

# The Importance of Community Colleges to the Tenth District Economy

*By Alison Felix and Adam Pope*

The recent recession and now the recovery have caused enrollment at many community colleges to soar as unemployed workers retrain for new occupations and students who might otherwise attend a four-year college choose to save money. In the Tenth District, the importance of community colleges is likely to rise even further as the economy continues to evolve and industries demand workers with new skills.

Labor market projections over the next decade suggest that new jobs in the district will be filled more by workers with an associate's degree or some college than by those with any other type of education. In the short run, with state and local government funding still falling, many community colleges will be challenged to educate a growing number of students. In the long run, evolving industries will likely further challenge community colleges to produce even more workers with newer skills—both nationwide and in the Tenth District.

This article examines how the Tenth District's reliance on community colleges is likely to grow in the years ahead. The first section describes trends in community college education and details how these

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colleges contribute to economic development in the Tenth District. The second section explores the challenges associated with economic downturns: rising enrollment and shrinking government revenues. The third section examines the implications of long-run job projections in district states for the demand for community colleges graduates—and whether the states' current level of provision for community college education appears adequate.

## I. COMMUNITY COLLEGES AND ECONOMIC GROWTH

Over the past half century, many community colleges have adapted to the evolving educational needs of the population amid continually changing economic conditions. Collectively, these colleges have played an increasingly important role in higher education and have therefore become a key resource for economic growth in the communities they serve.

### *Who uses community colleges and why?*

The role of community colleges has grown over the years as they have broadened their range of educational offerings to satisfy a greater and more diverse group of students.<sup>1</sup> Community colleges were founded around the turn of the 20<sup>th</sup> century to provide a more affordable path to a bachelor's degree. Students could earn a two-year associate's degree at a local school and then transfer to a more traditional four-year university to finish their higher education. Today, community colleges also provide an opportunity for high school students to earn college credit, a place to obtain a vocational skill, to earn certification or other training for a career change, and to develop life skills.

Nationwide, the percentage of post-secondary students attending two-year colleges has more than doubled over the last half century. Enrollment jumped from 17.8 percent of college students nationwide in 1963 to 36.5 percent in 2008 (Digest of Education Statistics).<sup>2</sup> Although community colleges play an important role in every state, over time some states have focused more heavily than others on developing their community college systems.<sup>3</sup> In California, New Mexico, and Wyoming, more than 55 percent of all post-secondary students attended community colleges in 2008, compared to less than 15 percent in Alaska, South Dakota, Nevada, and North Dakota.

Today's community colleges also serve a diverse student body. Female and minority students make up a larger share of the Tenth District's community college student body than at district four-year colleges (Integrated Postsecondary Education Data System).<sup>4</sup> In addition, community colleges in the district have a much higher percentage of students over the age of 25 and enrolled part time.<sup>5</sup>

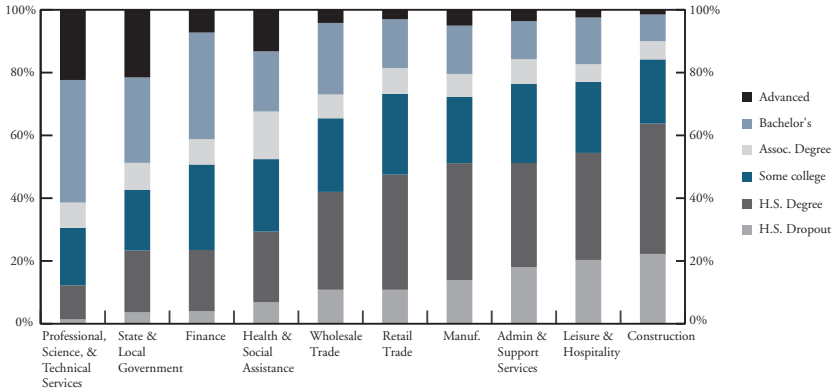
By offering a wide variety of courses ranging from single classes to two-year programs, community colleges offer students a variety of benefits. Perhaps the most common reason that students attend community colleges is to increase their earnings potential. In general, when controlling for differences in background and ability, individuals with more education tend to earn higher wages.<sup>6</sup> A number of studies have found completing 30 credits (or one full-time year) leads to increases in wages of 5 to 11 percent. Individuals with an associate's degree earn between 20 and 30 percent more than their high school-only counterparts. In contrast, students with 12 college credits or less earn less than 5 percent more than those who only complete high school, and often there is no wage premium at all (Grubb).

Graduates of community colleges find employment at varying levels in virtually every industry (Chart 1).<sup>7</sup> For example, in the healthcare industry over 15 percent of workers have an associate's degree, and an additional 23 percent have some college (the category "some college" includes individuals who have attended college, not necessarily community colleges, for any time period—but have not received an associate's or bachelor's degree). These workers include registered nurses, dental hygienists, nursing aides, and physical therapist assistants.<sup>8</sup> The financial, retail trade, and wholesale trade industries also rely heavily on workers trained at community colleges. More than 30 percent of workers in these industries have either an associate's degree or some college.<sup>9</sup> While not required for positions such as bank teller or sales associate, an associate's degree is often necessary for advancing to better-paying management positions (Bureau of Labor Statistics).

Jobs in industries that have historically been filled by high school graduates increasingly also require some vocational training—such as can be provided at community colleges. For example, construction workers often need training for welding, plumbing, and heating and air-conditioning installation. In more technical fields, such as aerospace

Chart 1

## EDUCATIONAL MAKE-UP OF WORKERS BY INDUSTRY IN THE TENTH DISTRICT, 2006



Source: Authors' calculations based on data for workers aged 25-50 from the 2006 American Community Survey obtained from the Integrated Public Use Microdata Series (IPUMS)

manufacturing, technicians and production workers typically need vocational training (Bureau of Labor Statistics). Those who use community colleges to gain vocational skills can also earn certification in programs such as nursing, computer technology, or firefighting.

Students also attend community colleges for personal development or to earn college credit as a high school student. By enrolling in cooking, personal finance, or driving education courses, students can develop important life skills. High school students can likewise earn college credit through dual credit options or by enrolling directly in college courses. Students using the dual credit option receive both high school and college credit for the same course, which could be offered at the high school, a postsecondary institution, or by using distance education technology.<sup>10</sup>

### *How do community colleges contribute to economic growth?*

Community colleges contribute to economic growth in both direct and indirect ways. Direct benefits arise when the colleges train first-time workers and give existing workers the skills they need for a new career, thus increasing the productivity of the local workforce. Community colleges also directly boost local economic development by providing local jobs and infrastructure—benefits that are especially important to rural towns.

By increasing the productivity of the local workforce, community colleges help add to the total earnings of the community, which creates indirect local benefits. For example, more earnings can generate additional tax revenue. In addition, researchers have found that more educated citizens, who also tend to have more income, give more to charity, participate more in civic duties, rely less on public support, are less likely to be unemployed, and are less likely to be incarcerated (ACCT).<sup>11</sup> Such benefits create communities where skilled workers and good employers want to locate.

Of course, giving workers new skills helps the local community only if the workers stay in the area. While individuals with bachelor's degrees often migrate to other places to pursue their careers, individuals with less than a four-year degree are more likely to stay at home (Malamud and Wozniak).<sup>12</sup> Reports also suggest that employers looking for workers with less than a bachelor's degree search locally, and community college students seeking jobs target local employers almost exclusively (Grubb).

Community colleges have become an important asset for local industries. They frequently partner directly with local employers to develop classes specific to the training needs of an employer through contract training. In fact, when surveyed by the Government Accountability Office (GAO) in 2004, more than 75 percent of community colleges offered some contract training courses (GAO 2008). This trend is even more pronounced in rural areas, with over 90 percent offering such courses (Miller and Tuttle). Research finds that community colleges have also been leaders for over 25 years in educating students for careers in the rapidly growing information and technology industry (Carnevale). Similarly, such colleges are at the forefront of training students for new "green" jobs, such as in renewable energy, energy efficient construction, efficient manufacturing, and forestry (Feldbaum).

## **II. THE PRESSURES OF DOWNTURNS ON COMMUNITY COLLEGES**

In recessions, community colleges typically face a difficult challenge: educate growing numbers of students with dwindling funds from state and local governments. The recent recession was unusually severe, and those pressures have extended well into the recovery. To

shed light on the short-term outlook for community colleges, this section explores the challenges associated with economic downturns.

### *Downturns lead to higher enrollment*

Economic downturns can significantly boost demand for community colleges. High unemployment prompts workers and students alike to obtain new skills to prepare for more available jobs. Joblessness also makes community colleges more affordable by reducing the opportunity cost associated with attending college. Most students must reduce the amount of time that they spend working to attend college. For many, these forgone wages represent the largest cost of attending college. But for individuals who are unemployed, this cost becomes much lower.<sup>13</sup>

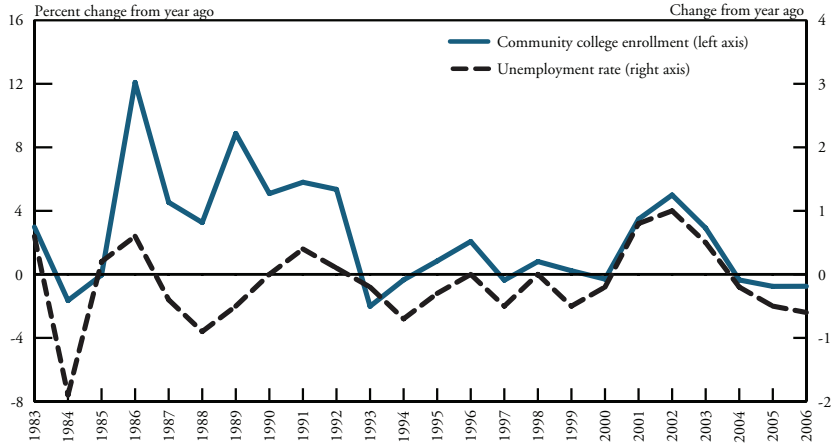
During the recent recession, unemployment rates jumped sharply and have persisted well into the recovery. This trend has hit hard those most likely to attend college. In 2009, jobless rates peaked at 26.1 percent for 18- and 19-year-olds and at 15.9 percent for 20- to 24-year-olds. In contrast, the unemployment rate for individuals aged 25 and older peaked at 8.7 percent (Bureau of Labor Statistics).<sup>14</sup>

As unemployment rates rise, community college enrollments tend to follow. From the late 1960s to the mid-1980s, for example, a 1 percent rise in adult unemployment was associated with a 4 percent jump in full-time community college enrollment (Betts and McFarland). During the recent downturn, full-time enrollments at community colleges nationwide accelerated sharply, jumping 24.1 percent from fall 2007 to fall 2009 (Mullin). At least some of the recent increase could have been due to increased demand for worker retraining. For example, state workforce agencies funded by the federal Workforce Investment Act (WIA) reported a 40 percent increase in the number of workers inquiring about retraining options in 2009 (Gogoi).

A similar trend is evident in historical Tenth District data (Chart 2). Changes in district community college enrollments have closely tracked changes in district unemployment rates, particularly during the 2001 recession and recovery. Between 2001 and 2003, district community college enrollment increased 8 percent as the unemployment rate increased 1.5 percentage points. Details are limited on recent community college enrollment levels, but the difference in unemployment between the district and nation suggests that district enrollment may have risen

Chart 2

## TENTH DISTRICT COMMUNITY COLLEGE ENROLLMENT AND UNEMPLOYMENT



Source: U.S. Bureau of Labor Statistics and Integrated Postsecondary Education Data System

less rapidly than national enrollment.<sup>15</sup> The district unemployment rate rose 3.6 percentage points from the beginning of the recession to its peak, compared to a gain of 5.1 percentage points nationwide (Bureau of Labor Statistics).

In addition to higher enrollments from unemployed workers, community college enrollments may increase as the recession and sluggish recovery in general create more cost-conscious students. In some cases, these students may start their college careers at community colleges to save money on tuition, room, and board (Mullin). For the 2007-08 academic year, tuition at community colleges in the Tenth District averaged \$2,023. In contrast, Tenth District tuition averaged \$4,906 at public four-year colleges and \$16,177 at private four-year colleges. (Integrated Post Secondary Education Data System) Students at community colleges are also typically more able to save money by living at home or working while enrolled in classes.

### *Economic downturns lead to lower state funding*

History has shown that, while recessions lead to greater community college enrollment, they also often lead to budget cutting by state and local governments. Such cuts increase financial pressures on community colleges—just when funds are needed most.

State and local government appropriations account for about half of the total revenue community colleges receive. This heavy reliance on government leaves community colleges more vulnerable to swings in state and local revenue compared to four-year colleges, which rely only about half as much on state and local funding (Chart 3). Historically, a 1 percent drop in a state's real per capita income has led to a 1.39 percent drop in state appropriations at community colleges for each full-time student (Humphreys).

In the aftermath of the recent recession, states across the country are facing reduced revenues. In Tenth District states, state tax revenues fell 14.4 percent on average in 2009.<sup>16</sup> Every district state slashed funding for higher education in fiscal year 2010, fiscal year 2011, or both (National Conference of State Legislatures). Community colleges were not able to avoid these cuts. For example, in Missouri, New Mexico, and Oklahoma, cuts of 5.2 percent, 3.2 percent, and 1.77 percent, respectively, were made to both four-year schools and community colleges for fiscal year 2011. Similarly, budget cuts to Kansas community colleges were 0.37 percent in fiscal year 2010 and 7.15 percent in fiscal year 2011.<sup>17</sup>

In response, many two- and four-year colleges will be forced to pass along part of their shortfall to students. Indeed, state universities in Nebraska recently raised tuition fees 5 percent for fiscal year 2011 (National Conference of State Legislatures). However, according to Nancy McCallin, president of the Colorado Community College System, some community colleges are hesitant to raise tuition to cover shortfalls because they would like to remain accessible to all students—a core mission of the community college (Boven). Moreover, as tuitions rise at four-year colleges, students may turn to less expensive community colleges even if their tuitions also rise, pushing demand for them even higher. In short, until the economy recovers, community colleges in the Tenth District are likely to find themselves trying to educate more students with less money.

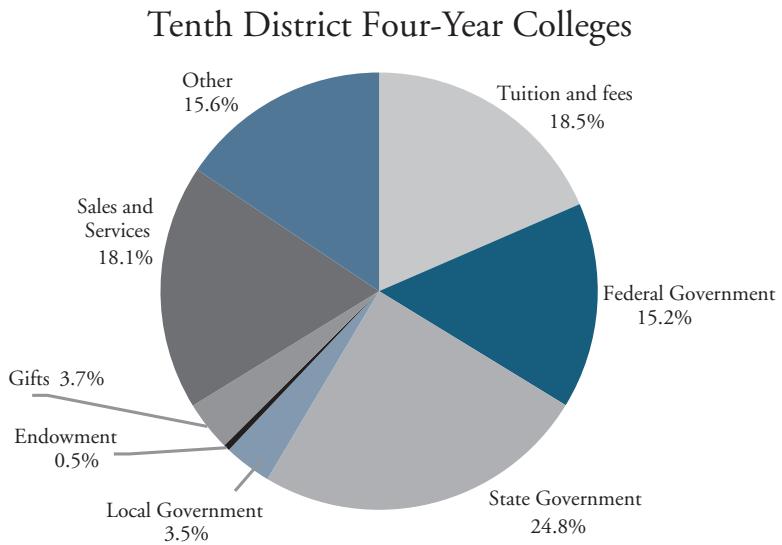
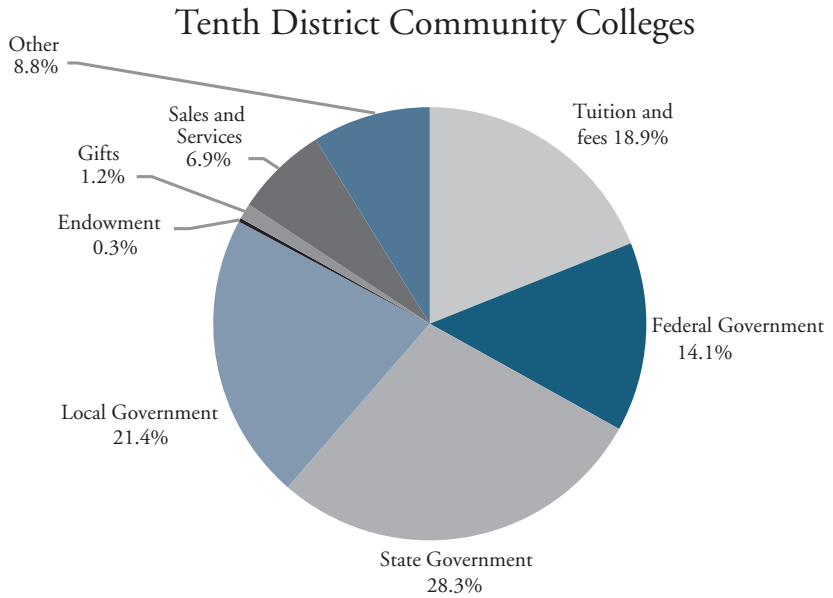
### **III. THE LONG-TERM OUTLOOK FOR COMMUNITY COLLEGES IN THE TENTH DISTRICT**

Demand for community colleges is likely to remain strong in the near-term due to forces related to the recent recession, and longer-term



Chart 3

TENTH DISTRICT COMMUNITY AND FOUR-YEAR COLLEGE REVENUE SOURCES, 2007



Source: Integrated Postsecondary Education Data System

structural changes in the district are likely to keep demand high far into the future. In response to this demand, the higher education system in the Tenth District will likely need to evolve. Community colleges have played an increasingly important role in supplying an educated workforce. Can they continue to play such a role?

### *The future Tenth District worker*

Assessing the long-term outlook for community colleges requires examining the expected changes in the industrial composition of the Tenth District economy—and how those changes could influence labor demand. Because the educational requirements of workers vary greatly across industries, the educational needs of the population will likely change as the industrial structure evolves.

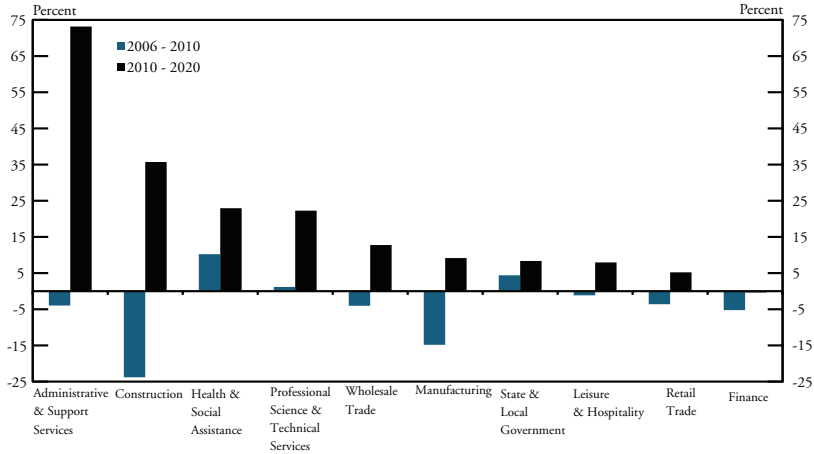
Employment projections for the next ten years suggest that the industrial structure of the Tenth District will require many workers with new skills. Service industries—such as administrative and support; professional, scientific, and technical; and healthcare—are expected to resume their solid, prerecession growth trends. Other industries, such as construction and manufacturing, are projected to largely just recover their losses from the recession (Chart 4).<sup>18</sup>

The analysis in this section combines employment projections made by industry analysts at IHS Global Insight with data on workers' educational attainment by industry. The result is an estimate of future employment growth in district states and the nation by different levels of educational attainment.<sup>19</sup> Such an exercise is a useful first step in understanding the educational needs of Tenth District workers over the next ten years.<sup>20</sup> The estimates assume that the educational make-up of workers within each industry in a state will be constant over time.<sup>21</sup> In order to not bias the estimate by the current high level of unemployment, the analysis also focuses on the 2006-20 time period, which begins before the recent recession.<sup>22</sup>

Through 2020, jobs held by workers with some post-secondary education are projected to grow more rapidly than jobs held by those with just a high school degree (Table 1). Specifically, employment growth for individuals holding an associate's degree is expected to outpace total employment growth in every district state.

Chart 4

## TENTH DISTRICT PROJECTED EMPLOYMENT CHANGE BY INDUSTRY



Source: Global Insight (June 2010)

The projections show that the largest numbers of new workers over the next ten years could be educated at community colleges, assuming that many students acquiring some college use community colleges. In most district states, new jobs held by workers with some college alone are expected to outpace new jobs held by workers with a bachelor's degree (Table 2). Moreover, 20 percent of workers with a bachelor's degree start their college career at community colleges (Bradburn and others 2003). And this percentage could increase in the near term if students continue to be more cost-conscious and if tuition at four-year colleges continues to rise faster than at two-year colleges.<sup>23</sup>

According to the projections, district community colleges will especially need to produce more healthcare workers. The healthcare industry is the largest contributor to the projected need for workers with an associate's degree in every district state from 2006 to 2020. This occurs because a high percentage of healthcare workers have an associate's degree and also because the healthcare industry is projected to experience strong growth.<sup>24</sup>

#### *Future educational needs by state*

The analysis shows variations across district states, which arise from three main factors: differences in industry composition of state econo-

*Table 1*

**PROJECTED INCREASE IN EMPLOYMENT BY  
EDUCATIONAL ATTAINMENT, 2006–2020 (PERCENT)**

	High School Dropout	High School Degree	Some college	Associate's Degree	Bachelor's Degree	Advanced Degree	Total
Colorado	14.3%	13.8%	15.2%	15.8%	14.5%	20.6%	15.3%
Kansas	11.9%	9.6%	10.4%	12.3%	11.2%	14.1%	11.0%
Missouri	5.3%	4.9%	5.9%	9.3%	4.7%	7.8%	5.8%
Nebraska	13.2%	14.1%	14.5%	16.6%	14.7%	16.7%	14.8%
New Mexico	14.4%	12.3%	14.9%	14.9%	15.4%	15.8%	14.3%
Oklahoma	16.5%	13.5%	13.6%	18.7%	12.6%	14.7%	14.2%
Wyoming	15.1%	10.2%	12.8%	16.6%	12.4%	13.4%	12.6%
Tenth District	11.5%	10.4%	11.7%	14.0%	11.3%	14.7%	11.7%
U.S.	9.3%	8.2%	9.7%	12.2%	10.2%	13.0%	9.9%

Source: Authors' calculations based on Global Insight (June 2010) employment projections by industry and educational attainment data for workers aged 25-50 from the 2006 American Community Survey obtained from the Integrated Public Use Microdata Series (IPUMS)

*Table 2*

**PROJECTED INCREASE IN EMPLOYMENT BY EDUCATIONAL  
ATTAINMENT, 2006–2020 (THOUSANDS)**

	High School Dropout	High School Degree	Some college	Associate's Degree	Bachelor's Degree	Advanced Degree
Colorado	33	74	76	31	83	53
Kansas	16	35	33	14	34	19
Missouri	15	43	36	20	26	21
Nebraska	10	35	34	17	31	15
New Mexico	17	30	29	12	21	12
Oklahoma	29	68	47	24	36	17
Wyoming	3	10	9	6	5	3
Tenth District	119	296	267	122	236	140
U.S.	1441	3171	2772	1501	2871	1791

Source: Authors' calculations based on Global Insight (June 2010) employment projections by industry and educational attainment data for workers aged 25-50 from the 2006 American Community Survey obtained from the Integrated Public Use Microdata Series (IPUMS)

mies, differences in projected growth rates for each industry, and differences in the education level of populations within a state. Table 3 highlights these differences by showing each industry's share of state employment, projected employment growth by industry from 2006 to 2020, and the share of workers in each industry with some college or an associate's degree. If a rapidly growing industry accounts for a large share of a state's employment, a prominent education level in that industry will drive the state's overall projections.

In *Colorado*, new jobs filled by associate's degree holders are expected to be the state's second-fastest growing employment group by education. This growth is led by the projected strength of the health-care industry, which relies heavily on workers with associate's degrees. Growth in jobs filled by workers with some college is also expected to be solid in the state. However, the demand for advanced degrees is projected to grow faster than all other levels of education, for several reasons. The professional, scientific, and technical services industry and the healthcare industry are projected to grow much faster in Colorado than in the nation. Nearly 25 percent of professional scientific and technical services workers have advanced degrees. Colorado's share of employment in professional, scientific, and technical, services is also larger than the U.S. share.

In *Kansas*, employment projections by educational attainment are similar to those in the nation. As in Colorado, employment growth for workers with associate's degrees is expected to be the second fastest-growing employment group, next to jobs for workers with advanced degrees. The top three industries that contribute to projected jobs for workers with associate's degrees are healthcare, administrative and support services, and state and local government. The state's strong projected job growth for workers with advanced degrees is due in large part to the projected growth of the professional, scientific, and technical services industry, which is expected to increase 34 percent in Kansas from 2006 to 2020, compared to 25 percent in the nation. In particular, employment in bioscience research has been increasing in Kansas in recent years, and according to the Bureau of Labor Statistics, employment for biological scientists and agricultural and food scientists is projected to grow faster than average over the coming years.<sup>25</sup>

*Table 3*  
INDUSTRY CHARACTERISTICS BY STATE

	Share of Employment in 2006	Projected Employment Growth, 2006 - 2020	Share of Workers with Some College	Share of Workers with Associate's Degree
<b>Colorado</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	6.2%	Fast growth	26.2%	6.7%
Construction	7.3%	Neutral	19.9%	6.2%
Financial Activities	7.0%	Modest decline	23.8%	8.3%
Health Care & Social Assistance	8.8%	Fast growth	21.9%	13.8%
Leisure & Hospitality	11.5%	Modest growth	22.3%	5.8%
Manufacturing	6.5%	Modest decline	20.2%	9.5%
Professional, Scientific, & Technical Svcs	7.1%	Fast growth	15.5%	6.7%
Retail Trade	10.8%	Modest decline	26.0%	9.1%
State & Local Government	13.7%	Fast growth	17.8%	8.0%
Wholesale Trade	4.2%	Moderate growth	22.6%	6.8%
<b>Kansas</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	5.1%	Fast growth	20.3%	6.8%
Construction	4.7%	Modest growth	24.2%	5.2%
Financial Activities	5.3%	Modest decline	28.9%	7.1%
Health Care & Social Assistance	11.0%	Fast growth	25.4%	15.0%
Leisure & Hospitality	8.4%	Modest growth	19.2%	5.9%
Manufacturing	13.4%	Modest decline	22.3%	7.2%
Professional, Scientific, & Technical Svcs	4.2%	Fast growth	19.6%	4.9%
Retail Trade	10.8%	Neutral	26.7%	10.4%
State & Local Government	16.7%	Modest decline	21.1%	8.1%
Wholesale Trade	4.3%	Modest growth	23.8%	8.9%
<b>Missouri</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	5.0%	Fast growth	23.9%	8.8%
Construction	5.3%	Modest decline	22.9%	4.9%
Financial Activities	5.9%	Modest decline	28.0%	6.8%
Health Care & Social Assistance	11.3%	Fast growth	22.1%	14.2%
Leisure & Hospitality	10.0%	Neutral	23.3%	4.1%
Manufacturing	11.0%	Moderate decline	20.8%	5.9%
Professional, Scientific, & Technical Svcs	4.5%	Modest growth	17.1%	9.0%
Retail Trade	11.3%	Neutral	23.8%	6.6%

State & Local Government	13.6%	Moderate growth	18.9%	7.7%
Wholesale Trade	4.4%	Neutral	25.6%	5.4%
<b>Nebraska</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	4.8%	Fast growth	35.0%	10.0%
Construction	4.9%	Fast growth	24.0%	9.3%
Financial Activities	7.0%	Modest growth	24.2%	10.8%
Health Care & Social Assistance	11.4%	Fast growth	21.7%	17.8%
Leisure & Hospitality	8.4%	Moderate growth	26.6%	7.2%
Manufacturing	10.6%	Modest growth	21.0%	8.3%
Professional, Scientific, & Technical Svcs	4.1%	Fast growth	24.4%	13.8%
Retail Trade	11.1%	Modest growth	30.6%	8.4%
State & Local Government	15.3%	Modest growth	20.8%	9.8%
Wholesale Trade	4.3%	Modest growth	25.5%	11.4%
<b>New Mexico</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	5.4%	Fast growth	28.4%	4.6%
Construction	7.0%	Modest growth	15.0%	4.7%
Financial Activities	4.2%	Modest decline	34.8%	11.9%
Health Care & Social Assistance	11.3%	Fast growth	23.6%	14.3%
Leisure & Hospitality	10.3%	Modest growth	24.3%	8.7%
Manufacturing	4.5%	Moderate decline	22.1%	11.9%
Professional, Scientific, & Technical Svcs	5.2%	Fast growth	20.4%	10.6%
Retail Trade	11.2%	Neutral	25.4%	7.6%
State & Local Government	19.8%	Modest growth	20.9%	10.6%
Wholesale Trade	2.8%	Modest growth	26.9%	7.4%
<b>Oklahoma</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	6.6%	Fast growth	21.6%	9.2%
Construction	4.5%	Moderate growth	16.2%	4.6%
Financial Activities	5.4%	Neutral	29.4%	7.5%
Health Care & Social Assistance	10.9%	Fast growth	23.5%	17.0%
Leisure & Hospitality	8.7%	Moderate growth	21.0%	5.4%
Manufacturing	9.6%	Modest decline	20.8%	6.4%
Professional, Scientific, & Technical Svcs	3.9%	Moderate growth	23.1%	6.2%
Retail Trade	10.9%	Neutral	24.3%	7.8%
State & Local Government	17.7%	Moderate growth	18.5%	7.6%
Wholesale Trade	3.8%	Moderate growth	20.2%	8.0%

<b>Wyoming</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	2.6%	Fast growth	35.5%	12.0%
Construction	8.5%	Moderate growth	23.9%	14.8%
Financial Activities	4.0%	Neutral	37.8%	10.5%
Health Care & Social Assistance	7.2%	Fast growth	34.5%	19.9%
Leisure & Hospitality	11.6%	Modest growth	25.7%	4.8%
Manufacturing	3.6%	Neutral	24.8%	5.0%
Professional, Scientific, & Technical Svcs	3.2%	Fast growth	12.2%	15.6%
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Wholesale Trade	2.9%	Fast growth	12.9%	19.8%
<b>United States: Sum of States</b>				
Admin. & Supt and Waste Mgt & Remediation Svcs	6.0%	Fast growth	21.2%	7.6%
Construction	5.6%	Modest decline	18.6%	5.9%
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Professional, Scientific, & Technical Svcs	5.4%	Fast growth	15.7%	8.7%
Retail Trade	11.2%	Neutral	24.3%	8.2%
State & Local Government	14.1%	Moderate growth	18.5%	9.1%
Wholesale Trade	4.3%	Modest growth	22.1%	8.1%
<b>Legend</b>				
Fast Growth:	20% and higher			
Moderate Growth:	10% to 20%			
Modest Growth:	2% to 10%			
Neutral:	-2% to 2%			
Modest Decline:	-10% to -2%			
Moderate Decline:	-20% to -10%			
Fast Decline:	-20% and lower			

Sources: Global Insight (June 2010), American Community Survey (2006)

Note: The share of workers with some college or an associate's degree represents workers aged 25-50.



In *Missouri*, employment growth for associate's degree holders is expected to outpace employment growth in every other education group. As in many other states, strong growth is expected in healthcare. This industry is projected to grow less than in the nation but still exceed 26 percent. In Missouri, 14 percent of healthcare workers have an associate's degree. In addition, and as in every other district state, administrative and support services are projected to grow the fastest of all industries over the next ten years, and nearly 9 percent of all administrative and support services workers in the state have an associate's degree.<sup>26</sup>

In *Nebraska*, employment growth for workers with associate's degrees is projected to be strong, aided by construction and agriculture. Overall, 35 percent of the state's workers have either some college or an associate's degree—the second-highest rate in the district and much higher than the 29 percent national rate. Construction employment is projected to grow much faster than in the nation, and more than 9 percent of construction workers in the state have an associate's degree. Almost 20 percent of the state's agriculture workers also have an associate's degree, much higher than the district average of 6 percent.

In *New Mexico*, employment growth for associate's degree holders is expected to be solid, but not as strong as growth for workers with other types of post-secondary education. The state's share of workers with associate's degrees in the fast-growing administrative and support services industry is 4.6 percent, last among district states and below the national average of 6 percent. This low share contributes to the relatively slower growth of employment for workers with associate's degrees in the state, compared to other education levels. However, overall employment growth in the state for workers with an associate's degree is still projected to be healthy, at almost 15 percent. This increase is led by the healthcare industry, where growth is projected at 53 percent.

In *Oklahoma*, employment for workers with associate's degrees is projected to grow much faster than for workers with any other type of education. More than 9 percent of administrative and support services workers have an associate's degree in Oklahoma. Therefore, strong growth in the industry will boost overall employment projections for workers with associate's degrees. Similarly, the healthcare industry employs a larger share of workers with associate's degrees than the national

average. Growth in this industry is expected to outpace the nation, further contributing to the state's need for workers with associate's degrees.

In *Wyoming*, demand for associate's degree holders is projected to grow faster than for all other types of education. Wyoming's share of workers with an associate's degree or some college is 37 percent, highest in the district. As in Nebraska, agriculture and construction make strong contributions to projected employment growth for such workers. About 22 percent of agriculture workers in the state have associate's degrees, more than triple the national percentage. In construction, more than 14 percent of workers have an associate's degree—and construction employment in the state is projected to grow much faster than in the nation.

### *Can community colleges meet the rising demand?*

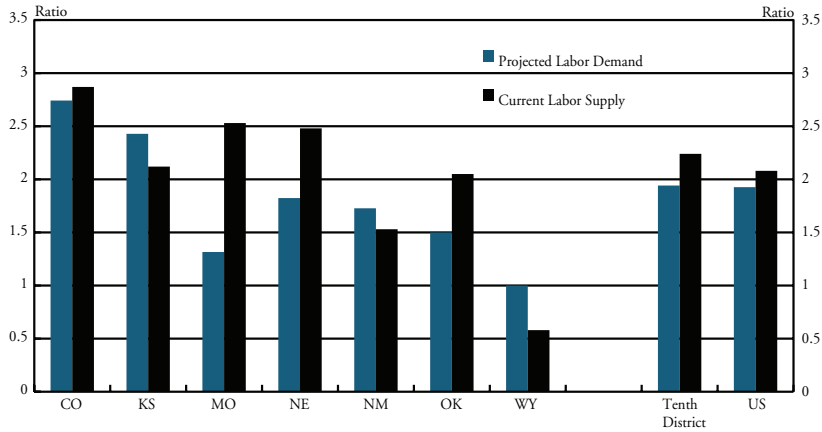
Over the coming years, the need for skilled workers has important implications for how many students community colleges must educate. To understand how the education level of the population may change (and therefore, the need for community colleges) in response to changes in labor demand, it is useful to compare the current number of degrees awarded to the projected number of jobs needed by degree in 2020. Chart 5 shows this comparison. The blue bar shows the ratio of the projected number of new jobs for bachelor's degree holders to associate's degree holders.<sup>27</sup> It is a rough measure of the change in labor demand for the two types of degrees. The black bar, which shows the ratio of bachelor's degrees to associate's degrees awarded in 2005-06, is an estimate of the current yearly change in labor supply.

Comparing the projected employment growth by educational attainment (change in labor demand) to the current number of degrees awarded (change in labor supply) suggests that some district states may need to adjust their supply of associate's degrees relative to bachelor's degrees. In particular, in Missouri, Nebraska, and Oklahoma, the number of associate's degrees awarded may need to rise faster than the number of bachelor's degrees.

Of course, many other factors besides projected job growth affect how many associate's and bachelor's degrees will need to be awarded in a given state. Migration and retirement patterns will affect the demand-supply comparisons over the next ten years. As existing workers retire,

Chart 5

## RATIO OF BACHELOR'S DEGREES TO ASSOCIATE'S DEGREES



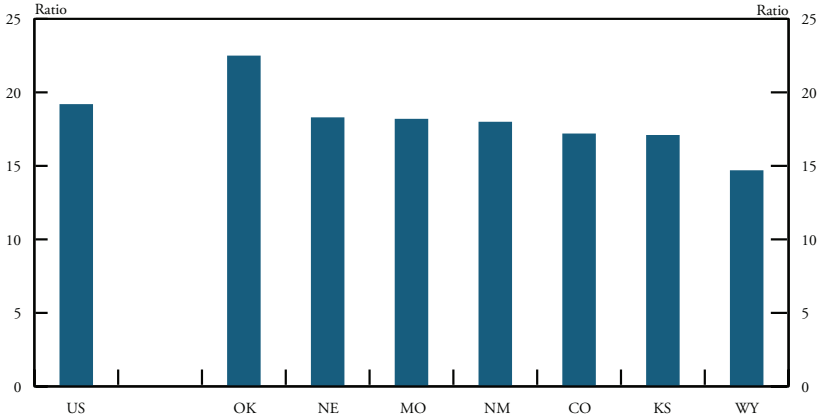
Source: Authors' calculations based on data from U.S. Department of Education, Global Insight (June update), American Community Survey

new workers must take their place, and therefore the education level of retiring workers will have an impact. In addition, states with a net out-migration of bachelor's degree holders will need to produce more bachelor's degrees relative to associate's degrees than the projected labor demand ratios suggest. It is also important to remember that even as the ratio of degrees awarded may shift, the numbers of both associate's degrees and bachelor's degrees may need to increase over time as the demand for skilled labor increases. This pattern can be seen in historical U.S. data, which show that the average educational attainment has increased.<sup>28</sup>

Finally, a basic estimate of the Tenth District's ability to increase the number of community college graduates can be made by comparing student-to-faculty ratios in the district to those nationwide. In every district state except Oklahoma, student-to-faculty ratios at two-year colleges are lower than the national average (Chart 6). This suggests that many district colleges may be able to educate more students pursuing an associate's degree by increasing their student-to-faculty ratios. This potential leaves community colleges in the region in a relatively good position to meet increased student demand in both the short and long run.

Chart 6

## STUDENT-TO-FACULTY RATIOS AT TWO-YEAR PUBLIC COLLEGES, FALL 2005



Note: Calculations use full-time equivalent student and full-time equivalent faculty data.

Source: *Digest of Education Statistics*, U.S. Department of Education

#### IV. CONCLUSION

The structure of both the national and the Tenth District economies will change over the next ten years—a change that will likely increase the demand for an educated workforce. The analysis in this article has shown that community colleges will be crucial in meeting this growing demand. In the short run, demand for community colleges is likely to remain strong as students remain cost-conscious and unemployment remains higher than pre-recession levels. Over the longer run, enrollments should rise even further, as labor markets increasingly demand more workers with at least some post-secondary education.

Over the years, community colleges have shown an ability to adapt to the changing needs of students and industry, as well as to changing economic conditions. And, based on a basic measure of faculty-to-student ratios, community colleges in the Tenth District appear slightly better positioned than the nation to educate growing numbers of students in the years ahead. Their greatest challenge may be to educate more students with less funding from state and local governments.

## ENDNOTES

<sup>1</sup>Throughout this paper, a community college is defined as a two-year school where an associate's degree is the highest degree offered.

<sup>2</sup>These statistics are for fall enrollment.

<sup>3</sup>In 2008, 37 percent of post-secondary students attended community colleges in the Tenth District. This percentage varied across district states. Missouri, Colorado and Oklahoma had lower percentages: 28 percent, 31 percent, and 32 percent, respectively. Nebraska, Kansas, New Mexico, and Wyoming had higher percentages: 44 percent, 45 percent, 57 percent, and 68 percent, respectively (Integrated Postsecondary Education Data System). There are several potential reasons for the variance among Tenth District states in their reliance on community colleges. One is population density. Wyoming's population is sparse, perhaps making community colleges a more cost-effective choice in many areas. New Mexico also has low population density. Colorado, Missouri, and Oklahoma have the highest population densities among Tenth District states, perhaps making four-year colleges a more feasible alternative than in other states.

<sup>4</sup>In the District, 31.2 percent of community college students are racial minorities, compared with 27.3 percent at four-year colleges. Data were collected from the 2008 IPEDS survey.

<sup>5</sup>In the Tenth District, 40.6 percent of community college students are over the age of 25, compared to 26.5 percent at four-year colleges. 57.7 percent of community college students attend part-time versus 23.6 percent at four-year colleges in the Tenth District (Integrated Postsecondary Education Data System).

<sup>6</sup>Estimating the effect of attending a community college on earnings is difficult due to the wide variety of purposes they serve and limited data availability. Many students complete just one or two courses at a community college, while others complete a certificate program, earn an associate's degree, or transfer to a four-year college.

<sup>7</sup>These ten industries represent 82 percent of Tenth District employment. The industries that are not shown include agriculture, education, federal government, information, management of companies and enterprises, natural resources and mining, other services, transportation and warehousing, and utilities. Each of the industries not shown represents less than 4 percent of district employment. All industries are included in the education projections presented in the third section.

<sup>8</sup>Outside of the top ten industries, only the federal government employs a higher share of workers with two-year degrees or some college. These numbers are based on the authors' calculations using American Community Survey (ACS) data.

<sup>9</sup>Authors' calculations based on ACS data.

<sup>10</sup>71 percent of high schools offered dual credit options in 2002-03 (The Free Library). By the 2002-03 school year, about 98 percent of public two-year colleges had high school students enrolled in their courses, 93 percent of public two-year

colleges had students enrolled through dual credit courses, and 63 percent had high school students enrolled outside of these courses (Kleiner and Lewis).

<sup>11</sup>Higher income has been shown to lead to higher rates of participation in politics and more charitable giving (Frey; Havens and Schervish).

<sup>12</sup>Malamud and Wozniak (2008) estimate the causal effect of educational attainment on the likelihood that individuals live in a state different than their birth state. After controlling for individual characteristics, family background and a measure of individual ability, they find that obtaining a bachelor's degree does have a positive effect on migration but that earning some college credit does not.

<sup>13</sup>Individuals who are unemployed may be able to find a job if they weren't attending college. Therefore, the opportunity cost for these individuals is positive but still lower than for employed workers.

<sup>14</sup>The national unemployment rate peaked in October 2009. The unemployment rates for individuals 18 to 19-years-old and 20 to 24-years-old peaked in November 2009.

<sup>15</sup>Enrollment data for 2009 is not yet available for all colleges, making it too early to directly compare Tenth District numbers to U.S. numbers.

<sup>16</sup>Authors' calculation based on data from the U.S. Census Bureau. These figures compare 2009 revenue to 2008 revenue.

<sup>17</sup>State budget cuts varied among four year schools in Kansas in fiscal year 2010 and ranged from 4.36 percent to 9.8 percent. In fiscal year 2011, state budgets increased from 0.05 percent to 2.28 percent. Data were provided by contacts at state agencies.

<sup>18</sup>Chart 4 shows the projected employment change between 2006-10 and 2010-20 for the 10 industries with the largest Tenth District employment share. 2010-20 industry projections are from Global Insight (June 2010).

<sup>19</sup>The educational attainment of workers (age 25-50) by industry was calculated for each district state and the United States using data from the 2006 American Community Survey. The American Community Survey data were obtained using the Integrated Public Use Microdata Series (IPUMS). Employment projections by industry and state were obtained from Global Insight (June 2010). Although news sources have noted the reliability of short-term Global Insight projections, all projections contain some risk (<http://www.ibsglobalinsight.com/Accolades>). In particular, current forecasts may be less reliable because of the difficulty of making forecasts near turning points in the business cycle. The percentage and numerical employment growth estimates are presented for 2006-20 in Tables 1 and 2.

<sup>20</sup>Educational attainment tends to increase over time, so it is likely that the growth estimates for jobs requiring some post-secondary education are low and that growth for jobs requiring a high school degree or less are high.

<sup>21</sup>Differences among states in the educational make-up of workers within a given industry may reflect differences in types of employment within indus-

tries. For example, the manufacturing industry in Kansas has a higher share of aerospace manufacturing workers than other states. To the extent that differences in the educational make-up of workers reflect these industry differences, keeping the educational make-up constant over time is a valid assumption. However, current educational differences may also suggest there is currently an imbalance in the composition of workers within an industry in a given state. In these cases, the educational make-up of workers in an industry may converge across states over time. For example, if Oklahoma currently has a higher share of healthcare workers with an associate's degree than New Mexico, it is possible that Oklahoma will produce fewer new jobs requiring associate's degrees than New Mexico in the coming years.

<sup>22</sup>Beginning the analysis in a year of high unemployment is problematic for assessing the future demand for education. This occurs because a large fraction of the employment growth in certain industries is simply a rehiring of workers who were laid off during the recession. In many cases, these workers will not require any additional education.

<sup>23</sup>Over the last 10 years, four-year public tuition has increased 91 percent compared to a 57 percent increase in two-year tuition (*Digest of Education Statistics*).

<sup>24</sup>More than 15 percent of workers in the industry have an associate's degree, by far the highest percentage of any district industry.

<sup>25</sup>According to the U.S. Bureau of Labor Statistics, employment for biological scientists is projected to increase more than 20 percent between 2008 and 2018. Employment for agricultural and food scientists is projected to increase 14 to 19 percent over the same time period.

<sup>26</sup>According to the U.S. Bureau of Labor Statistics, strong growth in this industry is due in large part to the strong demand for seasonal and temporary workers as well as workers in specialized human resource services.

<sup>27</sup>These projections are the estimates presented in Table 2.

<sup>28</sup>In 1960, 16.5 percent of U.S. individuals aged 25 and over had one or more years of college education. By 2008, more than 55 percent of the population over the age of 25 had one or more years of college (U.S. Census).

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