Economic vitality

STRENGTHENING OUR ECONOMIC ADVANTAGE

“Investment in education benefits the individual, society, and the world as a whole. Broad-based education of good quality is among the most powerful instruments known to reduce poverty and inequality. With proven benefits for personal health, it also strengthens nations’ economic health, by laying the foundation for sustained economic growth. For individuals and nations, it is key to creating, applying, and spreading knowledge—and thus to the development of dynamic, globally competitive economies.” (The World Bank, 2002)

Topics include—
- higher incomes
- more labor force participation
- lower unemployment
- more jobs
- less poverty
- opportunities in emerging industries

Perspectives include—
- value of education
- effects of higher education

And Tennessee’s business leaders weigh in
prosperity
Economic Development
Positive inputs = positive outcomes

Business Investment
Skilled Workforce

Business Research

Government / Infrastructure

“If Tennessee is to continue to grow economically, it must prepare a workforce that can sustain or improve growth. This will require more rigor in schools and a more highly trained workforce. We need to be prepared to pay the cost to prepare a competitive workforce.”

—Opinion from a business leader at a small business in metropolitan Tennessee (CBER-UT, 2007)
Imagine a blender.
You are making a milkshake, let’s say.
What you pour into your frosty mug relies solely on what you throw into the blender.
You can’t get a milkshake without milk.
And if you want chocolate, well, you know what to do.

Now imagine you are making “economic development” in your blender. (It’s not a stretch — imagine —)
You are making “economic development” in your blender because “economic development” is vital to your prosperity.
You know without it, you and the people in your community might have fewer career opportunities, lower-paying jobs, higher unemployment. You might even have to rely more heavily on government services like food stamps and free lunches.
So how do you make “economic development”?
• Attract good businesses and good employers to your community, county, region, and state.
• Help those businesses make the best goods and services possible so they can compete.
• Encourage businesses to keep up with changes through research and development.
• Provide infrastructure for businesses, like roads, highways, and laws.
• Last, but not least, offer these employers good, quality, skilled workers at all job levels.
As you might expect, if you neglect any of these ingredients, your “economic development” will suffer—just like your chocolate milkshake won’t be quite right without the chocolate syrup.

What does quality education have to do with economic development?
With a well-educated workforce, we see higher incomes, more labor force participation, lower unemployment, more jobs, less poverty, and opportunities in emerging industries.
(see pages 84–93)
A variety of perspectives exist about the value of education to development, effects of higher education on the regional economy, and entrepreneurship.
Our own Tennessee business leaders have opinions.
(see pages 94–97)
Regardless of the perspective, businesses are attracted to an area because of the skill of the workforce (among other reasons, of course) and as a result the economy grows.
(see pages 98–99)

Read on —
**Education pays**

Education pays, not only for the income-earner and his or her family but also for the company the person works for and the community in which he or she lives. For the individual worker, differences in education yield substantial monetary payoffs:

- Men with college degrees earned 62% more and women 65% more in hourly compensation than did those with a high school degree at the end of the 20th century (U.S. Department of Labor, 2001).
- Between 1980 and 2004, average earnings increased with education across the board—for the total population as well as for male, female, white, black, and Hispanic populations (U.S. Department of Education, 2006).

Individual returns from education are enormous and are growing over time. Consider the situation for young adults pictured at right. Young adults, aged 25–34 who worked full-time, in terms of inflation-adjusted earnings (2004) show very large differences in earnings when compared to a high-school dropout (for Tennessee dropout rates, see pages 56–61).

In 1980, the median earnings of a high school graduate were 21% more than a high school dropout, while the median earnings for an individual with a bachelor’s degree or higher were almost 52% more. In 2004, a high school graduate earned 25% more than the dropout while those with a college degree earned 100% more, double that of the high school dropout. A worker who has taken some college courses earns 48% more than a high school dropout. These income differentials may very well expand in the new economy as the need for skilled workers rises faster than supply while the demand for unskilled workers declines.

Again, the higher wages tied to education do not benefit only the individual and his or her family. These higher wages flow through the local economy, generating wealth and translating into higher earnings for the entire community. Tennessee data indicate a clear positive relationship between education and income, to wit, counties with a more highly educated population have higher levels of personal income. However, this is just the tip of the proverbial iceberg.

There is a significant income disparity between rural and urban counties. The counties in Tennessee’s larger metropolitan areas tend to be the ones with higher per capita incomes (see map on this page), including Shelby, Fayette, and Tipton in the Memphis area; Davidson, Williamson, Rutherford, and Wilson in the Nashville area; Knox, Blount, Loudon, and Anderson in the Knoxville area; Hamilton and Bradley in the Chattanooga area; and Sullivan and Washington in the Tri-Cities area. These counties all have relatively high per capita personal income (ranging between $26,800 and $44,200). Counties such as Pickett, Lewis, Hancock, and Lake are very rural, with per capita incomes of less than $19,700 per year.

A primary explanation for the urban-rural income divide is disparity in the educational attainments of the adult population. Urban communities not only have a better educated population, but they also enjoy a stronger tax base to support higher levels of spending on education. This is no coincidence: higher income translates directly into a broader sales and property tax base that can be used to support government services.

**Average per capita personal incomes are higher in counties with more residents who have taken some college courses**

**Tennessee’s urban counties exhibit higher incomes than their rural counterparts**

PROSPERITY

Beyond higher incomes

If the higher incomes that come with education are just the tip of the iceberg of education’s effect on the Tennessee economy and workforce viability, what lies below the tip? A highly educated populace also means—for one—more people are working. In other words, workers with higher levels of education are more likely to participate in the labor force since their returns from working are higher.

So then, Tennessee counties with a more educated populace have a higher percentage of their working-age adults participating in the labor force. A larger workforce will make a community more attractive for the location and expansion of business. This in turn means more job options for workers.

To illustrate the linkage between education and the labor force, we have grouped counties together in five groups by the percentage of adults with a high school diploma or higher. Each group contains 19 counties. For example, Group 2 had an average high school attainment rate of 72.6% and an average of 72.3% of its residents aged 16 to 64 were either working or actively seeking a job. As you can see below, the counties with a better educated population have a larger share of adults participating in the labor force.

There is also an important linkage between population growth and education. Take a look at the triangles on the graphic below—as education levels of the population increase, counties experience a higher rate of population growth and enjoy a higher share of their population participating in the labor force. This suggests that education serves as a mechanism to draw people into communities. These patterns are consistent across a variety of measures of county educational attainment.

Labor force participation and population growth are stronger in counties where educational attainment is high

Population growth rate, 2000-05

% H.S. diploma or higher (2000)
% working age in labor force (2005)

Group 1  Group 2  Group 3  Group 4  Group 5

Source: CBER-UT.
More education also supports lower rates of unemployment within Tennessee counties. In Tennessee, counties that have higher portions of their population with at least some college have generally lower unemployment rates. Communities with poorly skilled workforces experience higher unemployment rates, which translates into more foregone income, less production on the part of businesses, and a greater burden on the community at large.

Like the other relationships considered here, this trend is consistent regardless of the measure of educational attainment used.

**Unemployment rates are lower in counties with residents who’ve taken some college courses**

An educated population affects the entire income distribution, including the low-income component. In fact, counties with higher levels of education exhibit lower poverty rates, shown in the graph at left. For instance, 9 out of 10 adults in Williamson County have at least a high school diploma, and the county has the lowest poverty rate in the state at just 5.4%. Statewide, less than 8 out of 10 adults have at least a high school diploma, but the poverty rate is almost 10 percentage points higher, at 15.0%.

Other measures of poverty echo these results. Poor households frequently rely on government assistance programs, such as food stamps and free or reduced school lunches for children. Counties with higher levels of education also have generally lower participation rates in these low-earner programs. The top 10 counties in Tennessee in 2000, in terms of the percentage of the residents having completed high school, had an average of less than 7% of their residents receiving food stamps. In sharp contrast, the 10 least-educated counties had an average of almost 16% of their residents receiving food stamps, more than double those of the highly educated counties.

Another commonly used measure of poverty is the percentage of school children who receive free and reduced-price school lunches since it is a means-tested program and recipients are generally children from low-income households. Again, the trend is unmistakable: a more educated Tennessee county significantly reduces the percentage of its children receiving free/reduced-price lunches. Lower participation in antipoverty programs such as food stamps, free/reduced-price school lunches, and Families First is indicative of a healthy local economy and a more prosperous community. Lower utilization of these programs also reduces the fiscal burden on state and local governments.

Education can help families avoid reliance on food stamps

10 counties with highest percentage of adults with H.S. diplomas

<table>
<thead>
<tr>
<th>County</th>
<th>Population with at least a H.S. diploma (%)</th>
<th>Population receiving food stamps (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williamson</td>
<td>90.1</td>
<td>1.7</td>
</tr>
<tr>
<td>Montgomery</td>
<td>84.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Knox</td>
<td>82.5</td>
<td>6.7</td>
</tr>
<tr>
<td>Rutherford</td>
<td>81.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Davidson</td>
<td>81.5</td>
<td>7.6</td>
</tr>
<tr>
<td>Wilson</td>
<td>80.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Shelby</td>
<td>80.8</td>
<td>13.2</td>
</tr>
<tr>
<td>Hamilton</td>
<td>80.7</td>
<td>8.4</td>
</tr>
<tr>
<td>Sumner</td>
<td>79.7</td>
<td>5.3</td>
</tr>
<tr>
<td>Anderson</td>
<td>78.9</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>82.1</strong></td>
<td><strong>6.9</strong></td>
</tr>
</tbody>
</table>

10 counties with lowest percentage of adults with H.S. diplomas

<table>
<thead>
<tr>
<th>County</th>
<th>Population with at least a H.S. diploma (%)</th>
<th>Population receiving food stamps (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grundy</td>
<td>55.2</td>
<td>19.4</td>
</tr>
<tr>
<td>Hancock</td>
<td>55.9</td>
<td>22.0</td>
</tr>
<tr>
<td>Luke</td>
<td>56.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Union</td>
<td>56.3</td>
<td>15.4</td>
</tr>
<tr>
<td>Fentress</td>
<td>57.3</td>
<td>18.9</td>
</tr>
<tr>
<td>Johnson</td>
<td>58.4</td>
<td>14.7</td>
</tr>
<tr>
<td>Clay</td>
<td>58.4</td>
<td>14.0</td>
</tr>
<tr>
<td>Campbell</td>
<td>58.7</td>
<td>17.8</td>
</tr>
<tr>
<td>Overton</td>
<td>59.0</td>
<td>11.7</td>
</tr>
<tr>
<td>Grainger</td>
<td>60.1</td>
<td>11.2</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>57.5</strong></td>
<td><strong>15.9</strong></td>
</tr>
</tbody>
</table>

Sources: CBER-UT and CLIKS.

Lower educational attainment = higher reliance on food stamps

Higher educational attainment = lower reliance on food stamps

Sources: CBER-UT and CLIKS.
Education not only impacts income, employment, and poverty levels, but drives the growth process as well. Businesses that foster innovation and create jobs (as new products are designed, developed, and produced) build on a larger and better trained local workforce. Businesses from outside will prefer to locate in communities with a high quality workforce to better enable them to compete in the global marketplace.

From 2000 to 2005, the top ten counties in terms of employment growth saw job gains of 8.8%. These counties had an average of over 3/4 of their populations with at least a high school diploma. For example, in Rutherford County, almost 82% of adults graduated from high school. Job growth in Rutherford from 2000 to 2005 was almost 11%. It is striking that the ten counties with the lowest growth lost, on average, 14.2% of their jobs over the same period. Only 2/3 of the population in those counties had a high school diploma or higher. Van Buren County, with only 62% of adults completing at least high school, lost almost 13% of its jobs in those six years. Counties with a better educated workforce are less likely to lose jobs and more likely to attract new businesses and experience strong and sustainable job growth. Put together, counties with these characteristics will have greater economic security for workers, families, and the economy.

An educated workforce promotes county job growth

<table>
<thead>
<tr>
<th>Top 10 counties by employment growth, 2000 to 2005</th>
<th>Bottom 10 counties by employment growth, 2000 to 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>County</td>
</tr>
<tr>
<td>Population with at least a H.S. diploma (%)</td>
<td>Population with at least a H.S. diploma (%)</td>
</tr>
<tr>
<td>Employment growth (%)</td>
<td>Employment growth (%)</td>
</tr>
<tr>
<td>Williamson</td>
<td>Pickett</td>
</tr>
<tr>
<td>90.1</td>
<td>62.9</td>
</tr>
<tr>
<td>Sevier</td>
<td>Lauderdale</td>
</tr>
<tr>
<td>74.6</td>
<td>62.3</td>
</tr>
<tr>
<td>Rutherford</td>
<td>Hancock</td>
</tr>
<tr>
<td>81.8</td>
<td>55.9</td>
</tr>
<tr>
<td>Fayette</td>
<td>Gibson</td>
</tr>
<tr>
<td>70.6</td>
<td>70.9</td>
</tr>
<tr>
<td>Decatur</td>
<td>Bledso</td>
</tr>
<tr>
<td>63.6</td>
<td>66.0</td>
</tr>
<tr>
<td>Loudon</td>
<td>Giles</td>
</tr>
<tr>
<td>75.6</td>
<td>72.5</td>
</tr>
<tr>
<td>Bedford</td>
<td>Madison</td>
</tr>
<tr>
<td>69.7</td>
<td>78.8</td>
</tr>
<tr>
<td>Blount</td>
<td>Van Buren</td>
</tr>
<tr>
<td>78.4</td>
<td>62.0</td>
</tr>
<tr>
<td>Cumberland</td>
<td>Clay</td>
</tr>
<tr>
<td>72.5</td>
<td>58.4</td>
</tr>
<tr>
<td>Montgomery</td>
<td>Weakley</td>
</tr>
<tr>
<td>84.3</td>
<td>70.3</td>
</tr>
<tr>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td>76.1</td>
<td>66.0</td>
</tr>
<tr>
<td>Tennessee</td>
<td>Tennessee</td>
</tr>
<tr>
<td>75.9</td>
<td>75.9</td>
</tr>
</tbody>
</table>

Sources: CBER-UT and TN Department of Labor and Workforce Development.
Higher education institutions foster job growth and other benefits

- Institutions of higher learning tend to be large employers, providing stable jobs to support their employees and generating payrolls that support families and retail activity.
- Colleges and universities often have cooperative programs with local K-12 school systems and non-degree programs for continuing adult education.
- Communities that contain colleges and universities have a higher percentage of better educated citizens, partly because the institution’s teachers, professors, and administrators live there. There is a direct effect, but also a potentially important peer effect on expectations and attitudes in the community.
- These communities receive a stable stream of skilled graduates, some of whom will choose to locate there permanently, while others will stay at least temporarily. These educated workers will pay taxes, vote, and generally contribute to the society overall.
- The presence of universities, especially those actively involved in research, attracts higher amounts of outside funding from grants and contracts, particularly from the federal government.
- Technology and its licensing generate additional revenue from outside companies as well as attracting new well-paying industries to the community.
- Universities turn out research that can lead to the creation of new businesses and contribute to a local workforce that is skilled in budding technologies.
- Colleges and universities host many cultural events that benefit the community, such as plays, concerts, exhibits, and lectures.

A study conducted by the National Association of State Universities and Land-Grant Colleges in 2001 found that state-supported universities “remain powerful engines for economic stability and growth” (NASULGC, 2001, p. 3).

- Every dollar of state money invested in a NASULGC institution generates an average return of $5.
- For every $100 spent directly by a NASULGC institution, an additional $138 is spent by employees ($64), students ($60), and visitors ($14).
- NASULGC institutions account for an average of $60 million annually in state and local taxes paid by employees, students, and visitors.
- The average number of jobs provided is 6,562, not including part-time student employees.
- For every job on a public university campus, an additional 1.6 jobs are generated off-campus.
- Two-thirds of public university graduates remain in-state for significant periods of time after graduating.
- Public universities received an average of $105 million from out-of-state research grants and contracts.
- 65% of NASULGC institutions reported having a research park and/or business incubator.
In Tennessee, the average high-tech wage paid 60% more than other private sector wages, at $55,889 per year (American Electronics Association, 2006).

Growth and high wages in the high-tech industry

The high-tech industry is an example of a sector of the economy that requires an educated workforce; and, in turn, rewards its employees with high levels of compensation. Compared with the rest of the economy, these jobs tend to pay more, offer superior benefits, and are more productive. Better educated workers are able to find employment in high-wage industries, particularly industries that specialize in technology.

For the entire U.S., workers in high-tech positions earned an annual income of $72,440 compared to the private sector average of $39,134. This means that high-tech workers earned over 85% more than the private sector average in 2004. This wage differential was even larger prior to the end of the tech bubble and declined throughout the recession of 2001–2002. It has since been back on the rise and should continue to climb as the shortage of qualified workers grows larger.

Tennessee wages and trends

In Tennessee, high-tech wages were over 60% more than the private sector average in 2004, up from 57% in 2003. While this gap is not as large as the U.S. overall, it is still substantial. Not surprisingly, given the high wages, these jobs are extremely demanding and require advanced skills. A Tennessean is much more likely to be hired by a high-tech firm and achieve this increase when equipped with proper education and training.

The high-tech industry not only pays high wages to its employees, but it is also vital to the strength of the economy. It accounts for a substantial portion of U.S. exports. In fact, in 2005, the high-tech industry was the largest exporter of manufactured goods, generating almost $200 billion (AEA, 2006). Tennessee plays a critical role in these exports and is becoming an even bigger player. From 2004 to 2005, Tennessee had the 5th largest growth in high-tech exports of all U.S. states, increasing its exports by over $700 million. High-tech goods already make up over 20% of Tennessee’s overall exports.

Highlights of the Tennessee high-tech industry

- Tennessee ranked 3rd among all states in 2004 in consumer electronics employment.
- Tennessee had the 5th largest growth in high-tech exports in 2004.
- High-tech exports from Tennessee increased by over $700 million in 2004.
- Tennessee ranked 35th in average high-tech wage in 2004.
- High-tech goods make up over 20% of Tennessee’s total exports (AEA, 2006).

High-tech goods should continue to grow as a share of U.S. exports, and it is this growth that will contribute to the looming skilled labor shortage. The only way to sustain this growth is through building the skills of the workforce. In order for Tennessee’s high-tech industry to continue to grow and reap these rewards, the workforce must be educated and prepared for the emerging demands.
From the business perspective

Many businesses obviously benefit from improvements in technology. Technology allows transactions to be completed more efficiently and with less cost. Businesses are better able to control costs when they have access to national and global markets for inputs. In that manner, technology aids in keeping prices low.

Benefits of a technological economy (which require an educated workforce):

- keeps costs low for business inputs
- opens global markets for local businesses to sell goods
- helps suppress inflation
- creates high-productivity and thus high-wage jobs

Crossroads—
Explore technical program options for —

High school students

Tech Prep Program — minimum of 2 years of high school coursework + 2 years of post-secondary coursework = immediate work place skills and a faster route to a technical job or degree program

Programs are offered through 13 Tech Prep consortia covering the entire state with articulation agreements between high schools and community colleges

Federally funded and administered through the Tennessee Board of Regents

Adults

Tennessee Technology Centers: programs designed to put adult Tennesseans into high-tech jobs, effectively and quickly

27 centers across the state offering both day and evening courses

Accredited by the Council on Occupational Education

Programs of study might include (depending on location): business systems technology, automotive technology, practical nursing, surgery technology, early childhood education, and many more

Education capital

Capital, capital, capital. We would not have growth without it. Business financial capital supports investment. These investments are commonly thought of as capital equipment, like machinery and computers. But our workforce can also be thought of as capital.

What is this capital worth?

The U.S. Office of Management and Budget estimates that it would cost over $50 trillion to re-educate the entire workforce at today’s prices. It calls this value “education capital.” OMB admits that the $50 trillion is a conservative estimate.

By way of comparison to our nation’s other assets, education capital is valued at almost 4 times that of all privately owned commercial buildings and equipment in the U.S. at $13 trillion (OMB 2007, p. 196).

“As Tennessee transitions into an economic era in which its fortunes will be determined more by the human capital potential of our citizens than by the state’s physical capital and natural resources, higher education must begin to play a larger role in critical policy areas such as public health, industrial training, and recruitment, economic and community development, and adult literacy” (Tennessee Higher Education Commission, 2005, p. 4).

Universities and economic development

How do institutions of higher learning, especially research universities, contribute to state and local economic development? Here are some examples:

1. Creation of knowledge
2. Human capital development
3. Transfer of existing know-how
4. Technological innovation
5. Capital investment
6. Regional leadership
7. Knowledge infrastructure production
8. Influence on regional milieu (Goldstein, Mayer & Luger, 1995)

It’s not just speculation. Statistical studies have shown that institutions of higher education contribute positively to regional economic development:

- Research and knowledge generated by universities spill over into innovation-intensive industries, forming clusters near universities (Audretsh & Feldman, 1996). Think about St. Jude’s Children Hospital in Memphis, Vanderbilt University in Nashville, and the University of Tennessee’s linkages to Oak Ridge National Laboratory in East Tennessee.
- In some industries, firms locate near universities to increase the interaction between their R&D divisions and high-quality university faculty and to access knowledge “spillovers,” especially in knowledge and technology-intensive industries. These spillovers also generate new firms in addition to attracting existing ones from other places (Zucker, Darby & Armstrong, 1998, Audretsch, Lehmann & Warning, 2005).
- Companies located near research universities introduce innovation more quickly than rival firms not so located and are thus more competitive in the marketplace (Feldman, 1999; Jaffe, 1989).
- There is a strong relationship between the reputation of university doctoral programs in science and engineering and technology-based economic development (Hill & Lendel, 2004).

Here in Tennessee, education partnerships and training appear to be important business strategies. Slightly over 1/3 (36.5%) of businesses who responded to a recent survey have some form of education/training partnership with a local high school, community college, technical institute, or university (CBER-UT, 2007). And they report that those partnerships are successful in a number of ways. For more opinions from our state’s business leaders, please see pages 96–97 of this chapter.

**Spotlight on Eastman Chemical Company,** Kingsport, Tennessee

**A BUSINESS INVESTS IN EDUCATION**

Even in the dark, Eastman Chemical Company’s presence in Kingsport is highly visible. The “blue flame”—as the locals call it—makes it difficult to ignore the power of the largest employer in the area as well as one of the largest chemical manufacturing sites in North America. Occupying more than 500 buildings and approximately 6,000 acres of land, Eastman’s Tennessee operations in Kingsport employ over 7,000 of Eastman’s total 12,000 employees. A Fortune 500 company with $95 million in earnings in the fourth quarter of 2006, Eastman Chemical Company is consistently one of the top ten nongovernmental employers in the state.

But changes in the plastic package and container industry and in the world market for these products are forcing Eastman Chemical Company to make adjustments. And those adjustments resulted in a 4.5 percent drop in its stock prices earlier this year. The company fell short of expectations for the fourth quarter due to weakness in polymers sales, one of Eastman’s product lines currently undergoing restructuring due to overproduction and increased competition in the world market.

Eastman Chemical Company closed its PET operations in Spain. Plants remain in Argentina, Mexico, the Netherlands, and the UK, but those plants must undergo fixes as well. Eastman’s PET plant in Columbia, South Carolina is also shutting down older assets and building a new plant with more efficient processes at a lower cost.

While these changes have yet to directly affect the Kingsport plant, stock losses and market changes will continue to weigh on the minds of Eastman’s leadership while they look for opportunities for restructuring to increase efficiencies and cut costs. It weighs on the minds of the community as well, considering that one out of every 17 jobs in the Kingsport area is a job at Eastman.

But where does a large corporation look for opportunity in the face of change? To education. In February of this year, Eastman announced a $1 million investment for a new program: training local elementary and middle school math teachers to prepare youth for the future during a two-week intensive workshop at ETSU. Teachers in Kingsport City schools as well as Sullivan and Washington County schools will receive free $1,000 tuition, a $600 stipend for completing the workshop, and $700 to purchase classroom supplies, complements of Eastman.

**Entrepreneurship: stepping out**

Small businesses, defined as those with fewer than 500 employees, are vital to the U.S. economy in a variety of ways. First is the sheer number of small firms in the U.S. They account for 99.7% of all firms. Second, they employ millions of workers—over half of all private sector employees—accounting for 45% of the total U.S. private payroll. Third, and most significant for future economic growth and vitality, small businesses are highly productive and drive innovation: 60-80% of all net new jobs created in the last decade were generated by small businesses. These firms produce 13 to 14 times more patents per employee than large patenting firms (SBA, 2006).

The creation of small businesses is typically through individual entrepreneurship. The overwhelming majority (almost 90%) of entrepreneurs have at least a high school diploma or equivalent (Childress, Smith-Mello & Schirmer, 1998). Research has shown that education increases the probability of starting a business (Evans & Leighton, 1989). These entrepreneurial ventures foster innovation, create high-quality jobs, and stabilize local economies by diversifying the economic base.
What do Tennessee’s business leaders think?

There is no better way to get information than to go to some of the people who are on the front line. So we decided to survey business leaders in Tennessee to get a sense of their attitudes toward education. The questions we asked focused on many facets of education, including the quality of our public schools and the skills readiness of the workforce. The survey was developed by the Center for Business and Economic Research at the University of Tennessee and administered electronically with the assistance of the Tennessee Chamber of Commerce and Industry. Complete responses were received from 618 businesses with facilities in our state.

Virtually all broad industry groups are represented in the survey, with the largest number of respondents coming from the financial (19.7%) and manufacturing (19.5%) sectors. The businesses are spread across the state, with 56.8% located in metropolitan areas, 18.2% in the suburbs and the remaining 25.0% in rural areas. While we received responses from both large and small firms, the average employment for the respondents was quite high at 448 employees. (Almost one in four firms report fewer than 10 employees.) Just over 1/3 (35.6%) of the firms produce for the Tennessee market, while the remainder produce for a regional, national or international market. Whether producing for a local or global customer, you can expect these businesses to encounter stiff competition in the market, which means they need good workers.

Survey respondents said that education was important to people’s lives, to the business’s competitiveness in the marketplace, and to the health of the state economy.

- Nearly 3/4 of respondents believe that education is important to the well-being of Tennessee families (73.9%) and to the well-being of county economies (73.5%).
- Nearly 3/4 (73.1%) of respondents believe a skilled workforce is important to their company’s competitiveness.
- 91.1% said the nearby presence of a university or community college in their area enhanced the quality of life in the community.
- Nearly 3/4 (73.5%) of respondents rank investments in education and a skilled workforce as important to Tennessee’s ability to compete in the global economy of the future.

Unfortunately, business leaders did not give Tennessee’s public schools high marks. Almost 1/2 said that our schools were worse than the public schools in the average state and more than 1/2 gave our schools a grade of C.

The next paragraphs and the table on page 97 provide additional detail from the survey.

Despite overall poor grades, there are still a good number of businesses who give our public schools a grade of A or B and very few businesses who gave our schools a failing grade. Despite the presence of weak schools in Tennessee, there are also many excellent schools.

As you can see from the numbers, the grades deteriorate when you get to characteristics more indicative of people than schools, things like discipline and leadership. Over half of these business leaders gave schools a D or an F in teaching discipline/work ethic and critical thinking. Perhaps these poor grades are a reflection not only of the schools but also of the overall culture in which we live, where many people have very low expectations and a lack of
commitment to their employers and their own self-improvement. Certainly the schools can affect these measures, but personal, household, and community influences may be equally if not more important.

Tennessee businesses find workers with higher levels of educational attainment to be better prepared for work. Respondents were asked to assess applicants for typical entry-level jobs as poorly or adequately prepared, based on the applicant’s educational attainment. The percentage of applicants deemed to be adequately prepared with high school/GED qualifications was only 40.9%. However, 80.8% of applicants with a certificate from a 2-year college and 91.0% of applicants with a bachelor’s degree were viewed as adequate.

Most firms think the difficulty of finding good workers will simply get worse in the years ahead. In ten years, 2/3 of respondents expect it to be harder to find qualified/educated workers from the Tennessee workforce. Over 26% expect it to be much harder to find qualified/educated workers in ten years while less than 1% think it will be much easier. If we do not create quality workers in Tennessee, businesses will suffer, encouraging them to locate elsewhere.

Education partnerships and training appear to be important business strategies. Slightly over 1/3 (36.5%) of respondents have some form of education/training partnership with a local high school, community college, technical institute, or university. It is particularly encouraging that well over 4/5 (88.2%) of the companies with an education/training partnership report the partnership as having a beneficial impact on their workforce. On the other hand, only 11.8% think the partnership had no impact. More generally, 70.8% of these people considered the nearby presence of the college/university to be an asset when hiring and 53.9% said the nearby presence makes the recruitment of executive/managerial staff easier.

The majority of firms (55.0%) support the training of their workforce through a tuition reimbursement program, while 18.6% provide paid leave. Almost 1/3 of those surveyed (29.4%) reward workers for advancing their educational attainment.

Almost every firm surveyed (94.2%) report that they budget for employee training. Nearly half (48.3%) of them now spend more to train employees than they did three years ago. Only 3.5% of the firms spend less on training than three years ago, and only 5.8% have no training budget. The average annual expenditure per worker for training was $4,152.

The types of training vary across firms: Basic skills education (14.6%), Specialized technical training (70.7%), Computer literacy (51.9%), Supervisory training (55.9%), Executive training (33.7%), and None of the above (10.4%).
Does education really influence where businesses choose to locate their enterprise and create jobs? There is strong evidence from both surveys and statistical studies that education not only matters but is in fact a primary factor in determining where firms choose to do business. This is especially true in high-paying research and development operations which help drive job growth and productivity advances. Moreover, studies have also indicated that highly educated individuals are very mobile and have strong preferences to live near other highly educated individuals in areas that are perceived to have a high quality of life (Malecki & Bradbury, 1992). Thus, knowledge-intensive firms follow educated workers to these areas.

- A survey of over 200 multinational companies sponsored by the National Academy of Sciences found that the quality of research and development (R&D) personnel was the single most important factor contributing to a firm’s decision to locate R&D facilities in a given area (Thursby & Thursby, 2006).
- The same survey revealed that proximity to universities and potential for collaboration with university faculty also factored significantly in a firm’s location choice. *These factors proved to be more important than tax incentives.*
- A 2005 survey by the Council on Competitiveness indicated that a small science and engineering talent pool and a poor local K-12 school system ranked as the 2nd and 4th most important factors that would eliminate an area from a firm’s list of prospective location sites (Council on Competitiveness, 2005).
- Sixty-five percent of executives surveyed stated that the quality of the local education system is either “very” or “critically” important in their decision of where to invest in R&D. Education quality was more important than other factors such as capital and rental costs, tax burdens, and government incentive packages (Economist Intelligence Unit, 2004).
- The availability of qualified managers and local industry expertise ranked 1st and 2nd, respectively, in terms of the number of executives indicating that the factor is either “very” or “critically” important in their decision of where to locate R&D operations (Economist Intelligence Unit, 2004).
- An *Industrial Week* survey of 1,000 business executives indicated that the education level of a location was becoming increasingly important in the consideration of future plant locations (Goldstein, 1985).
- A review of surveys on factors affecting business location decisions revealed that the presence of skilled labor is commonly cited as a top reason for the selection by high-tech firms (Gottleib, 1994).

Over the past 30 years, cities with a well-educated population have seen stronger growth in the adult population with a college degree than cities that start with a poorly-educated population. This tendency appears to be driven by shifts in labor demand, as there is an increasing wage premium for skilled people working in skilled cities.

Statistical studies have shown that areas with a better educated workforce experience more business startups and increase the likelihood that a firm chooses to locate in the region.

- The better educated an area's population is, the more likely it can attract foreign-owned manufacturing firms (Friedman et al., 1992; Coughlin & Segev, 2000).
- Local characteristics like educational attainment of the population and other characteristics of the labor market directly affect the profitability of a firm and in turn encourage businesses to locate in counties with a well-educated population (Rosenthal & Strange, 2001).
- The presence of skilled (educated) labor is critical to the use and production of information technology (Bresnahan et al., 2002). A poorly educated county is less likely to produce and/or use information technology and will experience low demand for skilled workers.
- A strong K-12 educational system is vital for developing talent and attracting businesses; specialized training and talent are often more important to firms than the size of the local workforce; and universities are the major cause of innovation in almost all regions (Porter, 2003).
- Research and development firms are shown to be drawn to universities to recruit highly-educated graduates and provide up-to-date training for their current employees (Malecki & Bradbury, 1992; Harding, 1989).
- Access to quality labor is extremely influential in the location decisions of service-based firms, regardless of whether the size of the potential market areas is large (state) or small (town/city) (Schmenner, 1994).
- In a series of studies, evidence has been found that various measures of educational attainment and education quality have a positive effect on the economic growth rates of countries. (For example, see Robert J. Barro, *The Determinants of Economic Growth: A Cross Country Empirical Study*, Cambridge and London, MIT Press: 1997.)
Introduction and ingredients


Higher incomes


Less poverty in our communities

Job growth


Opportunities in emerging industries


**Perspectives on economic development**


refereces


**Business location decisions**


Economist Intelligence Unit. (2004). *Scattering the seeds of invention: The globalisation of research and development.* London, UK: Economist Intelligence Unit.


