

The Role of Health Care and Social Assistance in Larimer County's Economy



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NORTHERN COLORADO
Economic Development Corporation

Brought to you by:
Dr. Martin Shields, Regional Economist, in partnership with Colorado State
University's Office of Economic Development and
Northern Colorado Economic Development Corporation.

Cooperative Partnership

In 2006 the Northern Colorado Economic Development Corporation (NCEDC) committed to a five year partnership with Colorado State University (CSU) to hire and partially fund a regional economist and collaborate on economic development-oriented programs, encouraging technology transfer and regional corporate investment.

The two organizations hired Martin Shields as regional economist. Shields, previous director of Pennsylvania State University's Center for Economic and Community Development, began his new duties at CSU in August 2006. He is based in the economics department of the College of Liberal Arts and also reports to the Office of Economic Development on his outreach activities.

Shields had served as associate professor of agricultural and regional economics at Penn State and acting director of the Northeast Regional Center for Rural Development. Early in his career, he worked as an economist for the Economic Research Service of the U.S. Department of Agriculture. He obtained his bachelor's degree from Michigan State University, his master's from Penn State and his doctorate from the University of Wisconsin.

As part of the Memorandum of Understanding, the NCEDC has agreed to spend \$150,000 to supplement salary and fund sponsored research each of the next five years as CSU ramps up its newly created Office of Economic Development.

The NCEDC is charged with leveraging public and private funds to strengthen existing employers, support expansion projects, provide critical research for decision-making and recruit new employers who create primary jobs and invest capital.

The organization lists funding for higher education, including strengthening CSU's brand, among its Leadership 2010 Council goals. Its Higher Education Partnership Committee exists to help propel CSU into top position with the leading research and teaching universities in the United States and the world.

CSU already contributes to the state's economic development by preparing workers for the labor force and providing venues that enhance quality of life in the state. But the university aims to strengthen ties with such organizations as the NCEDC, the Fort Collins Area Chamber of Commerce and the city of Fort Collins and other partners.

"This agreement with the NCEDC is important in our efforts to expedite technology transfer opportunities and better serve our innovation community within Northern Colorado," said Hunt Lambert, associate vice president for economic development. "Our goal is to help connect industry with university programs and research to deliver required talent and technology to them. To do this efficiently, we will continue to work with partners like NCEDC to understand and deliver to the community's needs.

Executive Summary

Mirroring national trends, health care is playing an increasingly important role in the northern Colorado economy. Since 2001, the Health care and social assistance sector has added more than 2,900 jobs (24.6 percent). This accounts for nearly one of every two net jobs added by the private sector over this time period, positioning it as Larimer County's fourth largest employing sector. Strong growth is anticipated for the foreseeable future - over the next four years we expect the sector to add jobs at a robust 3.6 percent annual rate.

With financial support from the Northern Colorado Economic Development Corp. and Colorado State University's Office of Economic Development, we have taken a closer look at Larimer County's Health care and social assistance sector, documenting the current employment picture and recent trends for a variety of the sector's component groups. Overall, this information is designed to help citizens, policymakers and economic development practitioners better understand the industry's role in the regional economy.

Although health care makes important contributions to the regional economy, it is important to recognize upfront the sector's importance to quality of life. People get sick and injured. They age. They need wellness and preventive care and education. They may have mental illness or substance abuse problems. Consequently, access to quality health care and services is one of the most important factors in livability of a geographic area. Reflecting this, Money Magazine considers the quality of local health care a determining factor in its annual "Best Places to Live" issue, which recently ranked Fort Collins in the top spot.

Yet it is not only individuals who benefit from excellent health care. A recent commentary in Expansion Management notes that rising health care costs are a consideration when businesses decide where to locate. For many employers, increases in the costs of providing health insurance to workers are far outstripping wage growth. Further, businesses are increasingly encouraging their employees to live a healthy lifestyle, as a fit workforce is more productive and plays an important role in helping businesses succeed. Simply put, a strong health care sector and healthy workforce can have important effects in improving individual wellbeing in Larimer County.

A few highlights about the Larimer County health care sector:

- The health care and social assistance category has grown to be more dominant in the economy as a whole. The sector accounted for 8.3 percent of jobs in the economy in 2001; by 2005, that had increased to 10.1 percent.

- Health care wages are the second highest out of the top five sectors at \$37,098 – just above the county average. Manufacturing has the highest wages, followed by health care, educational services, retail and accommodation and food services.

- Larimer County experienced greater growth rates in the health sector than Colorado or the United States in all years except 2005.

- Ambulatory health care is the largest and fastest expanding sector, growing 28.2 percent from 2001 to 2005. Hospitals and nursing care facilities grew 24.4 percent and 20.6 percent, respectively.

From 2001 to 2005, all major subcomponents of Larimer County's health care industry added jobs. In fact, nearly all of the sectors outpaced the overall county growth rate of 4.9 percent. Hospitals and physicians' offices account for the largest share of total health employment (32 percent and 21.7 percent, respectively). Over the past five years, both of these sectors have experienced steady growth, although physicians' offices slowed somewhat from 2003-2004. The fastest growth has been in some of the smaller sectors such as medical and diagnostic laboratories (127 jobs/78.4 percent growth), home health care services (330 jobs/91.6 percent growth), and community care facilities for the elderly (683 jobs/45.3 percent growth).

The three fastest growing sectors also pay annual wages less than average, although the largest two sectors pay wages greater than the Larimer average. Overall, the average wage in health care is \$39,837, meaning that despite a few low-paying sectors, health care employees earn salaries greater than the county average. Even factoring in social assistance, the entire sector still earns above average wages.

Stable population growth, low poverty rates and relatively high percentages of insured individuals in the Larimer County population contribute to continued, steady growth of the health care industry. The current relatively young population of Larimer County does not spend as much or rely as heavily on health care as older populations, yet because Larimer has been targeted by retirees of the outdoor-loving baby boom generation, the composition of the population is likely to shift somewhat.

From 2007 to 2010, annual growth in the health care sector should average about 3.6 percent. Approximately 2,000 jobs are expected to be created. This growth is faster than what is expected throughout the economy in Larimer County, yet slower than its average yearly growth of nearly 6 percent throughout the '90s.

Obstacles still exist that could potentially slow the growth of the health sector. First, the labor market remains tight, and future expansion might be limited by labor supply. Second, health care—and subsequently health insurance – costs continue to rise faster than inflation and wages, pushing the bounds of what employers are able to pay. For many individuals – both insured and uninsured – health care has become unaffordable. This is not a desirable situation for anyone, the health sector included.

These obstacles are not insurmountable, and they have not gone unnoticed by the public and policymakers. Health is important to most people, so despite these problems it is unlikely that growth in Larimer County will significantly deviate from its current course. This sector will continue to be a driving force in the economy in the near future.

Associate Professor Martin Shields co-wrote this report with David Keyser, a research economist in the Economics department at Colorado State University. Shields works as a regional economist on behalf of the Colorado State University Office of Economic Development and Northern Colorado Economic Development Corporation. Shields can be reached at Martin.Shields@colostate.edu.

The Role of Health Care and Social Assistance in Larimer County's Economy¹

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Mirroring national trends, health care is playing an increasingly important role in the northern Colorado economy. Since 2001, the Health care and social assistance sector (NAICS² 62) has added more than 2,900 jobs (24.6 percent), positioning it as Larimer County's fourth largest employing sector. Strong growth is anticipated for the foreseeable future--over the next four years we expect the sector to add jobs at a robust 3.6 percent annual rate.

In this report we take a closer look at Larimer County's health care sector, documenting the current employment picture and recent trends for a variety of the sector's component groups. We also forecast industry employment through 2010. Recognizing that the health care economy has substantial ripple effects, we provide an economic impact analysis for the industry. Here we look not only at the jobs provided in the sector, but those supported through regional multiplier effects. We then introduce some of the key factors that will affect future growth in the sector and some of the challenges that health care provides to the region's development prospects. Overall, this information is designed to help citizens, businesses, policymakers and economic development practitioners better understand the industry's role in the regional economy.

Health Care and Quality of Life

Although Health Care makes important contributions to the regional economy, it is important to recognize upfront the sector's importance in contributing to quality of life. People get sick and injured. They age. They need wellness and preventive care and education. They may have mental illness or substance abuse problems. Consequently access to quality health care and services is one of the most important factors in the livability of any place. Indeed, previous research shows that the availability of a quality health care system is one of the most important factors influencing people's decisions about where to move and live. Reflecting this, *Money Magazine* considers the quality of local health care as one of determining factors in its annual "Best Places to Live" issue.

Yet individuals are not the only ones who benefit from excellent health care. A recent commentary in *Expansion Management* notes that rising health care costs are becoming a central consideration when businesses decide where to locate. This arises from the fact that, for many employers, increases in the costs of providing

¹ This report is possible due to the generous support of Northern Colorado Economic Development Corporation (www.ncedc.com) and Colorado State University's Office of Economic Development (<http://oed.colostate.edu>)

² This report looks at the Health Care and Social Assistance sector as defined by the North American Industrial Classification System (NAICS). For more information about NAICS, visit <http://www.census.gov/epcd/www/naics.html>.

health insurance to workers are far outstripping wage growth. Further, businesses are increasingly encouraging their employees to live a healthy lifestyle, as a fit workforce is more productive and plays an important role in helping businesses succeed. Simply put, a strong health care sector and healthy workforce can have important effects in improving individual well-being in Larimer County.

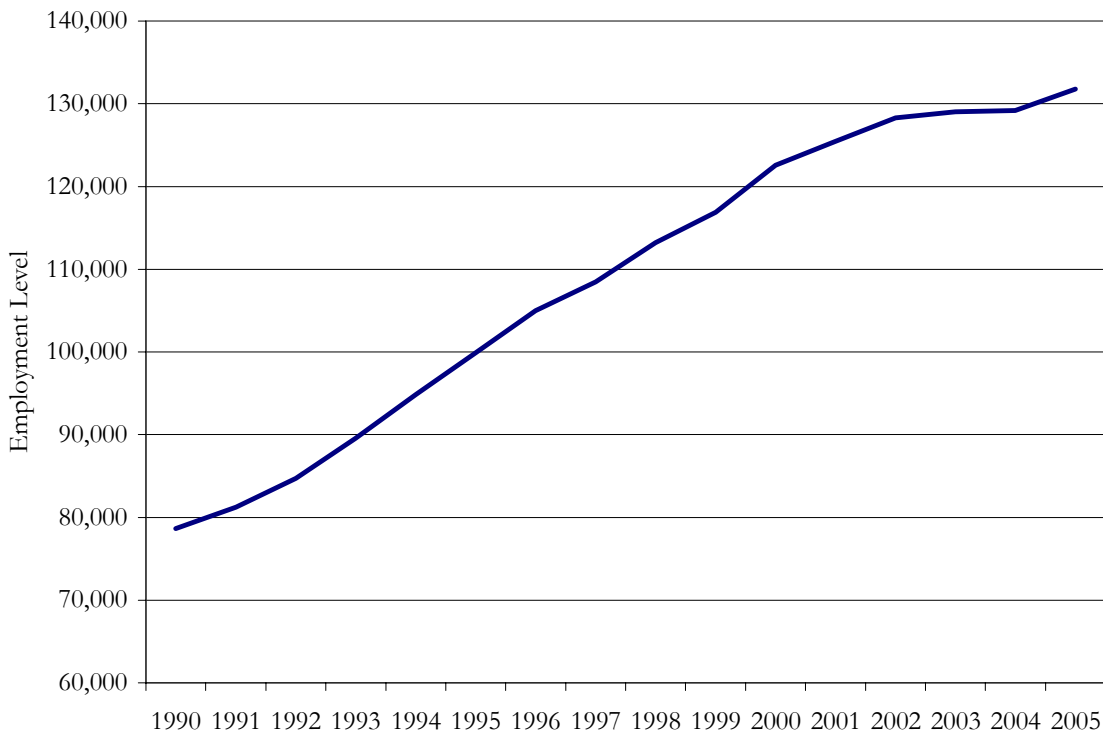
A Check-up on Larimer County's Economy

We begin our analysis by describing recent trends in Larimer County's economy, focusing on employment. We do this because the Health Care sector's economic performance is better understood by putting it in the context of the overall economy.

Like much of the Front Range, Larimer County has experienced steady growth over the past 17 years. Since 1990, the county has added 54,200 jobs, a 51 percent increase (Chart 1). Translating this to an annual basis, the county averaged 3.2 percent growth (by comparison Colorado's annual employment growth rate averaged 2.5 percent, while US employment growth averaged 1.4 percent). Larimer County's employment growth was especially notable over the 1990s, adding jobs from 1992-2000 at a robust 4.7 percent per year.

The 2001 national recession put the brakes on the county expansion, but unlike the US, Larimer County has not experienced annual net job losses this decade. Instead, the county has witnessed a slow but steady recovery. From the period 2002-06 Larimer County added 9,200 jobs, an average annual growth rate of 1.4 percent. By comparison, both Colorado and US employment annually grew an average 1.0 percent per year.

Chart 1: Total Larimer County Employment: 1990-2006



Source: Colorado Department of Labor and Employment

Continuing recent trends, our forecasting models show modest employment growth in the region over the next few years. While we do not expect rapid expansion, regional growth should slightly outpace both Colorado and the US.

Five industry sectors are at the forefront of employment in Larimer County, cumulatively accounting for half of the jobs in the region. Table 1 gives a general view of the largest in the Larimer County economy in 2005.³ Notably, Health care and social assistance has been the leader over this time period, growing faster than any of the top five industries. Health was the smallest sector out of the top five in 2001, yet, by 2005 added more jobs than any other sector.

Table 1: Largest Larimer County Sectors by 2005 Employment Levels

| Industry | 2005 Employment | 2001-2005 Level Change | 2001-2005 % Change | 2005 Number of Establishments | 2005 Average Wage |
|-----------------------------------|--------------------|------------------------------|-----------------------|-------------------------------------|-------------------------|
| Accommodation and food services | 17,101 | 2,271 | 14.2% | 781 | \$11,596 |
| Retail | 16,596 | -260 | -1.6% | 1,263 | \$23,146 |
| Educational services | 14,109 | 622 | 4.5% | 119 | \$35,872 |
| Health care and social assistance | 13,303 | 2,901 | 24.6% | 772 | \$37,098 |
| Manufacturing ⁴ | 12,920 | -1,873 | -13.5% | 446 | \$60,220 |
| Larimer County Total | 131,788 | 6,344 | 4.9% | 9,670 | \$35,289 |

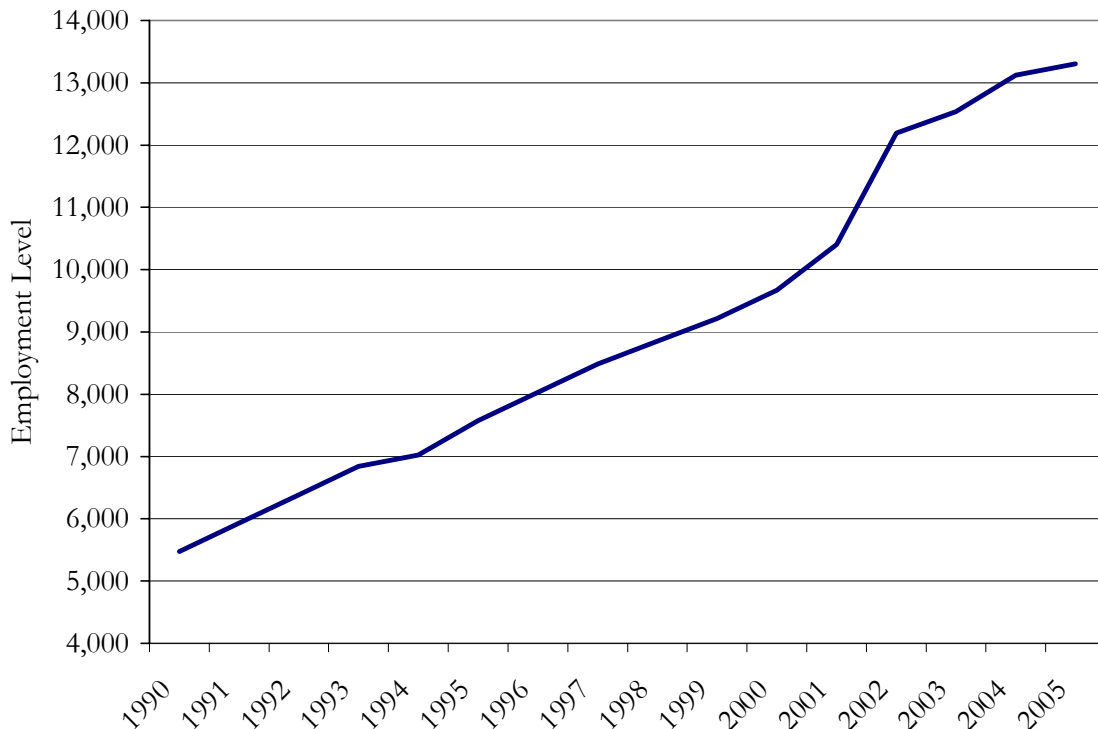
Source: Colorado Department of Labor and Employment

Further, as can be seen in Chart 2, Health care and social assistance continued to steadily increase during the nationwide recession, illustrating the sector's robustness relative to others. While Larimer experienced rapid average growth of 4.7 percent between 1992 and 2000, Health care and social assistance experienced even faster average growth of 5.3 percent. As the Larimer economy slowed in 2001 and 2002, the sector accelerated to 7.8 percent and 5.7 percent growth, respectively.

³ Accommodation and food services includes all hotels, motor parks, and lodging establishments as well as bars and restaurants. Retail is a broad sector, encompassing most stores as well as automotive dealerships, gas stations, and non-wholesale supply dealers. Educational services, as presented in Table 1.1, is both public and private. It includes state and local employees who work for public schools as well as those employed by the private sector. Health care and social assistance includes all employment associated with physical and mental health as well as care facilities for children, the elderly, or disabled. It also includes some vocational services as well as rehabilitation establishments. Manufacturing in Larimer is primarily of electronics, but also includes non-electronic manufacturing such as beverages and power equipment.

⁴ In 2005 Hewlett Packard in Fort Collins was reclassified from Manufacturing to Professional and Technical Services. We excluded it from the 2001 Manufacturing totals to ensure consistency.

Chart 2: Larimer Health Care and Social Assistance Employment: 1990-2005



Source: Colorado Department of Labor and Employment

Health care and social assistance has also grown to be more dominant in the economy as a whole. Table 2 shows employment in each of the top five sectors as a percentage of total Larimer County employment. In 2001 Health care and social assistance accounted for 8.3% of jobs in the economy, which increased to 10.1% by 2005.

Table 2: Industry Employment as a Percentage of Total Employment: 2001 and 2005

| Industry | Share of 2001 County Employment | Share of 2005 County Employment | 2001-2005 Change |
|-----------------------------------|---------------------------------------|---------------------------------------|---------------------|
| Accommodation and food Services | 11.8% | 13.0% | 1.2% |
| Retail | 13.4% | 12.6% | -0.8% |
| Educational services | 10.8% | 10.7% | 0.0% |
| Health care and social assistance | 8.3% | 10.1% | 1.8% |
| Manufacturing | 11.8% | 9.8% | -2.0% |
| All other | 43.9% | 43.8% | |

Source: Colorado Department of Labor and Employment

Over the same time period three sectors--most notably Manufacturing--decreased. Manufacturing shed nearly 1,900 jobs by 2005, a 14 percent reduction in sector employment. Somewhat surprisingly, Retail employment has also recently declined, with 300 fewer jobs in 2005 than 2001. Education employment also slightly decreased. Given their relative magnitudes, these losses were not as hard on the economy as the loss of manufacturing jobs.

These Manufacturing jobs were important because they were high paying jobs that exported goods out of the region. Table 1 shows average yearly wages earned by workers in the top five employing industries. In 2005,

the average Manufacturing worker earned \$60,220. This is considerably higher than the county average of \$35,289. By comparison, the two largest sectors in the economy have lower earnings per worker than the county average. Retail workers earned an average of \$23,146 in 2005 and Accommodation and food services workers earned \$11,596.⁵

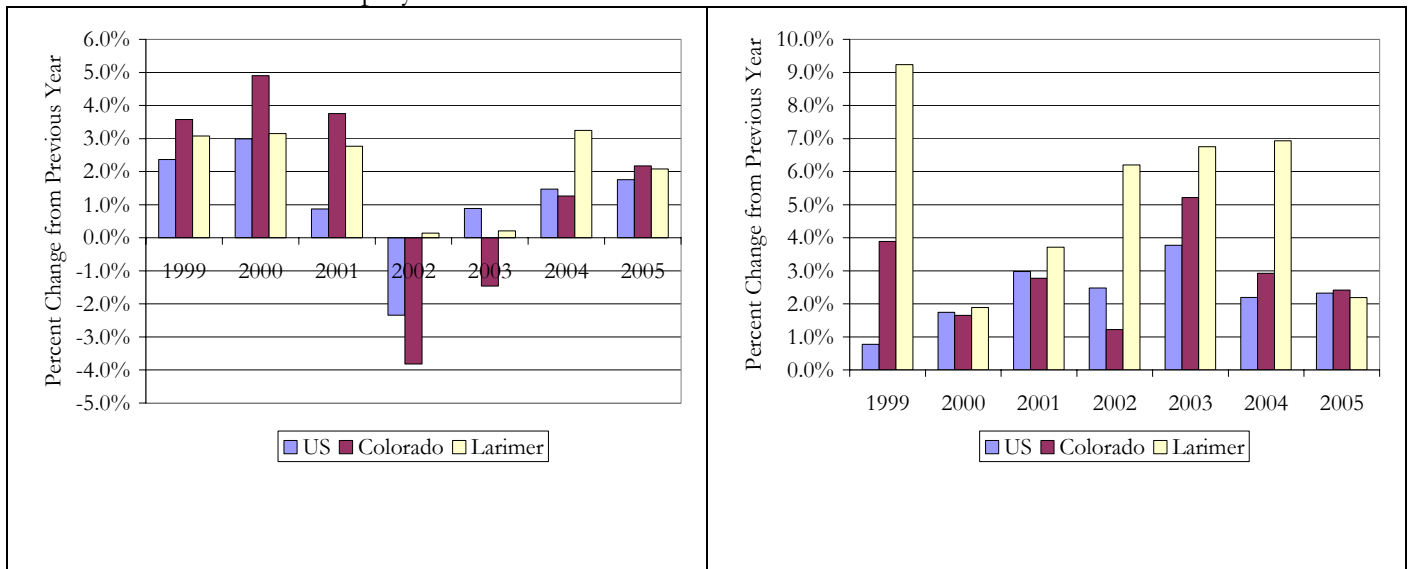
Health care and social assistance wages are the second highest out of the top five sectors at \$37,098 – just above the county average. This combined with its rapid and consistent growth cements its importance to the economy. It is both well paying and a reliable source of new jobs.

Looking at the Health Care and Social Assistance Economy through the Microscope

As previously stated, Health care and social assistance is extremely important to the Northern Colorado economy, and for that matter the economy nationwide. Technological improvements have dramatically increased the quality of health care while leaving it labor intensive. As a result, ever increasing numbers of nurses and caregivers are needed. This is a boon for workers, as industries with high labor demand also pay higher wages.

Over the past five years growth of the health sector has been particularly noticeable in Larimer County, especially when compared with Colorado and the United States. Chart 3 compares total employment growth rates for the three regions while Chart 4 shows growth in Health care and social assistance. Larimer consistently experienced greater growth rates than did Colorado or the United States in all years except for 2005. In no region over any time was employment growth in Health care and social assistance negative, despite negative employment growth in Colorado in 2002 and 2003 and negative growth in the United States in 2002.

Charts 3 and 4: Annual Employment Trends: Total and Health Care and Social Assistance



Source: US Census Bureau, Bureau of Labor Statistics

Within Larimer County Health care and social assistance jobs are concentrated in Fort Collins, which acts as a health care hub, catering to the many rural residents of the region. Table 3 shows the percentage of Larimer Health care and social assistance jobs in the three largest cities as well as the concentration of Larimer County population. The concentration of jobs in Loveland is about the same as the concentration of population,

⁵ This does not account for gratuity income, so the actual income of employees working in this sector is likely higher.

although the addition of the Medical Center of the Rockies should increasingly transform Loveland into a second hub.

Table 3: Concentration of Larimer Health Care and Social Assistance Jobs and Population

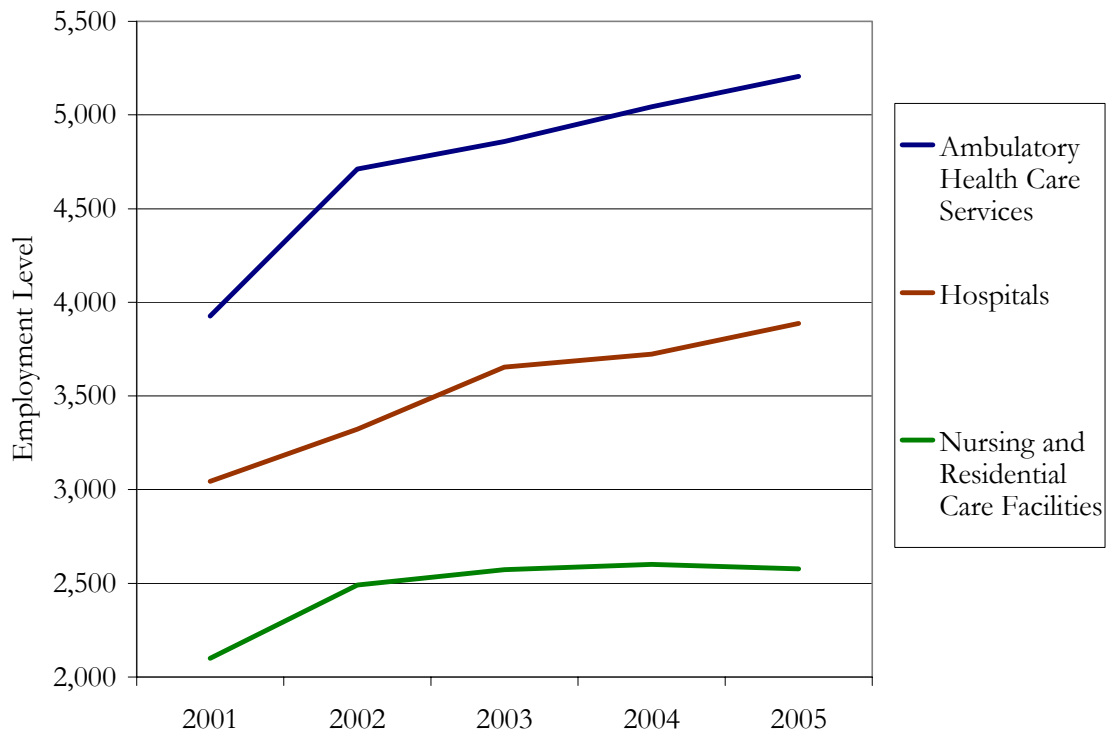
| Place | Share of County Health care and social assistance jobs (2005) | Share of County Population (2000) |
|-----------------|---|-----------------------------------|
| Fort Collins | 70.8% | 47.2% |
| Loveland | 23.9% | 20.1% |
| Estes Park | 3.4% | 2.2% |
| All Other Areas | 1.9% | 30.5% |

Source: Colorado Department of Labor and Employment, US Census Bureau

The Health care and social assistance sector is quite broadly defined, ranging from pediatric dentists, to hospitals, to retirement homes. Because they are targeted to different consumers, each of these sectors can have dramatically different trends. In order to better understand the dynamics of the individual components, we look at recent performance for the sector’s various components.

Chart 5 shows the three three-digit NAICS sectors that compose Health care. Ambulatory health care is the largest and fastest expanding sector, growing 28.2 percent (1,280 jobs) from 2001 – 2005. Hospitals and Nursing care facilities grew 24.4 (about 791 jobs) and 20.6 percent (about 577 jobs), respectively.

Chart 5: Employment Levels of Health Care Subsectors



Source: Colorado Department of Labor and Employment

Table 4 shows NAICS three digit sectors in the first column, NAICS four digit sectors in the second column, and corresponding employment, wage, and establishment information by year or time period. Over the period 2001-2005 all of the sub-components of Larimer County's Health care and social assistance industry added jobs. In fact, nearly all of the sectors outpaced the overall county growth rate of 4.9% over this timeframe. Hospitals and Offices of physicians account for the largest share of total health employment (32.0 percent and 21.7 percent, respectively). Over the past five years both of these sectors have experienced steady growth, although Offices of physicians slowed somewhat from 2003-2004. The fastest growth has been in some of the smaller sectors such as Medical and diagnostic laboratories (127 jobs/78.4 percent growth), Home health care services (330 jobs/91.6 percent growth), and Community care facilities for the elderly (683 jobs/45.3 percent growth).

Table 4: Health Care in NAICS Four Digit Subcomponents: Larimer County

| 3-digit NAICS | 4-digit NAICS | 2001 Employment | 2005 Employment | 01-05 Change | 01-05 % Change | 2005 Wages | 2005 # of Firms |
|---|--|--|-----------------|--------------|----------------|---------------|-----------------|
| Ambulatory health care services | Offices of physicians | 2,093 | 2,537 | 444 | 19.2% | \$60,560 | 186 |
| | Offices of dentists | 709 | 861 | 152 | 19.4% | \$39,494 | 151 |
| | Offices of other health practitioners | 393 | 581 | 188 | 39.1% | \$26,401 | 204 |
| | Outpatient care centers | 449 | 667 | 218 | 39.6% | \$45,495 | 26 |
| | Medical and diagnostic laboratories | 58 | 127 | 69 | 78.4% | \$34,870 | 13 |
| | Home health care services | 132 | 330 | 198 | 91.6% | \$20,275 | 7 |
| | Other ambulatory health care services | 92 | 103 | 11 | 11.3% | \$32,815 | 8 |
| | Hospitals | General medical and surgical hospitals | 2,936 | 3,727 | 791 | 23.9% | \$40,896 |
| Psychiatric and substance abuse hospitals | | | Non-Disclosable | | | Above Average | 1 |
| Nursing and residential care | Nursing care facilities | 1,216 | 1,502 | 286 | 21.1% | \$24,244 | 15 |
| | Residential mental Retardation, mental health and substance abuse facilities | 344 | 386 | 42 | 11.5% | \$23,598 | 10 |
| | Community care facilities for the elderly | 434 | 683 | 249 | 45.3% | \$18,308 | 20 |
| | Other residential care facilities | | Non-Disclosable | | | Below Average | 1 |
| Totals | Health | 9,070 | 11,672 | 2,602 | 25.2% | \$39,837 | 645 |
| | Social assistance | 1,332 | 1,631 | 299 | 20.3% | \$17,498 | 127 |
| | Health and social assistance | 10,402 | 13,303 | 2,901 | 24.6% | \$37,098 | 772 |

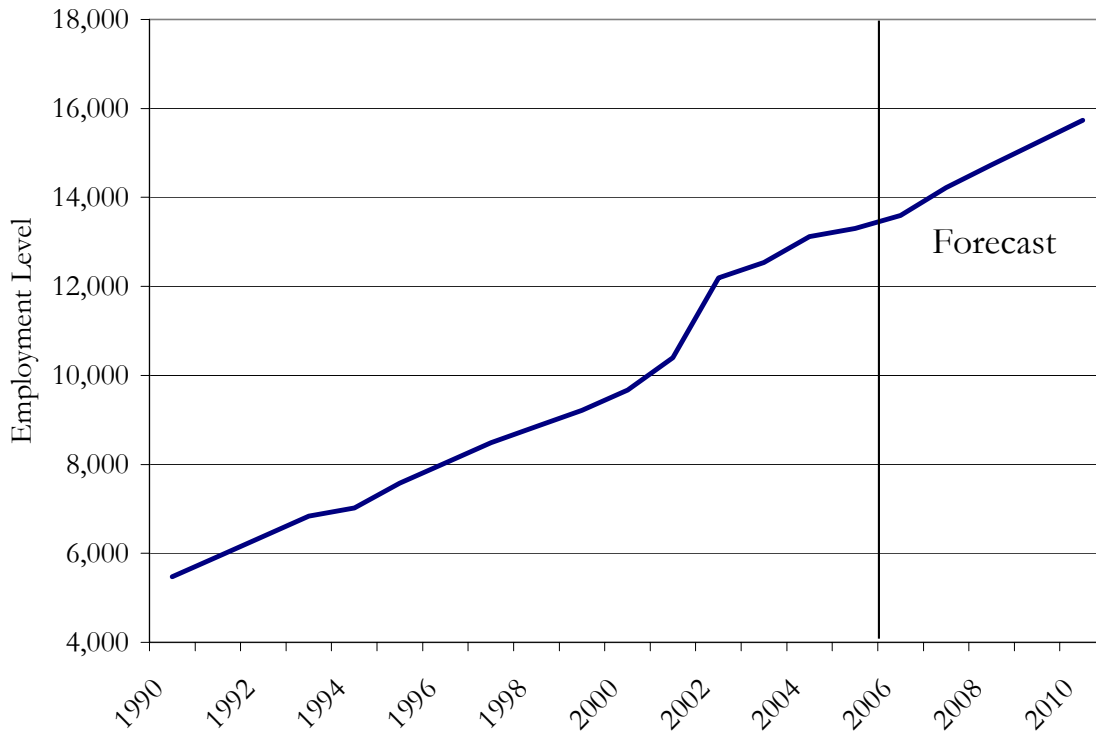
Source: Colorado Department of Labor and Employment

The only sector to experience negative growth - Other residential care facilities - pays yearly wages less than the Larimer County average of \$35,289. The three fastest growing sectors also pay annual wages less than average, although the largest two sectors pay wages greater than the Larimer average. Overall, the average wage in health care is \$39,837, meaning that despite a few low paying sectors health care employees earn salaries greater than the county average. Even factoring in Social assistance, the sector overall still earns above average wages.

A Prognosis for Health Care Employment

Looking into the future, we expect the continued robust growth, especially given the recent opening of the Medical Center of the Rockies in Loveland. Overall, our employment forecasting models show that recent trends are expected to continue (Chart 6). From 2007 to 2010, annual growth should average about 3.6%. Approximately 2,000 jobs are expected to be created in this sector. This growth is faster than what is expected in Larimer County, yet slower than its average yearly growth of nearly 6% throughout the 90s.

Chart 6: Larimer Health Care and Social Assistance



Source: Colorado Department of Labor and Employment, Colorado State University

The Economic Contribution of the Health Care and Social Assistance Sectors to the Larimer County Economy

By chronicling trends in industry employment and earnings, the preceding section documents how Health care and social assistance *directly* contribute to Larimer County's economy. However, these numbers capture only a portion of the sector's total effect on the regional economy. In particular, the above analysis does not account for the economic activity created at other levels of the industry supply chain, or those effects induced by Health care and social assistance workers spending money in the local economy.

In order to understand the overall magnitude of the industry's regional economic impact it is important to recognize the additional jobs and income created through ripple—or multiplier—effects. The *indirect effects* represent the spin-off effects of the Health care and social assistance sector. For example, a hospital might purchase linens and other supplies locally, thus creating additional jobs in the community. Alternatively, a chiropractor might hire a local accountant to take care of her bookkeeping. Further, employees of both health care businesses and their suppliers create local economic activity through their individual purchases. For example, doctors, nurses, pharmacists and linen supply workers all buy products locally, resulting in still more economic activity and jobs. All of these effects are part of the sector's total economic impact.

In this section we use an economic impact model to capture the extent to which the Health care and social assistance sector creates spin-off economic activity. In our analysis we use IMPLAN, a model widely used in economic impact studies.⁶ Our results show that the sector creates 9,166 jobs through multiplier effects. Combined with information from the preceding section, then, we find that the Health care and social assistance sector supports 22,469 total jobs in the Larimer County economy, and provides households with \$749.32 million in earnings income.

Direct effects

Table 5 reports the components of the Health care and social assistance sector's impact on Larimer County's economy. Using data from 2005, we see that the county's Health sector directly provides 13,303 jobs. Specifically, Hospitals employ 3,888 workers, while the Offices of doctors, dentists and other professionals employ 3,979. Nursing and protective care facilities provide 2,578 jobs, while Other medical and health services provide 897 jobs. Social assistance accounts for 1,631 jobs. Total payroll for these positions is \$493.52 million, or \$37,098 per job.

Table 5. Larimer County Health Care and Social Assistance Sector Impact on Employment and Income

| Industry | Employment | Employment Multiplier | Total Employment Impact | Income (\$Millions) | Income Multiplier | Total Income Impact (\$Millions) |
|------------------------------------|------------|-----------------------|-------------------------|---------------------|-------------------|----------------------------------|
| Home health care | 330 | 1.36 | 448 | 6.69 | 1.41 | 9.44 |
| Offices of physicians and dentists | 3,979 | 1.61 | 6,420 | 202.98 | 1.34 | 271.27 |
| Other ambulatory health care | 897 | 2.32 | 2,084 | 38.15 | 2.00 | 76.29 |
| Hospitals | 3,888 | 2.03 | 7,886 | 159.04 | 1.71 | 271.79 |
| Nursing and residential care | 2,578 | 1.41 | 3,629 | 58.11 | 1.37 | 79.75 |
| Child day care | 853 | 1.24 | 1,055 | 13.51 | 1.53 | 20.66 |
| Social assistance, except day care | 778 | 1.22 | 947 | 15.03 | 1.34 | 20.10 |
| Total | 13,303 | 1.69 | 22,469 | 493.52 | 1.52 | 749.32 |

Indirect effects

Using IMPLAN's type SAM multiplier, we see that the employment and income directly generated by the Health sector has a significant impact on employment and income in other industries in Larimer County. For example, the employment multiplier for the county's Hospital sector is 2.03. This indicates that for each job created in the Hospital sector, another 1.03 additional jobs are created in other businesses and industries in Larimer County.

This multiplier shows that the direct employment of 3,888 Hospital workers results in an indirect impact of 3,998 additional jobs ($3,888 \times 1.03 = 3,998$) throughout all businesses and industries in the county. Thus, the Hospital sector employment in Larimer County has a total impact on county employment at a level of 7,886 jobs ($3,888 + 3,998 = 7,886$).

Likewise, the total impact of the \$493.52 million payroll to Hospital employees can be estimated. Looking at Table 5, the income multiplier for the Hospital industry in Larimer County is 1.71. This multiplier indicates that for each dollar's worth of income generated in the Hospital sector, another \$0.71 is generated in other businesses and industries in the county. This means that the estimated total impact on income throughout all businesses and industries in the county is about \$271.79 million ($\$159.04 \text{ million} \times 1.71 = \271.79 million).

⁶ For a detailed description of the IMPLAN model, see www.implan.com.

Following the same procedures, we estimate the total impacts that employment and income levels of the other Health sector categories have on income and employment levels throughout the county's economy. Overall, we estimate the sector supports 22,469 jobs (13,303 directly), directly representing about 10 percent of total employment and supporting 17 percent of total employment in the county. The Health and Social Assistance sector income of \$493.52 million results in a total county income impact of \$749.3 million.

The Health Care and Social Assistance Sectors as Economic Growth Engines

In previous sections we quantified the regional economic impacts of Health care and social assistance. In this section we discuss several important issues influencing the extent to which these sectors should be viewed as regional economic drivers. Specifically, we examine factors that influence the sector's ability to generate *new* local economic activity by bringing new money into the region.⁷

Central to our discussion is what economists refer to as economic base theory, which is a theory explaining economic growth and decline in relatively small regions. In this framework, a region's economic prospects rely heavily on its ability to bring in new money from the outside. This can happen through selling products outside of the region (exporting), or, alternatively, bringing people in to consume locally produced products. In economic base theory, money generated through exports creates local jobs both directly in the exporting business and indirectly in supporting industries.

One important aspect of economic base theory is that any given sector's ability to move the regional economy forward is determined by the extent that it brings new money into the economy. For example, some industries, such as Computer and electronics manufacturing, are clearly economic drivers, as their product is primarily sold to those living outside the region. Conversely, businesses such as restaurants and grocery stores predominately sell to local consumers. Although these businesses create jobs and value, they do not necessarily bring substantial new money into the region. Consequently, such businesses are often not considered as part of the local economic export sector.

While services produced by the Health care and social assistance sector are definitely produced and consumed locally, they also can bring new dollars into Larimer County. For example, the new Medical Center of the Rockies (MCR) expects to draw patients not only from the local population, but from elsewhere in Colorado, Wyoming, and Nebraska. In these cases, the MCR brings new money into the economy, effectively exporting health care services and helping drive regional economic growth.⁸ In practice, the greater the extent to which Health and social assistance providers can draw on customers from outside the region, the greater their ability to drive the regional economy.

Transfer payments in support of health care are another aspect of the sector's ability to bring new money into the region. For example, Medicare and Medicaid are two important programs that provide health care coverage to retired and poor people, respectively. Because these programs are funded by federal and state government, they *can* be a source of new money. The potential is affected by the extent to which Larimer County's citizens receive coverage under these programs versus the amount of taxes that residents and businesses pay in support of these programs. In general, communities with a relatively high percentage of elderly and/or poor residents tend to have new inflows of Medicare and Medicaid dollars, while younger, wealthier communities tend to pay more in taxes to these programs than they receive in benefits.

⁷ Our discussion here focuses on the demand for health and social assistance services provided in the county. It does not discuss research-driven initiatives in bio- and life sciences that also can create new economic opportunities in the region.

⁸ A more extreme example might be the Children's Hospital in Denver, whose world renowned Heart Institute draws patients from across the country.

Regional demographics and sector growth

Like any other good or service, population characteristics have a critical role in determining the demand for Health care and social assistance. For example, older people tend to require more health services than younger people (Meara, White, & Cutler, 2004), and poorer people tend to have more health problems than wealthier people (Kennedy, Kawachi, Glass, & Prothrow-Stith, 1998). Thus, developing a better sense of the sector's underlying growth dynamics, especially in the overall national context, requires an understanding of local demographic characteristics. In Table 6 we provide a snapshot of some of the key factors that influence the demand for health care. This information should provide some insight into reasons why the sector is growing as it is in Larimer County. As we will detail next, Larimer County's demographics suggest that the region currently demands less health care than the US average.

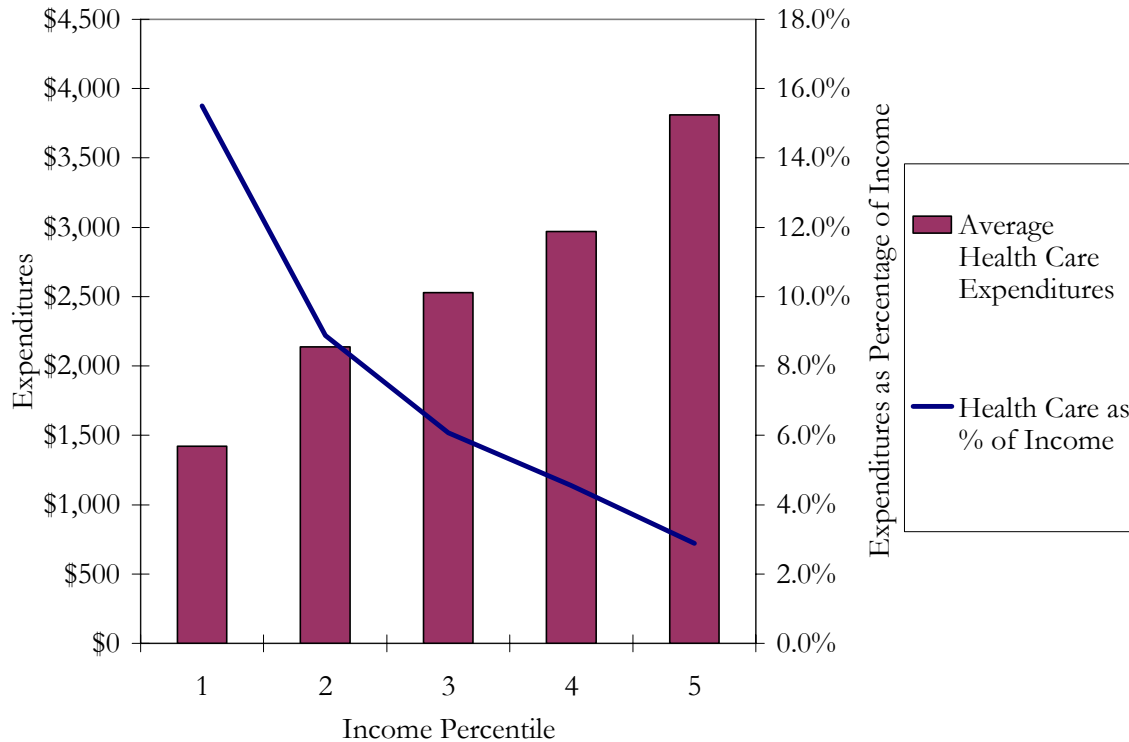
Table 6. Select Population Characteristics

| Demographic Indicator | Larimer County | Colorado | United States |
|--|----------------|----------|---------------|
| Median household income (2004) | 50,911 | 50,105 | 44,334 |
| Median age (2005) | 34.5 | 35.2 | 36.4 |
| Population 65+ years of age (2004) | 9.7% | 9.6% | 12.4% |
| Population 80+ years of age (2004) | 2.5% | 2.4% | 3.6% |
| Poverty rate (2004) | 9.8% | 10.2% | 12.7% |
| Percentage of residents age 18-65 covered by health insurance (2004) | 84.0% | 79.0% | 79.8% |
| Uninsured (all ages) (2004) | 13.0% | 17.0% | 15.9% |

Source: US Census, Colorado Demographer, Health District of Northern Larimer County

The first demand factor is median household income. Median income in Larimer County is greater than Colorado or the rest of the United States (\$50,911 in 2004). As shown in Chart 7, health care expenditures go up with income, albeit at a decreasing rate. This shows that the poor pay disproportionately higher percentages of their income for health care than others. The implications of this, *all else equal*, are that residents of Larimer County will consume more health care services than an average household in the United States, and that this will not put as much of a financial strain on that household as it would an average United States household.

Chart 7. Health Care Expenditures by Income Quintile: 2004

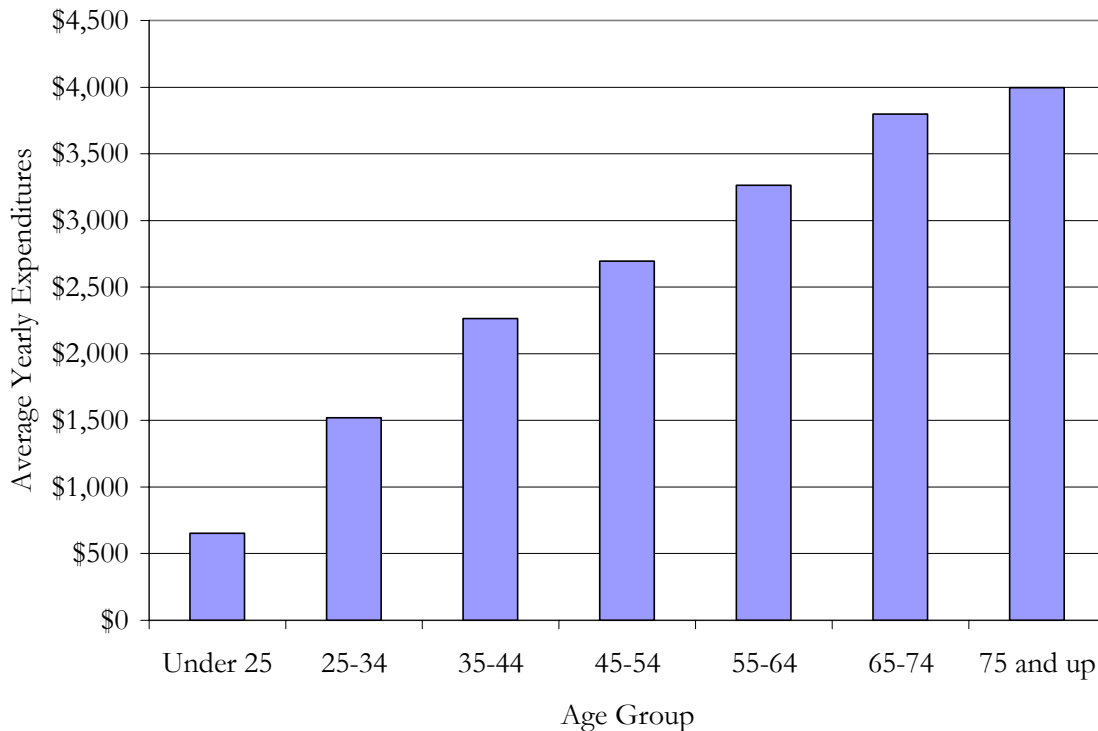


Source: Bureau of Labor Statistics

Countering the positive income effect is increasing health costs. In 2001 the average household spent 5.5 percent of its income on health care. This number had increased to 5.9 percent by 2004 (Bureau of Labor Statistics). This will be discussed further in the following section dealing with policy challenges.

Also negatively affecting relative demand for health care services is the fact that residents in the county tend to be younger, and younger people tend to spend less on health care than do older people (Chart 8). For example, the US Bureau of Labor Statistics shows that health care spending by people 54 and under averaged \$1,782 per person in 2004. By comparison, health care spending by people 55 years of age and up averaged \$3,685 per person that same year. Turning to Table 6, we see that Larimer County's median resident age is 34.5 years, 1.9 years younger than the US median age. Another indication of the county's relative youth is the fact that Larimer County has a lower percentage of residents 65 years and older (9.7 percent) than the US average (12.7 percent). With these age trends, we expect lower per capita health care expenditures, *all else equal*.

Chart 8. Health Care Expenditures by Age Group: 2004



Source: Bureau of Labor Statistics

The local poverty rate is another important regional demographic characteristic influencing health care demand. Consistent with the preceding analysis on household income, we expect that a relatively low poverty rate would mean more people could afford to purchase all of the health care that they require. In such circumstances we expect that lower poverty rates are associated with higher health care expenditures per person.

However, this relationship may be negated by the fact that poor people tend to have more health problems than do wealthy people—perhaps, in part, by not being able to afford preventative care. In this case, we expect that higher poverty rates would result in higher expenditures per person. Summing up, the tension on expenditures with respect to poverty rates is that poor people may have more needs than others, but they are unable to afford all of the health care that they require. As a result, poverty has a somewhat ambiguous—yet incredibly important—effect on local health care expenditures.

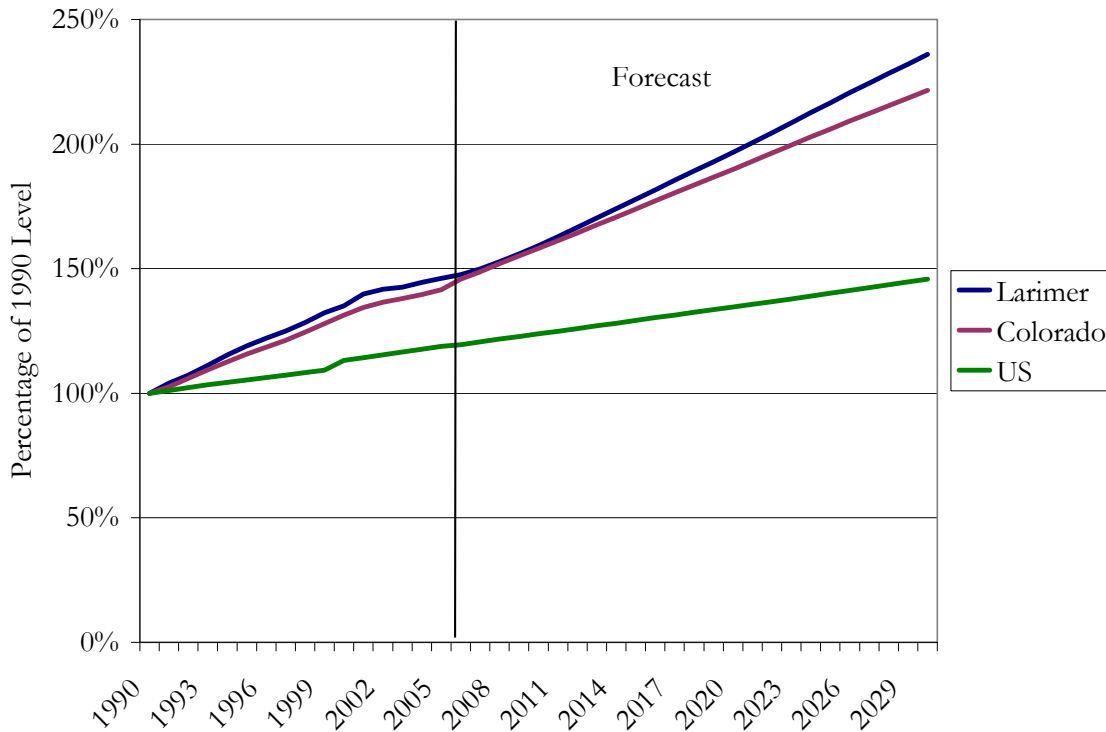
The final demographic characteristic we look at is the extent to which the local population is covered by health insurance. Previous research shows that people with health insurance tend to consume more health care than those without it, and those with better coverage demand more health services than those whose coverage forces them to pay higher out of pocket expenses, all else equal (Manning, Newhouse, Duan, Keller, & Leibowitz 1987). Thus, we expect higher per capita expenditures in places with a higher proportion of residents covered by health insurance. Returning to Table 6 we see that 84 percent of all Larimer County residents age 18 – 65 are covered by some type of health insurance, which could include Medicaid. By comparison 79.8 percent of US residents of the same age group have health insurance coverage. Thus, we expect that, all else equal, Larimer County would have higher per person medical spending.

While the above analysis provides a good snapshot of Larimer County’s current demand for health services, predicting how the sector will change over time requires understanding how the county’s key population

attributes will evolve. In the remainder of this section we describe two important demographic characteristics that can influence future growth.

Population growth—primarily through in-migration – is the first demand driver. Currently, Larimer County’s population is about 272,000, an increase of 86,000 residents since 1990 (40 percent total or 2.5 percent per year). Although Larimer County’s growth has slowed from the rapid expansion of the 1990s (3.1 percent per year), population forecasts still suggest about two percent annual county growth, outpacing both Colorado and the US (Chart 9). Accordingly, it is reasonable to expect continued steady growth in the demand for Health care and social assistance in Larimer County.

Chart 9. Historical and Forecasted Population as Share of 1990 Totals: Larimer, Colorado and the US

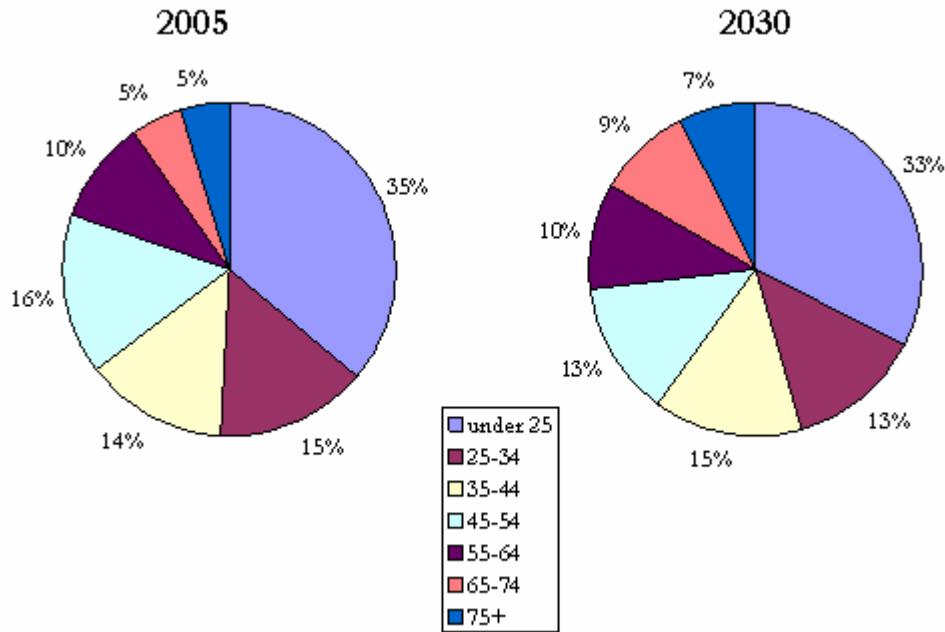


Source: US Census Bureau, Colorado Demographer

Although aggregate population growth is *the* primary growth driver growth in the Larimer County Health care and social assistance sector, we can enhance our understanding of the region’s health care prospects by looking closer at the evolving age profile of the county. This is important because, as we noted above, the demand for health care and social assistance varies greatly by age category.

In Chart 10 we show the projected change in the county’s age structure. Currently about 9.7 percent of the population is 65+ years of age, and 2.5 percent is 80+ years of age. By 2030, these percentages will increase to 16.6 percent and 3.8 percent, respectively. This dynamic—which is consistent with national trends, and driven by the aging of the baby boomers, should further increase the demand for Health care and social assistance. If Fort Collins grows as a destination for retirees as many expect, this trend could intensify.

Chart 10. Larimer County Age Profile: 2005 and 2030 (projected)



Source: Colorado Demographer

Policy Challenges Affecting the Health Care and Social Assistance Sector

While demographic and economic trends suggest a continued expansion of the Health care and social assistance sector in Larimer County, there are some factors that could slow its growth. In this section we describe two important issues that can influence the sectors’ long-term prospects and their policy implications.

Workforce. The first issue is the national shortage of medical workers. Here, the concern is that sectoral growth will be slowed by the inability of the supply of skilled medical professionals to keep up with increased demand. Simply put, while the sector *wants* to hire more workers, they just are not available. Thus, health providers may not have the staffing levels that they desire.

This trend is most evident for registered nurses, the largest occupation class in health services. According to the US Bureau of Labor Statistics, registered nurses (RNs) are projected to create the second largest number of new jobs among all occupations. As a result, job opportunities in most specialties and employment settings are expected to be “excellent.” Yet the BLS notes that some employers are having a difficult time in attracting and retaining enough RNs (www.bls.gov/oco/ocos083.htm). This concern is nicely summarized by a recent report of the US Department of Health and Human Services:

An adequate supply of nurses is essential to achieving the Nation’s goals of ensuring access to affordable, high-quality healthcare....[O]ur analysis suggests that the current RN shortage will continue to grow in severity during the next 20 years if current trends prevail and that some States face a more severe shortage than do others. The growth and aging of the population, along with the Nation’s continued demand for the highest quality of care, will create a surging demand for the services of RNs over the coming 2 decades. At the same

time, because many RNs are approaching retirement age and the nursing profession faces difficulties attracting new entrants and retaining the existing workforce, the RN supply remains flat.
(<ftp://ftp.hrsa.gov/bhpr/workforce/behindshortage.pdf>).

So how will these skill gaps be addressed? Intuitively, we expect that employers will need to pay higher wages if they want to attract more skilled medical professionals. Pay increases, however, will likely translate into an increase in overall medical costs; a troubling outcome in a sector where costs are already growing faster than inflation. Additionally, because skilled medical professionals can require years of training—often at least an associate’s or bachelor’s degree – it will take some time before a sufficient cadre of workers can be trained. The speed at which the labor market adjusts can be further slowed if there are not enough slots available in training programs for all those who strive to become registered nurses. Here, then, is a fundamental workforce development policy challenge: how do we create a workforce training system that responds to the growing demand in the health care and social assistance sectors in a timely and cost-effective manner?

The Increasing Cost of Health Insurance. The second issue that might slow the growth of the Health care and social assistance sector is the rapid growth in health insurance premiums facing individuals and businesses. Over the past five years, research shows that health costs are increasing faster than inflation (21 percent versus 13 percent since 2001 according to the Bureau of Labor Statistics). For those who have health insurance, these rising costs have manifested themselves in higher premiums.

Currently, about 62 percent of Americans are insured through employer-sponsored health plans. According to the 2006 Employer Health Benefits Survey by the Kaiser Family Foundation and the Health Research and Educational Trust (HRET) (www.kff.org/insurance/7527/), premiums for employer-sponsored health coverage increased 7.7 percent in 2006. While this was the slowest rate of premium growth since 2000, premiums still increased more than twice as fast as workers’ wages (3.8 percent) and overall inflation (3.5 percent).⁹

To date, businesses and individuals have absorbed the cost increases,¹⁰ and demand for health services seems not to have slowed because of higher prices.¹¹ However, there is legitimate concern that if costs continue to grow at recent rates, businesses and individuals will respond by choosing plans that offer reduced coverage. For example, some services currently covered by employer-sponsored insurance plans may not be offered in the future, such as dental or mental health. Alternatively, employers may drop coverage of their employees’ dependents. In the worst case scenario, employers might drop coverage altogether. In any of these outcomes, the demand for health services could be reduced, thus slowing growth in the sector.

Here the policy challenges are profound. Specifically, what, if anything, should be done to either a) contain the costs of health care, or b) help individuals and businesses have adequate access to affordable health insurance. Currently, Colorado’s Blue Ribbon Commission for Healthcare Reform is studying health care reform models “for expanding coverage, especially for the underinsured and uninsured, and to decrease health care costs for Colorado residents” (www.colorado.gov/208commission/).

⁹ Premiums have increased 87 percent over the past six years. Family health coverage now costs an average \$11,480 annually, with workers paying an average of \$2,973 toward those premiums, about \$1,354 more than in 2000.

¹⁰ The primary means that these costs are now absorbed is through higher deductibles and co-pays, and increased employee and employer contributions.

¹¹ Employer coverage was 59.5% in 2004 and 60.4% in 2006, according to the US Census Current Population Survey

Summary

Larimer County's economy has done fairly well over the past 15 years, particularly when compared with Colorado as a whole or the United States. Yet during the past five years northern Colorado has been rocked by manufacturing job losses, which has led the sector's share of county employment to dramatically decline. Buoying the economy in the face of these job losses, strong growth in Health care and social assistance propelled it to become the fourth largest sector in the economy, and it shows no signs of slowing.

Demand for health care and social assistance workers is high, and wages in Larimer County are above average. Workers in this sector are an important element of the Larimer economy, supporting thousands of jobs from other sectors through indirect effects.

Stable population growth, low poverty rates and relatively high percentages of insured individuals in the Larimer County population contribute to continued, steady growth of the industry. The current relatively young population of Larimer County does not spend as much or rely as heavily on health care and social assistance as older populations, yet because Larimer has been targeted by retirees of the outdoor-loving baby boom generation, the composition of the population is likely to shift somewhat.

Obstacles still exist that could potentially slow the growth of the Health care and social assistance sector. First, the labor market remains tight, and future expansion might be limited by labor supply. Second, health care—and subsequently health insurance – costs continue to rise faster than inflation and wages, pushing the bounds of what employers are able to pay. For many individuals – both insured and uninsured – health care has become unaffordable. This is not a desirable situation for anyone, the health sector included.

These obstacles are not insurmountable, and they have not gone unnoticed by the public and policymakers. Health is important to most people, so despite these problems it is unlikely that growth in Larimer County will significantly deviate from its current course. This sector will continue to be a driving force in the economy in the near future.

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