COLORADO BUSINESS REVIEW

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The Key to Prosperity

It's the Billion Dollar Question: What Is the Key to Securing Economic Prosperity?

Brooke Fox

In his keynote address at the 50th annual Colorado Business Economic Outlook Forum on December 8, **Dan Caruso** gave his input on the topic. Caruso is the co-founder, chairman, and CEO of Zayo Group, a startup founded in 2007. Zayo is now a $7 billion publicly traded global company that provides bandwidth infrastructure services to clients ranging from major wireless carriers to internet content providers.

Caruso argues that entrepreneurship is the key to prosperity because of the economic activity that it drives.

How does entrepreneurship spur economic activity? In Caruso's opinion, it starts with an entire community embracing entrepreneurship and rejecting the notion that entrepreneurship only applies to startups. For Caruso, entrepreneurship is an inclusive term that touches every aspect of a community.

This opportunistic attitude encourages small startups to develop within the community and across multiple industries. While there is sometimes an emphasis on the technology industry specifically, startups across all industries have potential to become successful companies that have many positive impacts on the communities that they serve.

The potential for great success starts to become apparent when a startup reaches the gazelle phase. A company becomes a gazelle when it begins to emerge as an extremely fast-growing company and begins to take hold in a larger market. Caruso uses the examples Front Range companies Datalogix and SendGrid as gazelles that are gaining momentum.

Fast-growing companies are attractive to other companies, so what often happens next for these gazelles is that they are bought by larger companies. Twitter, Google, and Comcast are large businesses that are well known for acquiring small startups. Frequently, these strategic exits will have several economically beneficial results; the larger company will often set up a new headquarters and hire the startup's employees and grow the headcount, thereby creating jobs and contributing to the economic activity of the community.

At this point, the company becomes a scale-up. Scale-ups drive economic development through continued growth and company expansion. Examples of scale-ups on the Front Range include Chipotle, ViaWest, and Noodles and Company. When a startup has progressed through these stages, it is often the case that the company becomes an industry leader. As Caruso points out, new sectors such as natural food and all-in energy are areas that are currently seeing Colorado startups give direction to others in the field. Justin's and Cool Planet Energy Systems are two companies that are leading these new industries.

According to Caruso, the most successful businesses of our time are the ones that keep a mentality of entrepreneurship, such as Amazon

CONTINUED ON PAGE 12

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Summary of Forecast

Employment Growth from 2013–2015 Fastest Since 2000

From the Editor

As highlighted at the 50th annual Colorado Business Economic Outlook Forum held on December 8 in Denver, employment growth is expected in both goods- and services-producing sectors in 2015. The half-day event featured an employment forecast for 13 industry sectors and a keynote by Dan Caruso, co-founder, chairman, and CEO of Zayo Group. Three industry breakout sessions and a CEO panel rounded out the afternoon. Summaries of the day's proceedings are featured in this issue of the *CBR*. For additional details, visit leeds.colorado.edu/brd.

Richard Wobbekind

The following observations summarize the thoughts of the Colorado Business Economic Outlook committee members as of early December for 2015.

Job growth in 2014 will mark the best employment growth Colorado has seen since 2000. In fact, 2013, 2014, and 2015 will be the three best years for the state since the start of the century. Colorado added 68,100 jobs in 2013, accelerating to 72,900 jobs added in 2014. Job growth will remain positive in 2015, with a slight deceleration in new jobs (61,300, 2.5%).

Over the past 10 years, goods-producing industries lost a net 5,700 jobs, while services-producing industries gained 280,000 jobs. Both goods- and services-producing sectors are anticipated to add workers in 2015. Notably, no industry is expected to lose jobs in 2015 in Colorado.

The goods-producing sectors will increase their employment base in 2015.

Agriculture—Despite a setback in revenue and farm income in 2013, new records were achieved in 2014 and are projected for 2015 on steady crop valuations and growing livestock values.

Construction—Benefiting from economic growth that exceeds that in most other states, the construction industry continues to claw back from the recession, with building permits, value of construction, and employment increasing year-over-year but still recording below-peak levels. Total value of Construction is estimated to rise 11.5% in 2015, to $13.4 billion. The largest increase is attributable to residential construction, which will grow nearly $900 million in 2015. A total of 32,000 housing permits are expected for the year, with an increase in single-family permits year-over-year. Overall, employment will increase an estimated 6,000 jobs in 2015.

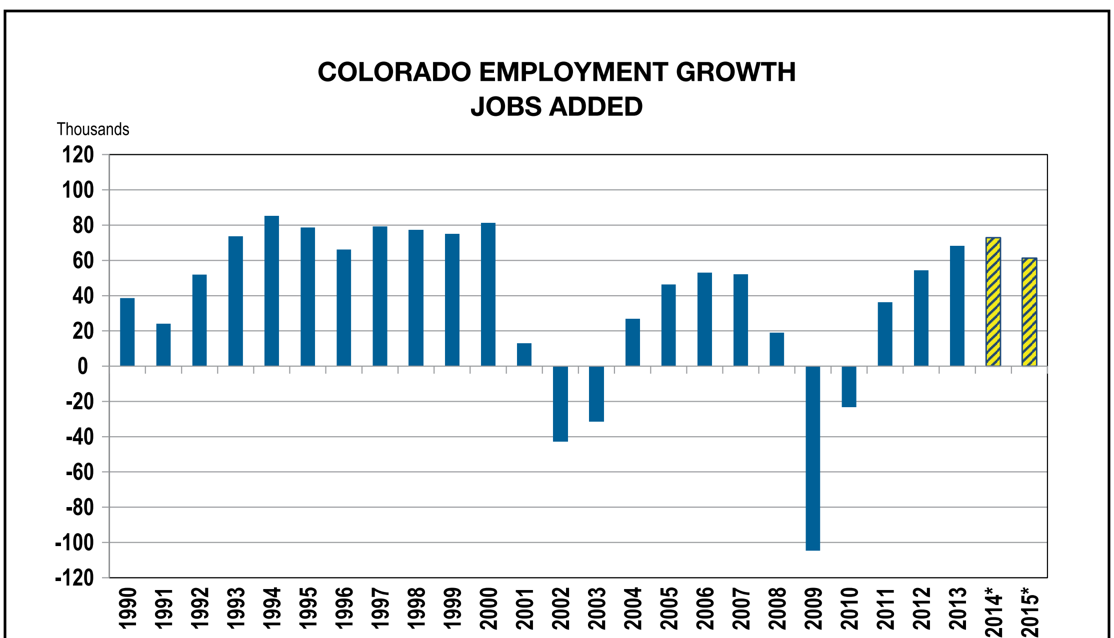
Manufacturing—Following a decade of decline, employment is expected to increase for the sixth-consecutive year in 2015 as the state benefits from the national phenomenon of reshoring. In 2015, a total of 2,200 additional jobs are expected, with much of the growth in the durable goods sectors.

Natural Resources and Mining—Colorado is firmly a top 10 energy-producing state, but the abundance of natural resources extends beyond oil, gas, and coal to resources such as molybdenum and gold. Total value of production will reach record levels in 2014, but slip in 2015 due primarily to softer pricing and lower production for some resources. In 2015, the industry is likely to add 2,300 jobs, or 6.8% growth.

The outlook for services employment shows growth in nearly every sector in 2015.

Education and Health Services—Private education and health care services are expected to add 9,300 jobs in 2015, demonstrating resilience both during and after the recession. Most of the growth will be in health care, driven by population growth, accessibility, and demographic shifts while private higher education will face headwinds.

Professional and Business Services—Employment in this sector will increase by 12,800 jobs in 2015, building on gains in the Professional, Scientific, and



Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committees. *Forecast.

Technical Services subsectors related to Colorado's high-tech industries and research institutions. Growth will be highest in the Computer Systems Design Services and the Employment Services subsectors.

Trade, Transportation, and Utilities—TTU employment is anticipated to increase by 9,100 in 2015, due to growth in wholesale and retail trade. Transportation and Warehousing employment will record modest growth, and Utilities will be flat. It is projected that Denver International Airport will record another record year, despite ongoing construction at, and on the way to, the airport. Retail sales are anticipated to rise 7% in 2015.

Leisure and Hospitality—Signaling an improved tourism industry, Colorado is recording more room nights, higher occupancy rates, more skier visits, increased gaming proceeds, and growth in visits to Colorado public lands. This sector expects growth will be extended in 2015, resulting in a gain of 11,200 jobs in 2015. This forecast rests on a number of assumptions, including average snowfall and reasonable gasoline prices.

Government—Federal government employment will continue to get squeezed in 2015 as a result of the shrinking fiscal budget. However, these declines will be offset by growth in state and local government that coincides with the economic recovery and growing population. Total government employment is projected to increase 1.1% overall in 2015 in Colorado.

Financial Activities—The Financial Activities Sector continues to respond to a seemingly ever-changing regulatory environment that induces higher costs and uncertainty. Despite this, the industry continues to add workers in Colorado, with the fastest growth in Real Estate and Rental and Leasing heading into 2015. Finance and Insurance has been impacted by a decreasing mortgage refinancing and origination market.

Information—The declining publishing sector will be exactly offset by modest growth in telecom, film, and software publishing, leaving the sector unchanged in 2015. Despite the dismal employment outlook, productivity reigns in this sector, leading to great total industry GDP.

The following observations summarize the thoughts of committee members for 2015:

National and International

- A slowing global economy poses risks to Colorado exports in 2015.
- U.S. GDP growth will likely exceed 3% in 2015.
- The debt ceiling debate will likely resume in 2015, elevating uncertainty about government expenditures, shutdowns, and sequestration.

Richard Wobbekind, Senior Associate Dean for Academic Programs and Executive Director of the Business Research Division

- The reversal of Fed policy may begin putting slight upward pressure on interest rates, particularly during the second half of the year.
- Inflation will continue in check for another year, and interest rates will remain at historically low levels.

Colorado

- Employment growth will place Colorado in the top 10 states in 2015.
- Weather fluctuations will continue to cause volatility for agriculture production, as well as tourism.
- Home prices will continue to creep higher in Colorado as inventory is absorbed, making housing affordability a detriment to some communities in the state.
- In terms of population, Colorado is the fourth-fastest growing state in the nation in percentage terms. The state will continue to attract people from out of state, which will contribute to population growth of 1.7%.
- Colorado will sustain a sub-5% unemployment rate.

With Colorado's skilled workforce; high-tech, diversified economy; relatively low cost of doing business; global economic access; and exceptional quality of life, the state is poised for both short- and long-term economic growth.

For more information on each industry sector, visit leeds.colorado.edu/brd.

How Long Will This Hot Real Estate Market Last?

Emily Zalasky

Opinions expressed by panelists reflect the most current market information available as of early December.

Denver's hot real estate market continues to make headlines as we approach the end of 2014. Experts running the gamut of real estate attempted to tackle the weighted question of how long this hot market will last in a panel session organized by University of Colorado Real Estate Center Executive Director **Sherm Miller** and moderated by Academic Director **Tom Thibodeau**. Covering the single-family, multifamily, office, industrial, retail, and investment markets, all panelists made compelling arguments that there is still upside potential within the Denver metro region. Several trends are expected to maintain the heat in Denver's market, including a growing population and job formation, international investment, residential building activity, rental affordability, industrial sales activity, opportunity in suburban office space, and the now meaningful spread between Class A and B products.

Investment

How hot will investment real estate be in 2015 is the better question according to panelist **Riki Hashimoto** of Newmark Grubb Knight Frank. The Colorado market tends to run on a seven-year peak-to-peak cycle, which makes it logical to assume this hot market is in a position to cool. However, this is not the case for several reasons. Looking to sales velocity and volume from peak-to-peak, in 2007, \$3.2 billion was transacted on roughly 145 transactions in the office sector. On the retail side, \$1 billion was transacted on approximately 186 transactions that year. From 2005–2007, on annual average, there were approximately 159 transactions per year and \$2.6 billion transacted in the office sector compared to \$860 million transacted on 162 transactions per year on the retail side.

From 2012–2014, the retail sector has followed the last peak very similarly, averaging 150 transactions per year, at \$830 million, while the office sector is down from the previous cycle, averaging \$1.9 billion on approximately 94 transactions per year. Investment trends for 2015 indicate that the number of office transactions will continue to rise alongside flattening retail transactions. Regarding who is driving investment activity in this marketplace, a shift is underway in terms of buyer types in Denver. In 2007, 7.2% of the marketplace transacted to international money while year-to-date in 2014, 19% of transactions have taken place with international money. The reopening of Denver Union Station and the record-setting sale of two of its buildings to GLL Properties Inc. of Munich, Germany, at roughly \$600/SF exemplifies the movement of international money into Denver. In 2014, international money and institutional money pushed private equity to the sidelines compared to 2007 when private equity accounted for more than 44% of investment activity in the Denver marketplace.

Market averages for office capitalization rates are currently higher than they were in 2007, standing at 7% for office and 6.9% for retail. Cap rates still have room to compress and will continue to do so looking toward 2015. With a lot of equity chasing very few assets, and sales velocity and transaction volume approaching 2007 peak levels, there is still upside potential in the market. A meaningful and significant spread has emerged between Class A and Class B products in 2014, suggesting that we will see a significant amount of cash in equity focusing on B assets in 2015. In 2007, the average rental rate for a Class A product was roughly \$19.90/SF, while the price for a Class B product was \$16.50/SF. This margin of approximately \$3.40 has widened to roughly \$7.80 as of Q3 2014, with Class A products renting at roughly \$26.80/SF and Class B at \$19.00/SF. Other trends to note for investment real estate in 2015 include private equity coming back to the table, buyers having to make the decision whether they will move to secondary markets, and overall, a continuation of trends seen in 2013 and 2014 so long as interest rates remain relatively low.

Single-Family

Panelist **Jeff Handlin** of Anthem explained that residential space has not seen a traditional hot market in this recovery. Denver is pretty balanced in terms of upside and downside in the residential market, and much variation one way or the other is not expected in the near future. An increase in prices has been accompanied by lackluster transaction volumes. While land prices have risen, horizontal development costs have also risen. Job growth and household formation in the Denver market continue to result in a base level of new home demand, and we are really supply constrained in this market. New home sales are a bright spot in residential, up 9% in Q3 2014 compared to 1.7% for the United States.

Other bright spots for single family include a doubling in bulk residential land prices, a recent stabilization of land/lot prices, and an 18% rise in single-family building permits through October 2014. Several sources of weakness for the single-family market in 2014 include a flattening in the number of new home sales per subdivision and increasing development and building costs (35% and 20%, respectively). Furthermore, we are still not back to normal in the long-term average for single-family building permits. The greatest source of weakness in the owner-occupied residential market is the fact there are almost no attached homes (townhomes and condominiums) being constructed or sold because of the construction defects law.

Multifamily

Panelist **Pat Stucker** of Jones Lang LaSalle described Denver's apartment market, where renting is arguably more affordable than buying for Millennials and the middle class right now. Colorado's vacancy rate has steadily declined since 2009 after the banking bust, and from 2010–14, effective rent for the Denver market, currently at $1,224, has grown an average annual rate of 8.8% over the past four years. This rate is unprecedented for any market. Across the past 18 years, however, effective rent has only grown 3.7% annually, indicating that growth in this market has been concentrated in the past four years. An average of 16,500 single-family and multifamily permits in the Denver metro market across the past 18 years (16,500) suggests that we are still not supplying the marketplace with the number of permits that are needed to meet demand.

Home ownership impacts occupancy rates; a 1% decline in homeownership translates to 1,000,000 new potential renter households nationally. For Denver, affordability is becoming an issue. The Denver housing market ranks 14th in the nation for the least affordable housing markets for the middle class. Denver also makes the list of the top 15 least affordable housing markets for Millennials, with approximately 32.6% for-sale homes affordable for the typical millennial household. Rental affordability, on the other hand, is a bright spot for both middle class and Millennial households in Denver; the city ranked 36th and 33rd, respectively, out of the top 100 U.S. metropolitan areas.

Looking to the long term, demographics will impact the demand for housing in the Denver Metro region for years to come. Stucker concluded by discussing how the "senior tsunami" headed for Denver will impact multifamily housing trends, with the number of seniors in the metro area expected to rise to 745,000 in 2030 compared to 365,000 in 2014.

Industrial

The industrial market is solid according to panelist **Tyler Carner** of CBRE, Inc. He discussed several strong indicators of health in the national industrial market, including business inventories, which are at an all-time high ($1.75 trillion); the industrial production index, which is at its highest level ever recorded (105.1); and 18 consecutive quarters of positive net absorption. National imports are up 2.8%, and as the United States is producing more oil than ever before, an increasing share of the nation's imports are the types of products that spend time in warehouses and stimulate industrial demand. Total wholesaler inventories and the total occupied stock of warehouse space have fully recovered in the national industrial market, and forecasted levels of full-year rent growth for 2015 and 2016 have been pushed to the highest levels seen since the 1990s (5.3% and 5.7%, respectively).

The Denver industrial market, predominantly a distribution market, is also strong. Indicators of health in the Denver market include a record low vacancy rate (4.8%), 2.5 million SF of space currently under construction (including 1.5 million SF of pre-leased space), 18 recorded quarters of positive absorption as of Q3 2014, and a $0.37 increase in lease rates (largest increase in 8 quarters). Momentum in Denver's industrial sales activity has exceeded 8 of the 10 largest U.S. industrial markets as of Q1 2014, with a 12-month rolling total of industrial sales volume totaling $668.5 million and surging 44.6% over Q1 2013.

Several weak points in the market include the fact that the average size user in Denver is 31,505 SF while the spaces being developed are intended for bigger users who lease, on average, 131,821 SF. Carner described how 5.42% of the market cannot and will not occupy the space that is being delivered, and explained that "developers need to build big to get economics of scale to justify construction." Carner's forecast for the Denver industrial market focuses on the role of small bay Class A and B product in driving strong rent growth, the future of e-commerce activity in tightening the industrial market, a conservative supply of continued speculative development, and increased sales activity.

Office

Panelist **Doug Wulf** of Cassidy Turley asserted that the office sector is still trending up in the leasing cycle. He compared

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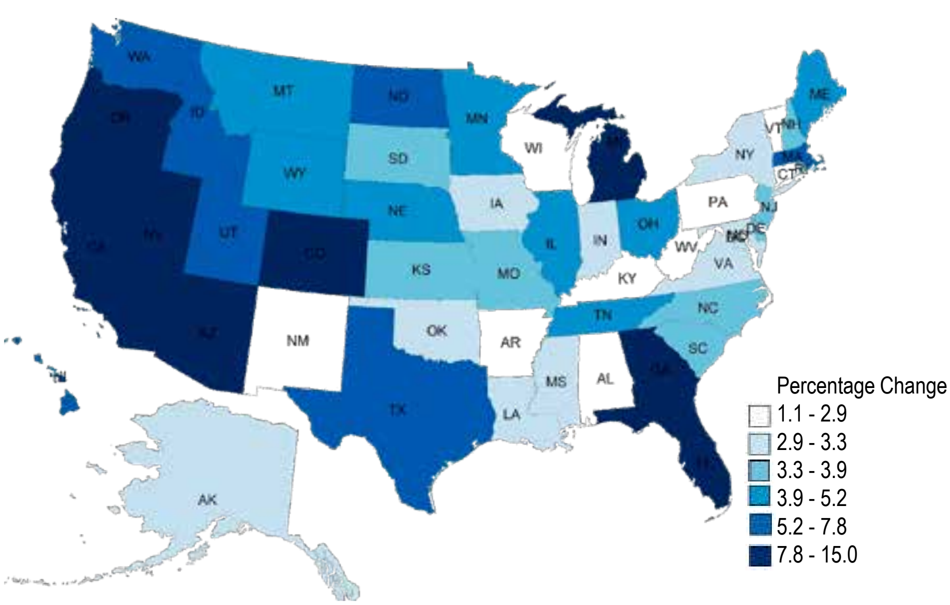
NATIONAL FHFA HOME PRICE GROWTH YEAR OVER YEAR Q3 2014



Source: Federal Housing Finance Agency Home Price Index, All Transactions Index.

the occurrence of historical geopolitical conflicts to growth in U.S. real GPD, and finds that while current conflicts could affect the office sector, the data indicate they are unlikely to. However, office prices in Denver decreased the last time the Fed raised interest rates. Wulf addressed the potential bubble the central business district (CBD) presents to the market, noting the mid-2007 peak in the CBD office price index, and finding that, eight years later, we are only 11% above that, at an average of $362/SF. On an inflation-adjusted basis, without a recession, prices would be around $436, suggesting that we have movement to go in price per square foot values for CBD office.

The real opportunity in this market, though, is suburban office space. While everyone wants to be downtown, the significance of the gap in pricing between CBD office space and suburban office space suggests that suburban space has excellent room to grow. Growth in Colorado's millennial population is driving growth in the office sector, with companies trying to accommodate the desires of their millennial office space users. He also pointed to a rise in office-using employment in the Denver Metro area, standing at 380,000 in November 2014. This compares to 364,000 in March 2008. Denver metro office vacancy, at 11.4% for Q4 2014, remains tight. However, only three-quarters of vacant office space can actually be characterized as viable with the presence of dysfunctional, obsolete office space in the market. With office-using employment and the millennial population on the rise in Denver, we still have a lot of upside potential. The Denver Metro area has 21 available blocks of space that are in excess of 100,000 square feet, and half of them are at least 30 years old. Contrasting this with where we were in 1980 when we were building like crazy, we have a significantly aging office market.

Retail

The retail market is improving as vacancy rates decrease and rental prices increase. Panelist **Jay B. Landt** with Colliers International discussed how retail has followed the rooftops, pointing to the close relationship between housing and retail markets. While activity levels are up in the retail sector and there is more transaction activity, retailers are still more cautious than ever. Providing retailers with greater access to data and information will help counter this in 2015.

Looking at the national market, in Q2 2014, the vacancy rate for retail properties fell 60 basis points year-over-year, to 6.3%. This compares to the retail vacancy rate of 5.7% for the Denver market. Looking back at the U.S. market, rental rates at the end of Q3 2014 rose $0.03/SF quarter-over-quarter, to $14.84/SF. Demand for prime space in core markets is red-hot, which leads to rent spikes in several markets, including San Francisco and Boston. The Denver market saw a $0.08 reduction in quoted rental rates at the end of Q3, to $15.13/SF. In 2014, total retail center sales activity in Denver is up over 2013, and across the first six months of 2014 the market recorded 51 retail sales transactions with a total volume of $213.2 million.

A class shift is currently underway in the market, with Class B sites shifting to Class A, and struggling Class C sites shifting to Class B. Restaurants, the service industry, dentists, wireless, and thrift stores are hot right now, according to Landt, while electronics, office supply, mid-level mall clothiers like Abercrombie and Coldwater Creek, and book stores are not. Several retailers made a comeback in 2014, including high-end jewelers and high-end restaurants. Many retailers who are down right now are being negatively affected by e-commerce, including Office Depot, Sears, and Radio Shack. Nonetheless, brick-and-mortar sales continue to make up the majority of retail sales. Furthermore, many pure-play retailers are considering brick-and-mortar operations in order to appeal to their customers via multiple channels. Not influenced by e-commerce but also hurting are casual dining retailers as diners shift to quick-service restaurant concepts and more specialized dining options.

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To view the panelists' presentations from this forum breakout session, please visit the Business Research Division website at leeds.colorado.edu/brd.

Forum Breakout Session

Colorado CEOs Discuss State of the Economy

Steven Peek

At the 2015 Colorado Business Economic Outlook Forum, four CEOs of Colorado-based companies discussed the Colorado business landscape and their views on the current state of the economy. These companies touch key areas of our lives, whether it is providing creative outlets, allowing for more relevant advertisements, expanding the capabilities of bandwidth, or baking bread—after all, everybody eats bread.

Tom Clark, CEO of the Metro Denver Economic Development Corporation, led the discussion, accompanied by panelists **Dan Caruso**, co-founder, chairman, and CEO of Zayo Group; **John Levisay**, CEO of Craftsy; **Jane Miller**, former CEO of Rudi's Organic Bakery; and **Eric Roza**, CEO of Datalogix. The conversation focused on what attracted these companies to Colorado, obstacles that the firms may face in 2015, both national and global perceptions of the Colorado businesses environment, as well as the talent pool in Colorado compared to the nation.

The panelists started off by discussing the obstacles they see coming in 2015 and how the Colorado economy is performing in general. Key roadblocks include identifying growth factors as well as matching companies' needs with the available workforce. Both Roza and Miller highlighted the difficulty in filling positions; however, their difficulties differ—one is experiencing a skills mismatch and the other, a labor shortage. Roza is struggling to find workers with specialized skills, and therefore his company's recruitment market is very sparse. Meanwhile, Miller discussed how manufacturing is currently experiencing a high level of "job hopping" due to the low unemployment rate and continued demand for workers in this area. These CEOs summarized a wealth of growth potential and opportunities; risks lie more in the decision of which path to take than in the macro economy.

Clark posed a question of whether the "cow town" stereotype still holds for Colorado, specifically Denver, making it difficult to attract talented human capital. The panelists agreed that this perception is no longer as serious an issue as it has been in the past. In fact, experience has shown that marketing the Colorado lifestyle almost supersedes the job opportunity. They have found that workers move to Colorado because they are either at a pivotal point in their life (i.e., they want to buy a house, start a family, etc.) or because they have a previous connection to the state. Using this knowledge, companies make sure the message sent to prospective employees is not one completely focused on a job, but one that encompasses the variety of activities and passions that can be pursued in Colorado. In addition, the panelists agreed that the expansion of Denver International Airport and the addition of direct flights to many places around the world, including Europe and Canada, has furthered their efforts to attract top talent and increase their growth opportunities.

Finally, the discussion moved to advice the panelists might have for the Colorado legislature. In general, all talked about the need for more transparency regarding tax breaks and other incentives for businesses. To close the session, Caruso stressed the importance of the government's support of entrepreneurship in Colorado. Entrepreneurship will create lasting growth for the state.

Steven Peek is a Student Research Assistant with the Business Research Division.

Company Overviews

Metro Denver Economic Development Corporation (EDC)

- The Metro Denver EDC is nation's first regional economic development entity, focused on expanding the regional economy.
- The EDC's six areas of focus are mobility, tax reform, new and existing business, national marketing, Denver International Airport/international flights, and special opportunities.

Datalogix

- The firm leverages the power of purchase-based audience targeting to drive measurable online and offline sales.
- Located in Westminster, it has 450 employees, 80% of whom are based in Colorado.

Rudi's Organic Bakery

- Rudi's is the leading producer of certified organic bread in the United States, specializing in the production and distribution of organic breads and baked goods products.
- The organic bakery, with 250 Colorado-based employees, was recently purchased by Hain Celestial because of its significant synergies and Rudi's product innovation.

Craftsy

- The company is an online crafting community that is looking to democratize access to the best instructors and tools to help bring people's creativity to life.
- Craftsy has 220 employees and is located in Denver.

Zayo Group

- Zayo Group is a global provider of bandwidth infrastructure services.
- Headquartered in Boulder, the company recently went public, raising $287.8 million in its IPO.

Forum Breakout Session

Colorado Then and Now: People, Places, and Jobs

Bonnie Beverly

Colorado is growing faster than the nation in terms of population, employment, and GDP. Many of the drivers of this growth are not due to chance. In a session moderated by **Frances Draper**, vice chancellor for strategic relations at the University of Colorado Boulder, panelists discussed Colorado's population, demographics, employment, as well as investment in infrastructure and higher education.

Population

Panelist **Elizabeth Garner**, state demographer with the Colorado Department of Local Affairs, gave an overview of Colorado population trends and impacts from 1950 to 2014. The decades of 1950–60, 1970–80, and 1990–2000 are known as the accelerated growth decades, with the 1950s seeing 32% population growth and the 1970s and the 1990s both having 31% population growth. Interestingly, each of these decades was followed or preceded by a slow growth decade. From 1970 to 2010 the state overall had about a 127% population increase. The Front Range consistently accounts for a majority of the state's population—75% of the population in 1960, 80% in 1970, and 82% today. The state's population has increased to a little over 5.3 million in 2014 from a total of 1.8 million in 1960.

The two key components in population are net migration (in-migration minus out-migration) and natural increase (births minus deaths). Net migration accounted for 55% of the population change from 1970–2014. This migration is related to business cycles, particularly unemployment and how Colorado compares to other states. Opening the Western Slope through transportation also affected migration. There has been a consistent migration of young people in the 20- to 30-year-old range migrating into the state, with little migration from the 65-plus age group. Migration patterns have remained pretty much the same, although they vary from county to county.

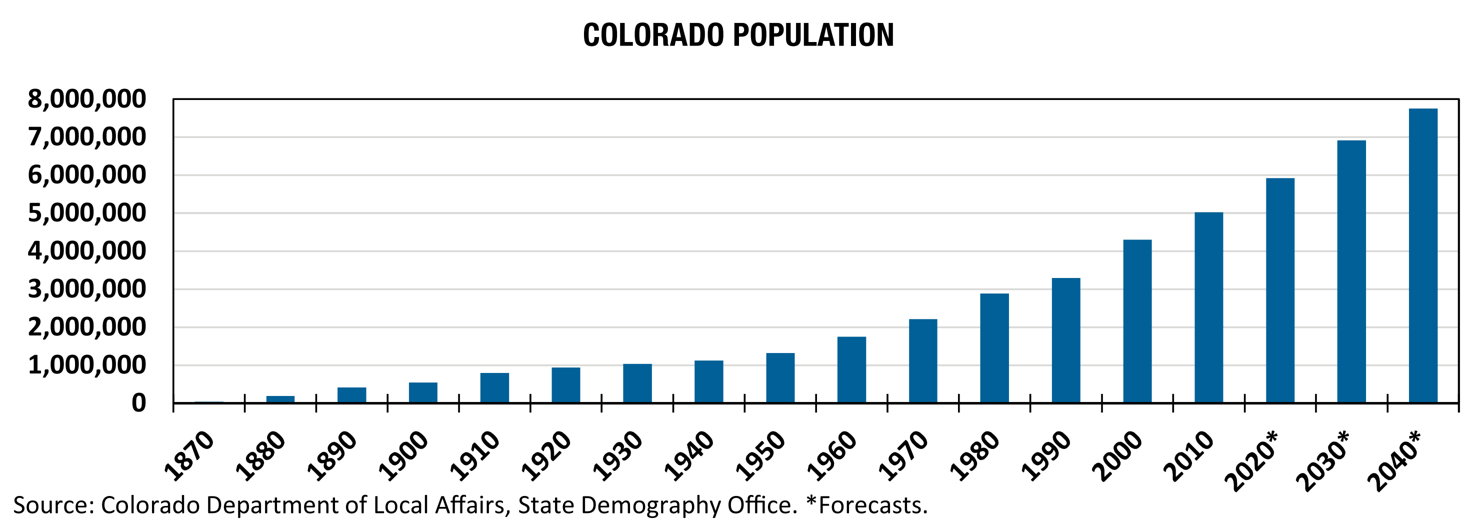
In the 1970s, Baby Boomers were not a big piece in the labor force; however, by the 1990s, they had actively entered it. The labor force grew as did the state's productivity. The Baby Boomers were followed by Gen X, then the Millennials. From 1990–2010, the young and middle age population grew, with a surge of 45–64 year olds, which are the highest-earning, highest-spending, and most-productive members of the labor force. They are also of child bearing age.

Colorado's race and ethnicity has also changed. In 1970, the state's population was almost 85% white non-Hispanic; by 2040, Colorado's white non-Hispanic population will be slightly more than 50%. The population group of less than 5 years old is the most diverse, and this is the age group where Colorado will see the greatest change.

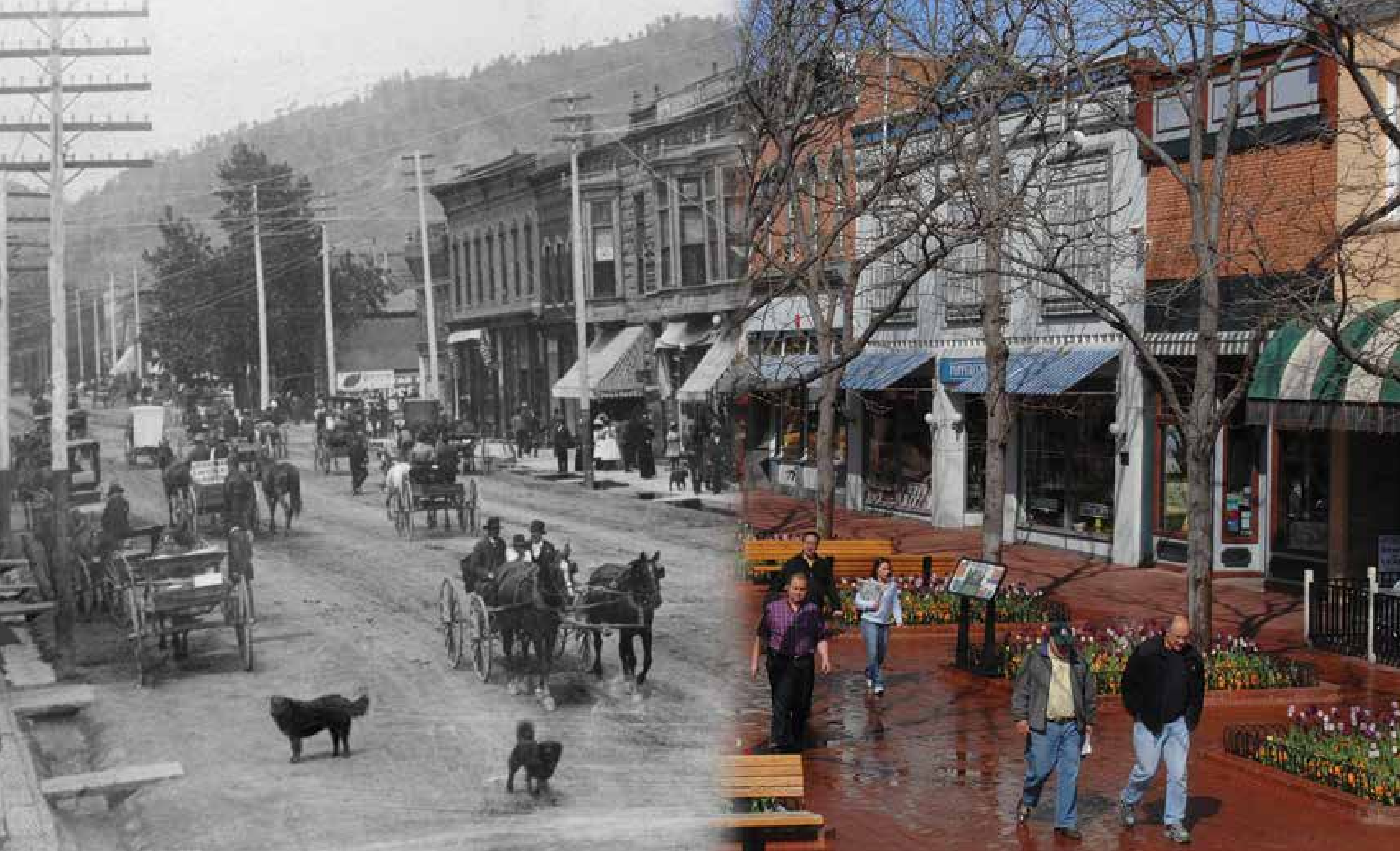
Colorado is in a transformative decade and will continue to be so until 2030, with 2020 being the peak transition decade in labor, housing, and transportation. Transitions are due to age; it is the key component to look at moving forward to maintain our economic and amenity advantages.

Employment and Industry

Panelist **Patty Silverstein**, president of Development Research Partners, walked attendees through 50 years of employment history and where Colorado is headed as a state. In terms of employment, the state tends to outperform the nation, with unemployment



Source: Colorado Department of Local Affairs, State Demography Office. *Forecasts.



Historic photo courtesy Carnegie Branch Library for Local Historical/Boulder Historical Society collection. Composite and 2008 photo by Casey A. Cass.

consistently lower than the rest of the nation. From the 1960s forward, Colorado has experienced five recessionary periods—when there were employment declines—compared to the national economy's eight. Colorado's recessionary periods did not always correspond to those of the rest of the country.

Silverstein began with the 1960s, the "war and space" decade. This was a very prosperous era of tremendous government spending and consistent monthly employment growth. Military bases expanded, with defense and space exploration playing a key role in Colorado's economy due to its geographic location and ability to communicate with the rest of the globe. The popularity of skiing and tourism grew, taking the country by storm with Aspen, Vail, Breckenridge, and Crested Butte opening.

The 1970s decade is when the state earned its reputation of being a boom and bust state. The boom and bust was a result of oil and gas exploration on the Western Slope and the oil embargo. Mining activity increased dramatically compared to the rest of the nation as well. Employment grew by as much as 12% in some months of the early 70s followed by five months of employment losses by 1975. Colorado had double-digit rates of inflation. However, in general, this was a prosperous decade and recorded a 5% employment growth rate. This was the decade when Colorado started to see the influx of Baby Boomers and with it came residential and other related construction growth.

The boom and bust cycle continued into the 1980s. During this decade, growth in oil, technology, and real estate set Colorado apart from many other parts of the country. Growth was widespread throughout the state. The downtown Denver skyline was created in the early 1980s during an enormous boom in construction; however, by the middle of the decade there was a 30% vacancy rate in office space, and lease rates previously at \$25–\$30/SF were cut in half. Oil and gas operations started to slow and shut down as prices dropped. They had occupied a great deal of commercial real estate space, and when they crashed, they dragged the commercial market with them.

The savings and loan industry crisis occurred during this period. While the rest of the country slowed slightly, Colorado had a deep regional recession that lasted 22 months. The state endured a longer decline than the rest of the country, mainly driven by negative growth in mining and construction.

Toward the end of the 1980s, economic growth was sourced from technology, and the 1990s ushered in the "new economy." Technology ruled, and growth was faster than the nation throughout the state. Colorado experienced 3.8% employment growth. The state was the birthplace of the cable industry, and telecommunication was huge. Infrastructure development occurred all across the state, with the construction of Denver

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International Airport (DIA), new light rail, and new sports stadiums opening in the metro area. Only 3 of the state's then 63 counties declined in employment.

After the go-go 90s came the 2000s, which was known as the "lost decade." There was no employment growth on average from 2000–10, with 44 months of steady employment decline across all industries. During this period, Colorado experienced the dot-com bubble recession of 2001, the events of 9/11, and the housing bubble recession of 2008.

The current decade, the 2010s, is referred to as the "new growth path." Colorado ranked third in terms of job growth in 2013 compared with the rest of the country. The state is experiencing an inconsistent recovery, however; some areas are still declining while Metro Denver and Northern Colorado experiences significant growth. Again, this growth is rooted in oil and gas. Northern Colorado and Metro Denver are experiencing a much larger share of oil and gas development than the Western Slope.

Many economic development organizations in Colorado are working together to help facilitate economic growth in the state. The Colorado Office of Economic Development and International Trade focuses on 14 key industries in Colorado, and the Metro Denver Economic Development Corporation focuses on 8 industry clusters. Energy and natural resources are the fastest-growing industries in Colorado. Aerospace is the most concentrated industry within the state, and is still as important to the state today as it was in the 60s. The state's entrepreneurial activity index tends to rate very high, currently the fifth highest in the nation and the highest when compared to our key competitor states, positioning Colorado for future economic growth.

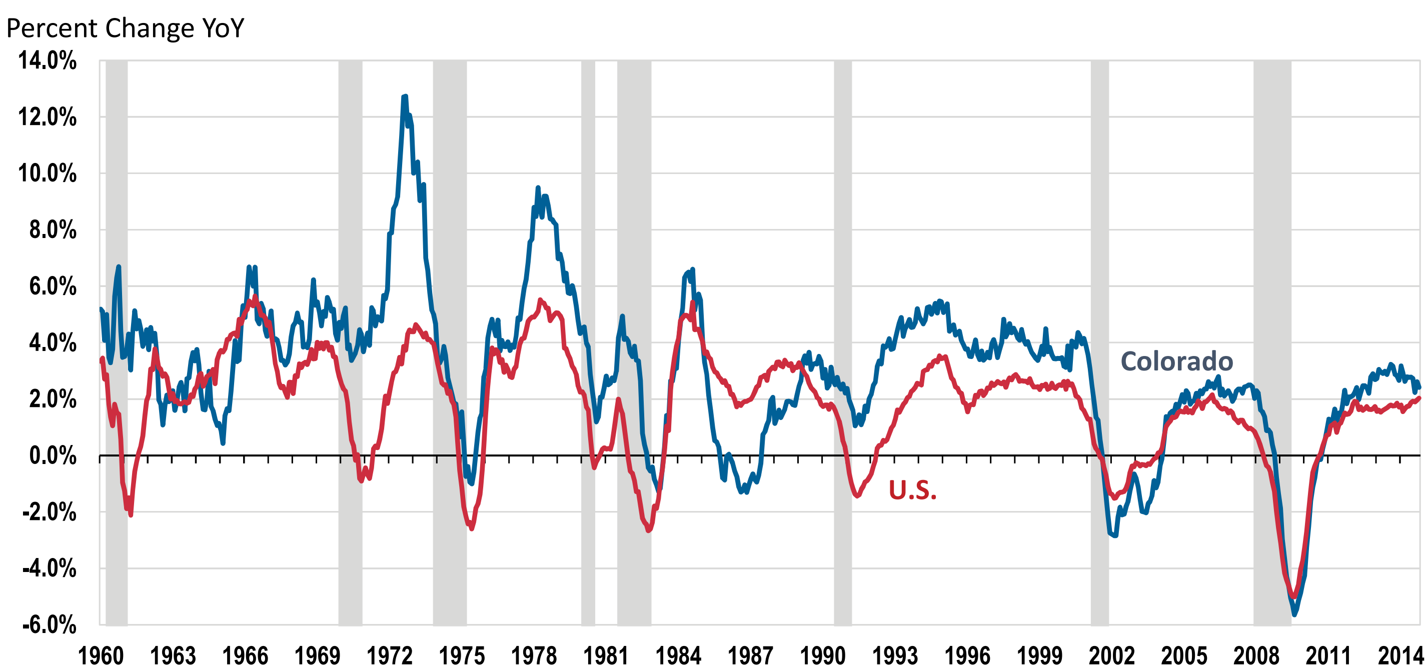
Infrastructure

Panelist **Pam Reichert**, vice president of the Metro Denver Economic Development Corporation (EDC), described how Colorado has been shaped by water, transportation, and culture, reviewing critical physical infrastructure in the state.

Colorado's population in the early 1800s was just over 34,000 prior to the discovery of gold in 1858 that started the first major influx of people to the state. With more people migrating to Colorado, transportation issues arose.

In 1865, the territorial assembly passed an act regulating toll roads. The territory needed a railway to Cheyenne, where many of the new immigrants wanted to be. There was competition between Golden and Denver to build the railway, with Denver winning

TOTAL NONFARM EMPLOYMENT GROWTH



Sources: Bureau of Labor Statistics and the National Bureau of Economic Research.

because it was able to raise the money. Thus, the Denver Pacific Railroad was born, and the railroad to Cheyenne was completed within three years. The Colorado Highway Commission was created in 1909 to improve roads, and in 1919 Colorado was one of the first states to pass a gas tax to fund road development.

With Denver's population totaling 5,000 at that time, a water supply system was needed, and in 1870, Denver City Water was formed. The first water infiltration system was installed on Cherry Creek in 1886, with another following shortly thereafter to help make the new water supplies safe for drinking. In 1905, Cheesman Dam and Reservoir was created to help store Denver's water supply. The Board of Water Commissioners was created in 1918, which later became Denver Water.

As the city blossomed, a desire arose for cultural facilities, and in 1878 the Central City Opera House was built. In 1908, Denver hosted the Democratic National Convention in the municipal auditorium, a multipurpose facility. The Central City Opera was formed in 1932, the fifth-oldest continuous operating opera company in the country. The Denver Performing Arts facility began to take shape in the 1970s, and in 1974 ground was broken for Boettcher Hall. The recessions of the 1980s caused Colorado to lose both state and City of Denver funding for the arts. To combat the revenue losses, concerned community members divised a model to fund the arts. As a result, in 1988, the Scientific and Cultural Facility District was approved, and has helped fund cultural programs since then.

In the 1940s, military involvement started, and we were training troops to fight in Europe and Asia. After WWII troops wanted to settle in Colorado. Tourism increased and the population grew, causing more transportation needs. In 1956, the state benefited from the National Highway System, which was authorized by the Eisenhower Administration. The Eisenhower Tunnel opened in 1973, due in part to the development of the tourism industry and in part to the need to transport goods from Denver to the Western Slope.

By 1995 DIA was built, and it is now one of the greatest economic drivers in our community. That year also saw Coors Field's opening day—the first of three great sports facilities within the city. In the last 14 years, the stadium currently known as Sports Authority Field at Mile High and the Pepsi Center were also built. In 2006, the region celebrated the grand opening of T-REX light rail, Fiddler's Green, the Broomfield Event Center (now the 1stBank Center), and many other facilities.

Union Station was redeveloped in 2013, and the development of light rail infrastructure will allow for quick trips to DIA. People will be able to get to the airport from downtown in less than an hour. Company site selectors frequently cite DIA and its convenience, and the new trains that will enhance that convenience.

In terms of Colorado's water history, in 1962 the Harold D. Roberts Tunnel was completed. This was significant because this was the first time water was brought to the Front Range from the other side of the Continental Divide. Dillon Dam was completed shortly after, in 1963. The new Colorado River Water Cooperative Agreement was signed in 2013 by Denver Water and Western Slope water providers, local governments, and several ski areas. Its overall goal is to protect the watershed while allowing for Denver to meet its water needs. This agreement is also important because the state is responsible for water downstream to nine other states.

Looking ahead, Reichert calls for Colorado to manage its growth in a sustainable manner with divergent strategies. Colorado's future is in conservation and transportation, along with water and cultural facility accessibility and advancement.

Higher Education

Frances Draper provided a synopsis of the development of higher education Colorado and its impact on our economy. The state currently has 13 public four-year institutions, 18 public two-year and community colleges, and 103 private and seminary institutions, with an additional 354 private occupational schools. In the spring of 1882, the first classes graduated in Colorado, with the University of Colorado graduating 6 students and Colorado College graduating between 2 and 6 students. In the spring of 2013, Colorado's 31 public institutions conferred degrees to 52,715 students, and the 103 private schools graduated 16,217. Colorado has a highly educated population, with 37.8% holding an undergraduate degree or higher compared to 29.6% nationally.

A May 2014 *New York Times* article illustrates the gap between college graduates and nongraduates. In 2013, the pay gap between the two groups reached a record high; Americans with a four-year college degree earned an hourly wage 98% more than those without a degree according to the Bureau of Labor Statistics. This is up from 89% from five years ago.

Educational institutions have a direct economic impact on their communities through their operations and through their research advancements. In fiscal year 2011, the University of Colorado had a $5.3 billion economic impact on the state of Colorado through direct and indirect employment, construction, and

CONTINUED ON PAGE 12

COLORADO THEN AND NOW, CONTINUED FROM PAGE 11

spin-off companies. The economic impact to Colorado is measured in many ways. There have been 114 spin-off startups launched over the past 20 years. A total of 190,372 people were employed at public higher education institutions in fiscal year 2012–13. Colorado State has 59 cooperative extension offices, 18 Colorado State Forest Service offices, and 8 Agricultural Experiment Stations from one end of the state to the other that support local economies. Smaller institutions also contribute to local economies. One such institution, Adams State, is the largest employer in the San Luis Valley and accounts for 20% of the personal income in Alamosa County and 25% of the personal income of Rio Grande County.

State support for public higher education has dropped significantly across the nation from fiscal year 2008 to 2014. (See chart on page 13.) Colorado has seen a 27.6% decrease in state spending per student. The Metro Denver EDC reports Colorado has the third-lowest support of any state for college students. In 1973, the state paid 76% of the cost of higher education while the student and his/her family paid 24%; now the state pays 30% and student pays 70%.

Public education is experiencing many challenges. State funding has declined precipitously, and we are unlikely to return to pre-recession levels. With TABOR rebate restrictions, we are likely to start to decline further. As a society, Colorado has chosen to shift the financial burden from the state to students and their families. We see higher education as a personal private benefit as opposed to an economic driver to the state, which may be a mistake. In the future there will be a clear delineation between the states that are funding higher education and those that are not, Draper warned.

Colorado's adaptability and innovation, with more dynamic partnerships of every kind, will be fundamental to the state's success in the future. Draper stressed we need to change how we teach. The future is in increasing automation and compression of the in-classroom experience by distance education and experience in the business field. Partnerships are needed through private support from scholarships and the creation of dynamic relationships through private enterprise and federal research grants.

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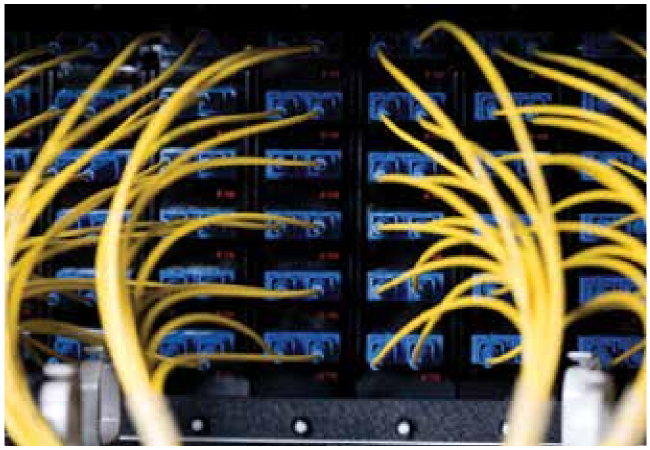
THE KEY TO PROSPERITY, CONTINUED FROM PAGE 1

and Google. Not only does an entrepreneurial mindset help maintain responsive leadership, it helps businesses stay relevant in changing markets.

Once a startup has been established as an industry leader, Caruso believes that related industries begin to grow in relation to it. He calls this "sprawl." To Caruso, one example of this spread occurred in Colorado's initial leadership in cable television, with TCI and Dish Network. This tech foundation led to the creation of other Colorado companies that became leaders of video distribution, such as DirecTV and Charter. This led to leadership in fiber systems, such as Zayo and XO Communications, and then in data centers and the cloud, such as Greenhouse Data and Cologix, which in turn led to internet and web infrastructure, such as Rally Software and SpotXchange. This ripple effect creates an ecosystem of new opportunities, according to Caruso, and with opportunity comes plenty of economic activity.

Boulder was ranked by Bloomberg Businessweek as the number one city for startups, as well as the top place for tech startups according to Entrepreneur. In 2014, Denver ranked as the second-best place to start a business according to Forbes. The Denver-Aurora-Broomfield area placed fourth on the list of the hottest startup cities according to Business Insider. The list goes on and on, making it clear that the Front Range has secured its position as an entrepreneurial haven.



This environment doesn't just happen, however. There are many startup facilitators, such as Blackstone Entrepreneur Network (BEN) and Galvanize; advocates, such as Colorado Technology Association (CTA) and Silicon Flatirons; and educators, such as Startup Colorado, all of which help create a community that encourages and supports entrepreneurial activity.

As might be expected, the Front Range is also considered a prosperous region. Boulder ranked as the fourth-best city for the next decade according to Kiplinger, which cited prosperity, innovation, and job generation in the ranking.

To Caruso, all of these things combined create what he calls an Entrepreneurship Mountain, defined as "the world's playground for innovation, inspiration, prosperity, cultural enlightenment, and social advancement."

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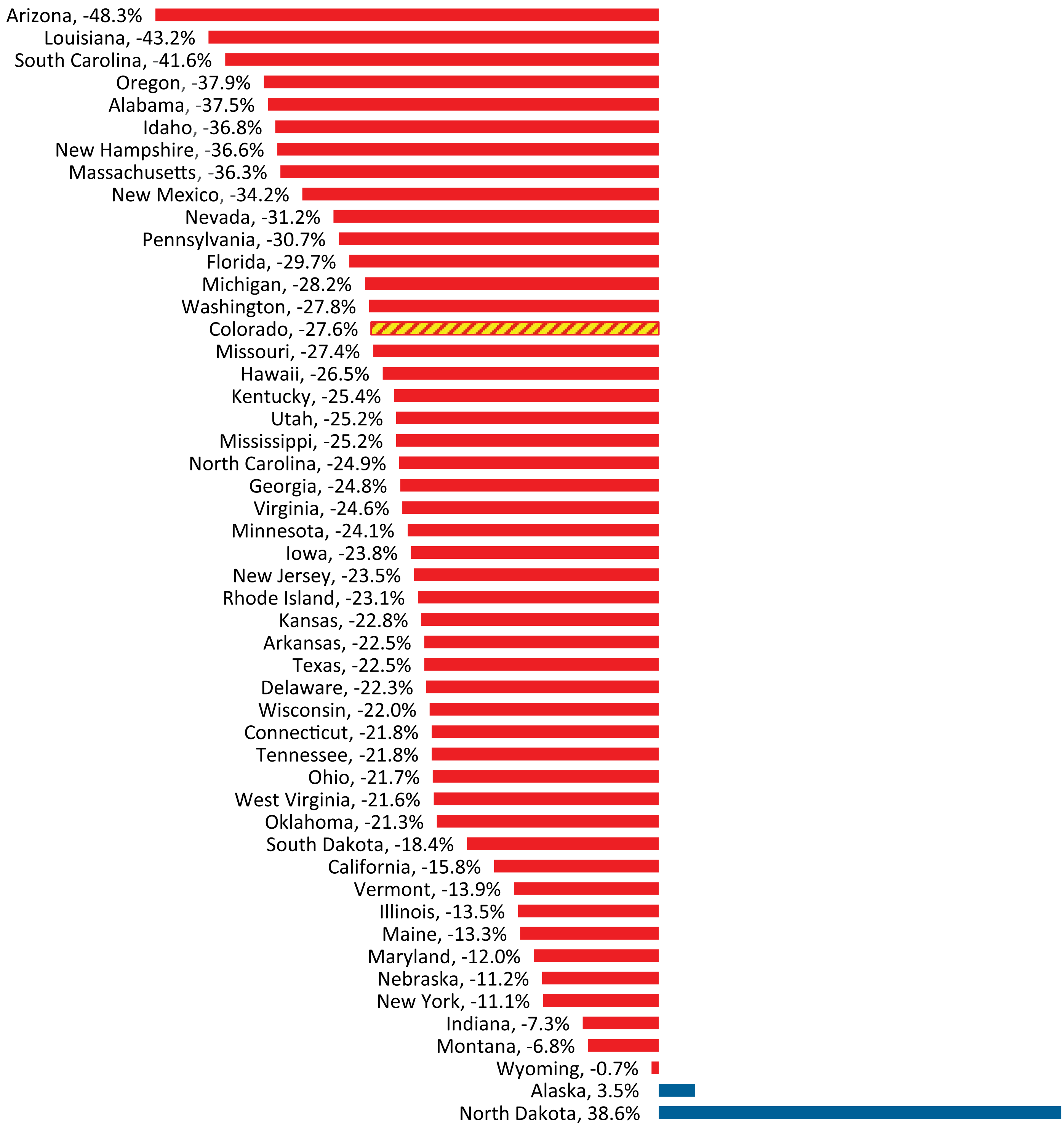
PERCENT CHANGE IN STATE SPENDING PER STUDENT, INFLATION ADJUSTED, FY08–FY14



Source: Center on Budget and Policy Priorities, *States Are Still Funding Higher Education Below Pre-Recession Levels*, Figure 1, May 1, 2014. Note: CBPP calculations using data from Illinois State University's annual Grapevine Report and the State Higher Education Executive Officers Association. Illinois funding data is provided by the Fiscal Policy Center at Voices for Illinois Children. Because enrollment data is only available through the 2013 school year, enrollment for the 2013-14 school year is estimated using data from past years.

Photo courtesy of Encana.

Forum Breakout Session

Aboveground Issues on Energy and Energy Development

Cindy DiPersio and Sam McMeley

Opinions expressed by panelists reflect the most current market information available as of early December.

The energy industry has played, and is continuing to play, an important role in the history and development of Colorado. While the industry provides economic benefits, citizens are expressing concerns about land use conflicts and the role of state and local government in locating oil and gas facilities. This breakout session, moderated by **John Tobin**, executive director of the Energy LITERACY Project, sought to illuminate some of the pressing issues currently surrounding the field. The expert panel consisted of **Patty Limerick**, faculty director and chair of the board of the Center of the American West, and **Tom Petrie**, chairman of Petrie Partners. The discussion centered around three points: the ways to approach energy development in the future, the events that have led to the dramatic decline in the price of oil within the past few months, and the split estate policy.

Prudent Development

The session began with a discussion of *prudent development*, which refers to a two-year study, *Prudent Development: Realizing the Potential of North America's Abundant Natural Gas and Oil Resources*, conducted by the National Petroleum Council on request by the Secretary of Energy Steven Chu in 2009. The premise behind prudent development is the importance of public trust. In order to obtain public trust, there must be balanced and active community engagement. Limerick contrasted prudent development with the *precautionary principle*, which is a precept that states actions should not be taken if the outcome and consequences are unknown or dangerous. Initially considered as intelligent caution and forethought, this has led to paralysis and stalemate in the current energy and hydraulic fracturing debate. With the great variation in sites and in communities, the development of one set of studies to determine cause and direction is unrealistic and an exaggerated understanding of what science can really do. At some point, human decision making must play a role—which brings the discussion back to prudence.

Petrie examined the prudent mindset in the context of economic energy policies and the impact on environmentalism. A decade ago the world seemed convinced that we were in an irreversible decline because it seemed as though we had exhausted conventional oil sources. Because of rapid developments and policies that allow progress, however, we have extended beyond peak oil forecasts. We have moved from a fear of "peak oil" to an industry that recently recorded 9 million barrels a day in U.S. production. Current studies suggest a resource base exists that could sustain U.S. needs for the foreseeable future. The developments have contributed to a dramatic reduction in carbon dioxide output by the United States; the amount of carbon dioxide output has decreased to 1992 levels. Instead of sitting back, however, Petrie argues that the United States must continue to be a leader in global environmentalism. Case in point is coal; while domestic coal consumption is down, it has increased in other parts of the world.

Price Drops

The per barrel price of oil dropped to $63 in December 2014 from $147.50 in July 2008. This dramatic decrease is due in part to the imperfect nature of oil markets. Historically, they tend to overestimate price on the high side and underestimate on the low side. For example, geopolitical issues and risk considerations, as well as the fear of peak oil, contributed to the price increase from 2005 to July 2008. Petrie suggests that the consequences of the rise of ISIS and the pullout of U.S. troops from Iraq have contributed to this sharp decrease in prices.

The panelists also agreed that overproduction of oil is contributing to the decrease of oil production. The U.S. growth rate of oil development was greater than the rate of oil development in the rest of the world. The United States is overproducing and inundating the oil market with domestic product, which leaves little room for other countries to produce and sell. Petrie suggests that the problem could be fixed if huge producers cut back but expresses doubts that that will happen. The drop in oil prices is not expected to affect production until 2017 and is anticipated to provide economic stimulus for Asian markets, whose demand for energy is increasing dramatically.

Split Estate Policy

The discussion then turned to the *split estate*. The passage of the Stock Raising Homestead Act by Congress in 1916 separated the ownership of the surface rights of a piece of land and the subsurface rights.

Limerick argued that while split property issues are valid and should be addressed, the narrative surrounding them is too limited in scope. She states that there are many sides to this issue that are often neglected. For example, royalty owners, people who own both surface and subsurface rights to a property, are entirely satisfied with the policy. She also points out that many suburbs of the Front Range were originally settled as coal mining towns and would not exist without fossil fuel royalties that continue to fuel local development.

Although the issue is multifaceted, the concerns of homeowners whose space is infringed upon by energy companies is valid. To combat tensions between developers and residents, Limerick believes it would be helpful to narrow the gap of knowledge between production and consumption. Through education, she asserts, people will understand the need for more production facilities. She calls for new and original processes that determine when drilling is too close and suggests companies make adjustments either through directional drilling or compensation of property owners.

Petrie agreed that the issue of the split estate is difficult. The additional revenue that comes from development has put the state in a far better position compared to five or six years ago. Now elected officials must be held accountable to use this revenue to address very serious fiscal problems facing the state.

The role of government in these issues is highlighted by the creation of the Task Force on State and Local Regulation of Oil and Gas Operations by Governor Hickenlooper in September 2014. The 19-member task force has been charged with making recommendations to the governor about reducing land use conflicts in ways that protect communities and allow reasonable access to private mineral rights. Although concerns exist that society's polarization and the large amount of disinformation will hinder the formation of a coherent set of recommendations, it is hoped the task force will cut through the propaganda to find real information. The task force is expected to submit recommendations to the governor in February 2015.

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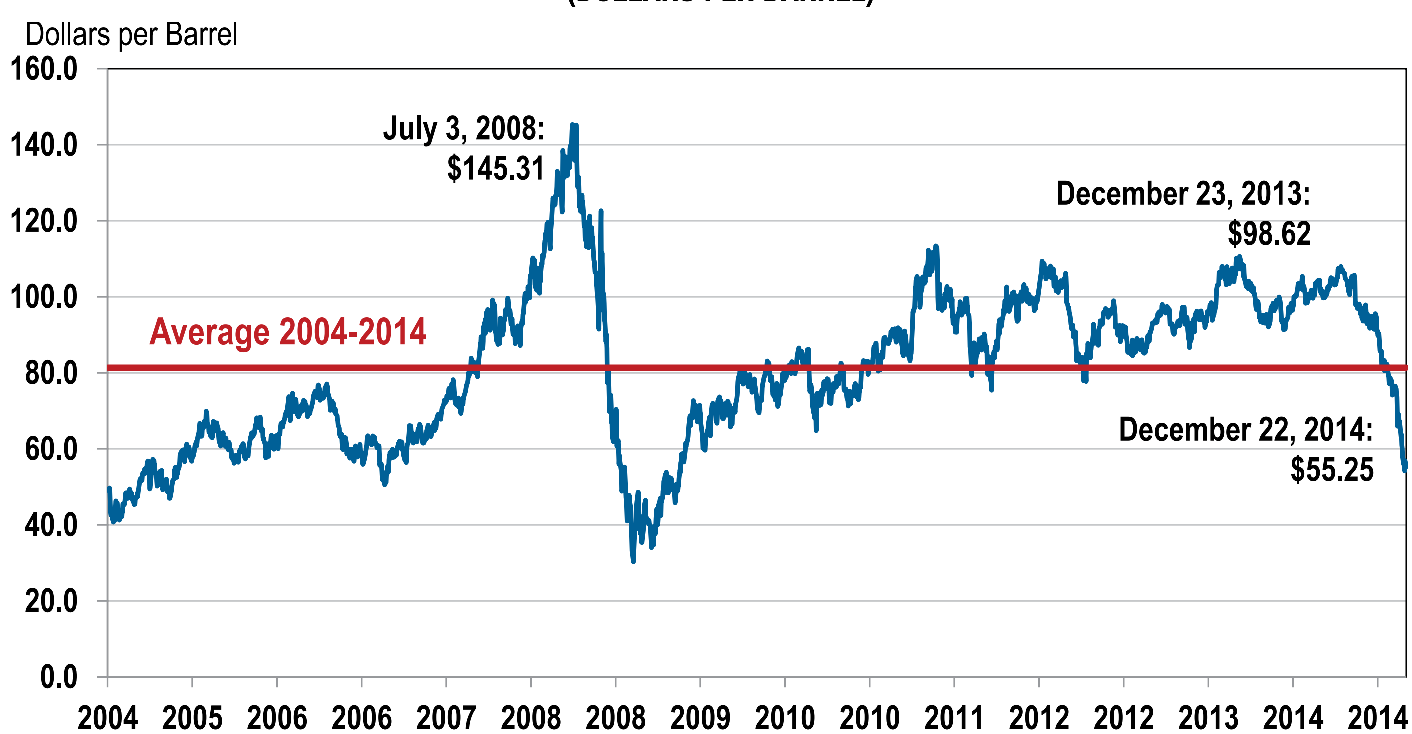
CUSHING, OK WTI SPOT PRICE FOB (DOLLARS PER BARREL)



Source: EIA, Cushing, OK WTI Spot Price FOB (Dollars per Barrel).

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UNIVERSITY OF COLORADO BOULDER
BUSINESS RESEARCH DIVISION

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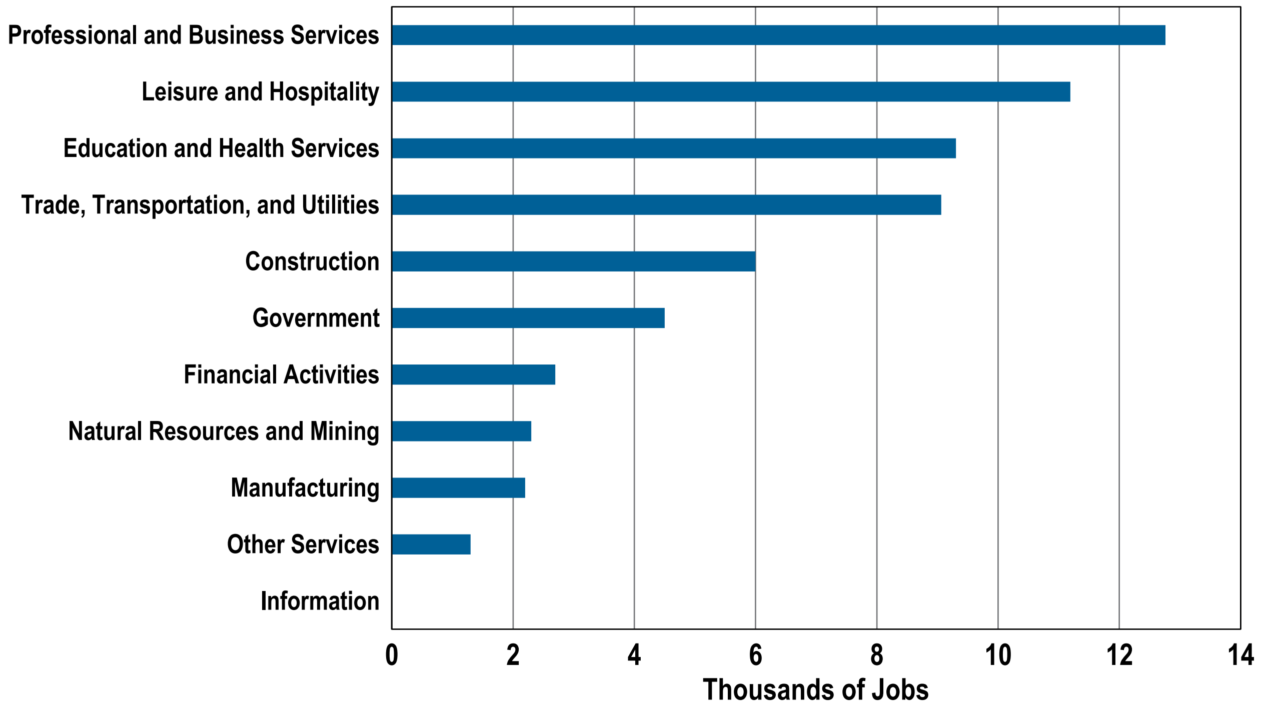
EMPLOYMENT CHANGE FORECAST 2014–2015



Source: Colorado Business Economic Outlook Committees.