Colorado's {MIDDLE CLASS} Families

Characteristics and Cost Pressures

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1.

Introduction

In January 2010, a report was released for the Office of the Vice President's Middle Class Task Force. The report, entitled *Middle Class in America*, characterized the aspirations of middle class families, tabulated the associated costs of achieving these aspirations, determined whether actual family incomes were capable of covering the costs, and described how the ability of families to achieve a middle class lifestyle has changed over time. The Bell Policy Center is interested in understanding similar issues for families in Colorado. This project looks within Colorado to understand the composition of the state's middle-income families, generate cost estimates of the aspirational middle class lifestyle, determine the capacity of actual family incomes to support middle class costs, and detail how the ability of families to achieve a middle class lifestyle has changed over time.

The report begins by providing a baseline to understand the composition of middle-income families in Colorado. The detailed look at Colorado provides an income-based approach for defining the middle class, alongside a comparison of family income levels over time. The relative size of Colorado's middle class is considered along with the type, ages, race and ethnicity, and educational attainment of the families. The jobs and industries that sustain middle class incomes are detailed. Occupations are rated by the likelihood they can support the economic mobility of Colorado families entering and moving beyond middle income. Differences in middle incomes and costs between urban and rural areas of the state are addressed. Colorado's family migration patterns are considered to determine how they influence the state's middle class.

With a better understanding of who makes up Colorado's middle-income families, the costs of leading a middle class lifestyle are investigated and compared to actual incomes. The primary sources of pressure on family budgets are described, particularly those where cost growth has outpaced income over the past two decades. While self-sufficiency standards are well-defined and consistently updated by geographic area, there is no complementary "middle class standard" in use. This budget exercise extends the concept of the self-sufficiency standard to the middle class. The strategies available to balance middle class lifestyles with middle incomes in Colorado are discussed before highlighting a number of possible approaches including delaying having children, depending on dual incomes, growth in female wages, and the use of debt. The prominent role of the public sector in supporting middle class aspirations is discussed. A series of indicator measures are presented to capture the middle class condition in Colorado along the dimensions of housing affordability, debt burden, racial representation in the middle class, and family income inequality.

While self-sufficiency standards are well-defined and consistently updated by geographic area, there is no complementary "middle class standard" in use. This budget exercise extends the concept of the self-sufficiency standard to the middle class.

Overall, we find relatively high median debt-to-income levels, troubling median home-value-to-household-income ratios, extreme imbalances across middle income representation by race and ethnicity, and varied levels of income shortfall for supporting middle class lifestyles based on family composition and occupation combinations. We also discover Colorado has made modest progress over the past two decades increasing middle class representation among Hispanic families, while experiencing retrenchment among black families. The education and occupation gaps have widened between the state's lower-, middle-, and upper-income classes, although family income inequality has remained fairly constant over time. Each of these findings suggests focused policy prescriptions and a need to monitor and further investigate the health and vibrancy of Colorado's middle class families.

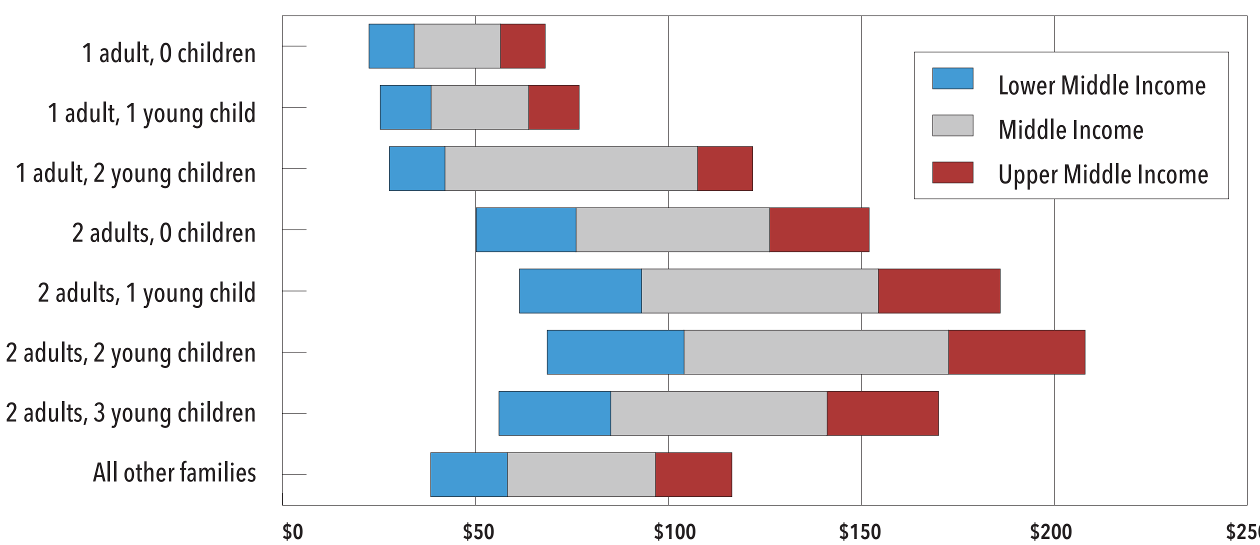
Defining Middle Class

"Middle class" resists a precise definition, yet a precise definition is needed to discuss the history and current state of the middle class, as well as potential policy solutions to help support the middle class. While it is clear who falls below the federal poverty line or into the top 1 percent of earners, the middle is relative and subject to debate. Survey data continue to show people are hesitant to identify as anything other than middle class.[1] Is being middle class a reflection of income and wealth, education and profession, self-perception and lifestyle, or some combination of these factors?

For this study, we use an income-based definition of middle class popularized by the Pew Research Center where a family is considered middle class if it makes between two-thirds and double the median family income.[2] In 2016, the statewide median income was $59,000 across all family types, implying that to be middle class, a family must have earned between $38,900 and $118,000 that year.[3] This paper examines "middle-income" Coloradans and then, based on an aspirational standard, documents the size and characteristics of our "middle class."

One advantage of the middle-income definition we adopt is it can naturally be decomposed into smaller segments. Middle-income families are not homogenous, and we can discuss the economic condition of families on a spectrum. As an illustration, we define lower middle income as families making two-thirds of the median to the median income, and upper middle income as making 1.66 times the median to double the median. Given a correlation between family income and family size, it is more informative to consider the incomes needed to be middle class by family composition.

FIGURE 1: COLORADO FAMILY INCOME BY MIDDLE-INCOME CLASS AND FAMILY TYPE, 2016



Note: Dollars are in thousands.

Figure 1 presents the actual middle-income range for Colorado's middle class by eight family compositions. The range to be considered middle income is highest for families composed of two adults and two young children, requiring an income between $69,000 and $208,000. By comparison, single-adult families with no young children must earn $22,000 to $68,000 to be considered middle income. For our analysis, we define a family with young children as those with children under 18 years old.

Colorado families have relatively high incomes compared to the rest of the country (Table 1). Two-adult families in Colorado with children living at home have median incomes 10 percent to 11 percent higher than the rest of the country, while one-parent families with two children in Colorado have much higher, by 42 percent, median incomes compared to the country as a whole.

The median single adult with no children is the only family type to have seen its real income decline during the 17-year observation period.

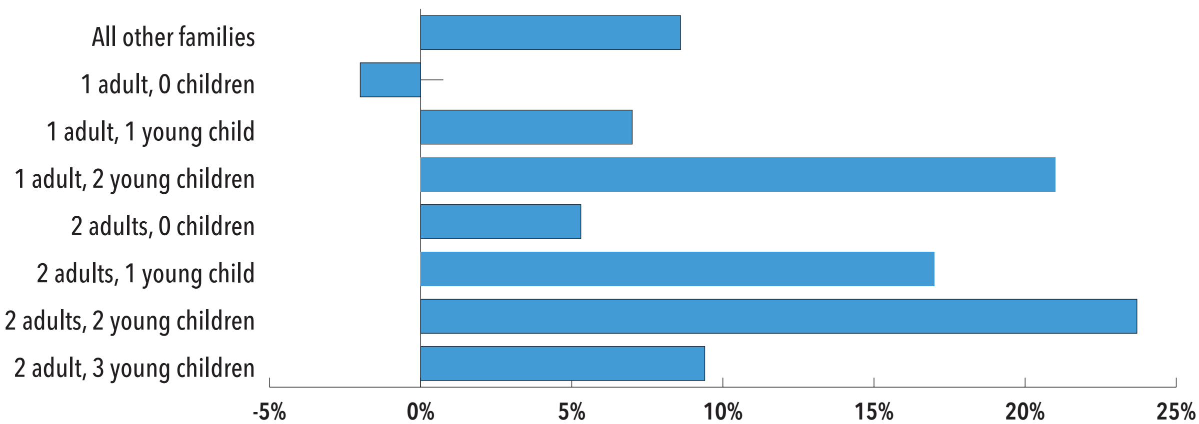
TABLE 1: MIDDLE-INCOME RANGE FOR FAMILIES IN COLORADO AND THE UNITED STATES, 2016

	In the distribution of…					
	Two-parent, two-child families		Two-parent, one-child families		One-parent, two-child families	
	Colorado	United States	Colorado	United States	Colorado	United States
Two-Thirds of Median	$68,800	$62,667	$61,333	$55,333	$28,467	$20,000
Median (50th Percentile)	$103,200	$94,000	$92,000	$83,000	$42,700	$30,000
Double the Median	$206,400	$188,000	$184,000	$166,000	$85,400	$60,000
Federal Poverty Line	$24,339		$19,318		$19,337	

Source: 2016 ACS 1-Year Estimates.

Is being middle class a reflection of income and wealth, education and profession, self-perception and lifestyle, or some combination of these factors?

FIGURE 2: PERCENTAGE CHANGE IN STATEWIDE MEDIAN FAMILY INCOME BY FAMILY TYPE FROM 2000 TO 2016



Note: Based on 2000 dollars inflation-adjusted to 2016.

Within the middle-income range, Colorado families have experienced uneven changes in real income growth since 2000. As depicted in Figure 2, the median two-adult, two-child family has seen real income growth of 23.7 percent, or about 1.3 percent per year. The median two-adult, one-child and one-adult, two-child families have also seen positive real income growth. The median single-adult with no children is the only family type to have seen its real income decline during the 17-year observation period.

THE SIZE OF COLORADO'S MIDDLE-INCOME FAMILY POPULATION

There were 1.3 million families in Colorado in 2016, and by our definition, slightly less than half would be considered middle class (Figure 3). Importantly, the proportion of middle-income Colorado families has declined since 2000 when 53 percent of the family population made between two-thirds and double the median income. It is noteworthy that while the decline in the percentage of families falling in the middle-income class was exacerbated by the Great Recession, the trend existed before the global economic downturn. The middle class decline is offset by gains in the share of Colorado families identified as lower and upper income in 2016.

FIGURE 3: PERCENTAGE OF LOWER-, MIDDLE-, AND UPPER-INCOME FAMILIES IN COLORADO, 2000-2016

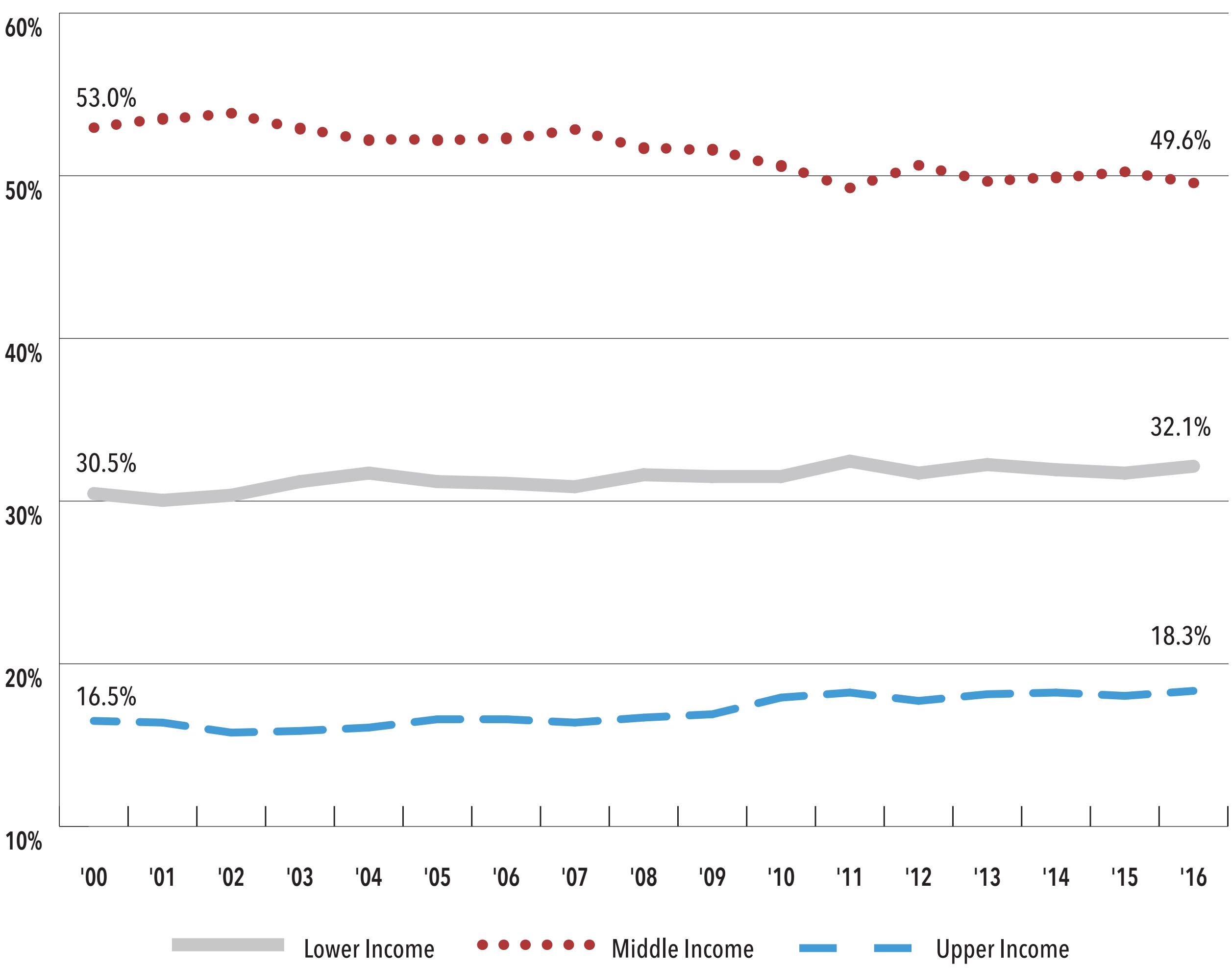


TABLE 2: STATES WITH THE FASTEST AND SLOWEST DECLINING MIDDLE CLASS, 2000-2016

Fastest Decline	Rate of Growth	Slowest Decline	Rate of Growth
Alaska	-9.3%	Washington, DC	4.9%
Nevada	-8.2%	Wyoming	-0.7%
Oregon	-8.0%	Utah	-1.2%
Massachusetts	-7.6%	Hawaii	-1.6%
Delaware	-7.5%	Vermont	-1.6%
Virginia	-7.5%	Montana	-1.8%
Connecticut	-7.2%	Kentucky	-2.1%
Illinois	-7.1%	North Dakota	-2.4%
Maryland	-6.8%	Kansas	-2.6%
North Carolina	-6.6%	Mississippi	-3.0%
Colorado	-6.4%	Idaho	-3.0%

Note: The numbers in the table reflect the percent change of the middle class in each jurisdiction over the period, rather than the percentage point change. For example, Colorado's middle class families declined from 53.0 percent to 49.6 percent of the state's families from 2000 to 2016. This is a decline of 3.4 percentage points. The percent change is 6.4 percent as follows: ((53.0 percent - 49.6 percent)/49.6 percent)*100.

Colorado's 6.4 percent decline in the middle class ranks 11th in terms of largest negative growth.

Colorado's declining middle class, based on family incomes, is consistent with national trends. As noted in Table 2, since 2000, only Washington D.C. has experienced growth in the middle class population. Colorado's 6.4 percent decline in the middle class ranks 11th in terms of largest negative growth. Moreover, as the size of the middle-income group decreases, the size of the upper- and lower-income groups change. In Colorado, from 2000 to 2016 both the upper- and lower-income groups increased, and the upper income (10.9 percent) more so than the lower income (5.2 percent). The state's growth in the upper-income group is on par with the national average of 10.4 percent; however, Colorado's growth in the lower-income group is nearly twice as large as the national average of 2.8 percent.

Characteristics of Colorado's Middle-Income Families

FAMILIAL COMPOSITION

A majority of Colorado's middle-income families have no children present in the household (Figure 4). In 2016, 31.5 percent were two-adult, no-child families while 27 percent were single-adult, no-child families. Families with adult-aged kids in the household composed another 20.1 percent of the state's middle-income group. Thus, only 21.4 percent of the middle class is composed of families with young children. Of these families, most are two-adult, two-child and two-adult, one-child families.

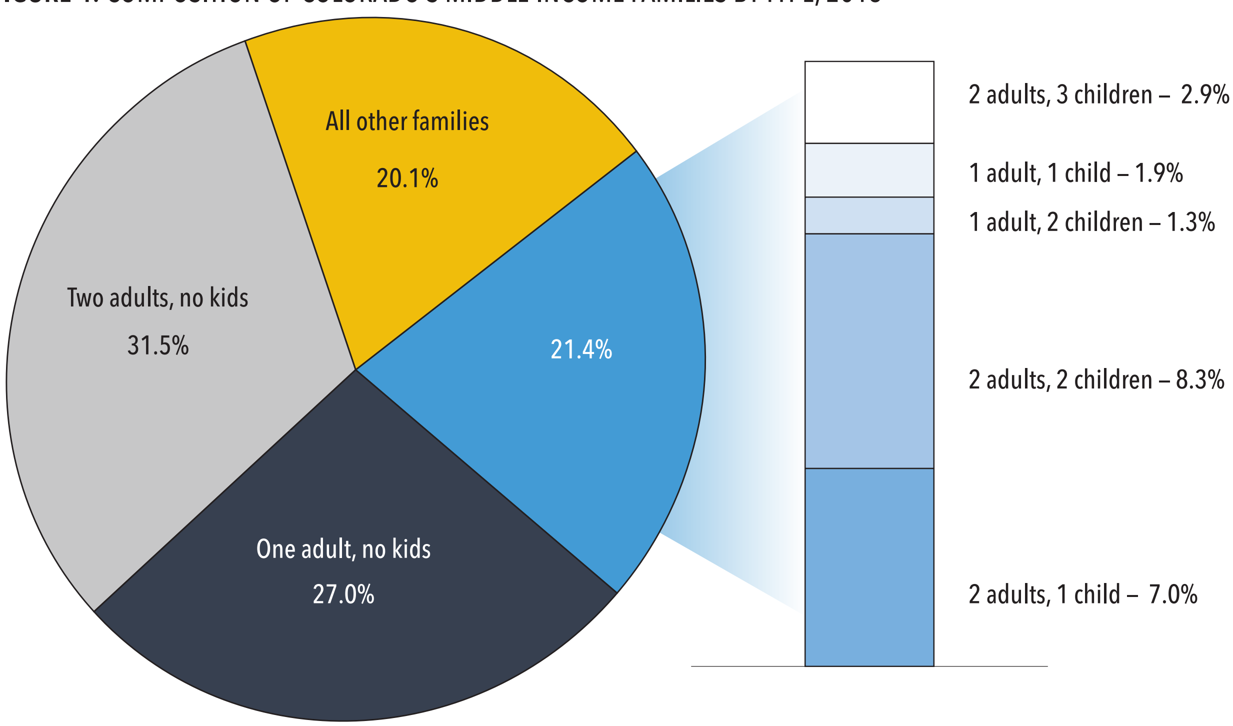
Since 2000, the state's middle-income family population has shifted in terms of family composition. While the share of single-adult, no-child families and families with adult-aged children ("All other families" in Figure 4) have remained stable, families with young children fell from 27.4 percent to 21.4 percent. This 21.7 percent decline has been offset by a 21.5 percent increase in the share of two-adult, no-child families.

AGE COMPOSITION

In a 2016 report, the State Demography Office reported the population of older Coloradans (65 and older) grew faster between 2000 and 2015 than any other age bracket, a trend attributed to the state's low concentration of seniors in 2000.[4] Decomposing the state's middle-income family population by age reveals this same pattern of a greying population. In order to compare family age of single- and two-adult families, the ages of family heads are averaged.

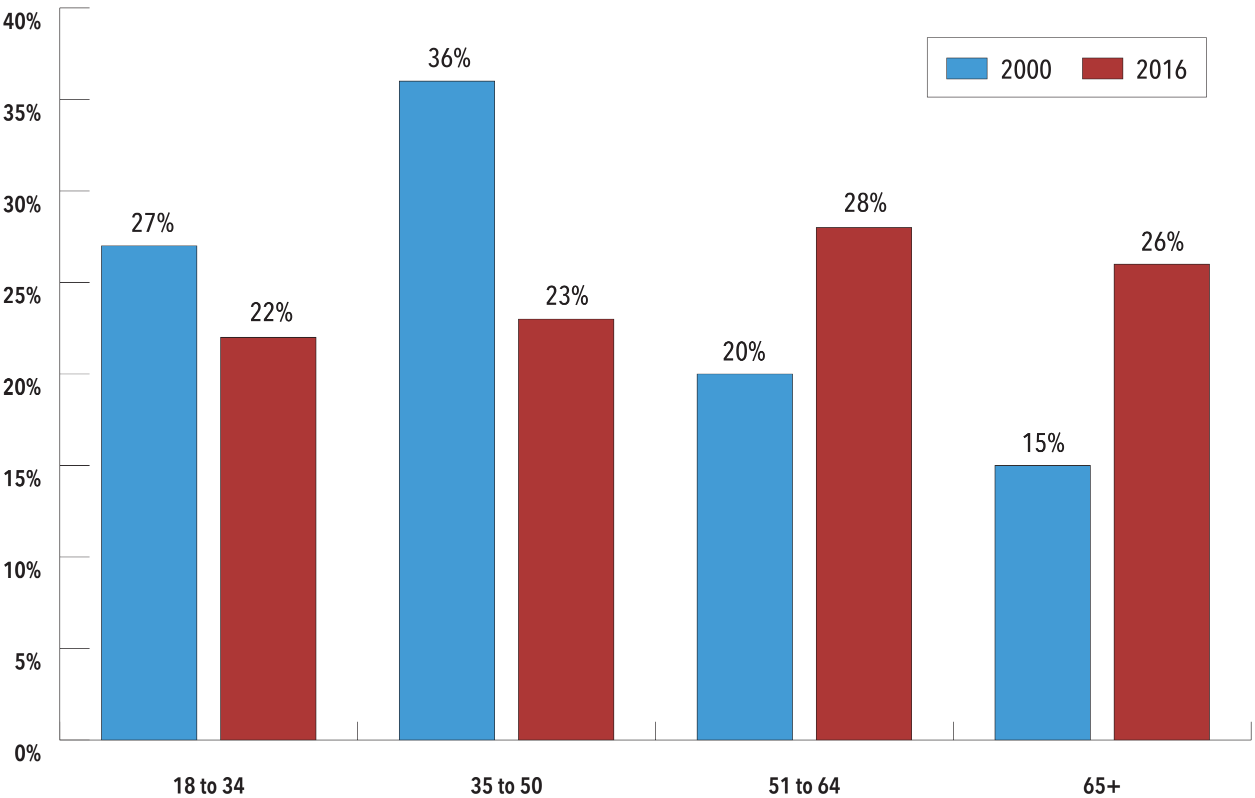
Currently, the state's middle-income families are roughly divided evenly among four age groups: young families who are predominantly single or two-adults without children (18 to 34 years old); families predominantly with young children (35 to 50 years old); families predominantly with adult children (51 to 64 years old); and older Coloradans (65 years or older). The specific distributions are illustrated in Figure 5.

FIGURE 4: COMPOSITION OF COLORADO'S MIDDLE-INCOME FAMILIES BY TYPE, 2016



This distribution of these middle-income families, however, is quite different than in 2000. While younger families (those 50 years old or younger) composed 45 percent of the state's family population in 2016, they composed a much larger 63 percent in 2000. In contrast, older families composed 35 percent in 2000 and 54 percent in 2016 with older families (65 years or older) experiencing the largest positive change during this period among the four groups of 11 percentage points.

FIGURE 5: AGE COMPOSITION OF COLORADO'S MIDDLE-INCOME FAMILIES, 2000 AND 2016



LIFECYCLE OF COLORADO'S MIDDLE CLASS

Our later focus on the budgets of families with children under 18 years of age belies the fact that Colorado's middle class is comprised of a diverse range of family compositions with and without children living at home. The connotations associated with "middle class" differ over the course of adults' lives. Middle class families may not own homes, for example, shortly after entering the job market and completing higher education. Demands on income may peak in families with young children requiring daycare or older children entering college, although family earnings are more likely higher and more capable of handling the costs in the latter scenario. Using income levels to classify families as middle class in retirement may be misleading, since wealth becomes a more central concept alongside income. Spending pressures also differ for the retired, with families no longer making contributions to retirement accounts, typically facing lower tax burdens, more likely to have paid off mortgages, and receiving expanded public medical benefits. In short, both income and aspirations differ markedly across a family's middle-income lifecycle.

In order to identify patterns in the racial composition of Colorado's middle-income families, families were categorized according to the self-reported racial group of the family heads. It is worth noting the following discussion treats Hispanic as a racial category. Under rules imposed on federal agencies by the U.S. Office of Management and Budget (and thus used in the administration of the American Community Survey), Hispanic is not a racial category, but an ethnic one. Hispanic individuals descend from Cuba, Mexica, Puerto Rico, South or Central America, or other Spanish cultures or origins. Any individual who does not self-report descending from such origins are categorized as non-Hispanic ethnicities. Federally-recognized racial groups, meanwhile, are white, black, American Indian or Alaskan Native, and Asian or Pacific Islander. In order to simplify discussion about middle-income family trends, Hispanic is treated as a racial category, and therefore the definition of race used in this study is different than the definition used by the federal government.

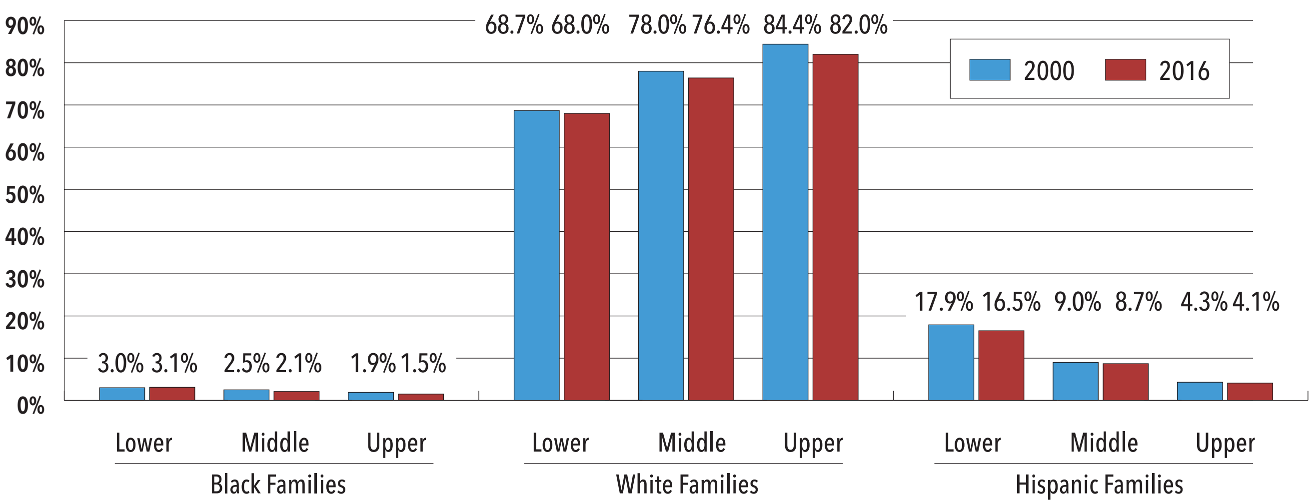
RACE

Colorado is predominantly composed of families self-identifying as white. In 2016, 74.8 percent of the surveyed families identified as white, non-Hispanic, while 10.4 percent self-identified as Hispanic, the second largest demographic that year. Black (2.3 percent) and Asian/Pacific Islander (1.9 percent) families round out the top four single-race identification groups. Multi-racial families, meanwhile, compose 10.7 percent of the state's family population, an increase of nearly two percentage points since 2000.

As Figure 6 highlights, family race is correlated with income class. Among the state's three largest racial groups—white, Hispanic, and black—only the representation of white families increases as income class increases. White families composed about two-thirds of the state's lower-income families, but 82 percent of upper-income families in 2016. In contrast, Hispanic and black family representation falls as income class increases with Hispanic families experiencing the steepest decline in representation.

Differences in racial representation across income classes point to a middle-income attainment gap, and, further, the persistence of the gap over time reflects an increasing difficulty for minority families to enjoy the same middle class lifestyle as white families.

FIGURE 6: COMPOSITION OF LOWER-, MIDDLE-, AND UPPER-INCOME CLASSES BY SELF-IDENTIFIED RACE, 2000 AND 2016

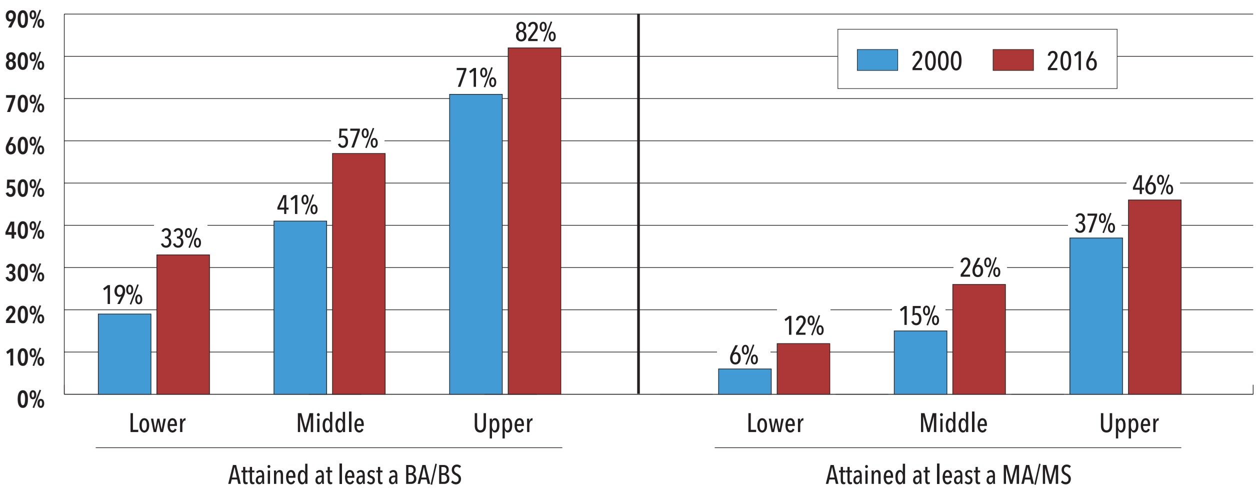


Examining graduate degree attainment makes a stronger case that not only is education important for being a middle-income family or higher, but having a bachelor's degree alone may not be enough to reach or sustain being middle income.

The concentration of Hispanic families in the lower-income class is four times as large as their concentration in the upper-income group; the difference in representation in the lower group is twice as large as the upper class for black families. Moreover, the change in the racial composition of the lower-, middle-, and upper-income classes has not changed dramatically since 2000. Differences in racial representation across income classes point to a middle-income attainment gap, and, further, the persistence of the gap over time reflects an increasing difficulty for minority families to enjoy the same middle class lifestyle as white families.

The importance of reducing the gap and making the middle class attainable to all families gains urgency with the state's family population becoming more diverse since 2000, a trend expected to continue into the future. The persistence of a middle class attainment gap signals other social outcomes that vary systematically by race, such as education, have far-reaching implications for the economic trajectories of Colorado's minority families.

FIGURE 7: PERCENTAGE OF COLORADO FAMILIES WITH AT LEAST ONE FAMILY HEAD WITH A COLLEGE DEGREE OR HIGHER



EDUCATIONAL ATTAINMENT

Education is an investment in human capital. Through education we increase our job skills, habits, and abilities, thereby increasing our productivity and, as a consequence, our economic value in the labor market. Education, then, is a critical determinant of future well-being for many.

As seen in Figure 7, a majority (57 percent) of Colorado's middle-income families have at least one adult family head who has attained a bachelor's degree or higher, up from 41 percent in 2000. The growing importance of education, however, is not unique to the middle-income group. Similar growth in attaining at least a four-year degree is also evident among lower- and upper-income families. Examining graduate degree attainment makes a stronger case that not only is education important for being a middle-income family or higher, but having a bachelor's degree alone may not be enough to reach or sustain being middle income. A quarter of middle-income families and nearly half of upper-income families now have at least one graduate degree.

TABLE 3: LEADING OCCUPATION COMBINATIONS OF TWO-ADULT, MIDDLE-INCOME FAMILIES IN COLORADO, 2000 AND 2016

Adult 1	Adult 2	Percent of Middle-Income Families, 2016	Percent of Middle-Income Families, 2000
Professional/Management	Professional/Management	27.1%	19.1%
Professional/Management	Sales/Office	17.2%	17.5%
Professional/Management	Not in the labor force	9.8%	5.4%
Professional/Management	Service Worker	7.3%	5.7%
Sales/Office	Sales/Office	5.0%	7.7%
Production/Transportation	Professional/Management	5.0%	4.8%
Professional/Management	Construction/Extraction	2.7%	0.7%

COLORADO'S MIDDLE-INCOME JOBS

Occupations

Most families in Colorado report receiving nearly all of their income from wages. Given wage income is the dominant source for financing families' spending, individuals' choice of occupation is critical for mobility into the middle class and beyond.

Limiting the focus to families with two adult heads, it was most common for middle-income families to have two wage earners in professional and management occupations in 2016 (Table 3). Perhaps more importantly, however, is professional and management occupations are represented much more often in middle-income families than any other occupation. Indeed, the only leading occupation combination for family heads who experienced a significant decline in middle income representation since 2000 is the combination for which there is no adult employed in a professional or managerial occupation when both heads work in sales or office occupations.

An alternative view of occupations and economic mobility is to consider which occupations are more likely to pay wages allowing entry into the middle-income range and those more likely to provide a wage trajectory over time that would improve a family's chance of moving upward. An occupation may provide a low-wage entry point such as minimum wage, but offer workers a higher wage ceiling compared to an occupation with a high-wage entry point, but a lower wage ceiling.

We obtained wage and occupation data from the U.S. Bureau of Labor Statistics' (BLS) Occupational Employment Statistics program for Colorado workers in 2016. Among the data BLS provides are hourly wage rates for different occupations at different levels of experience. We define entry-level wage as the lowest wage BLS estimates for the lowest experienced worker level in each occupation. We define expert-level wages as the highest wage BLS estimates for the highest experienced worker level in each occupation. Owing to differences in how BLS reports wages by occupation, the foregoing discussion uses more specific occupation types than used in Table 3.

We calculated the hourly wage rate needed to be middle income and classified an occupation as low likelihood of entry into the middle class if the estimated hourly wage was less than two-thirds of the median, and high likelihood of entry if the estimated hourly wage was greater than twice the median. For wages between these limits, we further disaggregated into lower-middle, middle, and upper-middle income by evenly segmenting the difference between the median hourly wage and the upper and lower bounds into two, respectively.

Occupations paying BLS-estimated wages at or above the upper-middle income threshold were rated as the highest likelihood of an occupation that would pay a middle-income hourly wage. Occupations paying estimated wages in the lower income and lower-middle income were rated as lowest likelihood. This process was repeated for expert-level wages. If an occupation paid an expert-level wage at or above the upper-middle income threshold, it was rated as having the highest likelihood of a pay trajectory that would allow mobility into higher income classes, for instance.

Note that this approach is not intended to guarantee what occupations will pay a wage high enough to get into the middle class. The approach relies on BLS wage data, which are not reported for every particular occupation. For instance, wage rates for doctors and lawyers are not reported, so while these occupations may have high likelihoods of entry into the middle class and upward income mobility, BLS data cannot be used to evaluate the claim. Instead, doctors and lawyers are grouped with other health care and legal occupations, respectively.

Among the occupations with BLS wage data available, legal occupations pay wages with the highest likelihood of giving individuals, and hence families, entry into the middle class. It is expected lawyers command wages that bias legal occupations toward this conclusion, but related occupations such as paralegals and legal secretaries may still give individuals strong chances of being middle income.

As noted in Table 4, many professional occupations, particularly those in business, engineering, and computers, also provide reasonable likelihoods of paying middle-income wages along with offering workers a trajectory of wage growth giving high probabilities of economic mobility into upper-income levels. For workers in these occupations, earning middle class income at some point during their working lives is all but guaranteed.

Using these definitions for evaluating middle class occupations, 64 percent of Colorado workers in 2016 held occupations with a low probability of paying hourly wages that would grant entry to the middle class, up from 59 percent in 2000.

TABLE 4: OCCUPATIONS RATED BY LIKELIHOOD OF ENTERING THE MIDDLE CLASS AND MOVING UPWARD

Likelihood of Entering the Middle Class	Likelihood of Moving Up Income Classes: Low		High
Low	• Building and Grounds Cleaning and Maintenance Occupations • Food Preparation and Serving Related Occupations • Health care Support Occupations • Laborers and Freight, Stock, and Material Movers • Personal Care and Service Occupations • Cashiers	• Construction and Extraction Occupations, Including Construction Laborers • Installation, Maintenance, and Repair Occupations • Office and Administrative Support Occupations • Protective Service Occupations • Arts, Design, Entertainment, Sports, and Media Occupations • Retail Sales Workers and Supervisors • Production Occupations • Transportation and Material Moving Occupations	• Health Care Practitioners and Technical Occupations, Excluding Registered Nurses • Education, Training, and Library Occupations • Sales and Related Occupations, Excluding Cashiers, Retail Sales Workers, and Supervisors of Retail Sales Workers
		• Plumbers, Pipefitters, and Steamfitters • Carpenters	• Architecture and Engineering Occupations • Business and Financial Operations Occupations • Computer and Mathematical Occupations • Management Occupations • Registered Nurses
High			• Legal Occupations

Comparatively, workers in food preparation, personal caregiving, and similar occupations will struglget to earn a wage that immediately places them in the middle class or move up economically over time.

Using these definitions for evaluating middle class occupations, 64 percent of Colorado workers in 2016 held occupations with a low probability of paying hourly wages that would grant entry to the middle class, up from 59 percent in 2000. While half of these workers occupied occupations with a trajectory for high wages, it is not clear how much experience would be needed before a low-wage worker will command a higher wage on the market that would grant additional economic mobility. The pairing of occupations in two-adult households expands the possibilities of entering and maintaining middle and upper class family incomes.

Industries

Colorado's middle-income families work in a wide range of industries (Table 5). Nearly a quarter of all working heads of middle-income families were employed in health care and education in 2016, and an additional 20 percent were employed in finance, real estate, scientific, and other professional fields.

Combined, the top four most represented industries employed 46 percent of the working middle class, an increase of eight percentage points since 2000. The change in middle-income industry representation since 2000 illustrates a growing importance for jobs in the health care, education, and professional, scientific, and technical industries. Alternately, the prominence of Colorado's middle-income jobs in manufacturing, construction, retail, and information, finance, and real estate has declined.

TABLE 5: PERCENTAGE OF WORKING MIDDLE-INCOME FAMILY HEADS BY INDUSTRY

Industry (NAICS Code)	2016	2000	Change (in percentage points)
Health care (62)	13.4%	9.5%	3.9%
Education (61)	11.5%	9.0%	2.5%
Information, finance, and real estate (51-53)	10.4%	12.2%	-1.8%
Professional, scientific, and technical (54-55)	10.3%	7.5%	2.8%
Retail trade (44-45)	8.4%	9.9%	-1.5%
Construction (23)	7.6%	9.5%	-1.9%
Public administration (92)	7.0%	6.7%	0.3%
Manufacturing (31-33)	6.7%	9.0%	-2.3%
Other (81)	4.8%	4.7%	0.1%
Transportation and warehouse (48-49)	4.2%	4.7%	-0.5%
Accommodation and food service (72)	3.8%	4.4%	-0.6%
Administrative support (56)	3.5%	3.2%	0.3%
Wholesale (42)	2.7%	3.7%	-1.0%
Arts, entertainment, and recreation (71)	2.3%	1.9%	0.4%
Mining, oil, gas, and utilities (21-22)	2.1%	2.2%	-0.1%
Agriculture (11)	1.5%	1.9%	-0.4%

TABLE 6: PERCENTAGE OF WORKING FAMILY HEADS BY INCOME CLASS AND INDUSTRY, 2016

Industry (NAICS)	Lower Income	Middle Income	Upper Income
Health care (62)	12.0%	13.4%	13.6%
Education (61)	8.5%	11.5%	8.2%
Information, finance, and real estate (51-53)	6.1%	10.4%	15.7%
Professional, scientific, and technical (54-55)	5.6%	10.3%	19.9%
Retail trade (44-45)	12.8%	8.4%	5.0%
Construction (23)	9.9%	7.6%	4.7%
Public administration (92)	3.8%	7.0%	6.5%
Manufacturing (31-33)	5.6%	6.7%	8.4%
Other (81)	7.1%	4.8%	2.9%
Transportation and warehouse (48-49)	4.3%	4.2%	2.7%
Accommodation and food service (72)	9.5%	3.8%	1.4%
Administrative support (56)	6.1%	3.5%	2.7%
Wholesale (42)	2.3%	2.7%	2.6%
Arts, entertainment, and recreation (71)	2.7%	2.3%	1.4%
Mining, oil, gas, and utilities (21-22)	0.9%	2.1%	3.3%
Agriculture (11)	2.9%	1.5%	1.1%

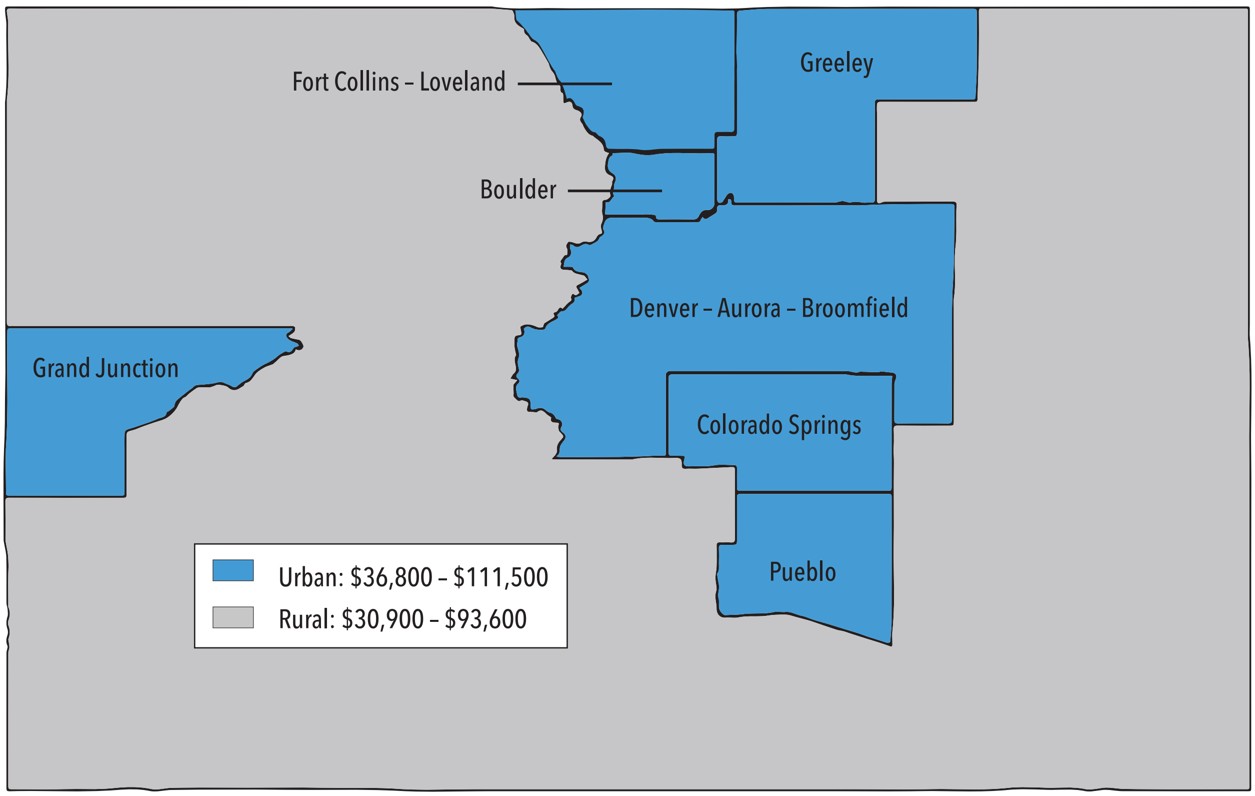
Employment in particular industries may also afford families greater economic mobility. Table 6 shows data for all Colorado families by income class in 2016, and while education and health care are two of the top four most represented industries among middle-income families, only professional services, information, finance and real estate, manufacturing, and mining, oil, gas, and utilities are more heavily represented in upper-income families. Thus, these industries serve as stronger access points for families to move into higher-income classes.

MIDDLE INCOME IN URBAN AND RURAL AREAS

The family income required to be middle income also varies within the state. Policy debates in Colorado are often framed in terms of an urban-rural divide, and programs targeting the middle class should take into consideration variation in incomes between urban and rural families. For the present purpose, we define an urban area as a Metropolitan Statistical Area (MSA), which are defined by the U.S. Office of Management and Budget and represent densely-populated areas with close economic ties. In Colorado, the MSAs are Fort Collins-Loveland, Greeley, Boulder, Denver-Aurora-Broomfield, Colorado Springs, Pueblo, and Grand Junction. All other areas outside of these MSAs are considered rural.In 2016, the family income needed to be middle income in urban Colorado ranged from $36,800 to $111,500. By comparison, families in rural Colorado needed to make between $30,900 and $93,600 to be considered middle income. The rural median family income was 19 percent lower than urban counterparts (Figure 8).

Though rural families required less money to be middle income, over time the requisite income needed to be middle income in rural Colorado has grown more rapidly than in the state's urban areas, which could in part be explained by income growth in rural resort towns specifically. Since 2000, the median rural middle-income family's income has grown 6 percent in inflation-adjusted terms, whereas the median urban middle-income family's income has declined 3 percent.

FIGURE 8: FAMILY INCOME NEEDED TO BE MIDDLE INCOME IN URBAN AND RURAL AREAS, 2016



Variation in the cost of living across Colorado can be similarly stark. This means the cost of attaining a middle class lifestyle is likely to vary. Every two years, the state legislature conducts a study of cost of living differences across Colorado's school districts. The index includes the local costs of the following spending categories: food, alcoholic beverages, housing, apparel, transportation, health care, entertainment, personal care products and services, tobacco, personal taxes, and other. The average cost of living for Colorado is set at an index value of 100, but ranges from 174.9 in Pitkin County to 87.3 in Conejos County. Different index values reflect the different amounts of money needed to consume a similar bundle of consumer goods. Table 7 contains more information on how the cost of living index varies across counties.

FAMILY MIGRATION PATTERNS

According to the State Demographer, Colorado's population has grown, on average, 1.6 percent a year since 2000.[5] Population growth is driven by net changes in resident births and deaths, as well as changes in net in-migration patterns (people coming into the state less those leaving). Colorado's recent population growth has been driven more by net in-migration than by aggregate changes in resident lifecycles. While net in-migration on average has made up 53 percent of the state's annual population growth since 2000, in the wake of the Great Recession from 2010 through 2016 net in-migration has accounted for 61 percent of the growth. The State Demographer forecasts net in-migration to compose two-thirds of annual population growth by 2019.

Considering net in-migration patterns by family income class, Colorado more recently imports lower-income families at a higher rate than middle- and upper-income families. As detailed in the first two columns of Table 8, in 2016, for each lower-income family who left the state, 1.6 lower-income families entered. For middle- and upper-income families, the enter-to-exit ratio is 1.3 and 1.2, respectively. Note, however, these rates of net in-migration have declined across all income groups since 2000 with the smallest decline occurring amongst upper-income families.[6]

Net in-migration ratios provide a sense of the rate at which different types of families enter and exit the state.

TABLE 7: AVERAGED COST OF LIVING INDEX BY COLORADO COUNTY, 2015

	County	Index	Rank		County	Index	Rank
Highest Cost of Living	Pitkin	174.9	1	Lowest Cost of Living	Sedgwick	89.7	54
	Summit	118.4	2		Saguache	89.4	55
	Eagle	115	3		Otero	89.4	56
	Routt	113.6	4		Crowley	89.3	57
	San Miguel	109.5	5		Bent	89.3	58
	Denver	108.7	6		Cheyenne	89.2	59
	Grand	107.6	7		Kiowa	88.3	60
	Gunnison	107.3	8		Baca	88.1	61
	Hinsdale	107.0	9		Lincoln	87.4	62
	La Plata	106.7	10		Conejos	87.3	63

Notes: The 2015 school-district based indices are used here and adjusted to the county level (see, Colorado Legislative Council/ Pacey Economics, Inc. (February 2016). *2015 Colorado School District Cost of Living Analysis*). Due to the report's focus on school districts, the consolidated city and county of Broomfield is omitted from the rankings.

Variation in the cost of living across Colorado can be similarly stark. This means the cost of attaining a middle class lifestyle is likely to vary.

TABLE 8: FAMILY MIGRATION PATTERNS BY INCOME CLASS IN COLORADO

	Net In-Migration Ratio		Percent of Net In-Migration	
Family Income Class	**2000**	**2016**	**2000**	**2016**
Lower Income	1.9	1.6	45%	49%
Middle Income	1.5	1.3	44%	33%
Upper Income	1.3	1.2	11%	18%

It is not a measure of the volume of families moving, however. As detailed in the last two columns of Table 8, nearly half of the net in-migration in the five years leading up to and including 2016 occurred among low-income families, with middle-income families making up another third, and upper-income families comprising the balance. Compared to the five years leading up to and including 2000, lower-income and upper-income families make up a greater share of the state's total net in-migration, while middle-income families make up a smaller share. This pattern is consistent with the trends in the state's composition of lower-, middle-, and upper-income families highlighted in Figure 3, suggesting changing migration patterns are partly responsible for the state's decline in middle-income families.

Can Middle-Income Families Afford a Middle Class Lifestyle?

After considering the income and characteristics of Colorado's middle-income families, we recognize being part of the middle class is not solely dependent upon relative income. Rather, prior research and survey data illustrate the importance of being able to achieve a collection of aspirations commonly associated with the middle class in the United States. Specifically, the middle class values "economic stability, a better life for one's children, and a current lifestyle that allows for a few creature comforts."[7] Here, we extend the 2008 national analysis of the Office of the Vice President's Middle Class Task Force by applying hypothetical middle class budgets to Colorado families in 2016. The comparison of the aspirational budgets to actual incomes allows us to see whether Colorado's middle class incomes are sufficient to support the traditional middle class lifestyle. This exercise for the middle class is similar to the more familiar use of self-sufficiency standards for lower-income families.

The traditional elements of a middle class lifestyle include homeownership (or rental housing when preferred), health care, automobile ownership, retirement savings, college savings, and vacation. Other items considered "non-aspirational," like food, clothing, entertainment, miscellaneous expenses, child care, and taxes, are also included in the middle class budgets we construct. Full-time daycare and preschool are traditionally required only when both adults are actively working with preschool-age children. In Colorado, though, both adults work full time in nearly 81 percent of middle-income families, and full time and part time in another 18 percent.

The estimated cost of these budget items is found using survey and secondary data for Colorado families at different middle-income levels. The methodology is detailed in the data appendix. Importantly, the quality and quantity of the budget items differ based on the type of family and income level. Admittedly, not all middle class aspirations can be expressed in dollar terms. A 2015 survey found "a secure job" and the "ability to save money" most essential to be considered middle class.[8] The selected budget items are intended to represent a middle class lifestyle that accommodates a broad range of aspirations and essential spending. Actual family budgets will differ based on personal priorities and preferences.

We focus on three types of middle-income families in Colorado with young children. Families with two adults and two children are most common, followed by two adults with one child. Although much less common, we also consider families with only one adult and two children to better understand middle-income circumstances in the absence of two adults. Before providing the detailed budgets for each family type and income level, Table 9 presents a summary of the budget findings. Fully achieving the middle class lifestyle detailed here is impossible for most family types with actual middle-income levels in Colorado. For example, a two-adult family with two school-age children needs to boost their median income of $103,200 an additional 12 percent to satisfy the associated aspirational budget spending. A similar family with an income at the lowest point of middle class incomes—$68,000 annually—faces an even larger shortfall of 21 percent despite having lower expected costs for housing, automobiles, college and retirement savings, vacations, non-aspirational items, and taxes.

Alternately, the double median income family experiences a small income surplus, around 1 percent of income, after fulfilling the budgeted items. The pattern is similar for two-adult, one-child families, but worsens dramatically for one-adult families with children where actual income levels are much smaller than the associated reduction in expenses compared to two-adult families.

Fully achieving the middle class lifestyle detailed here is impossible for most family types with actual middle-income levels in Colorado.

TABLE 9: COMPARING HYPOTHETICAL MIDDLE CLASS BUDGETS TO ACTUAL MIDDLE INCOMES OF COLORADO FAMILIES, 2016

	Two-adult, two-child families by middle-income level			Two-adult, one-child families by middle-income level			One-adult, two-child families by middle-income level		
	Two-Thirds Median	Median	Double Median	Two-Thirds Median	Median	Double Median	Two-Thirds Median	Median	Double Median
	$68,800	$103,200	$206,400	$61,333	$92,000	$184,000	$28,467	$42,700	$85,400
Homeowner, School-Age Children	-21%	-12%	1%	-20%	-12%	0%	-30%	-31%	-17%
Renter, School-Age Children	-18%	-8%	4%	-19%	-10%	2%	-28%	-27%	-13%
Homeowner, One Child Preschool Age	-29%	-19%	-2%	-28%	-19%	-4%	-52%	-45%	-26%
Renter, One Child Preschool Age	-26%	-15%	1%	-27%	-16%	-1%	-50%	-42%	-22%
Average Surplus/ Deficit as Share of Income	-23%	-14%	1%	-24%	-14%	-1%	-40%	-36%	-19%

Achieving the aspirational middle class lifestyle is feasible for two-adult families at the high end of the middle-income distribution in Colorado. These families' income is roughly balanced with the higher levels of spending. Children in daycare worsen the imbalance between incomes and spending for all families. Renting relieves some pressure on budgets relative to homeownership, although we do not consider the long-term wealth building or tax benefits associated with ownership. For most family types, "non-aspirational" spending is the largest spending category alongside housing. The progressive nature of income taxes is seen particularly for families with double median income. The following sections detail the hypothetical budgets of the different selected family compositions and middle-income levels.

Two-Adult, Two-Child Families

This family composition represents 39 percent of Colorado's middle-income families with children under 18 years of age. They are also the highest earning family composition, with a median income of $103,200 and a middle-income range of $68,000 to $206,400. Table 10 presents the hypothetical annual budget for such families. The total expenses differ based on whether the family is assumed to own a home or rent, and if both children are already in school versus one child requiring daycare. The total annual budget amounts for each scenario are presented at the bottom of the table.

Figure 9 illustrates the relative demands on middle-income budgets for two-adult, two-child families who are homeowners with both children in public schools. Other scenarios are summarized at the bottom of Table 10. A family at the lowest point of our middle-income definition would fall short of meeting the expenses by just over $14,100, or 20 percent of income. The gap between income and our middle class budget narrows to around $12,200, or 12 percent of income, for the median-income family and turns into a modest surplus of $2,700, or 1 percent, for the family at the highest point of the middle-income range.

Housing and non-aspirational items are major categories of spending for all of the family income levels. The percent shares of income needed for housing and non-aspirational spending both decline as incomes climb among these middle-income families. Housing consumes 32.8 percent of income at the low end of the middle-income range, 27.9 percent at the median, and 17.5 percent at the high end, even when taking into account actual differences in spending on housing across these types of families in Colorado. Non-aspirational spending also declines as a share of larger incomes, but not as dramatically as for housing, representing around 30 percent of family incomes. Taxes become an increasingly large proportion of the family budget, reflecting the progressive income tax system at the federal level despite Colorado's flat-rate income tax.

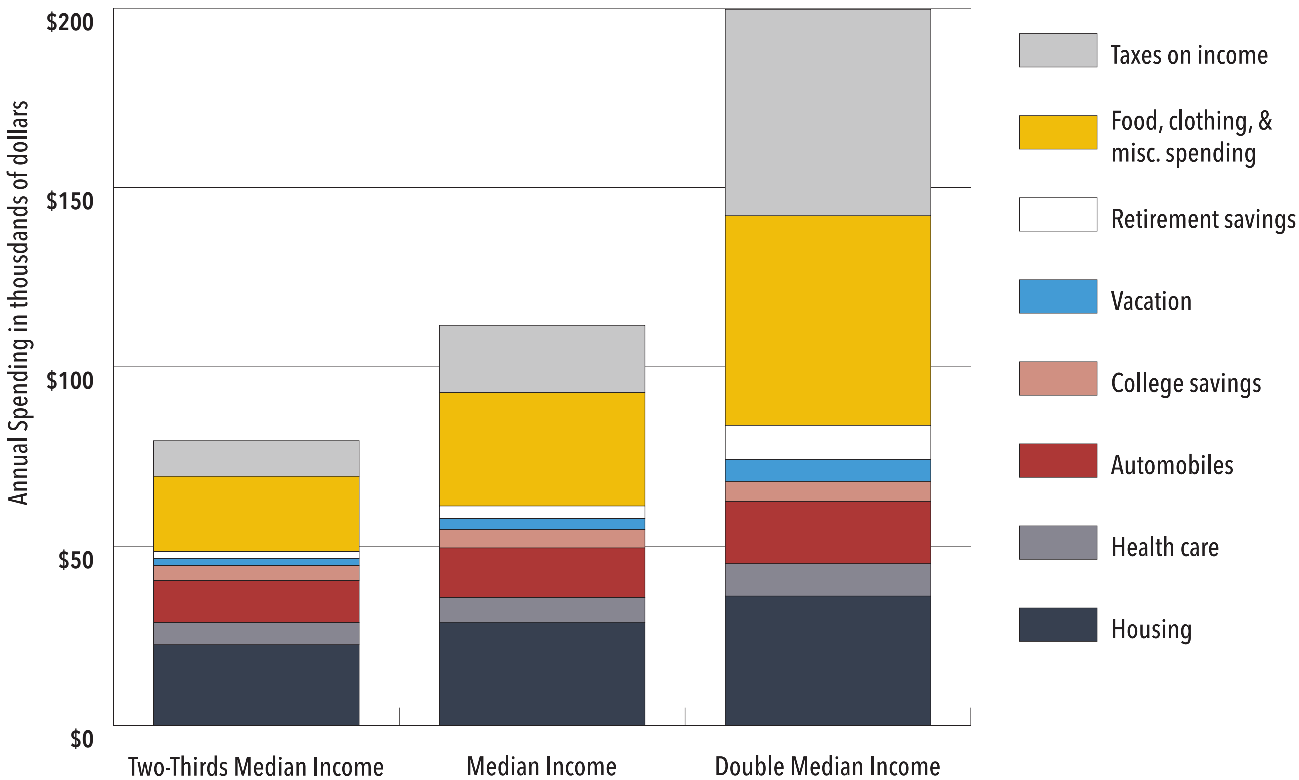
TABLE 10: HYPOTHETICAL ANNUAL BUDGET FOR TWO-ADULT, TWO-CHILD FAMILIES IN COLORADO BY MIDDLE-INCOME LEVEL, 2016

	Annual Income		
	Two-Thirds of Median	**Median**	**Double Median**
	$68,800	$103,200	$206,400
Housing	For homeowners, includes mortgage payments, property tax, homeowners insurance, utilities, HOA fees, and maintenance. For renters, includes rent, maintenance, utilities, and renters' insurance.		
Homeowner • Home Value • Annual Costs	 $295,000 $22,550	 $380,000 $28,800	 $480,000 $36,100
Renter	$20,666	$24,902	$30,036
Health Care	Premiums for employer-provided health insurance and out-of-pocket costs. $6,198	Premiums for employer-provided health insurance and out-of-pocket costs. $6,886	Premiums for employer-provided health insurance and out-of-pocket costs. $8,950
Automobiles	Ownership of two compact cars each driven 12,825 miles annually. $11,743	Ownership of two midsize cars each driven 12,825 miles annually. $13,797	Ownership of two full-size cars each driven 12,825 miles annually. $17,355
College Savings	Savings per child to support three years of undergraduate education at in-state public institution. $4,225	Savings per child to support three years of undergraduate education at in-state public institution. $5,124	Savings per child to support three years of undergraduate education at in-state public institution. $5,476
Child Care	Annual home-based child care. $8,735	Annual center-based child care. $11,229	Annual center-based child care. $11,229
Vacation/Leisure Travel	$2,064	$3,096	$6,192
Retirement Savings	Annual savings for a 50 percent income replacement rate with Social Security (2.8 percent of income). $1,935	Annual savings for a 50 percent income replacement rate with Social Security (3.4 percent of income). $3,479	Annual savings for a 50 percent income replacement rate with Social Security (4.6 percent of income). $9,481
Non-Aspirational Items (food, etc.)	$21,190	$31,579	$58,411
Income Taxes	Federal, state, and FICA taxes on wages. $9,855	Federal, state, and FICA taxes on wages. $18,845	Federal, state, and FICA taxes on wages. $57,616
Total (homeowner, school-age children)	$82,929	$115,450	$203,688
Total (renter, school-age children)	$81,045	$111,552	$197,624
Total (homeowner, one child preschool)	$88,495	$122,836	$210,810
Total (renter, one child preschool)	$86,611	$118,938	$204,746

Note: Methodology and data sources are detailed in the data appendix.

The traditional elements of a middle class lifestyle include homeownership (or rental housing when preferred), health care, automobile ownership, retirement savings, college savings, and vacation.

FIGURE 9: EXAMPLE MIDDLE CLASS BUDGET FOR TWO-ADULT, TWO-CHILD FAMILIES IN COLORADO, 2016 (HOMEOWNERS WITH CHILDREN IN SCHOOL)



Given the mismatch between middle class budgets and income levels for two of our three family income levels, any combination of changes to the budget items could be made by families to address the imbalance.

The exercise sets forth a baseline for achieving middle class aspirations in Colorado, but the quality and quantity of many budget items can be changed. The question, then, becomes at what point does a revised middle class budget no longer reflect the basic aspirations, or expectations, of families with middle class incomes?

Two-Adult, One-Child Families

This family composition represents 33 percent of Colorado's middle-income families with children under 18 years of age. They have a median income of $92,000 and a middle-income range of $61,333 to $184,000. Table 11 presents the hypothetical budget for such families.

TABLE 11: HYPOTHETICAL ANNUAL BUDGET FOR TWO-ADULT, ONE-CHILD FAMILIES IN COLORADO BY MIDDLE-INCOME LEVEL, 2016

	Annual Income		
	Two-Thirds of Median	**Median**	**Double Median**
Housing	For homeowners, includes mortgage payments, property tax, homeowners insurance, utilities, HOA fees, and maintenance. For renters, includes rent, maintenance, utilities, and renters' insurance.		
Homeowner • Home Value • Annual Costs	 $250,000 $19,700	 $350,000 $26,300	 $440,000 $32,800
Renter	$19,254	$24,132	$27,726
Health Care	Premiums for employer-provided health insurance and out-of-pocket costs. $6,049	Premiums for employer-provided health insurance and out-of-pocket costs. $6,662	Premiums for employer-provided health insurance and out-of-pocket costs. $8,502
Automobiles	Ownership of two compact cars each driven 12,825 miles annually. $11,743	Ownership of two midsize cars each driven 12,825 miles annually. $13,797	Ownership of two full-size cars each driven 12,825 miles annually. $17,355
College Savings	Savings per child to support three years of undergraduate education at in-state public institution. $4,225	Savings per child to support three years of undergraduate education at in-state public institution. $5,124	Savings per child to support three years of undergraduate education at in-state public institution. $5,476
Child Care	Annual home-based child care. $8,735	Annual center-based child care. $11,229	Annual center-based child care. $11,229
Vacation/Leisure Travel	$1,840	$2,760	$5,520
Retirement Savings	Annual savings for a 50 percent income replacement rate with Social Security (2.7 percent of income). $1,679	Annual savings for a 50 percent income replacement rate with Social Security (3.3 percent of income). $2,993	Annual savings for a 50 percent income replacement rate with Social Security (4.3 percent of income). $7,856
Non-Aspirational Items (food, etc.)	$18,891	$27,784	$57,040
Income Taxes	Federal, state, and FICA taxes on wages. $9,609	Federal, state, and FICA taxes on wages. $17,587	Federal, state, and FICA taxes on wages. $50,261
Total (homeowner, school-age children)	$73,736	$103,008	$184,810
Total (renter, school-age children)	$73,290	$100,839	$179,735
Total (homeowner, one child preschool)	$78,246	$109,112	$190,563
Total (renter, one child preschool)	$77,800	$106,944	$185,488

Note: Methodology and data sources are detailed in the data appendix.

At what point does a revised middle class budget no longer reflect the basic aspirations, or expectations, of families with middle class incomes?

FIGURE 10: EXAMPLE MIDDLE CLASS BUDGET FOR TWO-ADULT, ONE-CHILD FAMILIES IN COLORADO, 2016 (HOMEOWNERS WITH CHILD IN SCHOOL)

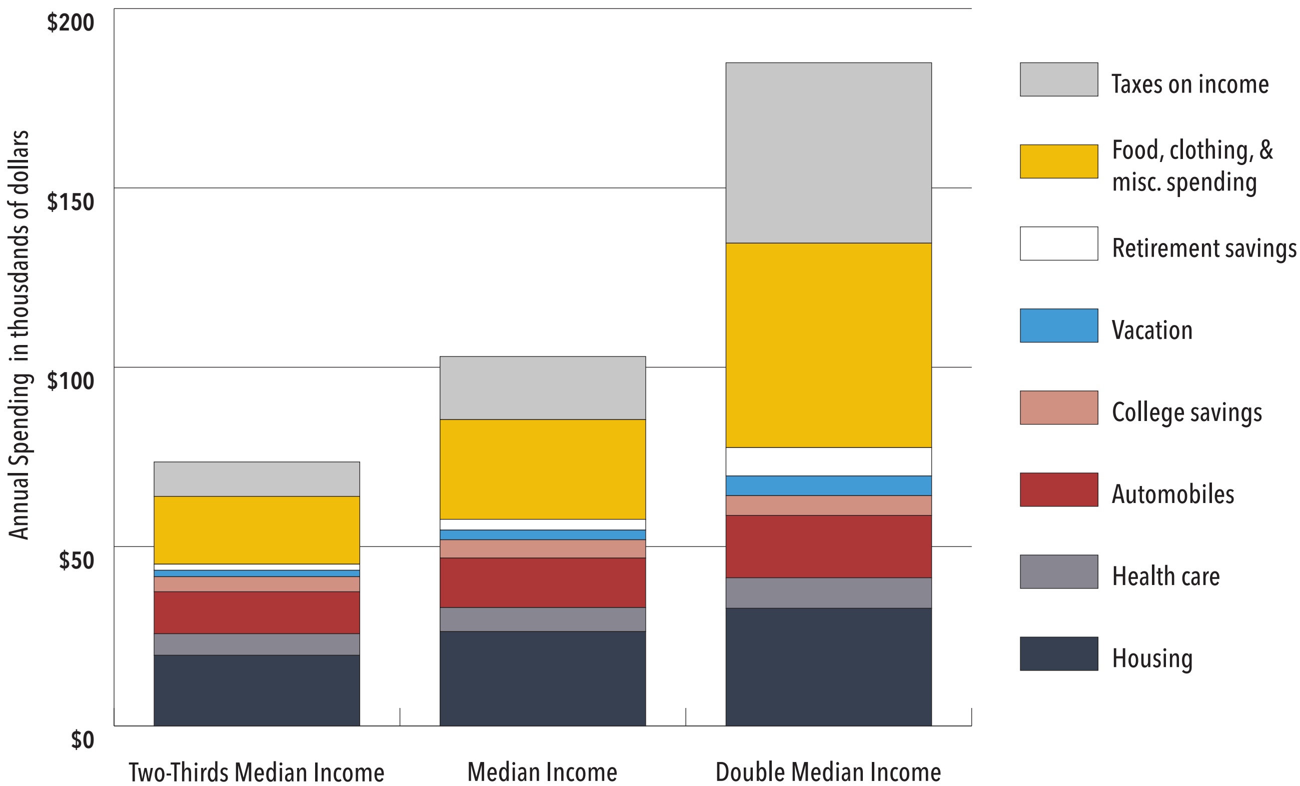


Figure 10 displays the middle class budget categories for two-adult, one-child families who are homeowners with the only child in public school. Having one child reduces a number of annual expenses, but despite these lower budget demands, the mismatch between income and expected spending levels is very similar to that of Colorado's two-adult, two-child families. The reason is because actual income levels are substantially lower, by $11,200 at the median, for two-adult families with one child in Colorado compared to those with two children.

One-Adult, Two-Child Families

This family composition represents only 6 percent of Colorado's middle-income families with children under 18 years of age, but importantly provides a look at the challenges of being middle class in a single-adult family with children. The absence of a second adult means, at most, one adult is able to work full time. This is reflected in a median income of $42,700, much lower than other family types and a middle-income range of $28,467 to $85,400 (Table 12).

TABLE 12: HYPOTHETICAL ANNUAL BUDGET FOR ONE-ADULT, TWO-CHILD FAMILIES IN COLORADO BY MIDDLE-INCOME LEVEL, 2016

	Annual Income		
	Two-Thirds of Median	**Median**	**Double Median**
	$28,467	$42,700	$85,400
Housing	For homeowners, includes mortgage payments, property tax, homeowners insurance, utilities, HOA fees, and maintenance. For renters, includes rent, maintenance, utilities, and renters insurance.		
Homeowner • Home Value • Annual Costs	 $175,000 $16,650	 $275,000 $22,550	 $400,000 $30,300
Renter	$16,173	$21,051	$27,212
Health Care	Premiums for employer-provided health insurance for adult and out-of-pocket costs. Children participate in CHP+. $1,840	Premiums for employer-provided health insurance for adult and out-of-pocket costs. Children participate in CHP+. $2,068	Premiums for employer-provided health insurance and out-of-pocket costs. $6,188
Automobiles	Ownership of one compact car driven 12,825 miles annually. $5,872	Ownership of one compact car driven 12,825 miles annually. $5,872	Ownership of one midsize car driven 12,825 miles annually. $6,899
College Savings	Savings per child to support three years of undergraduate education at in-state public institution. $3,231	Savings per child to support three years of undergraduate education at in-state public institution. $3,381	Savings per child to support three years of undergraduate education at in-state public institution. $5,124
Child Care	Annual home-based child care. $8,735	Annual center-based child care. $8,735	Annual center-based child care. $11,229
Vacation/Leisure Travel	$854	$1,281	$2,562
Retirement Savings	Annual savings for a 50 percent income replacement rate with Social Security (0.9 percent of income). $243	Annual savings for a 50 percent income replacement rate with Social Security (1.8 percent of income). $767	Annual savings for a 50 percent income replacement rate with Social Security (3.2 percent of income). $2,716
Non-Aspirational Items (food, etc.)	$8,796	$13,493	$25,791
Income Taxes	Federal, state, and FICA taxes on wages. ($2,962)	Federal, state, and FICA taxes on wages. $3,851	Federal, state, and FICA taxes on wages. $16,403
Total (homeowner school-age, children)	$36,948	$55,798	$99,826
Total (renter, school-age children)	$36,471	$54,299	$96,739
Total (homeowner, one child preschool)	$43,260	$61,998	$107,212
Total (renter, one child preschool)	$42,783	$60,499	$104,124

Note: Methodology and data sources are detailed in the data appendix.

The magnitude of the imbalance between income and aspirations for families earning at the median and below suggests major tradeoffs would need to be made to lower costs, resulting in a very different lifestyle.

FIGURE 11: EXAMPLE MIDDLE CLASS BUDGET FOR ONE-ADULT, TWO-CHILD FAMILIES IN COLORADO, 2016

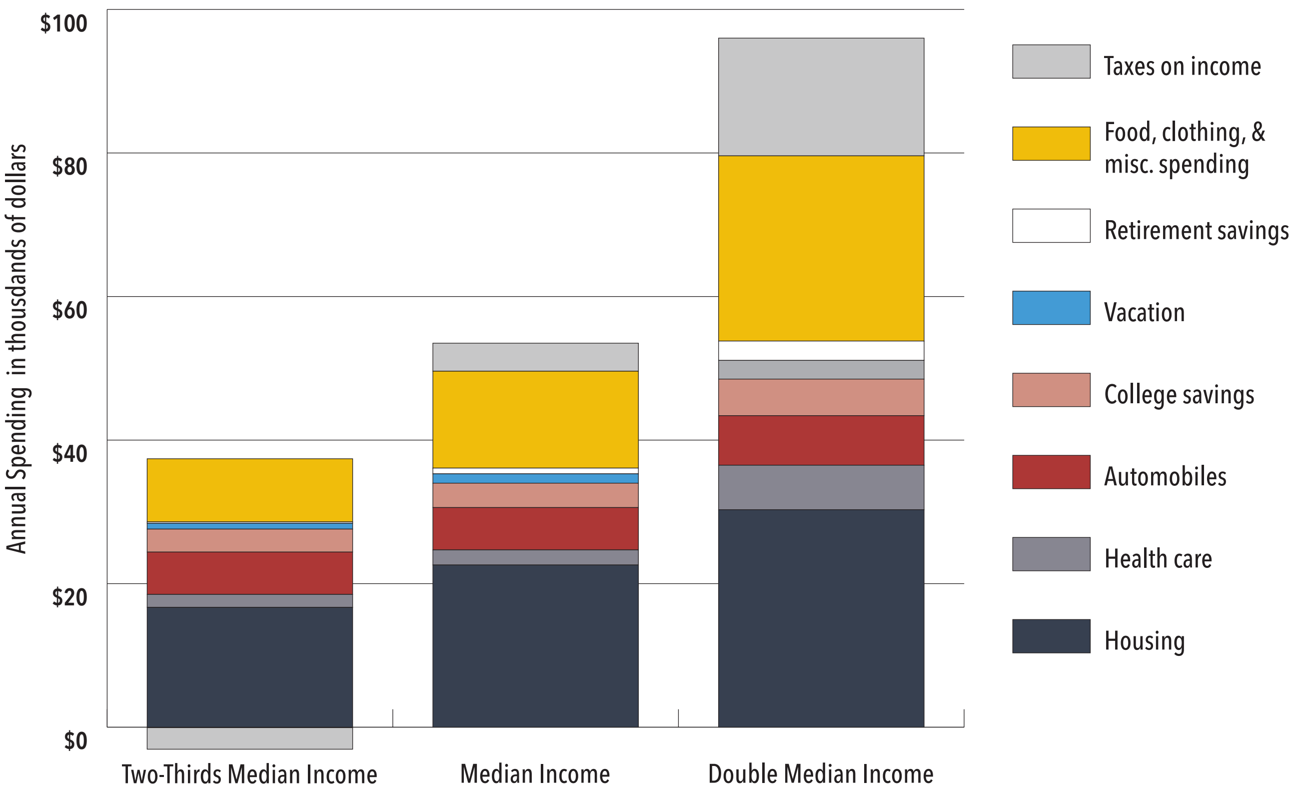


Figure 11 displays the middle class budget categories for one-adult, two-child families who are homeowners with both children in public schools. The average income shortfall ranges from 40 percent for a family at two-thirds of the median income to 19 percent at double the median income. The magnitude of the imbalance between income and aspirations for families earning at the median and below suggests major tradeoffs would need to be made to lower costs, resulting in a very different lifestyle.

A number of spending needs are lower for these families, but the savings from lower costs pale in comparison to the lower-income levels of a single adult earner. For example, retirement savings are lower because Social Security provides a higher income replacement rate for lower-income earners, financial aid levels for college are higher, low-cost health insurance coverage for children is available from the state, only one car is needed, and smaller relative tax burdens exist (including a credit at the lowest portion of the income range). Except for families with double median income, housing alone consumes more than half of these families' income whether owning or renting.

COLORADO'S MIDDLE CLASS FROM AN ASPIRATIONAL PERSPECTIVE

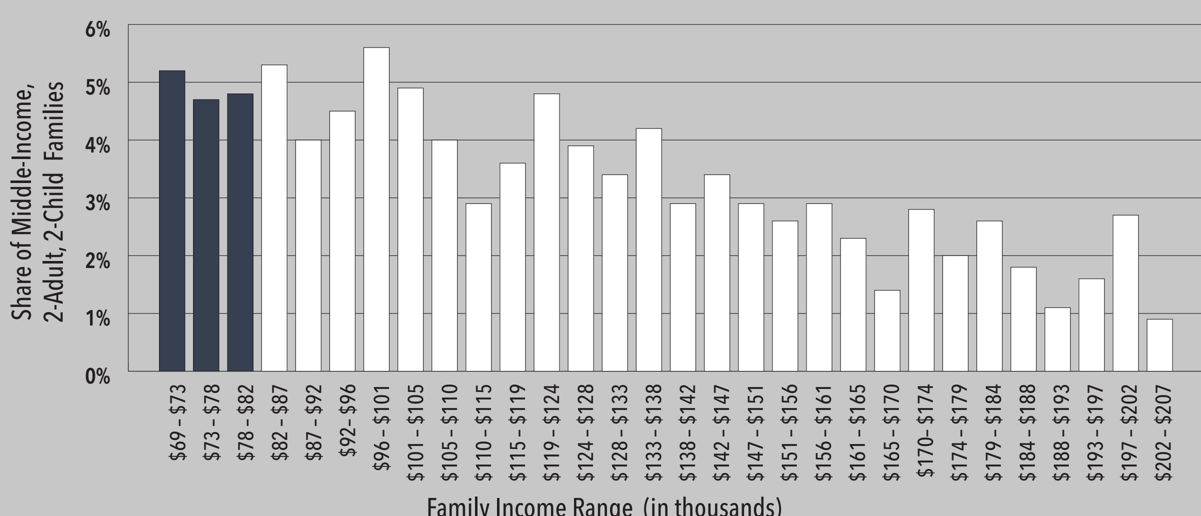
Our income-based definition finds nearly half of all Colorado families in the middle class. Even with budgets adjusted for differences in middle-income levels and family composition, families with income at the lower end of the middle-income range are unable to fully satisfy the items included in our hypothetical budgets. Of the three family types for which we construct budgets, just under 10 percent of the families we identify as middle class based on income lack the current resources to live a middle class lifestyle in Colorado. Table S1 details how the share of families classified as middle class changes when taking the ability to meet middle class costs into account, rather than just relative income levels.

TABLE S1: SHARE OF FAMILIES IN COLORADO'S MIDDLE CLASS BY DEFINITION AND FAMILY COMPOSITION

	Middle-Income Family Type		
	Two-Adult, Two-Child	**Two-Adult, One-Child**	**One-Adult, Two-Child**
Income-Based Definition	57.1%	57.4%	51.0%
Expense-Based Definition	48.7%	49.4%	37.9%
Difference (in percentage points)	8.4	8.0	13.1

The following figure provides a visual counterpart to the previous table for one family type, the two-adult, two-child family. Combined, the bars in the figure represent the middle class two-adult, two-child families in Colorado based on incomes between two-thirds and double the median for the family composition in 2016. The first three bars illustrate the share of these families whose middle class incomes fall below the lowest hypothetical budget amount for this family type. In other words, these families' incomes are considered middle class by our definition, but their income is insufficient to cover middle class spending demands. Although the composition of family spending differs across families based on priorities, this exercise suggests the middle class in Colorado would shrink if defined as the ability to achieve a certain lifestyle traditionally associated with the middle class.

FIGURE S1: SHARE OF MIDDLE-INCOME FAMILIES BY INCOME RANGE AND ABILITY TO ACHIEVE MIDDLE CLASS LIFESTYLE IN COLORADO, 2016 (TWO-ADULT, TWO-CHILD FAMILIES)

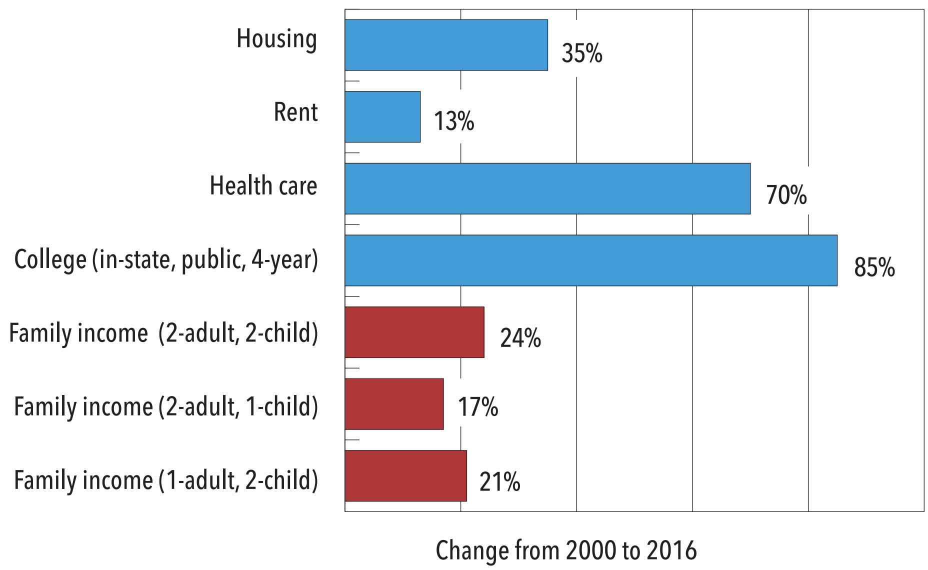


5.

Have Colorado's Middle Incomes Kept Pace with Costs?

A popular perception is that it is tougher to lead a middle class lifestyle now than in years past. Whether this is true over the past two decades in Colorado is an empirical question. At a high level, it is clear the real growth in family income has failed to keep pace with a number of the key costs of a traditional middle class lifestyle. Most prominently, the price of public higher education, health care costs, and housing values have increased at a much higher rate than income for our three selected family compositions (Figure 12).

FIGURE 12: REAL COST AND INCOME CHANGES FOR COLORADO FAMILIES, 2000-2016



It is clear the real growth in family income has failed to keep pace with a number of the key costs of a traditional middle class lifestyle. Most prominently, the price of public higher education, health care costs, and housing values have increased at a much higher rate than income for our three selected family compositions.

Sources: House Values, Gross Rent, and Family Income (Census, 2000; ACS, 2016 1-year estimates); Healthcare (Center for Cost and Financing Studies; Consumer Expenditure Survey); College Costs (U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System).

These high-growth budget components do not equally affect all middle-income families in Colorado. For example, rising home values make it more expensive for middle class families to buy a home, while existing homeowners benefit from both the fixed nature of most mortgage payments and increasing wealth in the form of home equity. Indeed, survey data from the ACS show the share of income used for housing costs is little changed in Colorado since 2000. The story is likely very different for recent homebuyers or those looking to buy.

Health care and higher education costs show outsized increases during this period and have drawn a great deal of popular attention due to the federal policy response and ballooning student loan debt, respectively. These costs clearly contribute to strained middle class budgets, especially where uncovered medical emergencies arise or saving for children's college is far less consistent than assumed in our budget scenarios. Despite the rapid growth, though, these items are small relative shares of annual spending compared to housing, non-aspirational spending, automobiles, and taxes for most families. A portion of the increasing cost pressures experienced by middle class families has been offset by decreased spending demands of non-aspirational items and automobiles as shares of income since 2000.

Strategies to Alleviate Budget Pressures of Colorado Families

The hypothetical budgets for middle class families in Colorado demonstrate incomes generally fall below the amount needed to fulfill all of the expected aspirational and non-aspirational items. Although the exact middle class budget differs for each family based on their priorities and preferences, there are a limited number of strategies with which to reconcile these family budget deficits. These strategies are briefly described here before detailing how select approaches have been used in Colorado.

Spend Less

The simplest approach to balance a family budget is to make tradeoffs among priorities and spend less. These might include buying a cheaper house possibly with a longer commute, selecting a low-cost health insurance option with less coverage, making due with one car in a two-adult family or cheaper cars, forgoing or reducing savings for a child's higher education, or reducing contributions to retirement savings. Implicit in spending less is sacrifices must be made given the available income does not support all elements associated with a middle class lifestyle.

Spending less is often an exercise in reducing current consumption. Foregoing a vacation this summer, frequenting restaurants less often, or living in a smaller home allows families to rebalance budgets. Similarly, families might delay or defer certain life choices, like having children or buying a home, until their income or savings improve. Alternately, families might prioritize current consumption of vacations, dining out, or living in a more expensive home over savings for future consumption, including college for their children and retirement.

Work (Earn) More

Another approach is to increase income to better match a family's spending needs through working more hours or additional jobs, having both adults work full time, or gaining more highly valued skills. In reality, there are many practical factors limiting the ability to work and earn more.

Borrow

Family income determines the initial budget constraint, but borrowing is common to support greater current consumption than can be supported by income alone. Of course, debt must be paid back over time along with interest. Families regularly use a wide range of borrowing, including mortgages, home equity, auto, credit card, and student loans to support middle class lifestyles.

Help From Family and Friends

Middle class families may be able to better satisfy the aspirational budget items with support from family or friends. While such assistance might be critical to balancing middle class family budgets, the availability is far from universal. Support from extended family might come in the form of financial gifts or non-financial, in-kind contributions like providing child care. In fact, more than 20 percent of first-time homebuyers nationally report using a loan or gift from family or friends to help purchase their home.[9]

Tap Existing Wealth/Savings

Families save excess income for many different reasons, many of which are directly related to a traditional middle class lifestyle, like a down payment for a home purchase, building a college fund for kids, or investing for retirement. Savings and wealth also provide sources of funds independent from current wage income and, when available, can be used to temporarily expand a family budget. This might entail selling investments, tapping equity in a home, or simply pulling funds from savings accounts. Building savings, though, requires disposable income over time that is not already directed to other budget items.

Role of the Public Sector

The previously mentioned strategies require actions from families, but government also plays a prominent role in supporting middle class aspirations and incomes that can provide such a lifestyle. Income levels reflect a family's attainment of marketable skills. Skills are gained from accessible and high-quality K-12 and higher education systems. The marketability of the skills depends on there being an economy with an appropriate blend of jobs that support economic mobility and living wages. State government plays an especially prominent role in education funding and economic development.

The different items of the middle class budget are all influenced by public policies. Home construction and affordability depend upon local zoning and land use decisions, as well as specific programs to help finance and encourage a diverse portfolio of housing options. Health care options outside of the workplace are influenced for the middle class by Colorado's health insurance marketplace and assistance programs for some middle-income families.

Families' annual cost and dependence on automobiles is determined, in part, by the quality and congestion of roads along with the availability of alternate transportation options like mass transit and dedicated bike lanes. These are responsibilities of the state, local governments, and regional transportation authorities and have a large impact on the quality of life associated with middle class lifestyles, but are absent from our expense budgets.

The amount needed to save for college depends on the cost of higher education and availability of financial aid. Public colleges and universities, including both two-year and four-year institutions, have traditionally offered affordable and broad access to higher education. The level of state funding directed to the public higher education system directly influences tuition rates and the amount needed to save for middle class families.

Child care costs are temporary, but can be especially burdensome given the pressure for middle class families to have two working adults and limited support in many workplaces for extended or paid family leave. For families with multiple children, the typical gap in ages between kids means that the costs of child care are often compounded for at least a couple years. Family income levels may also be below peak levels in the years when child care is most needed. The state, through its counties, and some local governments and private employers provide assistance for child care with eligibility mainly covering a portion of one-adult middle-income families. The state regulates day care operations and can create rules that promote expanded capacity, while still safeguarding children. Governments can also offer surplus space to proven providers of early child care services to expand supply.

Vacations may appear to be one of the less fundamental inclusions in a middle class budget, but the ability to take vacations is a sign of having discretionary income and leisure time. Access to robust public park systems for overnight camping, daytrips, and recreational opportunities provides less expensive alternatives for family vacations. Similarly, cultural amenities including museums, zoos, and performing arts serve as potential destinations locally or regionally without the associated costs of air travel and extended hotel stays.

Retirement saving by the middle class is inextricably tied to government. Social Security is the traditional base of support for retirees in the United States, but many former and current government employees, including teachers, in Colorado instead depend on the Public Employees' Retirement Association (PERA). Although it is easy to presume that families with middle class incomes have access to employer-provided retirement plans, that is not always the case for sole proprietors and employees of small businesses. A number of states, with Oregon's OregonSaves leading the way, have launched programs to provide broad access to personal retirement accounts for their residents.[10]

The hypothetical budgets for middle class families in Colorado demonstrate incomes generally fall below the amount needed to fulfill all of the expected aspirational and non-aspirational items.

Although many would not consider income taxes to be aspirational, tax systems exist to fund public goods closely tied to many middle class aspirations and redistribute wealth to address income inequity. The income tax code has also traditionally supported, for example, homeownership through the mortgage interest deduction, savings for retirement through tax-deferred retirement plans, health insurance by not taxing employer-provided benefits, savings for college via 529 plans, having children with tax credits and exemptions, and child care through dependent care tax credits and flexible spending accounts. The recent Tax Cuts and Jobs Act has shifted the tax system away from some of these supports of the middle class, while expanding others.

These family and government strategies to lessen the imbalance between middle class family incomes and expenses are likely to be utilized in various combinations and differently over time. Survey data of Coloradans provides some insight into how families are shifting household decisions, working and earning more, and borrowing to accommodate lifestyles.

TIMING AND NUMBER OF CHILDREN

One possible tradeoff families can make to better afford a middle class lifestyle is to forego or delay having children. Since 2000, the state's birth rate has steadily fallen from 15.1 births per 1,000 residents to 12.0 births in 2016, a fact that further contributes to the greying of the state's population. The declining birth rate was most pronounced during the housing bubble and through the Great Recession when birth rates fell by an average 3.2 percent a year from 2007 through 2011. Additionally, Colorado's declining birth rate follows the national trend during the same period.

Declining birth rates are not evidence of a decision to forego or to delay having children, however. Stronger evidence of the tradeoff is possible by considering the age of couples when having their first child. In the median middle-income family in 2000, the average age of the parents was 27.4 years old when the first child was born.

FIGURE 13: BIRTHS PER 1,000 RESIDENTS, 2000-2016

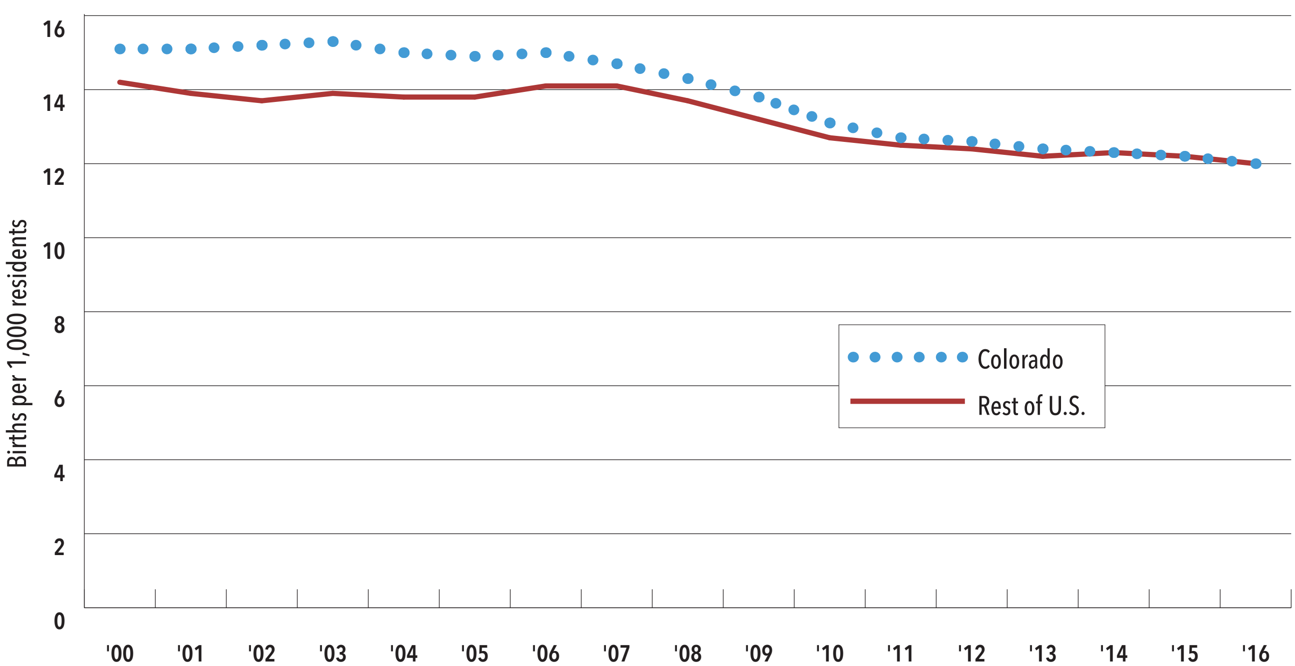


TABLE 13: AVERAGE AGE OF PARENTS WHEN HAVING THEIR FIRST CHILD

	Colorado		Rest of the US	
	2000	**2016**	**2000**	**2016**
Lower Income	24.9	26.7	24.7	26.7
Middle Income	27.4	29.9	26.9	29.1
Upper Income	30.3	32.8	30.1	32.1

TABLE 14: DUAL-INCOME REPRESENTATION AMONG COLORADO'S MIDDLE CLASS

	2000	2016
Share with only one full-time worker	1.2%	1.1%
Share with one full-time and one part-time worker	17.9%	18.1%
Share with two full-time workers	80.9%	80.8%

Source: 2000 Census; 2016 ACS 1-Year Estimates.

By 2016, it was 29.9 years old. Lower- and upper-income families are also having children later. For the median lower-income family, the child rearing average age increased from 24.9 to 26.7 years old. For upper-income families, it increased from 30.3 to 32.8 years old. These patterns are not unique to Colorado, but are consistent with broader patterns across the rest of the country.

DUAL-INCOME FAMILIES

In Colorado, having a single adult worker in a two-adult family is unlikely to result in a middle class income. Of middle-income two-adult families, nearly all have both adults working at least part time. Both adults work full time, defined as more than 35 hours per week, in more than 80 percent of the families. There is little change since 2000 in the pattern of dual-income families in Colorado's middle class, but the share with only one worker is negligible at around 1 percent of families (Table 14).

The data suggest a family earning a middle income is strongly predicated upon a two-adult family with two full-time workers.

FEMALE WAGE EARNERS

One method for families to cope with tightening budgets is to increase the number of adults contributing to family income. Historically, this has meant female labor force participation. For families with young children, the decision to enter the labor force is in part determined by evaluating the wage a parent could earn working compared against the cost to pay for child care. If the after-tax market wage rate is greater than the cost of child care, a family is financially better off with two adult workers.

Among families with young kids and two adults, female contribution to family income has increased over time. In 2016, the median family received 40 percent of its total income from the female parent, up from 35 percent in 2000. Interestingly, the growth in female contribution is not unique to the middle class. Among upper-income families, the median family's female contribution increased from 31 percent to 35 percent during this period, whereas the contribution increased from 35 percent to 39 percent for middle- and lower-income families.

There are a variety of explanations for the increasing contribution of female wage earners: increased female labor force participation, working more hours, earning higher wages, or some combination of these. Alternatively, the characteristics of female workers may remain unchanged with increased family contribution instead being driven by a decrease in male labor force participation, hours worked, or earning relatively lower wages. In Table 15, we see both female and male labor force participation, as well as inflation-adjusted hourly wages, in families with two adults and only young kids increased, but the growth is greatest for females. Moreover, the median reported numbers of hours worked did not change between 2000 and 2016 for females, but declined by 7 percent for males—from 43 hours per week on average to 40 hours per week. Evaluating all such families in the aggregate, then, it appears that a combination of these possibilities explains higher female contributions to family income: higher female labor force participation, faster growth in real wages, and decreases in hours worked by males.

These patterns persist when we examine middle-income families specifically, and notably, female labor force participation gains in importance as an explanation for increasing female contribution to family income. Among these families, there is essentially no change in male labor force participation whereas female labor force participation has increased 6 percent. Complementing this pattern is a stronger decline in hours worked amongst male wage earners. The data, thus, suggest a family earning a middle income is strongly predicated upon a two-adult family with two full-time workers.

CONSUMER DEBT

Debt is a prominent tool to increase current consumption beyond available income levels and is associated with many of the aspirational elements of a middle class lifestyle including housing, automobiles, and higher education. Although we lack information specifically on debt for middle-income families, we do have visibility into per capita debt in Colorado. The real per capita debt burden of Coloradans climbed from 2000 to a peak in 2008 during the Great Recession, and then declined until 2013 before modestly increasing through 2016 (Figure 14). Total debt per capita in Colorado has followed a similar trend to other states since 2000, although the level of debt continues to be relatively high (Figure 15).

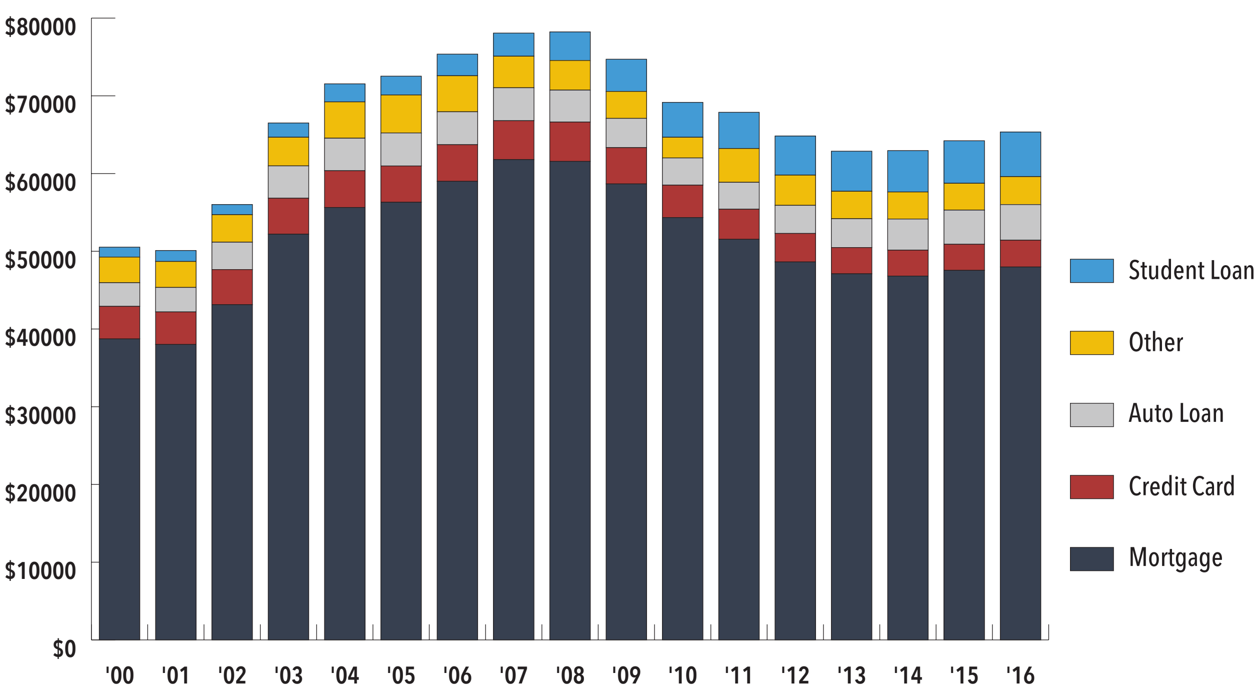
The level of student loan debt in Colorado ranks eighth compared to other states and Washington D.C.

TABLE 15: PERCENTAGE CHANGE IN WORKER CHARACTERISTICS FOR TWO-ADULT FAMILIES WITH YOUNG CHILDREN IN COLORADO FROM 2000 TO 2016

	All Families		Middle-Income Families	
	Female	**Male**	**Female**	**Male**
Labor force participation percent change	5.2%	1.5%	6.0%	0.4%
Median hours worked percent change	0.0%	-7.0%	0.0%	-11.1%
Median hourly wage percent change	26.3%	11.9%	29.2%	15.8%

Note: Hourly wage growth is based upon inflation-adjusted reported wage income assuming a 52-week work year.

FIGURE 14: COLORADO DEBT PER CAPITA (REAL 2017 DOLLARS) BY TYPE, 2000-2016



Source: State Level Household Debt Statistics 1999-2016, Federal Reserve Bank of New York, May 2017.

FIGURE 15: TOTAL DEBT PER CAPITA, COLORADO AND ALL STATES (REAL 2017 DOLLARS), 2000-2016

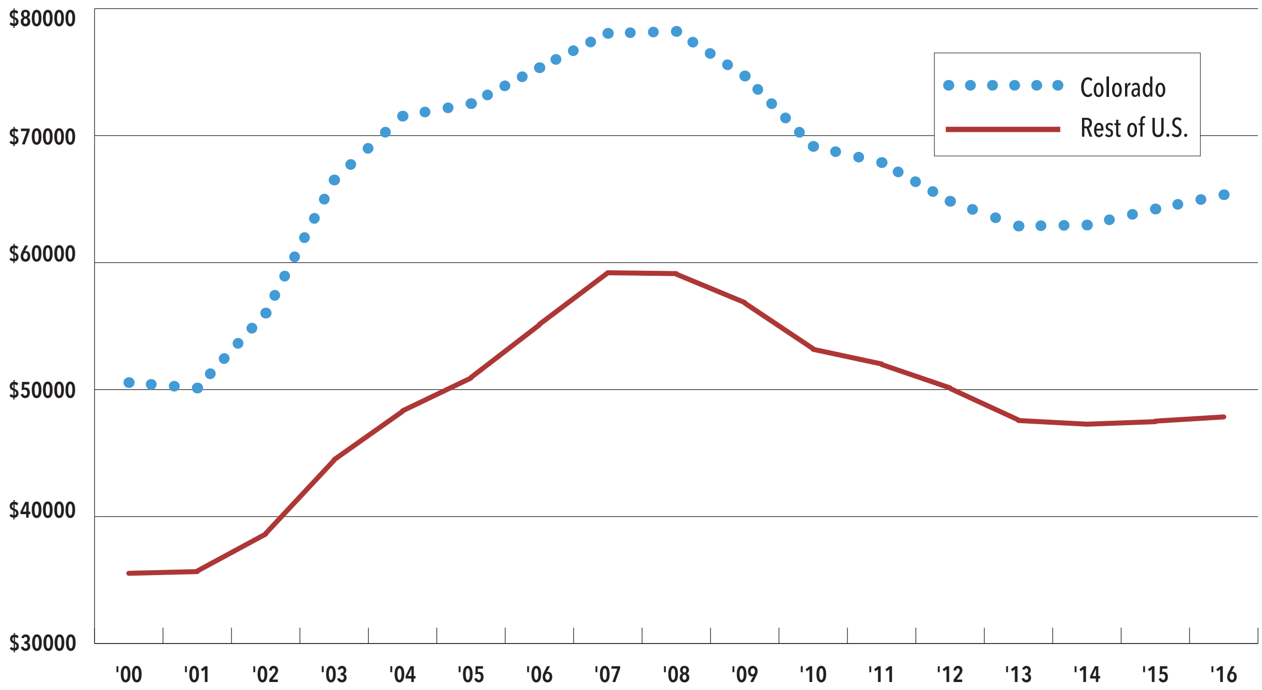
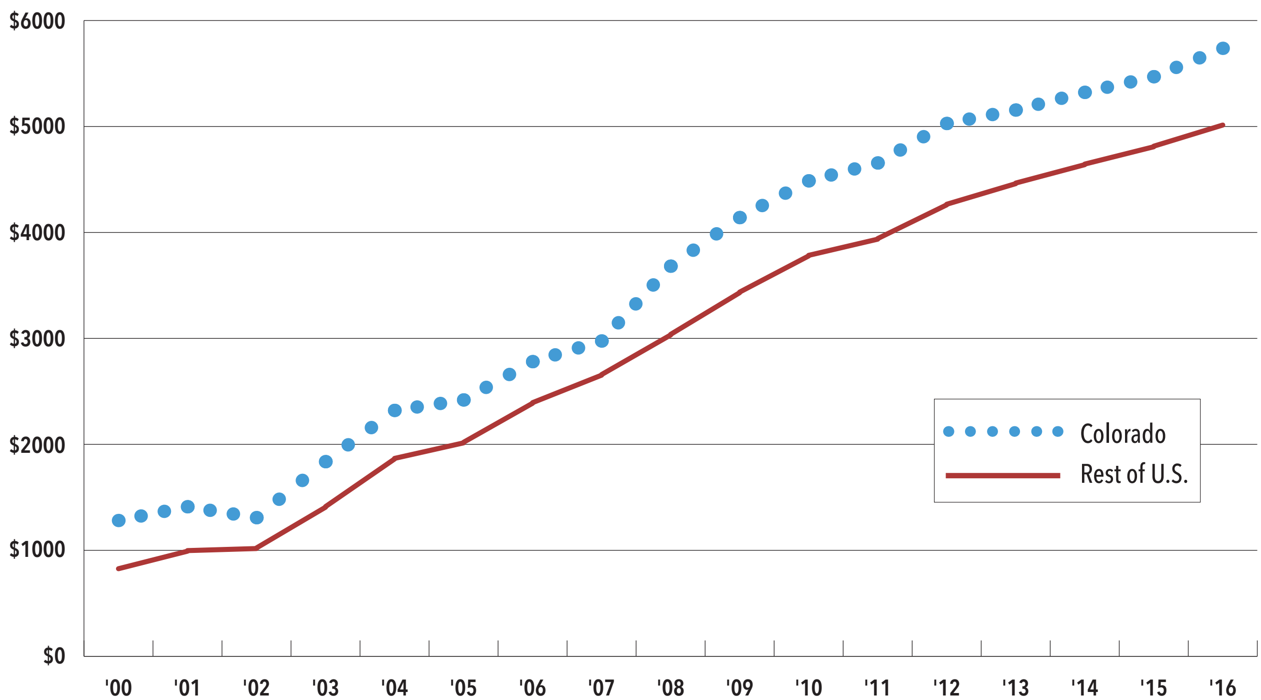


FIGURE 16: STUDENT LOAN DEBT PER CAPITA, COLORADO AND ALL STATES (REAL 2017 DOLLARS), 2000-2016

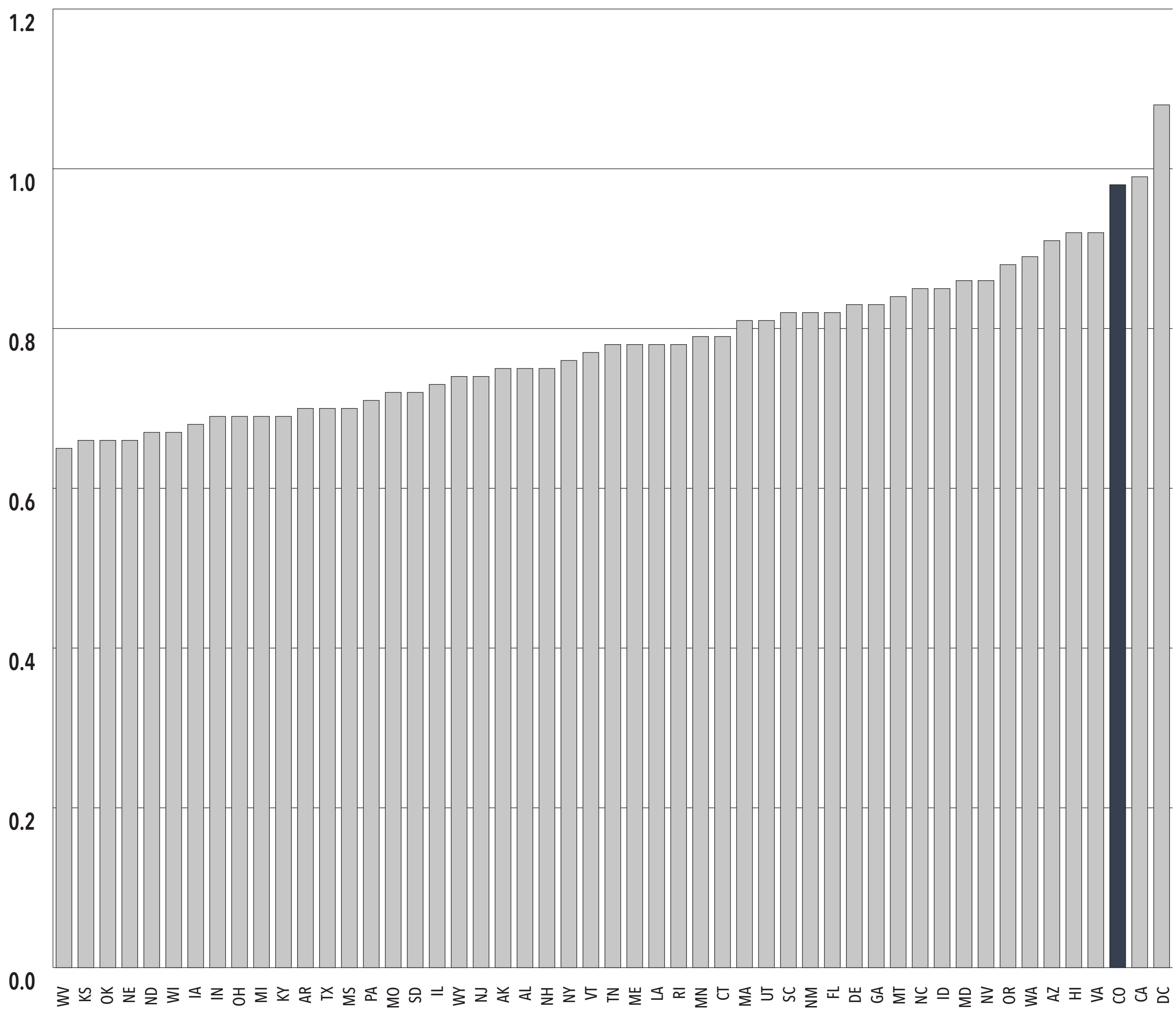


A similar story exists for student loan debt, the most rapidly growing type of consumer debt in Colorado (Figure 16). The level of student loan debt in Colorado ranks eighth compared to other states and Washington D.C.

Consumer debt levels can be compared to income levels as a proxy for dependence on borrowing. At the state level, Colorado ranks at the top of jurisdictions for total per capita debt as a percentage of median household income, trailing only Washington D.C. and California in 2016 (Figure 17).

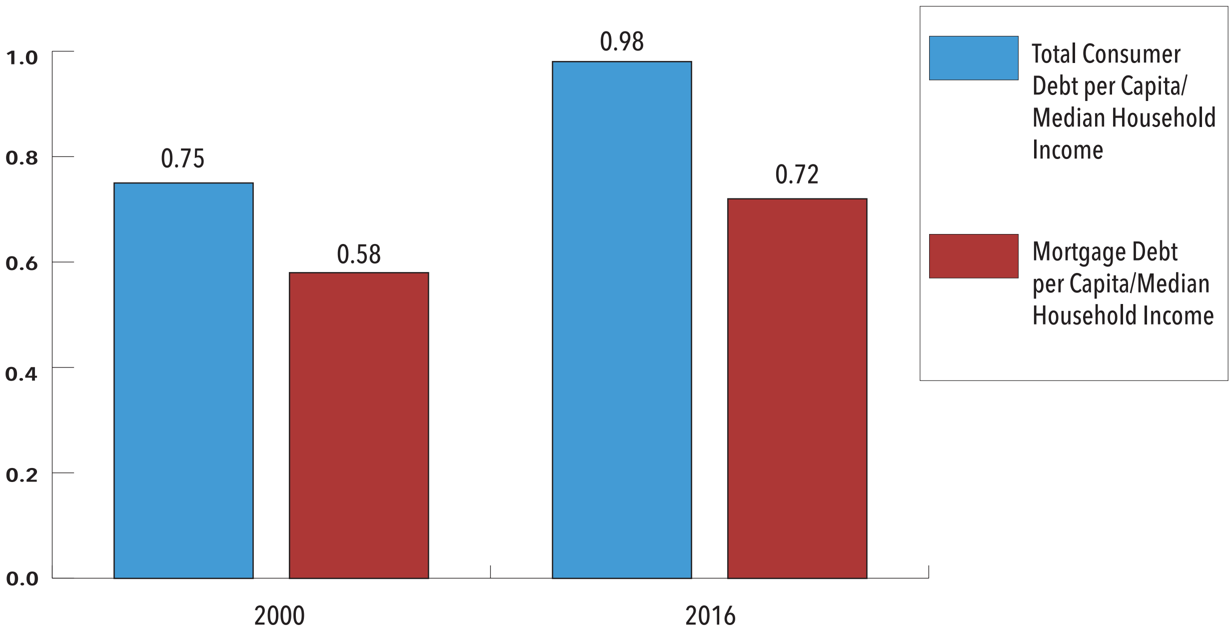
Over time, Coloradans' dependence on total debt and mortgage debt has climbed relative to household incomes (Figure 18). In 2016, per capita consumer debt was 98 percent of annual household income in Colorado. Colorado's high level of debt and debt-to-income in 2016 reinforces previous observations made by the Urban Institute.[11]

FIGURE 17: TOTAL CONSUMER DEBT PER CAPITA TO MEDIAN HOUSEHOLD INCOME BY STATE, 2016



Source: State Level Household Debt Statistics 1999-2016, Federal Reserve Bank of New York, May 2017; American Community Survey 2016 (1-year estimates).

FIGURE 18: COLORADO TOTAL CONSUMER AND MORTGAGE DEBT PER CAPITA TO MEDIAN HOUSEHOLD INCOME, 2000 AND 2016



Source: State Level Household Debt Statistics 1999-2016, Federal Reserve Bank of New York, May 2017; 2000 Census; American Community Survey 2016 (1-year estimates).

WEALTH AND THE MIDDLE CLASS [12]

Through survey data, we have a fairly clear picture of income levels among Colorado families. Family wealth is another story. Federal survey data on wealth, collected through the Survey of Consumer Finances (SCF), is unable to provide an accurate state or family composition-specific understanding of wealth. The relationship between income and wealth is critical to understand families' ability to reach aspirational levels of consumption. Wealth can be used to smooth regular consumption in periods of lower income or to fund long-term investments in capital assets (including human capital) central to traditional middle class lifestyles. Savings, typically generated from setting aside unspent annual income over time, is common for a number of reasons. Nationally in 2016, the leading reasons reported for saving were liquidity (36.2 percent), retirement (30.3 percent), purchases (12.1 percent), and education (7.2 percent).

Homeownership and the gradual building of home equity through mortgage payments and price appreciation are key sources of wealth. Home equity is accessed largely through home equity loans and cash-out mortgage refinancing. Non-wage income commonly reflects investments generating returns through dividends, interest payments, or capital gains. Such passive income provides a family additional discretionary income above and beyond current wages. Other sources of wealth like gifts or bequests from relatives are important, but more challenging to identify. Ultimately, gifted wealth is either reflected in higher spending or increased income from investments acquired with the family support.

Nationally, the 2016 SCF finds the amount of before-tax family income is 60.8 percent from wages, 13.5 percent from a business, farm, or self-employment, 13.5 percent from Social Security or retirement, 5.5 percent from capital gains, 3.4 percent from interest or dividends, and 3.3 percent from transfers or other types of income. Further, the SCF details median wealth nationally in 2016 was $21,700 for a single-adult family with children and $116,700 for a two-adult family with children.

Indicators of Colorado's Middle Class Condition

A number of measures are available to gauge the condition of the middle class over time along the dimensions of affordability, income inequality, and racial disparities. Here, we summarize a few options applied to the Colorado context.

Median Home Value to Household Income

Housing represents a major portion of families' annual spending and homeownership is traditionally an indicator of joining the middle class. One measure of the affordability of homeownership compares the median home value to the median household income. The affordability of housing is especially salient for families looking to purchase a home, although it also has implications for existing homeowners as property taxes and other costs of housing, like maintenance, rise with values.

Colorado's median home value was nearly five times median household income in 2016 and ranked seventh highest across the country (Table 16). When housing becomes less affordable, families often face an additional set of tradeoffs related to commuting distances and preferred schools. A common rule-of-thumb suggests a home is affordable if the price is less than three times a family's annual income. In Colorado, such guidance would keep the median household from purchasing a median-priced home.

Colorado's median home value was nearly five times median household income in 2016 and ranked seventh highest across the country.

TABLE 16: MEDIAN HOME VALUE TO HOUSEHOLD INCOME RATIO BY STATE, 2016

Rank	State	Median Home Value (2016)	Household Median Income (2016)	Median Home Value to Income Ratio (2016)
1	Hawaii	$592,000	$74,511	7.95
2	District of Columbia	$576,100	$75,506	7.63
3	California	$477,500	$67,739	7.05
4	Oregon	$287,100	$57,532	4.99
5	Massachusetts	$366,900	$75,297	4.87
6	New York	$302,400	$62,909	4.81
7	Colorado	$314,200	$65,685	4.78
8	Washington	$306,400	$67,106	4.57
9	Montana	$217,200	$50,027	4.34
10	Nevada	$239,500	$55,180	4.34

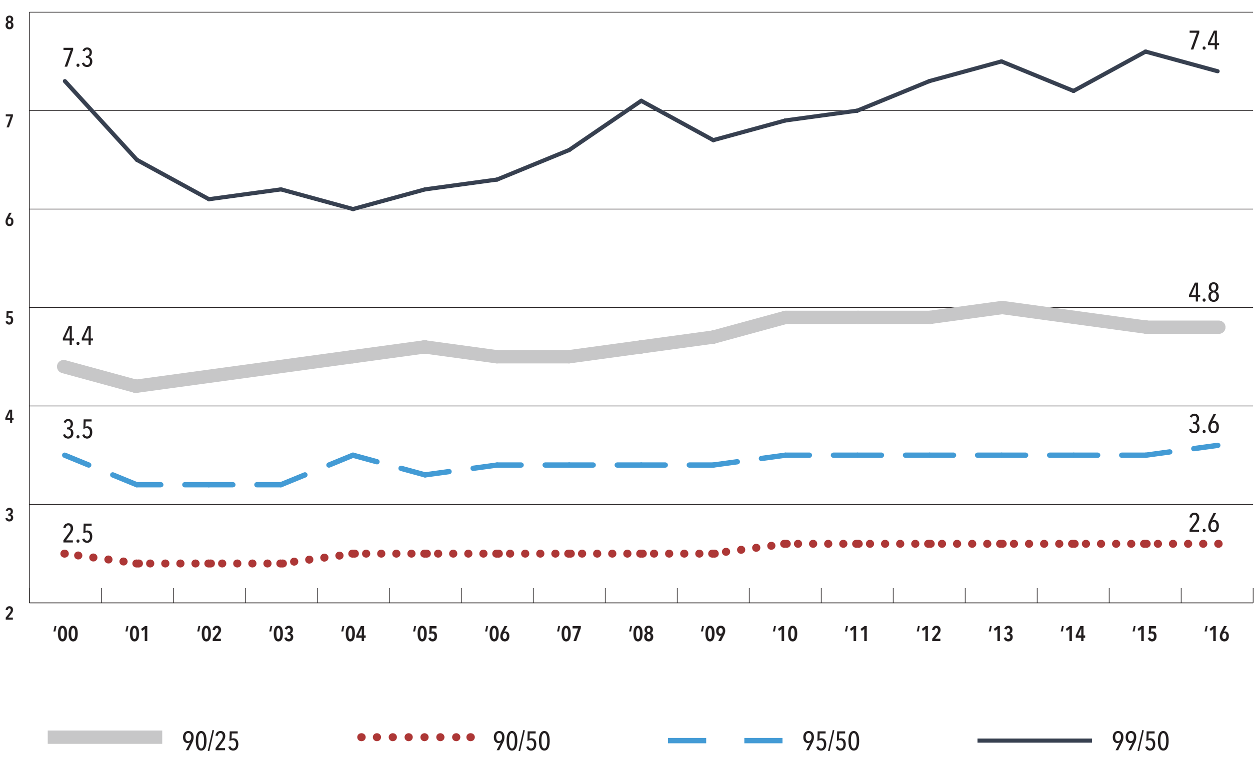
Source: 2016 ACS 1-year estimates.

Family Income Ratios

Income ratios are used to compare different population income deciles. For example, the 90-50 ratio divides the income of the family at the highest 10 percent income level by the median family income. The higher the resulting number, the larger the income gap between families at the different points in the income distribution. Visually, income ratios graphed over time illustrate the levels and changes in income disparities. Flatter lines suggest little change in the ratio over time, while an increasing line represents growing inequality.

Figure 19 presents a selection of family income ratios focused primarily on comparisons relevant to the middle income group in Colorado. The ratios have experienced fairly modest growth over the period, although the increases in ratios look more pronounced if the starting point is 2001 or 2002. The 90-25 ratio of 4.8 in 2016 represents how many times larger the family income at the 90th percentile of Colorado families is than the income of a family at the 25th percentile. The difference grew 10 percent since 2000. The 99-50 ratio tells the story that family incomes at the lowest point of Colorado's 1 percenters are 7.4 times the median family income in 2016.

FIGURE 19: FAMILY INCOME RATIOS IN COLORADO, 2000-2016



Source: Census and ACS, multiple years.

Income Group-Racial Imbalance

Uniform percentages of families in each of the three income groups (lower, middle, and upper) by race indicate a family's race is independent of the likelihood to be in any given income category. As discussed previously, only white families show a consistent, increasing share of Colorado families as we move from the lower- to upper-income groups. The difference between the actual and balanced income group distributions of families by race can be used as an indicator of economic imbalance in a state. For example, Table 17 presents the share of Colorado families classified as lower-, middle-, and upper-income by race in 2016. If being a Hispanic family was not associated with any specific income class, then the expected share of families would be 9.8 percent for each of the three income groups.

TABLE 17: FAMILY REPRESENTATION BY INCOME GROUP AND RACE IN COLORADO, 2016

	Lower	Middle	Upper	Average
Black	3.1%	2.1%	1.5%	2.2%
White	68.0%	76.4%	82.0%	75.5%
Hispanic	16.5%	8.7%	4.1%	9.8%

Source: 2016 ACS 1-year estimates.

In reality, Hispanic families are overrepresented in the lower-income group relative to their overall population share.

In reality, Hispanic families are overrepresented in the lower-income group relative to their overall population share. The degree of over or underrepresentation in any income level can be expressed as a percent. Table 18 shows Hispanic families are overrepresented by 69 percent in Colorado's lower-income group compared to share of total families. This is calculated as: (16.5 percent-9.8 percent)/9.8 percent*100.

TABLE 18: FAMILY OVER (+) OR UNDER (-) REPRESENTATION BY INCOME GROUP AND RACE IN COLORADO, 2016

	Lower	Middle	Upper
Black	+38.8%	-6.0%	-32.8%
White	-9.9%	+1.2%	+8.7%
Hispanic	+68.9%	-10.9%	-58.0%

This exercise serves two purposes. First, it illustrates the variation in economic outcomes across different racial groups. Second, the measure can be used to track imbalances over time and the efficacy of policy efforts to broaden economic opportunity. For example, the change in the racial balance of the middle-income group in Colorado can be examined over time by subtracting the 2000 under or over representation percent from the 2016 numbers as seen in Table 19.

In Colorado, self-identified black families experienced reduced representation in the middle-income group by over 7 percentage points since 2000. Alternately, there was a negligible change for white families who remain slightly overrepresented in the middle-income group in both 2000 and 2016. The underrepresentation of Hispanic families in the middle-income group declined by 2.5 percentage points over the period with the improvement coming from reduced overrepresentation in the low-income category.

Although we focus here on middle income, changes in the share of the middle-income group by race and ethnicity can come from movement either up or down the income ladder. In Colorado, equal representation across income categories for each racial group would require a shift among groups currently overrepresented in the middle- and upper-income groups.

TABLE 19: CHANGE IN FAMILY OVER (+) OR UNDER (-) REPRESENTATION BY MIDDLE-INCOME GROUP AND RACE IN COLORADO, 2000-2016

	2000	2016	Change in Middle-Income Representation
Black	+1.4%	-6.0%	-7.3%
White	+1.3%	+1.2%	0.0%
Hispanic	-13.5%	-10.9%	+2.5%

8.

Conclusions

Identifying innovative policy solutions to support the middle class begins with information and measurement. Based on our findings, targeted policies can be developed along the dimensions of 1) identifying and supporting jobs that sustain middle class lifestyles; 2) educational strategies to create pathways to the right occupations or, in the case of multi-head families, combinations of occupations; 3) addressing racial inequity; and 4) determining where the public sector can provide high return investments to ease entry into and maintain a lasting presence among the middle class.

The use of hypothetical middle class budgets tailored to the Colorado experience demonstrates living a middle class lifestyle in the state may not be as simple as earning a middle income.

The share of Colorado's families classified as middle income has declined moderately since 2000 and at a rate higher than the majority of states. Only 21 percent of middle-income families have young children living at home, suggesting middle class issues transcend the highly visible pressure points of day care and higher education and a broad range of middle income family types should be considered.

The aging of the state's middle-income population means care for older Coloradans is an increasingly important middle class focus for policymakers. Representation in the state's middle-income families is imbalanced compared to racial representation in the broader population. Higher educational attainment has become even more common among the state's middle-income families. Professional and management occupations are even more prominent in supporting Colorado's middle-income families, while we identify the specific occupations and occupation combinations most likely to provide middle class incomes. Since 2000, the heath care, education, and professional, scientific, and technical industries have become more central to middle-income families.

Family incomes and costs differ markedly across Colorado's urban and rural areas. The median family income outside MSAs is 19 percent lower, while rural costs can be well above average in resort communities and well below average in others. The population growth in Colorado leaves open the possibility the middle class is being shaped by the families who continue to move to and from the state. Upon examination, all income groups in Colorado have received more new families than have been lost to other states, but the greatest proportional gain has been among the low-income group. More recently, there appears to be an acceleration in the net in-migration of upper-income and lower-income families, and a slowdown among middle-income families.

Based on our analysis, most middle-income families with children will struggle to balance their middle class budgets without making tradeoffs that undermine saving for retirement and children's education, increase consumer debt, or require finding more affordable housing. This is especially true for families at the lower end of the middle-income range, but also for families with median incomes. One-adult, middle-income families with young children are unable to afford the middle class lifestyle captured in our budget examples.

Housing and non-aspirational costs, including child care, consume large shares of middle class budgets. Limited real income growth by Colorado families since 2000 coupled with rising housing values, health care costs, and costs of attending college has put pressure on middle-income families, despite some easing in other cost categories over time. Coping with constrained middle incomes ranges from working more to borrowing to making difficult tradeoffs among spending priorities. Colorado's middle-income families are having children later, continuing to boost family incomes with two adult wage earners, depending more heavily on female wage earners, and borrowing to support consumer purchases.

The share of Colorado's families classified as middle income has declined moderately since 2000 and at a rate higher than the majority of states.

Although per capita debt levels have moderated in recent years, the debt-to-income levels in Colorado are surprisingly high compared to the rest of the country. The public sector also plays a prominent role in nearly all the areas of a traditional middle class lifestyle. Policymakers have many levers available for supporting the aspirations of the middle class.

We have also set out a small number of performance indicators to track how the middle class fares over time in Colorado using publicly available data. The affordability of the median home to the median household ranks seventh worst in the country, a troubling statistic given the centrality of housing and homeownership to middle class aspirations. The use of hypothetical middle class budgets tailored to the Colorado experience demonstrates living a middle class lifestyle in the state may not be as simple as earning a middle income. Indeed, the middle class shrinks substantially when defined by being able to meet the costs of its aspirations.

Rising income inequality is a common narrative across the country and world, but Colorado's families have generally maintained their relative differences in real income since 2000. The size of the differentials, in their own right, may still be of interest to policymakers. The overrepresentation of minority families in the lower-income group can be tracked over time to determine whether economic mobility is available to all of Colorado's families. Given the size and importance of a vibrant middle class, its strengthening requires concerted efforts by governments, nonprofits, and the private sector. A better understanding of the aspirational tradeoffs being made by the full range of Colorado's middle-income families is crucial for designing public policies to support the middle class. However, this study could not shine a light on the sorts of tradeoffs Colorado's families make in order to attain and retain a middle class lifestyle, because such information requires a qualitative perspective lacking in federal survey data.

ABOUT THE AUTHORS

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ABOUT THE ORGANIZATIONS

University of Colorado Denver's School of Public Affairs provides practical public service education at the graduate (MPA, Executive MPA, MCJ, and PhD), undergraduate (BA in Public Service and BACJ), and professional (Certified Public Manager) levels. The Center for Local Government Research and Training supports and enhances the governance of Colorado's cities, counties, and special districts.

The Bell Policy Center provides policymakers, advocates, and the public with reliable resources to create a practical policy agenda that promotes economic mobility for every Coloradan. The Bell is committed to raising the economic floor, building a diverse and thriving middle class, and sparking innovative ideas to prepare Colorado for the future.

When the nonprofit PSL Healthcare Corporation was sold to a for-profit organization in 1985, the proceeds of the sale were used to create the Colorado Trust, a foundation dedicated exclusively to the health of the people of Colorado. Since that time, the Trust has worked closely with communities and nonprofit organizations in every county across the state to improve the health and well-being of Coloradans.

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RECOMMENDED CITATION
Todd L. Ely and Geoffrey Propheter. (July 2018). *Colorado's Middle Class Families: Characteristics and Cost Pressures*. Center for Local Government Research and Training, University of Colorado Denver.

ADDITIONAL RESOURCES

The Bell Policy Center. (2018). *Guide to Economic Mobility in Colorado*. Available at: https://www.bellpolicy.org/wp-content/uploads/2018/01/Guide-to-Economic-Mobility-FINAL.pdf

Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce. Washington, D.C.

Pew Research Center. (2015). *The American Middle Class Is Losing Ground: No longer the majority and falling behind financially*. Washington D.C.

DATA APPENDIX

1. *Primary Data Sources*

American Community Survey (ACS), 1-year and 5-year estimates (Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. *Integrated Public Use Microdata Series: Version 7.0* [dataset]. Minneapolis: University of Minnesota, 2017)

New York Federal Reserve Consumer Credit Panel/Equifax (*State Level Household Debt Statistics 1999-2016,* Federal Reserve Bank of New York, May 2017)

Consumer Expenditure Survey (Bureau of Labor Statistics, United States Department of Labor)

2. *Sampling Error*

The information presented within this report is largely generated from federal survey data. As surveys, they represent a sample of the population and therefore the information generated from the samples represent estimates prone to varied levels of error. State-level analysis uses the ACS 1-year estimates, but we occasionally use the 5-year estimates when examining sub-state geographic areas or migration patterns.

3. *Aggregating ACS/Census Data to the Family Level*

The ACS provides individual-level information for sampled households. We take a number of steps to repackage the individual observations into families. Many researchers focus on households, which are comprised of individuals living together whether related or not. Our focus on the middle class is more closely associated with the social construct of a family, although the degree of overlap with households is quite high. The ACS provides a unique year and state-specific household identifier (SERIAL), and respondents are also asked to disclose their family income (FTOTINC). Using a combination of variables named YEAR, STATEFIP, SERIAL, FTOTINC, we transformed households into families. Thus, for example, a household with two renters are treated as two distinct families.

We further identify types of familial compositions based upon the self-reported relationship to the household head. For example, roommates, boarders, and lodgers 18 years old or older without children were treated as single adults. As a general rule, we categorized any household members with identical FTOTINC as a family, because it was assumed the respondents perceived themselves as a single family unit. In addition, any individual under the age of 18 is considered a child within the family unit.

4. *Inflation Adjustment*[1]

The growth in prices of goods and services is referred to as inflation, whereas deflation is a decline in prices over time. The old saying that "a dollar isn't what it used to be" captures the fact that a dollar today typically has less purchasing power, the ability to buy goods and services, than it did in the past. Inflationary pressures mean a family can maintain stable income and still fall short of the resources needed to continue supporting their lifestyle at past levels. Accounting for the impact of price changes is essential when comparing family incomes over a number of years. A variety of indices capture month-to-month and year-to-year price changes and serve as the basis for adjusting nominal (current) to real (constant) dollars. The most commonly used index for inflation adjustment is the Consumer Price Index (CPI), available from the Bureau of Labor Statistics. In this report, we use the CPI-U to present all amounts in constant 2016 dollars unless otherwise noted. That means, for example, the inflation-adjusted median income for a family in the year 2000 can be compared directly to the median income for a similar family in the year 2016.

5. *Budget Costs Methodology and Assumptions*

The following tables present details underlying the report's middle class budgets presented in the report. Our budget estimates differ in a few noteworthy ways from those produced by the Office of the Vice President's Middle Class Task Force.[2] We use actual housing costs and values in Colorado from the ACS based on different middle-income levels of families, rather than assigning all residual income after other expenses to housing. We also nearly double the needed college savings for families with two school-age children and don't defer college savings for one school-age child when the other child is in daycare or preschool.

1 This description of inflation adjustment borrows from: Mary E. Guy and Todd L. Ely. (2018). *Essentials of Public Service: An Introduction to Contemporary Public Administration*. Melvin & Leigh, Publishers: Irvine, CA.

2 Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce.

Table A1: Annual Homeownership Costs, 2016

Housing - Homeowner	**Two-parent, two-child families by middle income level**			**Two-parent, one-child families by middle income level**			**One-parent, two-child families by middle income level**		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Median home value	$295,000	$380,000	$480,000	$250,000	$350,000	$440,000	$175,000	$275,000	$400,000
Annual spending including:	$19,600	$25,000	$31,300	$17,200	$22,800	$28,400	$14,900	$19,800	$26,300
Mortgage payments (1st & 2nd)	Included in above annual spending								
Property tax									
Homeowners insurance									
Utilities (electricity, gas, water, fuel)									
Homeowners Association (HOA) fees									
Maintenance (1 percent of home value)	$2,950	$3,800	$4,800	$2,500	$3,500	$4,400	$1,750	$2,750	$4,000
Total annual cost	**$22,550**	**$28,800**	**$36,100**	**$19,700**	**$26,300**	**$32,800**	**$16,650**	**$22,550**	**$30,300**

Table A2: Annual Home Rental Costs, 2016

Housing - Renter	**Two-parent, two-child families by middle income level**			**Two-parent, one-child families by middle income level**			**One-parent, two-child families by middle income level**		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Rent price (annual)	$16,100	$19,400	$23,400	$15,000	$18,800	$21,600	$12,600	$16,400	$21,200
Maintenance, repairs, insurance, and other expenses (0.93 percent of rent)	$150	$180	$218	$140	$175	$201	$117	$153	$197
Utilities (27.43 percent of rent)	$4,416	$5,321	$6,419	$4,115	$5,157	$5,925	$3,456	$4,499	$5,815
Total rental costs:	**$20,666**	**$24,902**	**$30,036**	**$19,254**	**$24,132**	**$27,726**	**$16,173**	**$21,051**	**$27,212**

Methodology: The 2016 ACS provides the median annual spending on housing by family composition. For homeowners, the annual spending figure includes mortgage payments, property tax, homeowners insurance, utilities (electricity, gas, water, fuel), and Homeowners Association fees. Annual home maintenance costs are assumed at 1 percent of the median home value. For renters, the reported median rent is used. Additional costs may include minor maintenance, utilities and renters insurance, which are captured as a percentage of rent using the 2016 Consumer Expenditure Survey. To provide variation in housing costs and values at the edges of the middle income range (those with two-thirds and two times the median), we use the 25th and 75th percentile of costs and values by family type, respectively.

Table A3: Annual Health Care Costs, 2016

Health Care	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Family premiums (annual)	$4,822	$4,822	$4,822	$4,822	$4,822	$4,822	$1,385	$1,385	$4,822
Out-of-pocket costs (share of income)	2%	2%	2%	2%	2%	2%	1.6%	1.6%	1.6%
Total annual cost	**$6,198**	**$6,886**	**$8,950**	**$6,049**	**$6,662**	**$8,502**	**$1,840**	**$2,068**	**$6,188**

Note: Shaded cells represent families where children are assumed to participate in CHP+, which provided insurance to children in Colorado families with income up to 260 percent of the federal poverty level as of April 2016 ($52,416 annually for a three-person family).

Methodology: In 2016, the average employee-paid health insurance premium was $4,822 for family health insurance coverage in Colorado. Employee-only coverage was $1,385.[3] Although we assume that middle class families benefit from employer-provided health insurance plans, there are still out-of-pocket medical expenses beyond premiums in the form of copays, deductibles, and other health-related expenses not covered by insurance. Out-of-pocket costs are estimated based on family composition and income based on average reported expenditures on 'Medical services', 'Drugs', and 'Medical supplies' in the Consumer Expenditure Survey. Combined, these items represent 2 percent and 1.6 percent of income for married couples with children and single parents with at least one child, respectively.[4] The assumption of employer-provided health insurance may seem unrealistic to some, but the ACS data show that only 3.1 percent of Colorado's middle class families were without health insurance. A growing number of middle class families, 14 percent, did receive health insurance from a source other than their employer in 2016.

Table A4: Annual Car Ownership Costs, 2016

Automobile Ownership	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Miles per adult (annually)	12,825	12,825	12,825	12,825	12,825	12,825	12,825	12,825	12,825
Car type	compact	midsize	full-size	compact	midsize	full-size	compact	compact	midsize
New car purchase price	$20,535	$25,194	$34,590	$20,535	$25,194	$34,590	$20,535	$20,535	$25,194
Taxes (one-time)	$1,544	$1,895	$2,601	$1,544	$1,895	$2,601	$1,544	$1,544	$1,895
Specific ownership tax	$205	$252	$346	$205	$252	$346	$205	$205	$252
License and registration (one-time)	$100	$100	$100	$100	$100	$100	$100	$100	$100
License fee (annual)	$50	$50	$50	$50	$50	$50	$50	$50	$50
Annual loan payment	$3,064	$3,755	$5,150	$3,064	$3,755	$5,150	$3,064	$3,064	$3,755
Insurance	$1,169	$1,208	$1,288	$1,169	$1,208	$1,288	$1,169	$1,169	$1,208
Per mile operating costs	$1,589	$1,885	$2,189	$1,589	$1,885	$2,189	$1,589	$1,589	$1,885
Number of cars	2	2	2	2	2	2	1	1	1
Total car expenses (annual)	**$11,743**	**$13,797**	**$17,355**	**$11,743**	**$13,797**	**$17,355**	**$5,872**	**$5,872**	**$6,899**

Methodology: A car for each adult in the family is purchased at the average end-of-2016 sale price.[5] The type of car is adjusted to the family

3 See, "Table II.D.2 Average total employee contribution (in dollars) per enrolled employee for family coverage at private-sector establishments that offer health insurance by firm size and State: United States, 2016" and "Table II.C.2 Average total employee contribution (in dollars) per enrolled employee for single coverage at private-sector establishments that offer health insurance by firm size and State: United States, 2016", Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends. *2016 Medical Expenditure Panel Survey-Insurance Component*.

4 See, Consumer Expenditure Survey, U.S. Bureau of Labor Statistics, August, 2017. "Table 1502. Composition of consumer unit: Annual expenditure means, shares, standard errors, and coefficients of variation, Consumer Expenditure Survey, 2016".

5 Kelley Blue Book. (February 1, 2017). "New-Car Transaction Prices Remain High, Up More Than 3 Percent Year-Over-Year In January 2017".

income level. The purchase is made with a 10 percent down payment and the remainder financed with an annual interest rate of 4.6 percent (the average rate for new car loans in 2016).[6] The loan rate is for a five-year term, but loan repayment is extended to eight years to better represent the annual costs of purchase over the life of the car. Car purchase requires payment of sales tax, averaging 7.52 percent. Registration and license fees differ by county, but are approximated based on online fee calculators of a sample of counties. Specific ownership taxes are applied using the average of the tax over the first eight years of ownership. Insurance costs come from the American Automobile Association (AAA) by type of car. The average licensed driver in Colorado travelled 12,825 vehicle miles in 2016, which is the basis for a number of operating costs.[7] Per mile costs for gas, maintenance, tires, and insurance for each car type come from the AAA.[8]

Table A5: Annual College Savings Costs, 2016

College Savings (starting at age 5)	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Annual costs									
Tuition and fees	$9,128	$9,128	$9,128	$9,128	$9,128	$9,128	$9,128	$9,128	$9,128
Room and board	$8,600	$8,600	$8,600	$8,600	$8,600	$8,600	$8,600	$8,600	$8,600
Books	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250	$1,250
Transportation	$1,160	$1,160	$1,160	$1,160	$1,160	$1,160	$1,160	$1,160	$1,160
Other expenses	$2,110	$2,110	$2,110	$2,110	$2,110	$2,110	$2,110	$2,110	$2,110
Less: Average grant & scholarship aid	$6,740	$3,440	$2,150	$6,740	$3,440	$2,150	$10,390	$9,840	$3,440
Total	$15,508	$18,808	$20,098	$15,508	$18,808	$20,098	$11,858	$12,408	$18,808
Annual cost growth rate	5%	5%	5%	5%	5%	5%	5%	5%	5%
Annual investment growth rate	6%	6%	6%	6%	6%	6%	6%	6%	6%
Years of college to be funded (75 percent)	3	3	3	3	3	3	3	3	3
Total annual college savings (per child):	**$4,225**	**$5,124**	**$5,476**	**$4,225**	**$5,124**	**$5,476**	**$3,231**	**$3,381**	**$5,124**

Methodology: College savings are calculated annually for families to support children attending an in-state, four-year public institution. We assume that saving begins when a child starts kindergarten and fund three of the four years of costs. Following previous work, we adjust room and board costs to reflect that the average student lives at home for one year of school.[9] Grants lower the cost of attendance and are tied to family income. Tuition and fees are assumed to grow at a rate of 5 percent annually based on the growth rate in Colorado since 2012-13. Tuition and fees and room and board figures come from the U.S. Department of Education.[10] Books, transportation, and other expenses are from national averages reported by The College Board.[11] College savings are invested monthly and grow at a 6 percent annual rate. We account for gaps in the ages of a family's children and the higher potential of financial aid with more than one child by increasing the amount to be saved annually by less than double, 1.75 times, the amount for one child.

6 Board of Governors of the Federal Reserve System. Credit Historical Data. "Consumer Credit - G.19. Consumer Terms of Credit at Commercial Banks and Finance Companies".

7 U.S. Department of Transportation Federal Highway Administration. (September 2017). Highway Statistics 2016. "Table VM-2" and "Tale DL-22".

8 American Automobile Association (AAA). (2016). *Your Driving Costs 2016 Edition*.

9 Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce.

10 U.S. Department of Education. National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 'Spring 2011 and Winter 2014-15 through Winter 2016-17, Student Financial Aid component' and 'Fall 2014 and Fall 2015, Institutional Characteristics component; and Spring 2015 and Spring 2016, Fall Enrollment component'.

11 The College Board. (2016). *Trends in College Pricing 2016*.

Table A6: Annual Child Care Costs, 2016

Child Care (preschool/ daycare)	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Center-based child care in Colorado (monthly average, 2016)	-	$936	$936	-	$936	$936	-	-	$936
Home-based child care in Colorado (monthly average, 2016)	$728	-	-	$728	-	-	$728	$728	-
Total child care costs per child:	**$8,735**	**$11,229**	**$11,229**	**$8,735**	**$11,229**	**$11,229**	**$8,735**	**$8,735**	**$11,229**

Methodology: We use estimates for the cost of annual home and center-based child care in Colorado during 2016. The annual cost of center-based infant care was $15,138 and $11,229 for a four year-old.[12] We use the lower four year-old child care costs in our middle class budget estimates, although the high cost of providing care to infants and multiple children is apparent. Additional childcare costs exist for families even after children begin school, including before and after-school care and holiday/vacation day care depending on the number of working adults in the family. To validate our child care cost estimates, we use information from the 2015 Colorado Child Care Market Rate Study (see, 'Table 15. State-level prices for full-time daily care: Child care centers, family day care homes, and school-age child care').[13] The daily state-level price for full-time center-based care at the 75th percentile of the market is converted to an annual amount for both an infant and four year-old child. The annual costs are $17,630 for infant care and $13,310 for four year-old care. These estimates are expectedly higher than those we collect from Child Care Aware of America, since they focus on the 75th percentile of the market. We use the lower, average estimates in our middle class budget. We also use the lower cost option of home-based child care, $8,735 per four year-old child annually, for those middle-income families with incomes at two-thirds of the median family.

Table A7: Annual Vacation Costs, 2016

Vacation Spending	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Bureau of Labor Statistics (BLS) method (3 percent income share)	$2,064	$3,096	$6,192	$1,840	$2,760	$5,520	$854	$1,281	$2,562
Department of Commerce method (Disney, adjusted for inflation, family size, and income)	$2,186	$3,279	$6,559	$1,640	$2,459	$4,919	$820	$1,230	$2,459
AmEx survey (1 trip every 2 years, scaled to income/# adults)	$1,641	$2,462	$4,924	$1,231	$1,847	$3,693	$821	$1,231	$2,462
Total annual cost (BLS method)	**$2,064**	**$3,096**	**$6,192**	**$1,840**	**$2,760**	**$5,520**	**$854**	**$1,281**	**$2,562**

Methodology: Determining either an average or aspirational level of vacationing is challenging. Although dated, a report from the Bureau of Labor Statistics (BLS) notes that vacation spending represented 3 percent of household expenditures in 2008. Although the reported $1,415 in annual spending has grown due to inflation over time, the share of spending can be used with today's income levels.[14] Alternately, the U.S.

12 Child Care Aware of America. (2017). *State Fact Sheets: Colorado Cost of Child Care*. Available at: https://usa.childcareaware.org/wp-content/uploads/2017/11/Colorado2017.pdf

13 Erika Moldow, Christine Velez, Tracey O'Brien, Bonnie Walters, Rose Krebill-Prather, and Barbara Lepidus Carlson. (2015). *2015 Colorado Child Care Market Rate Study*. University of Colorado Denver: The Evaluation Center, School of Education and Human Development.

14 Bureau of Labor Statistics. (July 2010). *Spotlight on Statistics: Travel*. Available at: https://www.bls.gov/spotlight/2010/travel/

Department of Commerce used a range of aspirational vacation spending in their 2010 report on the middle class.[15] Specifically, they estimated that two-adult, two-child families would adjust vacation spending based on income levels and benchmarked vacation costs for the median income family by pricing a week-long Disney World vacation. We adjust their numbers to 2016 dollars and size for our selected family compositions and income levels. American Express also conducts semiannual surveys of consumer travel spending covering the holiday and summer travel seasons. In 2016, the average person reported plans to spend $941, or $3,764 for a family of four, on summer leisure travel.[16] The 2016 survey finds average holiday vacation expenses of $1,521 per person, or $6,084 for a four-person family.[17] The different approaches generate similar annual spending on vacations. We use the 3 percent share of income from the BLS as our guide to spending, since it makes fewer assumptions about the frequency and nature of families' vacations.

Table A8: Annual Retirement Savings Costs, 2016

Retirement Savings	Two-parent, two-child families by income level			Two-parent, one-child families by income level			One-parent, two-child families by income level		
Income level	$68,800	$103,200	$206,400	$61,333	$92,000	$184,000	$28,467	$42,700	$85,400
Rate of return on savings	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Salary growth (annual)	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%
Life expectancy at 65 (average)	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45	19.45
Social Security replacement ratio (estimated)	0.31	0.27	0.19	0.31	0.28	0.21	0.44	0.38	0.28
Total working years	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00	43.00
Years to retirement (age 40)	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Replacement rate (50 per-cent) less Social Security	0.19	0.23	0.31	0.19	0.22	0.29	0.06	0.12	0.22
Total annual cost	**$1,935**	**$3,479**	**$9,481**	**$1,679**	**$2,993**	**$7,856**	**$243**	**$767**	**$2,716**
Annual savings (percent of income)	2.8%	3.4%	4.6%	2.7%	3.3%	4.3%	0.9%	1.8%	3.2%

Methodology: The Social Security Administration (SSA) suggests "a common rule of thumb is that total retirement income—Social Security plus pensions, asset income, and other sources—should replace about 70 percent of preretirement earnings. Financial advisors' recommendations of a 70 percent replacement rate are generally measured against final earnings."[18] We follow the Department of Commerce approach by assuming that employers contribute to an employer-provided retirement plan (e.g., 401k, 403b, defined-benefit pension) and therefore use a lower self-funded replacement rate of 50 percent.[19] We determine how much savings is needed annually to provide sufficient retirement income for annual income totaling 50 percent of a family's final income including estimated Social Security replacement rates.[20] The parameters for the retirement savings estimates include a rate of return for savings of 6 percent annually, annual rate of salary increase of 2.34 percent (average growth in wages based on the Average Wage Indexing Series by Social Security Administration from 2007 to 2016), retirement at age 65 following 43 years of work and savings, and an average life expectancy at retirement of 19.45 years (18.2 years for males and 20.7 years for females). Our estimates are only approximations of future Social Security estimates and ignore the more complex situation in families with more than one working adult and other sources of retirement savings like employer contributions to workplace retirement plans.

15 Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce.

16 Ebiquity. (December 2016). "Jingle All the Way Home and Abroad: Holiday Travel Spend More than Doubles". *The American Express Spending & Saving Tracker*. Available at: http://about.americanexpress.com/news/sst/report/2016-12_Spend-and-Save-Tracker.pdf

17 Ebiquity. (May 2016). "Pack Your Bags, America: 8 in 10 to Travel this Summer". *The American Express Spending & Saving Tracker*. Available at: http://about.americanexpress.com/news/sst/report/2016-05_Spend-and-Save-Tracker.pdf

18 Andrew G. Biggs and Glenn R. Springstead. (2008). "Alternate Measures of Replacement Rates for Social Security Benefits and Retirement Income". *Social Security Bulletin*, Vol. 68, No. 2.

19 Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce.

20 Social Security replacement ratios are based on benefits presented for various scaled wage levels in *The 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. See, Table V.C7.

Table A9: Annual Non-Aspirational Costs, 2016

Food, Clothing, and Miscellaneous Spending	**Two-parent, two-child families by income level**			**Two-parent, one-child families by income level**			**One-parent, two-child families by income level**		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Share of income toward:									
Food	$8,875	$12,694	$20,846	$7,912	$11,960	$22,816	$3,957	$5,850	$11,102
Utilities, fuels, and public services	included in homeownership/rental costs								
Household operations	$1,445	$2,580	$6,192	$1,288	$1,932	$4,784	$655	$897	$1,793
Housekeeping supplies	$826	$1,238	$1,445	$736	$1,012	$2,024	$370	$598	$939
Household furnishings and equipment	$2,133	$3,612	$7,224	$1,901	$2,852	$6,256	$797	$1,366	$2,647
Apparel and services	$2,133	$2,993	$6,811	$1,901	$2,852	$6,256	$854	$1,366	$2,647
Entertainment	$3,646	$5,366	$10,733	$3,251	$4,876	$9,936	$1,366	$1,922	$4,526
Personal care products and services	$826	$1,342	$2,270	$736	$1,104	$2,392	$370	$512	$1,025
Miscellaneous	$1,307	$1,754	$2,890	$1,165	$1,196	$2,576	$427	$982	$1,110
Total costs:	**$21,190**	**$31,579**	**$58,411**	**$18,891**	**$27,784**	**$57,040**	**$8,796**	**$13,493**	**$25,791**

Methodology: The Consumer Expenditure Survey is used to find the average share of income by income range directed towards 'Food,' 'Household operations,' 'Housekeeping supplies,' 'Household furnishings and equipment,' 'Apparel and services,' 'Entertainment,' 'Personal care products and services,' and 'Miscellaneous.'[21] We use the shares for 'Married couple with children – Oldest Child 6 to 17' and 'One parent, at least one child under 18' to capture the importance of family composition for spending patterns.

21 Consumer Expenditure Survey, U.S. Bureau of Labor Statistics. (August 2017). "Table 1502. Composition of consumer unit: Annual expenditure means, shares, standard errors, and coefficients of variation, Consumer Expenditure Survey, 2016."

Table A10: Annual Taxes on Income, 2016

Income Taxes	**Two-parent, two-child families by income level**			**Two-parent, one-child families by income level**			**One-parent, two-child families by income level**		
Income level	**$68,800**	**$103,200**	**$206,400**	**$61,333**	**$92,000**	**$184,000**	**$28,467**	**$42,700**	**$85,400**
Average federal rate	4.47%	7.98%	17.79%	5.80%	8.87%	17.16%	-16.53%	0.27%	10.31%
Average state rate	2.69%	3.34%	3.98%	2.76%	3.38%	4.01%	-0.06%	2.21%	3.47%
FICA rate	7.65%	7.65%	7.49%	7.65%	7.65%	7.65%	7.65%	7.65%	7.65%
Total tax rate	14.81%	18.97%	29.26%	16.22%	19.90%	28.82%	-8.94%	10.13%	21.43%
Itemized deductions (average)	$(333)	$(727)	$(2,779)	$(337)	$(725)	$(2,764)	$(417)	$(473)	$(1,896)
Total annual cost	**$9,855**	**$18,845**	**$57,616**	**$9,609**	**$17,587**	**$50,261**	**$(2,962)**	**$3,851**	**$16,403**

Methodology: A 2016 tax year income tax simulation was performed for each family type and middle-income level (two-thirds of median, median, and double median) using Internet TAXSIM Version 27 (accessible at: http://users.nber.org/~taxsim/taxsim27/). Colorado's state income tax system applies a flat rate of 4.63 percent to taxpayers' federal taxable income. Payroll taxes include contributions to Medicare and Social Security, collectively referred to as FICA, and are applied at a rate 7.65 percent paid by each the employee and employer on wage income. The Social Security share of contributions phases out at higher income levels ($118,500 in 2016). We attribute the income to one of the adults in two-adult families, rather than basing the allocation of income among working adults in a family based on the actual reported income in the ACS (which approximates a 60 percent to 40 percent split). Splitting the income increases taxes for only the highest middle-income earners by avoiding the phase-out range for Social Security contributions. The income taxes owed are then adjusted to reflect the likelihood and average amount of itemized deductions based on IRS Statistics of Income data.[22] A handful of local governments in Colorado, including Denver, Aurora, Glendale, Greenwood Village, and Sheridan, apply a monthly Occupational Privilege Tax (OPT) for each worker in their jurisdiction. The employee-paid OPT amounts range from $2 per month in Aurora and Greenwood Village to $5.75 per month in the City and County of Denver. The OPT is omitted from the tax costs, since it is relatively minor and not incurred by all employees in Colorado. Sales and use taxes are reflected in the other cost categories as they are captured by the Consumer Expenditure Survey spending share figures.

22 IRS, Statistics of Income Division. (August 2017). Individual Master File System.

Endnotes

1 Brian W. Cashell. (2007). *Who are the "middle class"?* (RS22627). Washington D.C.: Congressional Research Service.

2 For a detailed discussion of defining middle class, see: Richard V. Reeves, Katherine Guyot, and Eleanor Krause. (May 7, 2018). *Defining the middle class: Cash, credentials, or culture?* Brookings. Available at: https://www.brookings.edu/research/defining-the-middle class-cash-credentials-or-culture/

3 Income and demographic data for Colorado families come from the American Community Survey and Census made available as the Integrated Public Use Microdata Series from the University of Minnesota. For details, see the appendix.

4 Colorado State Demography Office. (2016). *Aging in Colorado Part 1: Why is Colorado Aging So Quickly?* Available at: https://demography.dola.colorado.gov/crosstabs/aging-part-1/

5 Colorado State Demography Office. (2018). *Colorado population growth, components of change*. Available at: https://demography.dola.colorado.gov/data/

6 In order to generate a more accurate picture of family migration patterns, family data were culled from the 5-year American Community Survey instead of the 1-year survey used in the rest of this report.

7 Office of the Vice President's Middle Class Task Force. (2010). *Middle Class in America*. U.S. Department of Commerce, p. 4.

8 Anna Brown. (February 4, 2016). "What Americans say it takes to be middle class." Pew Research Center. Available at: http://www.pewresearch.org/fact-tank/2016/02/04/what-americans-say-it-takes-to-be-middle class/

9 Board of Governors of the Federal Reserve System. (May 2017). *Report on the Economic Well-Being of U.S. Households in 2016*.

10 Liz Farmer. (August 2017). "Legal or Not, States Forge Ahead With 401(k)-for-Everyone Plans." *Governing*. Available at: http://www.governing.com/topics/mgmt/gov-401k-states-retirement-private.html

11 Caroline Ratcliffe, Brett Theodos, Signe-Mary Mckernan, Emma Kalish, John Chalekian, Peifang Guo, and Christopher Trepel. (July 2014). *Debt In America*. Urban Institute.

12 The statistics in this section come from: Federal Reserve Board. (October 31, 2017). Survey of Consumer Finances - Estimates inflation-adjusted to 2016 dollars. "Table 3. Reasons respondents gave as most important for their families' saving, distributed by type of reason, 1989–2016 surveys," "Table 2. Amount of before-tax family income, distributed by income sources, by percentile of net worth, 1989–2016 surveys," and "Table 4. Family net worth, by selected characteristics of families, 1989–2016 surveys."