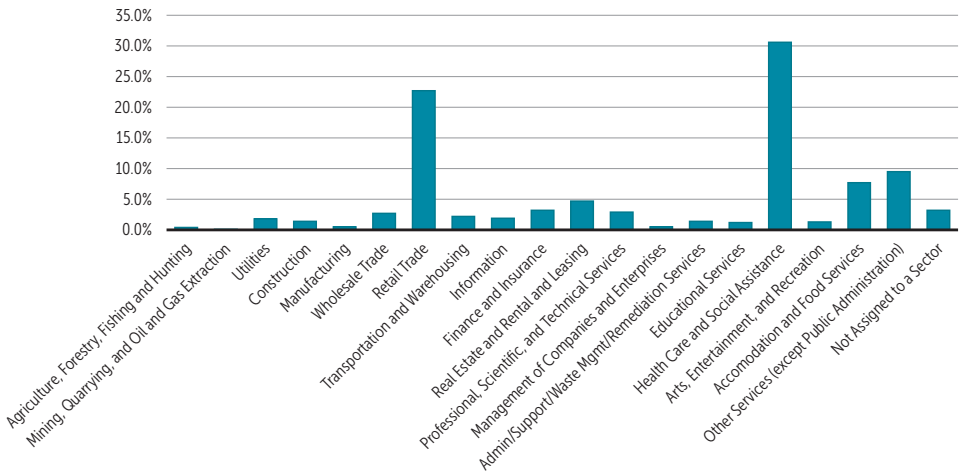


SOUTHWEST MOUNTAIN

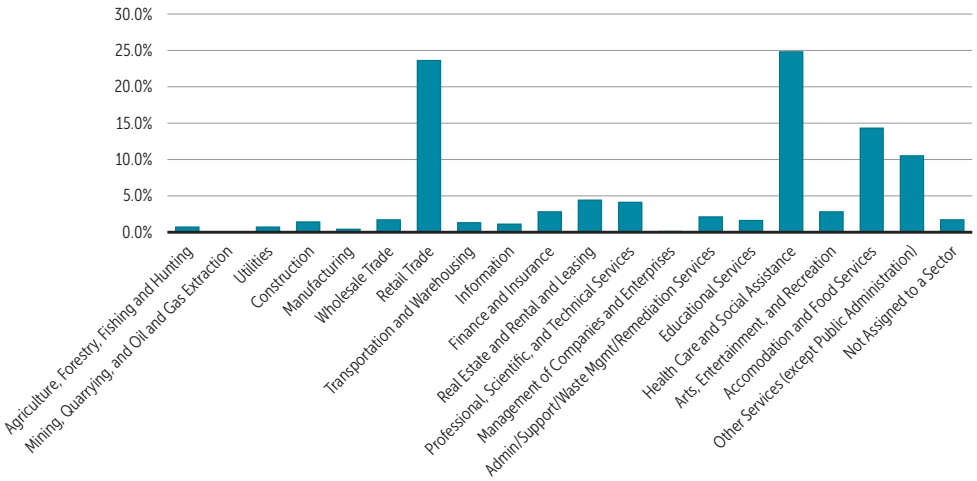
Value-Added by Industry Sector



Labor Income by Industry Sector

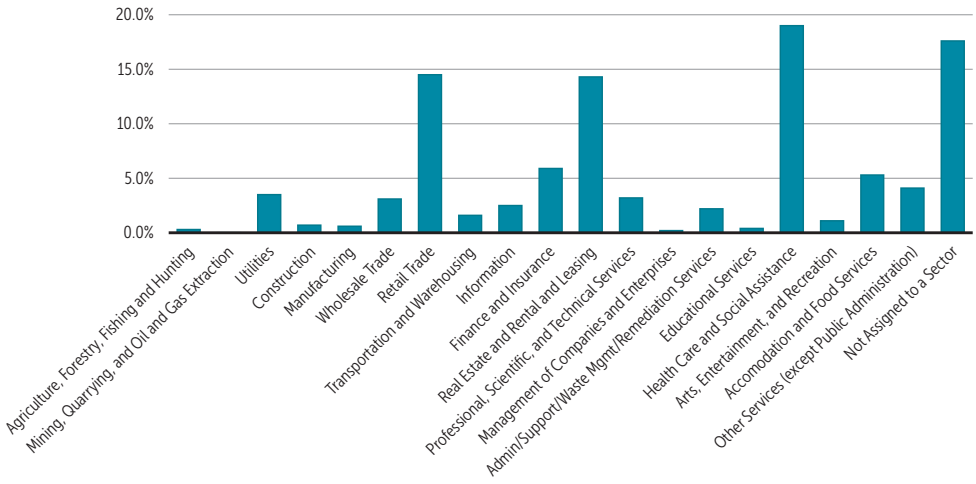


Employment by Industry Sector

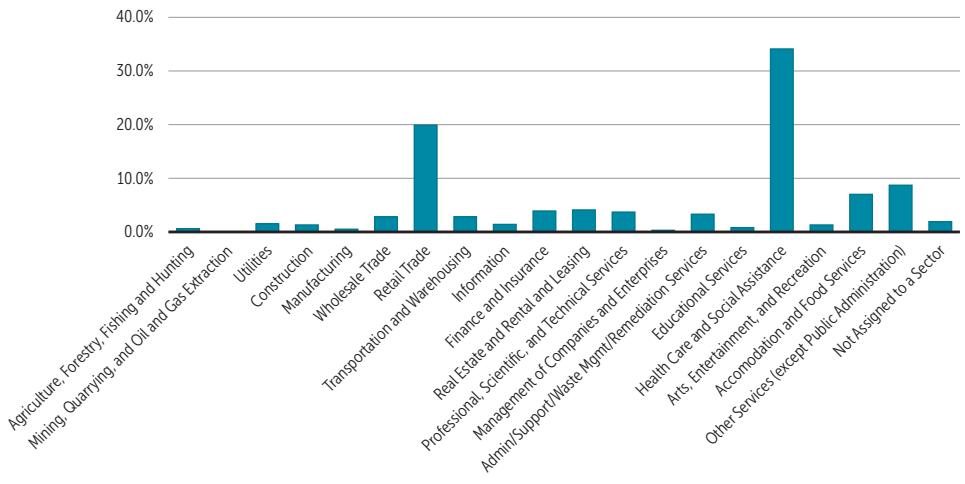


WESTERN

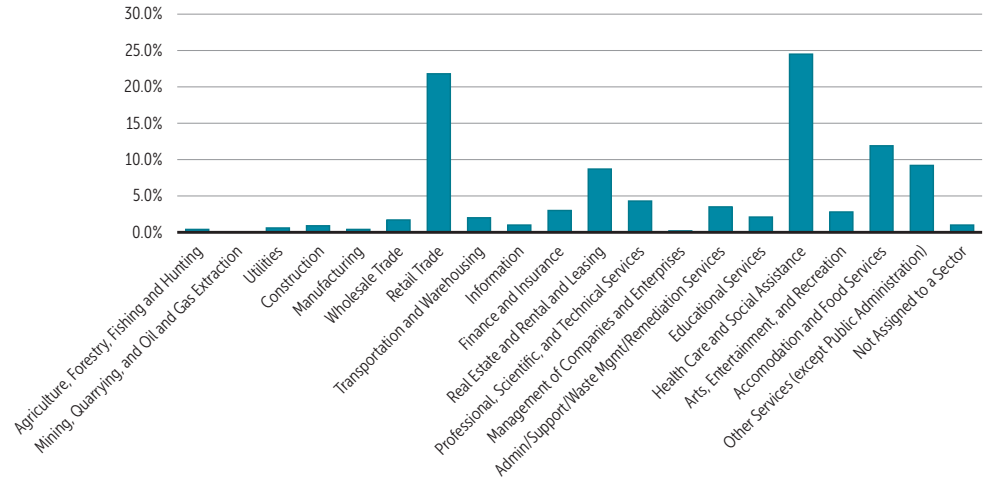
Value-Added by Industry Sector



Labor Income by Industry Sector

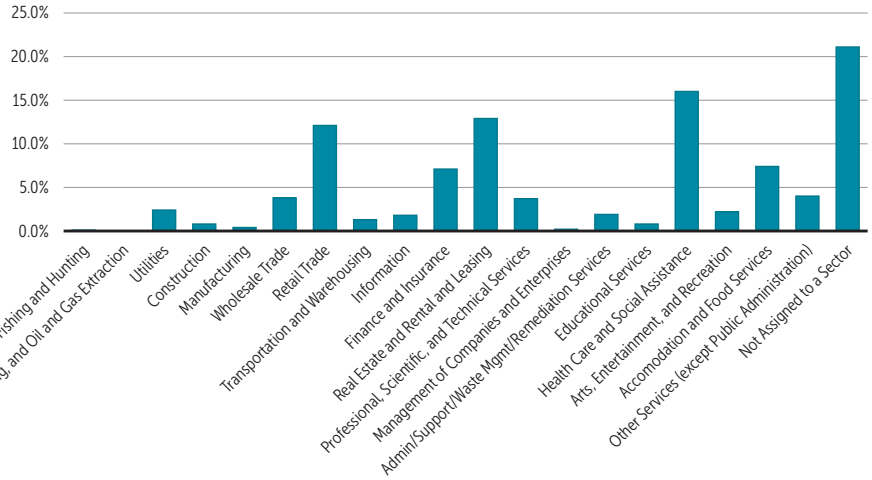


Employment by Industry Sector

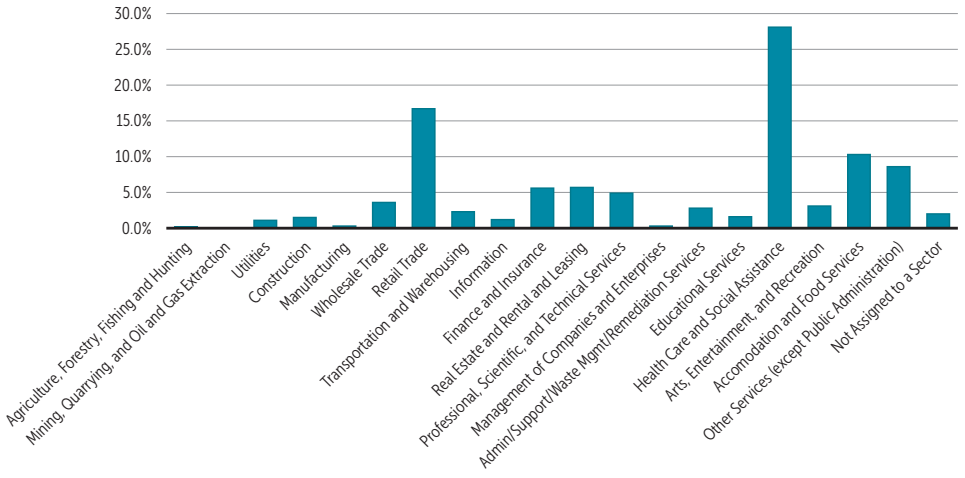


MOUNTAIN

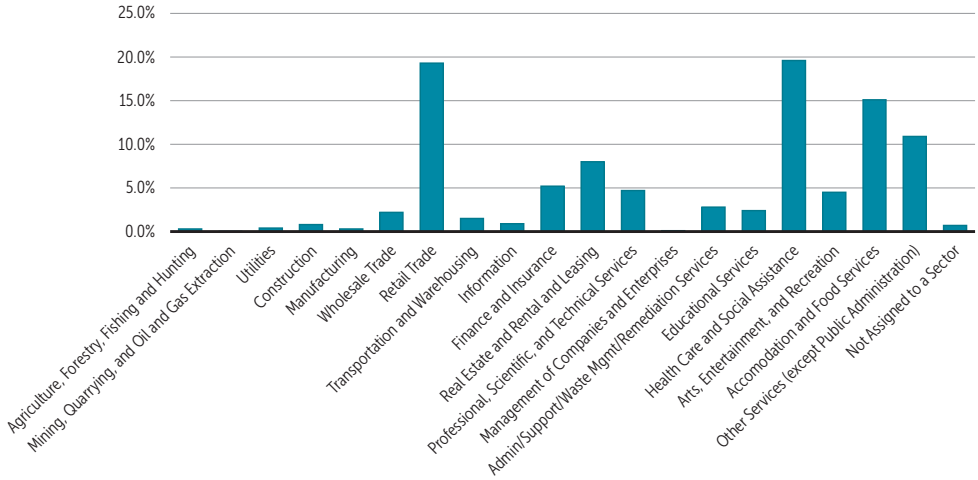
Value-Added by Industry Sector



Labor Income by Industry Sector

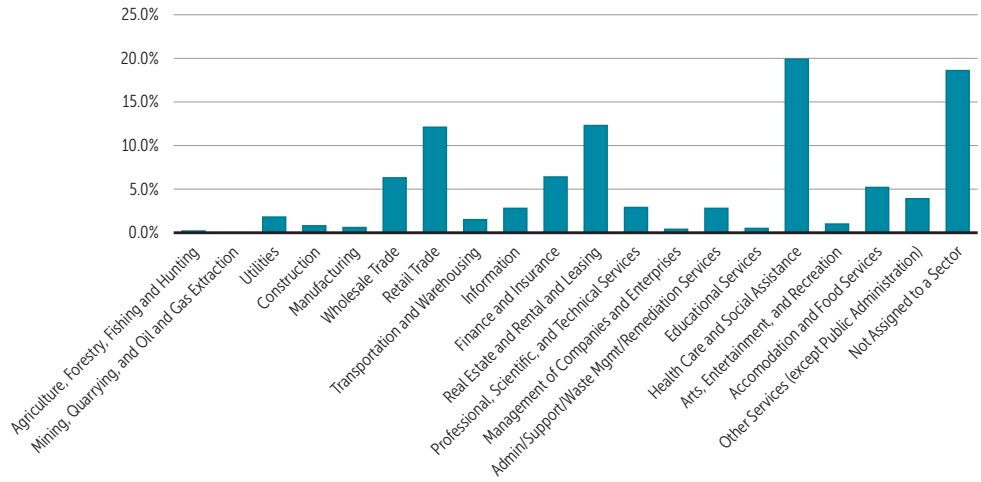


Employment by Industry Sector

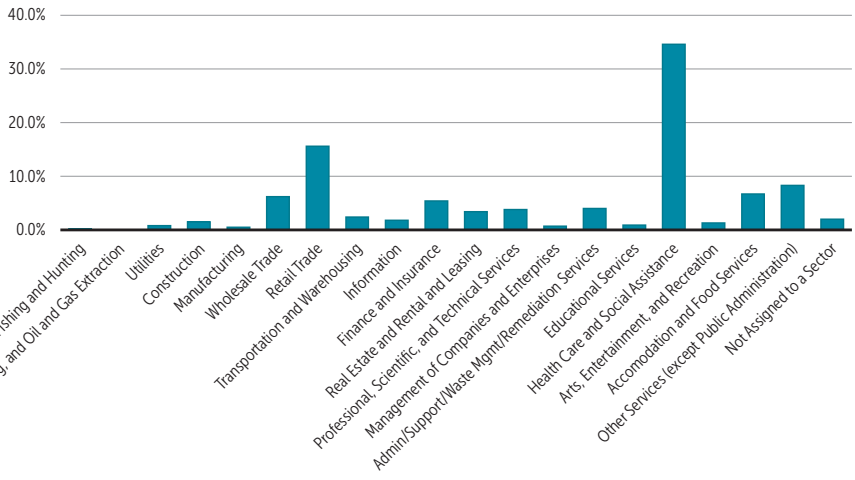


NORTHERN

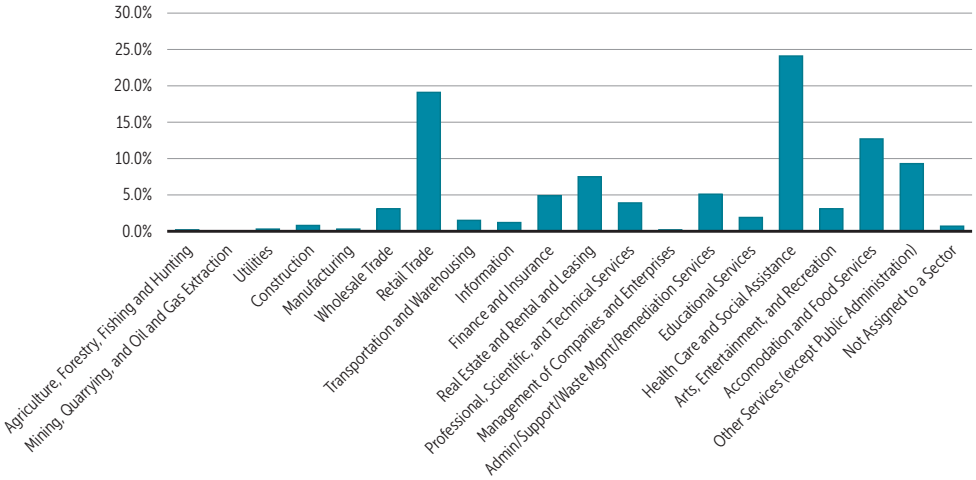
Value-Added by Industry Sector



Labor Income by Industry Sector

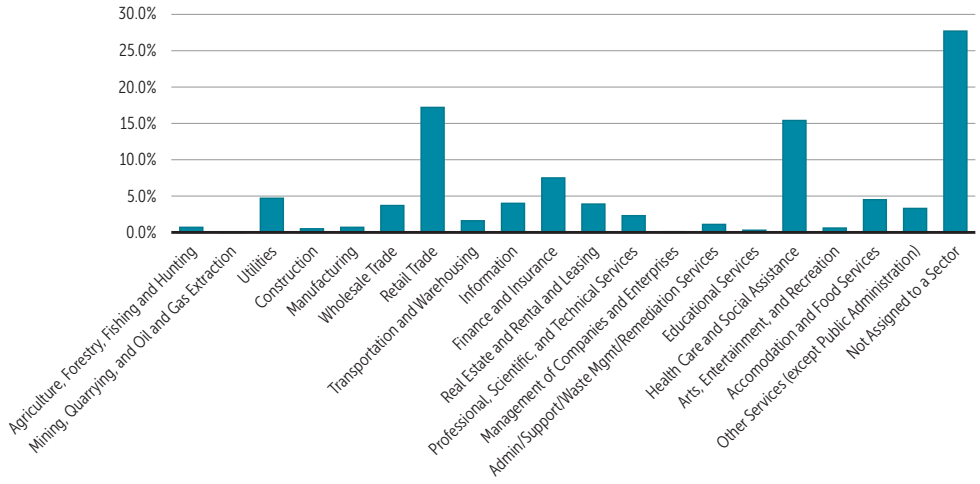


Employment by Industry Sector

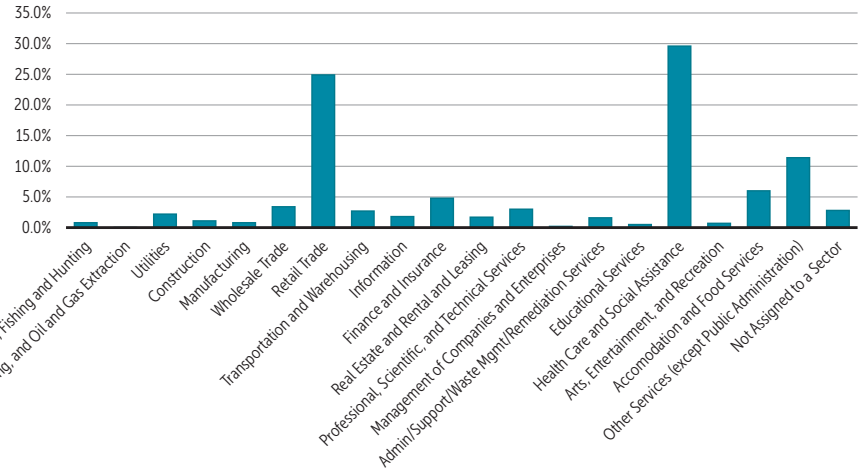


EASTERN

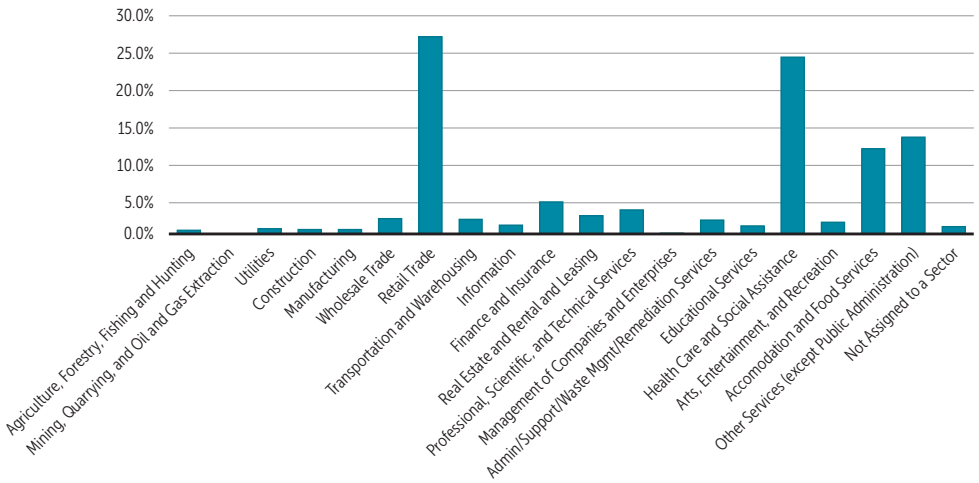
Value-Added by Industry Sector

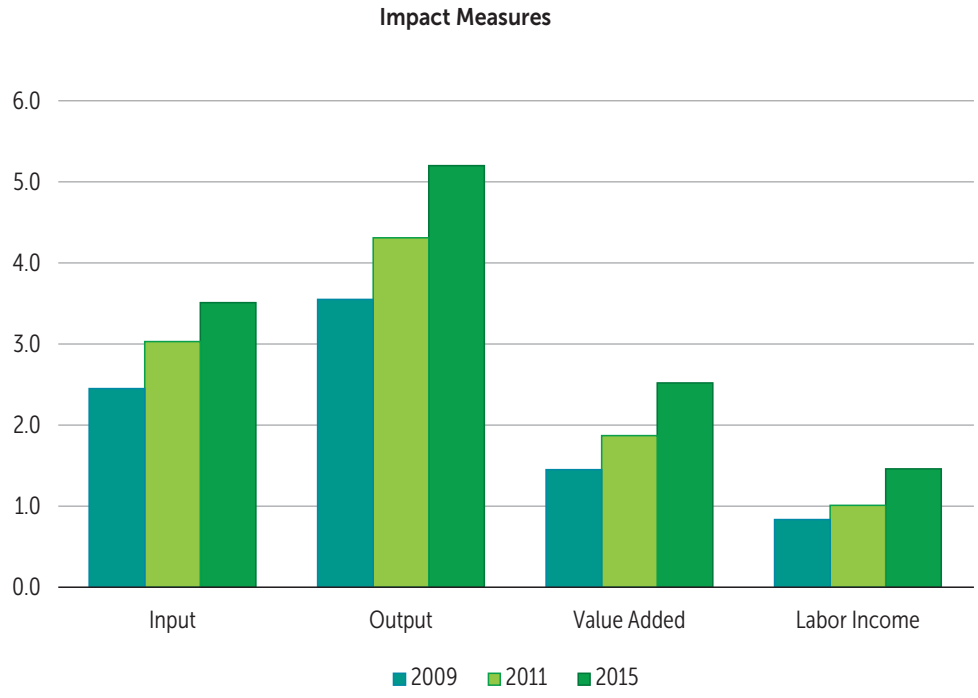


Labor Income by Industry Sector



Employment by Industry Sector




Impact Measures
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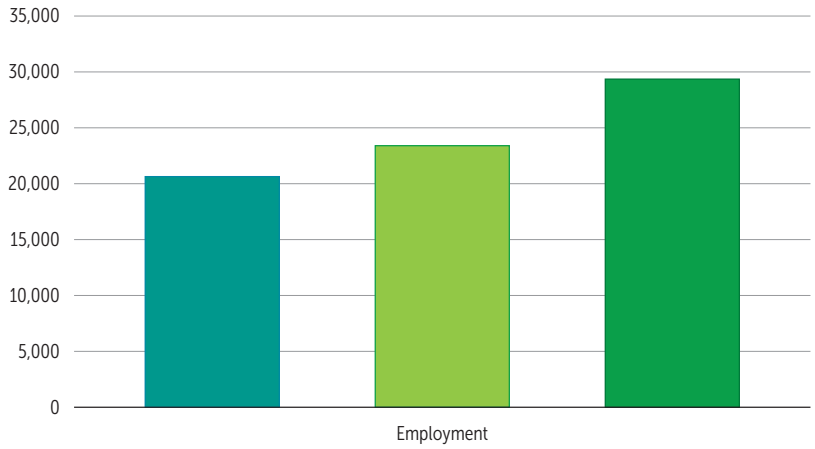
5.0
4.0
3.0
2.0
1.0
0.0
Input
Output
Value Added
Labor Income
2009
2011
2015


35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Employment


300
250
200
150
100
50
0
State and Local Tax Revenue

PERA retirement distribution information as of September 2014 was used in the input-output modeling software, IMPLAN, to determine the economic impact of the retirement distributions by county, region, and the state of Colorado. IMPLAN was initially developed in the 1970s for use by the U.S. Forest Service, in cooperation with other federal agencies, to assist in land and resource management planning. The University of Minnesota was also involved in the development of the model in the 1980s and, in 1993, the Minnesota IMPLAN Group, Inc. (MIG) was formed to privatize the development of the data and software. IMPLAN is widely used by federal, state, and local governments as well as academic institutions and businesses to assess the economic and fiscal impacts of a variety of developments, including numerous analyses of the retirement distributions of publicly funded pension plans.

An input-output model, such as IMPLAN, accounts for the relationships in the economy of a certain geographic area (for example, the state of Colorado, a region, or a county). This is accomplished through a Social Accounting Matrix (SAM) framework which captures all industry and institution (including household and government) transactions in a local economy. The SAM traces the flow of dollars from purchasers to producers while also accounting for taxes paid by households and business.

The IMPLAN model measures the impact of the flow of dollars through a regional economy by estimating the direct effect, indirect effect, induced effect, and total effect. The distinction between these effects is best illustrated by applying them to the task at hand although only the total effect is reported in the results section of this report.

- The **direct effect,** the initial event, is the spending of PERA benefits by households at businesses or taxes paid to the state and local governments.
- The **indirect effect** identifies the impact on the economy when the businesses and government purchase inventory and hire employees.
- When employees of the businesses and government spend their wages and profits, this impact is considered to be an **induced effect.**
- The **total effect** is the sum of the direct, indirect, and induced effects.

It should be noted that state impacts are not the sum of the impacts of individual regions/counties. This is because households make some of their purchases for goods and services outside a certain region/county and, as such, those expenditures are not counted in the economic activity of the region/county where the retirement distribution recipient resides. Given that the state encompasses a larger geographic and, therefore, larger economic area, it will include more economic activity and, hence, the economic impact for the state will be larger than the sum of the counties/regions.

Of note, since the August 2009 study, Minnesota IMPLAN Group, Inc. (MIG) has incorporated modifications to the methodology used to calculate the proportion of each dollar of local demand that is purchased from local producers and the proportion purchased from producers in other regions. Version 2.0 of IMPLAN, used in the August 2009 study, utilizes an econometric approach to calculate these proportions. Version 3.0 of IMPLAN, used in this study and the 2011 study, utilizes a trade flow methodology believed to be superior to the econometric implementation.

A detailed explanation of this new model can be found online at:

http://implan.com/V4/index.php?option=com_docman&task=doc_download&gid=138&Itemid=7.

Retirement Distributions

This analysis recognizes that not all PERA beneficiaries continue to reside in Colorado. Those recipients that are no longer in the state are likely spending their retirement distributions in their new locale. As such, payments for recipients who reside out-of-state were not included in this analysis. By not including any out-of-state PERA recipients, we assume that the expenditures by these recipients have no effect on economic impacts within the state.

For the county/regional analyses, only recipients residing in the respective county/region are included. PERA reports there are a nominal number of recipients (407 out of 93,136) who are in Colorado, but whose addresses are not recognized by the United States Postal Service and, therefore, are not mapped to a county. As such, these individuals are included in the state analysis but not the county/regional analyses.

Household Expenditure Pattern

The typical expenditure pattern of a household will vary, in part, due to their income level. For example, a higher income household may spend more on entertainment than a lower income household. IMPLAN recognizes this and has several different household expenditure groups.

Regional impacts were analyzed using the expenditure patterns for two household income groups: $25,000 to $35,000 and $35,000 to $50,000. These income ranges were chosen after reviewing average PERA benefit payment information and

median household income data from the U.S. Census Bureau (American Community Survey and 2000 Census).

The household expenditure pattern of the income range $25,000 to $35,000 was used for the Eastern, Pueblo-Southern Mountains, San Luis Valley, Southwest Mountain, and Western regions. The household expenditure pattern of the income range $35,000 to $50,000 was used for the Metro Denver, Colorado Springs, Mountain, and Northern regions, and the state of Colorado. For counties, the income range for the household expenditure pattern, with a few exceptions, typically followed the respective region.

The actual expenditure pattern of the PERA households may differ somewhat from the IMPLAN average as approximately 95 percent of the PERA recipients are age 55 and older. Data from the Consumer Expenditure Survey showed that households with older individuals spend proportionately more on certain items (e.g., health care) and less on other items (e.g., education) than the average household although total spending dollars were relatively comparable within income levels.

Taxes and Saving

Households spend out of their disposable income. That is, purchases of goods and services are made once adjusted for income taxes and savings. Therefore, subtracting income taxes and savings from gross retirement distributions is important to accurately estimate the local economic impacts. (IMPLAN assumes the dollars inputted are to be spent.) The income taxes do not go unspent and the impacts on state and local government are included in this analysis.

Of note, data from the Colorado Department of Revenue continues to be used regarding average federal and Colorado taxes paid in 2004 by income classes for residents 65 and older, as it is anticipated that the effective tax rate has not changed substantially since that time frame. This data provides the effective tax rate, recognizing the amount of tax an individual actually pays includes tax deductions and exemptions, credits, etc. For the household income $25,000 to $35,000, taxes paid as a percentage of federal adjusted gross income were 4.3 percent and 0.4 percent for federal and state taxes, respectively. For the household income $35,000 to $50,000, these rates are 6.3 percent and 0.7 percent for federal and state taxes, respectively.

Information from the *Consumer Expenditure Survey* was evaluated to derive the savings rate. For individuals over age 55 in the lower household expenditure pattern ($25,000 to $35,000), essentially no moneys were devoted to savings and, as such, a 0 percent rate was incorporated into the analysis; however, for the higher household expenditure pattern ($35,000 to $50,000), a 5 percent rate is used given the expenditure data.

State and Local Tax Generation

To calculate state and local tax generation, state income taxes paid by recipients on retirement distributions are added to taxes paid in all subsequent rounds of spending. For the first, the state taxes are included as described above (0.4 percent or 0.7 percent, depending upon household income level) while IMPLAN calculates corporate, personal income, sales, property, etc. taxes generated from each subsequent round of spending.

Adjustments

Retirement distributions data provided by PERA is in 2014 dollars while IMPLAN's data is in 2012 dollars. IMPLAN incorporates the producer price index (PPI) to adjust 2012 dollars to 2015 dollars.

Notes on Impacts

As described above, a number of assumptions were made regarding household expenditures, taxes, and savings. As such, a range of outcomes is likely appropriate and an exact dollar figure is not feasible although results provided here reflect a reasonable measure of the economic and fiscal impacts of the PERA retirement distributions.

Also of note, an economic impact study can never capture the exact benefit as economies are always in a state of flux.