

Tennessee's

BUSINESS

Vol. 16 No. 2 2007



The Workforce

Tennessee's BUSINESS

Vol. 16 No. 2 2007

Published by the Business and
Economic Research Center (BERC)
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**MIDDLE
TENNESSEE**
STATE UNIVERSITY

EDITOR'S NOTE

The National Academy of Sciences (NAS) recently assessed America's ability to compete and prosper in the 21st century. In its report, *Rising Above the Gathering Storm*, the NAS identified key actions needed to ensure that the U.S. "continues to enjoy the jobs, security, and high standard of living that this and previous generations worked so hard to create."

The NAS noted that although the U.S. faces a big disadvantage—the cost of labor—in being economically competitive, science and technology can overcome this. If we create scientists and engineers, they can in turn create entirely new industries. America is not as competitive and dominant in science and technology as it once was. Although still the leader, we cannot remain so without renewing our effort to boost the foundations of our competitiveness: science and technology, in which we must accelerate progress or risk poorer prospects for future generations to enjoy the same prosperity, security, and good health Americans now take so much for granted.

The NAS report listed a number of worrisome indicators:

- The U.S. has become a net importer of high-tech products (we import more high-tech manufactured goods than we export).
- U.S. 12th graders recently performed below the international average for 21 countries in math and science.
- Low-wage employers (e.g., Wal-Mart and McDonald's) are creating more new jobs than high-wage employers.
- Considerably more than half of undergraduates in China and Japan earn degrees in science and engineering compared to one-third in the U.S.
- In 2004, China graduated 500,000 engineers, India 200,000, and America 70,000.

The NAS identified creating high-quality jobs and responding to the need for clean, affordable, reliable energy as challenges to improving our scientific and engineering education. Resulting NAS recommendations focus on (1) actions in K–12 education, (2) research, (3) higher education, and (4) economic policy, specifically:

- *Increase America's talent pool by vastly improving K–12 science and math education.* We should (a) annually recruit 10,000 science and math teachers by providing scholarships; (b) strengthen the skills of 250,000 existing teachers through training and education programs; (c) increase the number of students who take Advanced Placement and International Baccalaureate science and math courses.
- *Sustain and strengthen the nation's commitment to potentially transformational long-term basic research to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life.* We should implement actions to increase federal investment in long-term basic research.
- *the creation of high-paying jobs by modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.* Stronger research and development tax credits will encourage private investment in innovation, and broadband Internet access for home, school, and business must be ensured.

—Horace Johns, editor

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TENNESSEE CAN MAKE

Wage disparities still exist in Tennessee between men and women in the same occupations, and these disparities directly affect not only women in this state but also every man who is married to a working woman.



MAKE THE DIFFERENCE



by Kim McMillan

EQUAL PAY FOR WOMEN

In 1776, Abigail Adams asked her husband John to “remember the ladies” when formulating America’s system of government. Although he may have listened to his wife with regard to some aspects of our system of government, it is clear that for voting purposes the ladies wouldn’t be remembered for almost another 150 years. The 19th Amendment to the Constitution, granting women the right of suffrage, was ratified in 1920 after winning approval by one vote. Which state provided the necessary vote? Tennessee, the Volunteer State, made the difference.

Gaining enough votes in Tennessee for ratification was not easy and has become the stuff of legend. After the measure passed the state Senate, it faced significant odds in the House of Representatives. Harry T. Burn, the youngest member of the House at 24, had been in the anti-suffrage crowd for some time when the vote first came up tied at 48. However, the representative from Niota, a small town in East Tennessee, changed his vote after receiving a note from his mother cautioning Harry to “be a good boy and vote for suffrage.”

Following the telegram from Febb Ensminger Burn and Harry Burn’s change of heart, House Speaker Seth Walker followed suit and changed his vote to aye, making the final tally 50-46 and giving the bill the necessary votes for passage. What an incredible moment for Tennessee and for women across the nation.

Sixty-three years after passage of the 19th Amendment and one year before passage of the Civil Rights Act, Congress passed the Equal Pay Act (EPA). At the signing ceremony, President John F. Kennedy called the EPA a law basic to democracy and one that “affirms our determination that when women enter the labor force they will find equality in their pay envelope.”

While it’s nice to imagine a collective determination that women will find equity in their paychecks, the reality is that inequity still exists some 40-plus years after passage of the EPA. In 1963, full-time working women,

according to U.S. government data, earned an average of 59 cents on each dollar earned by men. Today the number stands at around 76 cents. To fully understand the nature of this statistic, it’s important to realize that it represents an analysis of all occupations held by men and women. So a significant portion of the earnings gap can be explained by the preferences of some women to be elementary school teachers versus business executives or librarians versus engineers, with the former in both cases being lower on the pay scale than the latter. However, women’s preferences don’t fully explain the gap. Discrimination can make up some of the difference, evident especially when comparing the earnings of men and women in the same occupation.

In June 2004, Governor Phil Bredesen signed the Equal Pay Remedies and Enforcement Act. According to the Tennessee Economic Council of Women (ECW), the legislature’s action in passing the bill and the governor’s support by signing the legislation made Tennessee the only state to increase the damages paid to affected employees for each repeated act of willful discrimination. Further, it placed Tennessee among the top states in the country for promoting fair employment practices. Tennessee made the difference.

The act also authorized the ECW to conduct an equal pay study and make recommendations on how to deal with wage disparities in Tennessee. The ECW presented its finding this past September to Governor Bredesen, both houses of the General Assembly, and the women’s and black legislative caucuses. Yasmeen Mohiuddin, Ph.D., a Ralph Owen distinguished professor of economics at the University of the South in Sewanee, presented the council’s “Pay Equity Report.”

Professor Mohiuddin’s findings include:

- A significant wage gap exists within each of the 300 occupations detailed in the report. Among the lowest-paid occupa-

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The bill I introduced would have allowed for punitive damages on top of the repayment of lost wages, providing a powerful disincentive to pay inequity.

tions, female registered nurses earn 87 cents to the dollar male registered nurses earn. Put another way, the female-male earnings ratio for nurses is 0.87.

- Among the highest-paid occupations, the female-male earnings ratio of physicians is 0.51. This is partly due to what is referred to as “occupational segregation,” in that women are more concentrated in lower-paid positions in pediatrics and family practice as opposed to gynecology and surgery.
- While the gap for physicians may be partly explained by difference of specialization, the same cannot be said for elementary school teachers, an occupation involving similar education and no specific specialization. The female-male earnings ratio of elementary and middle school teachers is 0.85.
- The wage gap between men and women in Tennessee, among all occupations, ranges from 56.9 percent in Williamson County to 82.1 percent in Davidson County. The choice of an occupation is only partly based on women’s personal preferences. They also face greater obstacles than men in entering certain occupations. Subtle barriers and socialization, or the process by which the influence of those around us shapes our attitudes, pursuits, and self-esteem, often steer women away from jobs predominantly held by men.
- Most studies indicate about 25–40 percent of the wage gap cannot be explained and conclude the difference must be discrimination.
- Whether the wage gap is due to discrimination, socialization, or both, it needs to be addressed by all those involved: women themselves, employers in the private sector, nonprofits, women’s groups, and the government. Women should be better prepared for higher-paying jobs through education, training, and mentoring. The workplace should become more family-friendly, and the government should enforce the Equal Pay Act and Title VII of the Civil Rights Act and formulate new legislation as needed.

I attempted to address this last point in my last session of the Tennessee General Assembly. To me, it’s simple: all things being equal, all things should be equal. It is difficult in one piece of legislation to address the barriers women face when seeking to close the overall wage gap—such as the occasional “accidental” flat tire suffragettes faced—but I introduced a bill that attempted to equal the playing field so

women can get paid the same as men for doing the same job.

Why would Tennessee need yet another law if we have already been subject to federal laws for 40 years and if we just passed a law in 2004? Because wage disparities still exist in Tennessee between men and women in the same occupations, and these disparities directly affect not only women in this state but also every man who is married to a working woman.

Present law in Tennessee requires an employer found guilty of wage discrimination to compensate the employee for the difference in salary with additional penalties for repeat offenders. While this policy is certainly worthwhile and fair, it allows an employer to risk paying women less with the only punishment being the payment of the lost wages. It could be said that this provides no incentive to employers to pay women and men equally.

The bill I introduced would have allowed for punitive damages on top of the repayment of lost wages, providing a powerful disincentive to pay inequity. The bill also would have narrowed the definition of what may be used to justify wage disparity to bona fide reasons so that businesses cannot simply list “other” as a reason to pay women less than men in the same job. The legislation, as is the case with many such bills when introduced for the first time, did not pass. However, the bill has been reintroduced with another sponsor in the most recent session of the General Assembly. So the idea lives on.

What about efforts on the part of the federal government? An issue gaining steam related to equal pay is the first increase in the minimum wage in nearly a decade. Considering that President Bush seems to be amenable to the idea, it could very well happen. If nothing else, perhaps debate on the issue will bring to light other wage issues, in particular equal pay. As with many other controversial issues facing our country, all sides should agree it’s at least worth debating.

Why wait for the federal government or another state to set the example? We certainly want to maintain our healthy business climate in Tennessee, and I believe we can do so while being fair to those women in the state who have achieved the same as their male counterparts.

Remember, Tennessee can make the difference. My mother told me so. ■

Kim McMillan, former 67th District state representative and former House Majority leader (the first woman majority leader in either house of the Tennessee General Assembly), is senior advisor to Governor Bredesen. Matt Barnes, research analyst for the House Commerce Committee, also contributed to this article.

TENNESSEE'S



CHANGING LABOR FORCE

We are currently facing a crisis: approximately one in six Tennesseans lack a high school diploma or a general education diploma (GED).

by James G. Neeley

Working in Tennessee all my life—from my first job on my family's farm, to working in manufacturing plants, to my current role as commissioner of the Department of Labor and Workforce Development—I have seen a great change in Tennessee's workforce. I realize my story may not be that different from tens of thousands of other Tennesseans and people across the nation.

When I was younger, it was the heyday of manufacturing in the state; a lot of individuals quit high school and got a job when they turned 17 or 18. It wasn't a problem finding a job, because jobs were plentiful.

There was an entire generation of workers who never really had a need for a high school diploma. Today it is quite a different story.

No longer can people find a living wage with less than a high school diploma. In my life, I have witnessed the rise of the service sector, the development of the Internet, and the gradual shift from the labor-intensive manufacturing jobs of the 20th century to the high-tech, service and manufacturing jobs of the 21st century.



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In the past four years, our department has awarded more than \$5.9 million in Incumbent Worker Grants benefiting close to 25,000 workers.

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When Governor Bredesen appointed me commissioner in 2002, we both knew more had to be done to educate Tennessee's workforce for our rapidly changing economy. Today's workplace uses much higher technology with automation and upgraded equipment. It's altogether different, requiring more education.

In 2003, the governor created the state's first Jobs Cabinet to encourage the departments of Labor, Education, Economic Development and Agriculture to work together to find ways to create jobs and improve economic development in communities across the state. The Jobs Cabinet traveled the state for a series of roundtable discussions with local leaders, workers, and educators to learn more about the needs of local communities in attracting and retaining good jobs. Time and again the story was the same: we need to better educate our workers to remain competitive and attract new industry.

We are currently facing a crisis in Tennessee: more than 1.25 million Tennesseans (approximately one in six) lack a high school diploma or a general education diploma (GED). While we want to recruit and develop new jobs and industries, it is hard to recruit 21st-century businesses with an undereducated, low-skilled workforce. A GED serves as the gateway for an individual to obtain future education, a better job, better pay, and an improved way of life.

Governor Bredesen and I have elevated our Adult Education (AE) program to meet the needs of undereducated Tennesseans. Through state and federal grants, we have added more classes in cities and counties where major employers are closing. In 2006, a \$500,000 fed-

eral grant paid for more than 7,000 people statewide to take the GED test at no cost to the students, and we are seeking more funding.

In addition to promoting adult education through our Tennessee Career Centers, we are encouraging companies to continually train and upgrade their workers' skills. The Department of Labor and Workforce Development plays a key role in that process.

In the past four years, our department has awarded more than \$5.9 million in Incumbent Worker Grants benefiting close to 25,000 workers. The Incumbent Worker Training Program provides federal grant funding for customized training to existing for-profit businesses. Tennessee businesses struggling with downsizing and layoffs can now use Incumbent Worker Grants to retrain their existing employees in order to make their businesses more productive and the skills of their employees more valuable.

My time serving on the governor's Jobs Cabinet has proven to me that a trainable and well-trained workforce are at the top of the list when businesses consider relocating.

Today is not a time to look back and remember how things were but an opportunity to look toward the future. By elevating the importance of lifelong learning, assisting companies in training and retaining workers, measuring real world skills that are beneficial to employers, and focusing on the department's customer service, we will positively influence workers, employers, and economic development throughout Tennessee and prepare our workforce to meet the demands of the global marketplace. ■

James G. Neeley is Tennessee's commissioner of Labor and Workforce Development.

Local Workforce Investment Areas

LWIA	AGENCY NAME	COUNTIES	CONTACT	#
Alliance for Business and Training, Inc. Walters State Community College		Carter, Johnson, Sullivan, Unicoi, Washington	David Shanks	423.547.7500
		Claiborne, Cocke, Grainger, Greene, Hamblen, Hancock, Hawkins, Jefferson, Sevier, Union	Dr. Nancy Brown	423.318.2709
Knoxville-Knox County CAC* Workforce Connections		Knox	Vaughn Smith	865.544.5200
East Tennessee Human Resources Agency Workforce Development		Anderson, Blount, Campbell, Cumberland, Loudon, Monroe, Morgan, Roane, Scott	Debbie Petree	865.705.8677
Southeast Tennessee Development District		Bledsoe, Bradley, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, Sequatchie	Wanza Lee	423.757.5013
Workforce Solutions		Bedford, Coffee, Franklin, Grundy, Lincoln, Moore, Warren	Gary Morgan	931.455.9596
Upper Cumberland Human Resource Agency		Cannon, Clay, DeKalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren, White	Pat Callahan	931.528.1127
Workforce Essentials		Cheatham, Dickson, Houston, Humphreys, Montgomery, Robertson, Stewart, Sumner, Williamson	Marla Rye	931.551.9110
The Nashville Career Advancement Center		Davidson, Rutherford, Trousdale, Wilson	Paul Haynes	615.880.2327
South Central Tennessee Workforce Board		Giles, Hickman, Lawrence, Lewis, Marshall, Maury, Perry, Wayne	Jan McKeel	931.375.4200
Southwest Human Resource Agency		Benton, Carroll, Chester, Decatur, Hardeman, Hardin, Haywood, Henderson, Henry, Madison, McNairy, Weakley	Lafayette McKinnie	731.989.0533
Northwest Tennessee Workforce Board		Crockett, Dyer, Gibson, Lake, Lauderdale, Obion, Tipton	Henry Lewis	731.286.3585
Workforce Investment Network (WIN)		Fayette, Shelby	Isaac Garrett	901.576.6812

*Community Action Committee

STRENGTHENING



How has Tennessee been able to maintain a positive business climate in spite of the decline in manufacturing jobs?

by Susan Cowden

“Training grants provided directly to employers assist with skills upgrades for employees while keeping businesses competitive.”

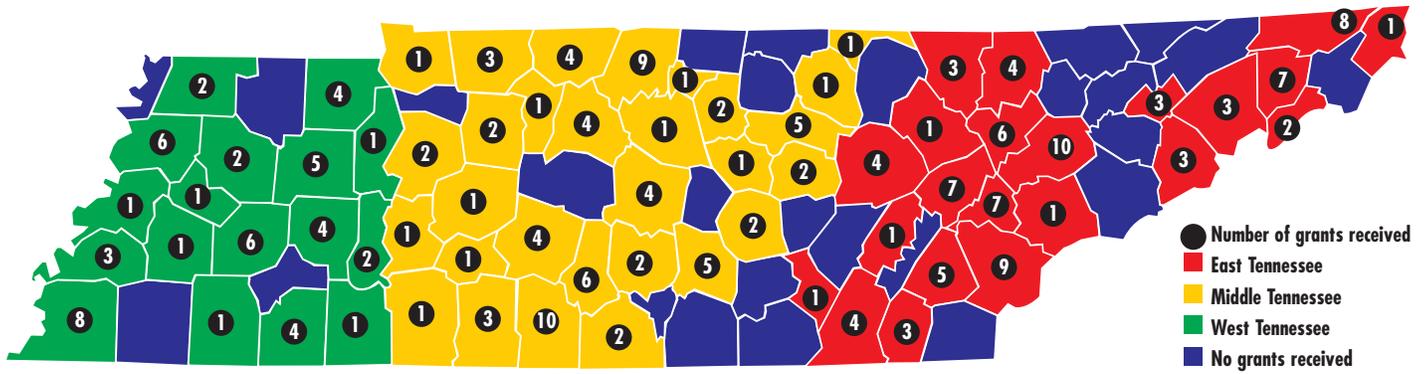
Governor Bredesen formed the Tennessee Job Cabinet under Executive Order Six soon after taking office in 2003. Four years later the state is realizing the tremendous outcome of this initiative, having just been ranked for the second year in a row in the top five states in the nation as best business location according to *Site Selection* magazine,

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TENNESSEE'S WORKFORCE

Incumbent Worker Training: Grants Awarded by County



Through the development of the Fast Track initiative, companies are able to inquire about relocation and receive a multidepartmental proposal within a few days.

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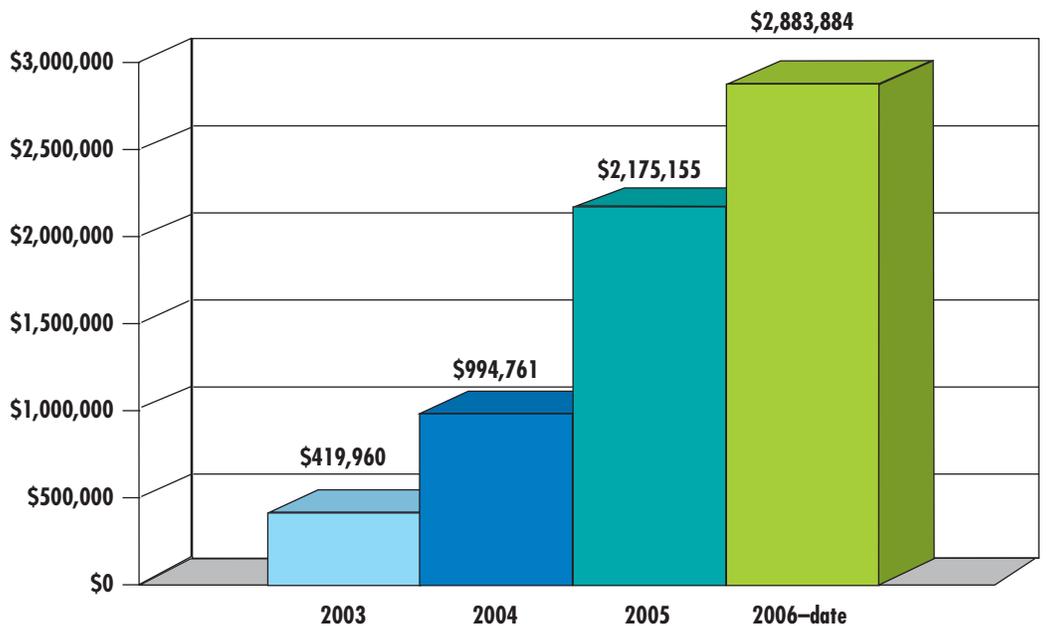
one of the nation's premier economic development publications. The editor, Mark Arend, says of Governor Bredesen: "His understanding of the business world and government's role therein is readily apparent." To view the complete rankings, you may visit www.siteselection.com.

While jobs in the manufacturing sector have shown a decline in Tennessee over the past decade, the state has continued to focus on preventing layoffs when possible and attracting businesses to the state that will allow for the transition of the workforce. How has Tennessee been able to maintain such a positive business climate as evidenced by the recent rankings?

One of the founding principles of the Jobs Cabinet was to bring together all of the key leaders throughout state government to create a desirable economic development climate and cut through the red tape that often becomes a barrier to recruitment and retention. One of the departments that has been instrumental in assisting the Department of Economic Development, the lead agency in the Jobs Cabinet, is the Tennessee Department of Labor and Workforce Development. Through the development of the Fast Track initiative, companies are able to inquire about relocation and receive a multidepartmental proposal within a few days. This gives Tennessee an edge when competing with other states.

As a result of Fast Track and other new initiatives, the department has invested more than

Incumbent Worker Training: Funds Awarded by Year



\$6 million in Incumbent Worker Training grants and more than \$12 million in on-the-job training to strengthen the current workforce and to assist in recruiting new industry.

The following is a description of some of the innovative programs offered by the state that give Tennessee the competitive edge to recruit new businesses, retain existing industry, and encourage growth within local economies.

On-the-Job Training

The Department of Labor and Workforce Development has partnered with Economic and Community Development on more than 150 proposals through the Governor’s Fast Track Initiative. These proposals have resulted in more than \$12 million in on-the-job training commitments for the recruitment of new industry or the expansion of existing Tennessee businesses. The program combines 12 state departments and entities as well as TVA, the Department of Revenue, and local government to provide response to interested employers within 72 hours of contact by the employer.

“This program provides reimbursement to employers who provide on-the-job training to newly hired employees who do not have all of the skills necessary to perform their new jobs,” said Jim Alford, Director of Employer Services for the department. “After a training plan is developed and completed and the individual is moved from subsidized to unsubsidized employment, the employer may receive reimbursement of up to 50 percent of the wages paid during the training period.”

Employers should note that it is prohibited to provide on-the-job training in situations where workers are being displaced in another region or part of the country.

Incumbent Worker Training Program

This program was designed to assist existing businesses with the training cost necessary to remain competitive. “In the four years since its inception, the Department of Labor and Workforce Development has provided grant funding of more than \$6 million that has provided training for close to 25,000 existing employees,” said Alford. The program’s goal is to strengthen businesses through employee skill upgrades and help prevent companies from having to relocate to other states or close completely. The program has resulted in the prevention of more than 100 companies’ having to relocate operations while saving more than 6,500 existing jobs within the state.

The program is administered through the state’s 13 Local Workforce Investment Areas (LWIAs), and the current program year is from July 1 through June 30 of the following year.

For additional information, interested employers should contact their LWIA as shown on the table on page 6 or visit the department’s Web site at www.state.tn.us/labor-wfd.

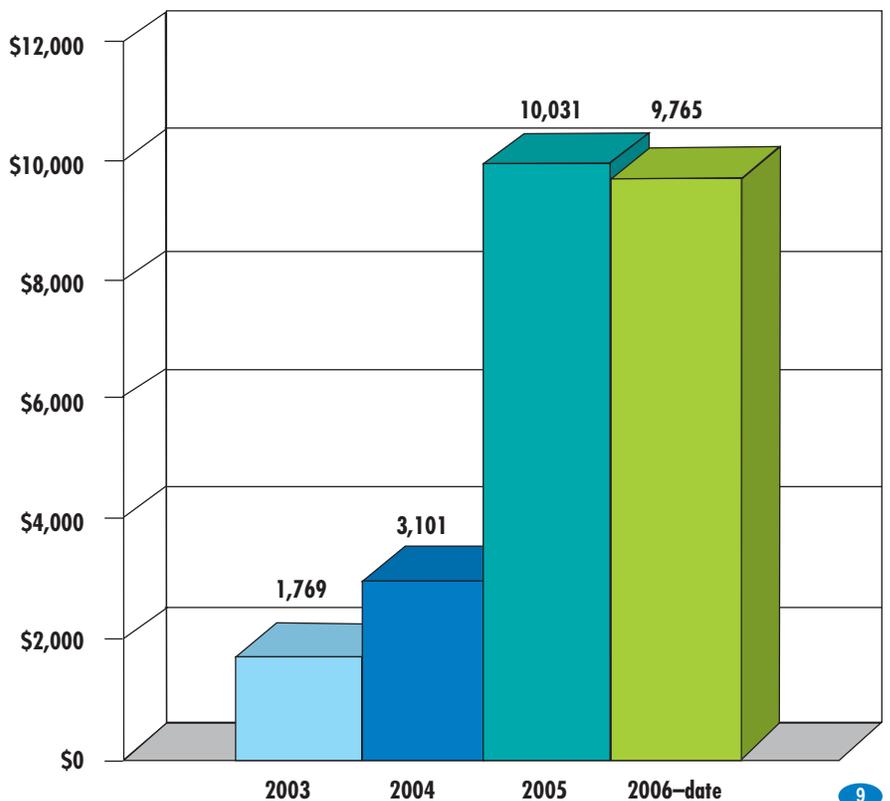
Investment in Rural Economic Development

One of the state’s priorities for the next several years is to expand economic opportunity to the rural areas that have seen a decline in manufacturing jobs. According to Economic and Community Development, the state has seen the creation of more than 103,000 jobs since 2003. With the attraction of the Nissan North American Headquarters to Cool Springs and the recent announcement of a new line at Saturn in Spring Hill, the economic forecast for middle Tennessee is strong, but we still need to focus on rural economic development. As evidenced by the map overview of the Incumbent Worker Training grants awarded across the state, the Department of Labor and Workforce Development is playing a substantial role in advancing the attainment of this goal. ■

Susan Cowden is the administrator for employment and workforce development in the Tennessee Department of Labor and Workforce Development.

According to Economic and Community Development, the state has seen the creation of more than 103,000 jobs since 2003.

Incumbent Worker Training: Trainees by Year



THE HISTORY AND EVOL

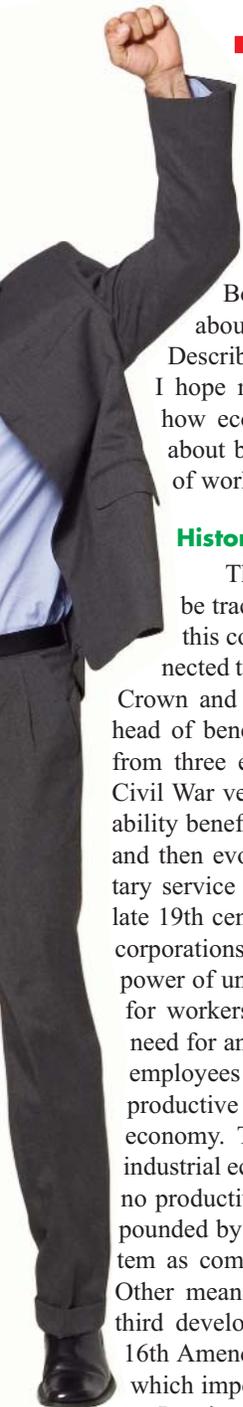
The current era of employee benefits can be essentially characterized as employers seeking to reduce costs while employees desire, or accept, flexibility.



EVOLUTION OF BENEFITS

ENIGMA, MIDDLE GROUND

by Richard Hannah



The one adjective ubiquitous in discourse about employee benefits is complicated—for not only employees but also small businesses and other establishments, within and across industries and occupations, and at government policymaking levels. Both popular and scholarly literature about benefits is frequently pessimistic. Describing this reality is unavoidable, but I hope my tone is different in describing how economic trends and policy choices about benefits reflect our changing world of work.

History

The first “benefit”—pensions—can be traced back to the Roman Empire. On this continent the origins are largely connected to veterans disabled in service to the Crown and Colonies. However, the fountainhead of benefits evolution in the U.S. springs from three events. First, the large number of Civil War veterans relentlessly lobbied for disability benefits, which were ultimately granted, and then evolved into pensions based on military service as measured by time. Second, the late 19th century brought growth in the size of corporations. The consequent countervailing power of unions seeking economic protections for workers (including pensions) created the need for an orderly process to terminate older employees and compete for younger, more productive workers in the growing industrial economy. This shift from an agrarian to an industrial economy left superannuated workers no productive economic role, a problem compounded by the diminished social support system as compared to the agrarian family unit. Other means of support were necessary. The third development was the ratification of the 16th Amendment to the Constitution in 1913, which imposed the income tax.

Pensions posed an interesting question in the context of the income tax for both corporations and individuals: how deferred wages should be taxed, as accrued or as received in the

future. This was the genesis of tax deductions as applied to pension expenses, with medical deductions added in the Revenue Act of 1942.

In the second half of the 20th century, tax policy fully matured as a tool to encourage employers through incentives (deductions) to offer benefits or penalties (loss of deductions) to ensure the benefits were not discriminating in favor of highly compensated employees or owners. Tax policy coupled with regulatory oversight intricately tied benefits to labor market behaviors of employees and employers. Can we continue to rely on tax policy as the central tool to encourage or discourage the design of and access to employee benefits?

Share of Total Compensation

This article quantifies the value of employee benefits only in the context of total compensation. The U.S. Bureau of Labor Statistics (BLS) publishes descriptive statistics at national and regional but not state levels. Due to the unwieldy number of benefits categories, only the most prominent selective benefits are displayed in Table 1 on the next page.

It is important not to read too much into these statistics. The underlying demographics of workers (especially age profiles), the size of establishments in the private sector, and the relative weights for part-time and temporary workers who do not qualify for benefits can have dramatic effects within individual firms and across industries. But we can see that for the U.S., relative to total compensation (or labor cost), benefits are significant. Also apparent is the relative impact of competition in the private sector vis-à-vis state and local government. Government is not immune from economic pressures, but the private sector is the barometer of the vitality of our economic system.

Access

Table 2 offers further insights into the structural categorization of benefits access for retirement and medical care. The general pattern is that access for these two key benefits is consid-

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Table 1. Employer Costs for Employee Compensation per Hour Worked (As of December 2005 for Civilian Workers)

	State and Local Government	Private Sector
Total compensation	36.55	24.71
Wages and salaries	24.83	17.51
Total benefits cost	11.72	7.20
Selective benefits cost		
Paid leave	2.72	1.61
Health insurance	3.86	1.69
Retirement and savings	2.51	0.89
Legally required	2.15	2.15

Source: 2005 *Statistical Abstract of the United States*, Table 635; derived from the National Compensation Survey

U.S. firms are competing with each other and with the government resources of other countries that have universal healthcare plans that take the direct cost of employer-provided medical care out of their production process.

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erably more limited in small, lower-paying, service, nonunion establishments, illustrating that benefits are part of the increasing labor market divide between high- and low-wage jobs.

While the media have publicized the more notorious declines in benefits in core industries such as airlines, automobiles, and steel, there are indications that benefit dumping is more systemic. A recent survey by KPMG estimated that between 1994 and 2004 only between 35 and 40 percent of employers with 200 or more workers offered both retirement and medical care benefits.¹

The story not directly told in Table 2, the cost sharing and shifting for employees who have access, can be seen in the shift in retirement from defined benefit to defined contribution plans or even the termination of plans. As the relative proportion of defined contribution plans offered and employees covered has increased, the participation and savings rate of employees has declined—so much that as part of the 2006 Pension Protection Act, Congress legislated that automatic enrollment by employers (plan sponsors) could be the default option for employees.

That medical costs continue to escalate is not a new or comforting observation. The differentials in both single and family premium shares generally track the same pattern of characteristics in Table 2. The average monthly contribution for a family plan (share) paid by union employees in March of 2004 was \$195.12 versus the nonunion premium of \$273.51.²

The above statistics are not comprehensive but serve as a useful baseline for discussion. One way to weigh future possibilities is to

examine projected changes in the economy. The essence of a BLS synopsis of such shifts by categories of industries from the present to the year 2014 is that, of the largest growth industries (in terms of adding jobs), only one, construction, might be viewed as “traditional.” Of the 20 highest growth industries, defined as the annual rate of change, all could be characterized as service, with a mix from highly professional to highly unskilled. Of the 19 industries projected to experience declines, all were manufacturing, milling, or mining except federal enterprises (excluding the Postal Service and electric utilities).³ At best this rather casual breakdown of industry sector shifts presents a mixed view of the likelihood that in 2014 existing jobs will have traditional benefits.

Benefits are a high labor cost item well entrenched in many traditionally unionized, industrial-based industries that have fallen on hard economic times. In our increasingly global, technologically driven economy, competitors come from all quarters. From a labor-cost perspective, this pressure is felt in both direct wage reductions and benefits reductions or elimination.

Are government- or market-derived worker welfare systems (benefits) best suited for international competition? Consider the example of medical care. U.S. firms are competing with each other and with the government resources of other countries that have universal healthcare plans that take the direct cost of employer-provided medical care out of their production process. Clearly this levels the playing field with respect to some benefits costs among firms within domestic economies but not internationally. There are even variations among government subdivisions within economies that have so-called universal care. The popular notion is that Canada has one healthcare system, but there are variations among provinces. The comparative example within the U.S. is state variations of the much more limited Medicaid plans, including TennCare. Though intended as a traditional welfare program, TennCare and other state plans have evolved to expanded access that includes the working poor and their dependents.

Firms competing with each other within a domestic economy or in the global marketplace are pressured to reduce costs, and eliminating medical coverage is one way to accomplish that objective. Essentially, employees can be “dumped” by (1) completely losing access through employment and not qualifying for low-wage access through Medicaid-derived plans, in which case individual medical establishments and other payors who cross-subsidize or the taxpayer must pay for required critical or emergency care; (2) qualifying for low-wage

access in state plans; or (3) being left with the option of paying the full premium, beneficial only if they are in a low-cost group plan. However, it would seem more logical that employers dump their share of the premium because the plan is a high-cost group.

We can argue that what will really happen is that the employee will seek another employer that offers more desirable healthcare access. This may be true for some, but an increasing proportion of the workforce is competing in a shrinking pool of employers with affordable medical plan access. Other forms of the dumping phenomenon include limiting dependent coverage.

These issues have been debated since the administration of President Franklin D. Roosevelt, and market solutions have primarily been relied upon. The climate seems similar to that of workplace safety and health before the passage of the Occupational Safety and Health Act (OSHA), which in part sought to take the risk of employment-related injury, illness, and death out of competition. Will some form of legislated universal healthcare level the domestic playing field and improve American competitiveness internationally?

Control of Pension Funds

The spectrum of employee benefits encompasses such underlying economic ideas as worker productivity and the competitive ability to recruit and retain labor. Are benefits an investment in workers (expecting a return greater than the expenditure) or simply an expense (purely a labor cost to scrutinize for reduction)?

While retirement is part of the benefits package, plan funds are apart from other benefits in the sense that they are quantifiable financial resources. Space does not permit a deeper exploration of pension fund control, but I'd be remiss if I didn't mention the provocative assessment of two scholars on the matter.

When the Employees Retirement Income Security Act (ERISA) was passed in 1974, eminent and prolific management scholar Peter Drucker was moved to write *The Unseen Revolution: How Pension Fund Socialism Came to America*. His opening sentence is:

If "socialism" is defined as 'ownership of the means of production by workers'—and this is both the orthodox and only rigorous definition—then the United States is the first truly "Socialist" country.

Drucker was asserting that as pension funds grew and were invested in corporate stocks workers would eventually be major owners of

Table 2. Percent of Private Sector Workers with Access to Retirement and Healthcare Benefits by Selected Characteristics

Representing 4,560 establishments of all sizes and over 103 million workers in 2005		
	Retirement Benefits (all types)	Medical Care
Total	60	70
Worker characteristics		
White-collar	70	77
Blue-collar	60	77
Service	32	44
Full-time	69	85
Part-time	27	22
Union	88	92
Nonunion	56	68
Average wage < \$15/hour	46	58
Average wage > \$15/hour	78	87
Establishment characteristics		
Goods-producing	71	85
Service-producing	56	66
1–99 workers	44	59
100 or more workers	78	84

Source: 2005 *Statistical Abstract of the United States*, Table 635; derived from the National Compensation Survey

corporations. His astounding words have not proven prophetic, but the nearly \$10 trillion pool of pension capital is something of an enigma. Worker ownership through pension funds has not translated into control yet. Another scholar, Marleen O'Connor, senses the conceptual shift in understanding where the stakes lie in the conflict between labor and capital:

...[C]orporate governance will trump labor laws in importance, and shareholder rights will constitute a new focal point for labor relations in the United States in the twenty-first century. (p. 67)

Thus far, with the exception of Taft-Hartley Plans jointly controlled by unions and management through their representatives, American workers have proven passive with regard to retirement asset control. Numerous studies have demonstrated complacency or downright irresponsibility of workers managing their own retirement assets. This corresponds with the abysmal saving rates in the U.S. and has become an issue worthy of federal legislation in the form of the Pension Protection Act of 2006, which automatically enrolls employees in retirement plans offered by employers.

The nearly \$10 trillion pool of pension capital is something of an enigma. Worker ownership through pension funds has not translated into control yet.

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Table 3. Education and Compensation, State versus U.S.

Category	Tennessee	U.S.	Year	Table
High school and beyond	81.8%	85.2%	2005	218
Bachelor's or higher	21.6%	27.6%	2005	218
Average hourly earnings of manufacturing workers	\$14.08	\$16.56	2005	98
Average annual pay in private sector	\$34,925	\$39,354	2004	629
Civilian labor market participation rate	63.4%	66.0%	2004	579

Source: 2005 *Statistical Abstract of the United States*

If employees have shown little propensity to assume control of assets they already own, much less propensity to accrue assets for retirement, how much of this reasoning also extends to the attitude of workers regarding medical plans?

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American worker complacency in retirement plans is inertial. Perhaps the complexity of plans and the proclivity for a short-term planning horizon is endemic in the American worker. With such a backdrop, thinking that workers would be active in managing a partially privatized Social Security fund seems far-fetched. As in the private sector, they are more likely to defer to unknown fiduciaries.

If employees have shown little propensity to assume control of assets they already own, much less propensity to accrue assets for retirement, how much of this reasoning also extends to the attitude of workers regarding medical plans? Will new strategies such as Consumer Driven Health Care (CDHC) have more than marginal success in animating workers toward more control?

Emerging Realities

The current era of employee benefits can be essentially characterized as employers seeking to reduce costs (cost sharing, shifting, or elimination) while employees desire, or accept, flexibility (job sharing, telework, or flextime). There are few, if any, nonlegislated benefits in the contingent workforce. How much of this kind of labor market activity is voluntary? Workers may desire more control over their work life to accommodate their lifestyles, but do workers really desire more control over their benefits? Perhaps they will have no choice.

What about medical plans? Health Reimbursement Accounts (HRAs) and Health Savings Accounts (HSAs) have now become a part of the broad front of CDHC, which fits into the government tax incentive model previously described. CDHC, reviewed in a previous issue of this magazine, is no panacea.⁶ Undoubtedly CDHC will sensitize many healthcare users to costs, which may decrease the derived labor cost to some employers. This will not, however, level the competitive field among employers in

general. It is still easier not to offer the benefit or to eliminate existing medical plans.

As in the shift from defined benefit to defined contribution retirement plans, CDHC shifts much of the risk to those employees and dependents least capable of risk management. In the context of increasing implementation of self-service (online, automated, and self-directed) benefits, expect many workers to be even more confused. Do employees really desire more empowerment to make their own decisions? Initial evidence is to the contrary, pointing to low enrollments and low satisfaction with CDHC.⁷

We are in a transitional era, and people will adjust behaviors when they have or are forced to make choices. If CDHC has even marginal success, we will likely see more developments of mechanisms promoting market solutions based on individual choice rather than collective plans. However, this does not directly address the problem of workers without access.

The Middle Ground

Unfortunately, published data about benefits at the state level is not available, greatly constraining generalizations about how Tennessee compares to other states or to U.S. statistics. We can draw some inferences from the following general comparative statistics from various tables in the 2005 *Statistical Abstract of the United States*, showing that Tennessee lags the national benchmark in both education and compensation.

Tennessee is like many states with a wide distribution of earnings among counties—ranging from \$19,284 per job in Hancock County to \$42,582 in Williamson County in 2005.⁸ The working poor at the lower end of this spectrum are of great concern because of the weak link between labor market participation and risk protection for workers and families.

Our TennCare evolution is a testament to the large number of uninsured and uninsurable in Tennessee, of which approximately 650,000 were enrolled in TennCare at the end of 2005.⁹ Most TennCare recipients are not labor market participants at any given time, and evidence suggests this is also true of other state variations of Medicaid. In the absence of a universal healthcare system in the U.S., some states are gradually filling the void of medical plan access partially inclusive of the working poor and their dependents. Examples include California, Maine, Illinois, Maryland, Massachusetts, and Vermont.¹⁰ I refer to these solutions as “the middle ground.”

The significance of the emerging “state option” can be grasped by considering that for the U.S. as a whole in 2004 only 61 percent of

private-sector workers had healthcare coverage through employment and only 42 percent of low-income, nonelderly had job-related healthcare coverage (projected to decline to 37 percent by 2010). This impact is manifested in dependent access as well. Job-based coverage for dependent children fell to 60 percent by 2004, while the provision of public coverage (Medicare plus Medicaid, or state-sponsored programs) for children increased to 25 percent in 2004.¹¹ Like many other states, Tennessee has shouldered much of the burden of declining job-based healthcare with a government plan. In the absence of revived political initiatives for universal healthcare at the national level, these initiatives have at least yielded some possibilities for expanded access.

Educator's Commentary

My experience as both an academic and a practitioner in the field of employee benefits informs my lament of the lack of knowledge, absence of care, or cavalier view of the long run by employees regarding benefits. When I joined the faculty at MTSU about 12 years ago, an employee benefits course was introduced, and it remains the only such course in Tennessee to my knowledge. This doesn't mean that related knowledge cannot be garnered from other courses in personal finance, insurance, and investments or from certifications, such as the Certified Employee Benefits Specialist. If more courses specifically in benefits existed, more students would not necessarily be enrolled, since this is not the type of course that usually has an enthusiastic following. If this assessment is reasonably accurate for university-level education, the concern for the level of knowledge and interest of workers in general is well founded.

Ignorance of benefits can do us great harm as individuals, and misguided policies can do the same for our society and economy as a whole. Retirement and medical care will have a central place in domestic policy issues for decades to come.

In summary, this article addressed three questions about benefits:

- Can we continue to rely on tax policy at the central tool to encourage or discourage the design of and access to employee benefits?
- Will legislated universal healthcare level the domestic playing field and improve American competitiveness internationally?
- Will new strategies and trends such as Consumer Driven Health Care (CDHC) have more than marginal success?

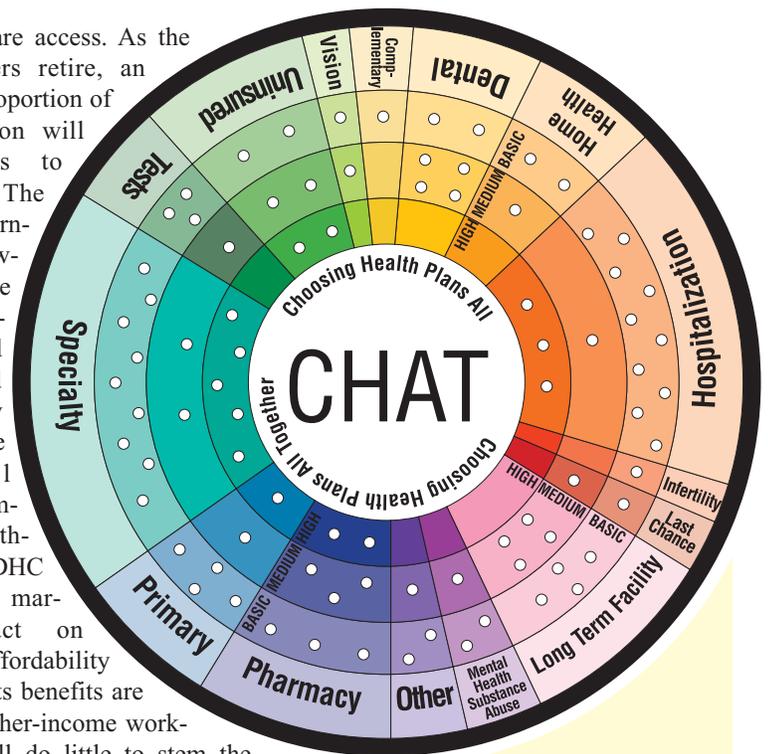
I conclude with short answers. Tax policy will diminish as a central tool relative to government plans, especially as states continue to experiment within the Medicaid framework

with healthcare access. As the baby boomers retire, an increasing proportion of the population will have access to Medicare. The role of government is growing within the existing institutional structure and will partially supplant the traditional role of employer healthcare plans. CDHC will have a marginal impact on access and affordability overall, but its benefits are geared to higher-income workers, so it will do little to stem the growing labor market divide. The control of pensions is conspicuously absent from my list. If Peter Drucker missed the mark, I won't attempt to peer into the future on this matter. ■

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Confusing Choices
CHAT (Choosing Health-plans All Together) is an exercise to help groups deliberate collectively about what they think would be the best health insurance (www.med.umich.edu/bioethics/people/gold.html). Researchers at the University of Michigan and the National Institutes of Health created CHAT with a game design company, MultiLogue. A similar exercise allows employees to deliberate about the best employee benefit package. The exercise is available for use by anyone or any organization.

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WORKFORCE DYNAMICS

by Murat Arik, Harika Erdemir,
and John Seaton

What determines regional competitiveness in a knowledge economy? An answer to this question requires a look at the major characteristics of a knowledge economy: a skilled workforce, a knowledge infrastructure, and a strategic partnership between knowledge producers and disseminators and communities. As is clear from this description, the skill level of a region's workforce is crucial for promoting a competitive business environment and increasing economic prosperity. Global and national trends indicate that workforce skill level has been on the rise. As the national and state economies are undergoing a significant transformation in terms of changes in employment share of major sectors, the demand for a skilled workforce that can quickly adapt to a changing economic environment is also increasing.

Given the role of a skilled workforce in economic competitiveness, how competitive is Tennessee's workforce relative to its peers and the United States? This study identifies Alabama, Florida, Georgia, Kentucky, Mississippi, and North Carolina as peer states. To answer this question, we analyze four major issues: (1) broader socioeconomic dynamics, (2) population characteristics, (3) workforce characteristics, and (4) trends in employment by workforce characteristics. Primary sources of data are the American Community Survey (2005), the U.S. Census Bureau, the Bureau of Labor Statistics (BLS), and the Bureau of Economic Analyses (BEA).

Socioeconomic Dynamics

In this section, we would like to briefly look at the socioeconomic dynamics in the peer states, which constitute a broader environment that closely interacts with workforce issues.

Population growth and sources of growth. As Table 1 (p. 18) presents, all peer states experienced more than two percent population growth between 2000 and 2005, while the growth was substantially higher in Florida (11.3 percent) and Georgia (10.8 percent). The lowest growth rates were recorded in Alabama (2.5 percent), Mississippi (2.7 percent), and Kentucky (3.3

percent). Compared to the peers, Tennessee was in the middle with a 4.8 percent growth rate.

Sources of population growth are as important as the growth itself. Even though Tennessee ranked in the middle, sources of population growth were healthier in Tennessee than the peer states because growth in Tennessee was fueled by all three sources: natural, net in-migration, and immigration. As for the peers, Florida's growth was due to net in-migration and immigration, whereas Mississippi's was due to natural growth offsetting the loss of population through out-migration.

Labor force. Labor force represents a segment of population, ages 16–64, who are either employed or looking for jobs. Ratio of labor force over total age cohort gives us labor force participation rate. As a related concept, unemployment rate is the percent of labor force unable to find work. Considering these definitions, both labor force and unemployment rates are important indicators of economic dynamics in a state. A growing labor force with a declining unemployment rate indicates that people who are willing to work can easily find employment opportunities.

Figure 1 (p. 18) shows the relationship between labor force growth and percentage changes in unemployment rate in the peer states between 2000 and 2005. The axes in Figure 1 intersect at the averages of seven states. According to Figure 1, Florida (Quadrant IV) had a competitive growth dynamic relative to other states in this period, as it had better than average labor force growth rate and change in unemployment rate. North Carolina and Georgia (Quadrant I) had better than average labor force growth, but their unemployment rate increased. Tennessee, along with Kentucky and Mississippi (Quadrant II), recorded less than average labor force growth but higher than average unemployment rate change, making them relatively less competitive than the other states.

Per capita income. As a commonly used measure of economic prosperity, per capita income varies considerably across peer states, ranging from \$17,971 in Mississippi to \$24,611 in Florida in 2005. Figure 2 shows the variation in per capita income and its growth rate from

DYNAMICS IN TENNESSEE

2000. In Figure 2 (p. 18), the axes intersect at the averages of seven states. Tennessee and Florida (Quadrant I) were more competitive than other states in terms of per capita income and income growth. Although Georgia and North Carolina (Quadrant IV) had slightly higher per capita income than Tennessee, their growth rates were somewhat smaller.

Population Characteristics

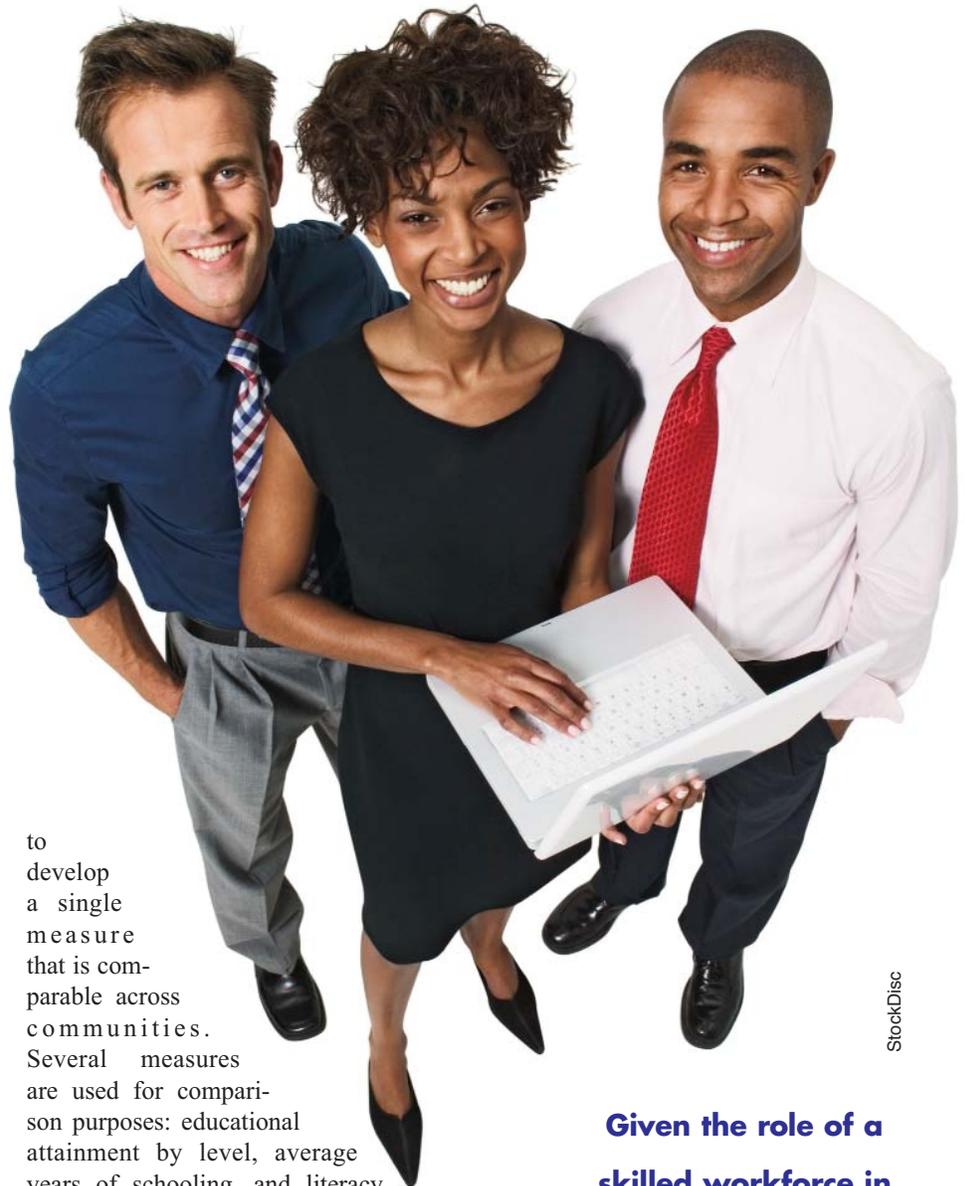
Racial diversity. Figure 3 (p. 19) presents both percent of population by major racial groups and a combined racial diversity index. Tennessee's population was less diverse than that of peer states except Kentucky. Georgia had the most racially diverse population.¹

Population by age cohort and dependency ratios. In 2005, Tennessee was yet to experience issues concerning the aging population. According to Figure 4 (p. 19), Tennessee's working age population was relatively larger than that of its peers. Florida and North Carolina had a relatively higher percentage of old (65 and over) population, whereas Georgia had the lowest.

When dealing with the population by age cohort, the most pronounced concern is the population dependency ratios, measured as the ratio of young (under 17) and old (over 65) population over working-age (ages 18–64) population. This ratio basically tells us how many individuals (old or young) are dependent on working-age individuals. Figure 5 (p. 19) shows dependency ratios in 2005. Tennessee was relatively better off than its peers, having the lowest total dependency ratio after Georgia. Florida, Mississippi, and Alabama had the highest total dependency ratios, but the sources of dependency vary: while Florida had the highest old-age dependency ratio, Mississippi had the highest young-age dependency ratio.

What do these dependency ratios mean? For Tennessee, each working-age individual supported 0.56 individuals, of whom 0.37 were young and 0.19 were old. In Florida, each working-age individual supported 0.66 individuals, of whom 0.39 were young and 0.28 were old.

Educational attainment. Human capital stock of a community in a given time is an important measure of competitiveness, but it is often hard



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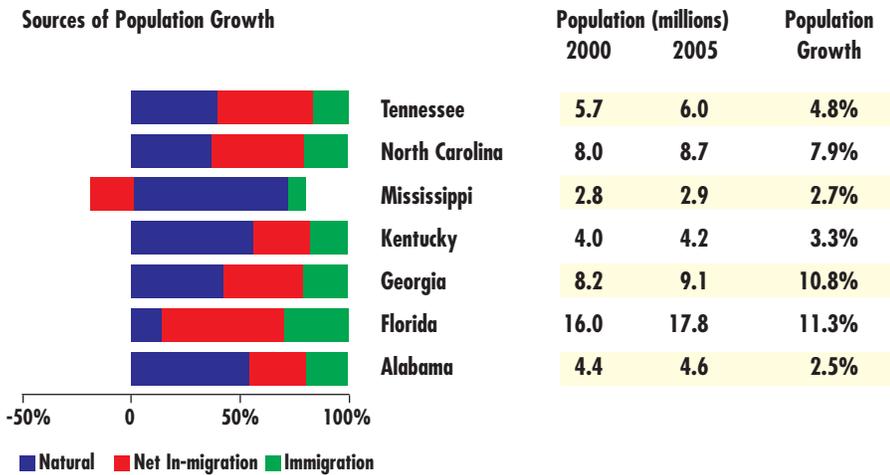
to develop a single measure that is comparable across communities. Several measures are used for comparison purposes: educational attainment by level, average years of schooling, and literacy rate. A particular difficulty arises when comparing across several states and sectors. Average years of schooling is a single indicator and easy to use but does not tell us which educational category (i.e., associate's or bachelor's degree) contributes most to the average number of years of schooling.³ It must be supplemented by additional information to show the contribution of specific educational categories to the average number of years of schooling.

Figure 6 (p. 20) presents both average number of years of schooling by states and percent of population 25 and over with a bachelor's

Given the role of a skilled workforce in economic competitiveness, how competitive is Tennessee's workforce relative to its peers and the United States?

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Table 1. Population Dynamics in Peer States



degree in 2005. The graphs are strikingly similar, but the one on the left clearly separates states into three groups: highly competitive (Florida, Georgia, and North Carolina) followed by Alabama and Tennessee in the middle and then the less competitive states (Kentucky and Mississippi). Overall, the skill makeup of Tennessee’s population is less competitive than that of many peer states. We must emphasize that stock of human capital here applies to *all* population 25 and over. In the next section, we restrict the universe of population to the workforce ages 25–64 to analyze skill issues from a comparative perspective.

Language problem. Some states may experience problems regarding the population’s ability to speak English. The presence of a large number of people with a language problem may require special programs to address this issue. According to Figure 7 (p. 20), Tennessee had the lowest percent of population after Mississippi who speak English less than very well in 2005. Florida, Georgia, and North Carolina had the highest percent of population who speak English less than very well. However, as previous sections suggest, these states have better growth performance than other peer states, suggesting language ability is not an immediate community problem negatively affecting growth dynamics.

Workforce Dynamics

Many studies in the past decade analyzed the role of human capital in economic development and competitiveness of regions. A consensus emerged from both empirical and theoretical studies that human capital matters for economic development. At the heart of this debate lies the skill level of the workforce in a given region. This and the next section specifically deal with the characteristics of the workforce in Tennessee from a comparative perspective. The concept of workforce here is defined as workers 25–64 with a paying job working at least one hour a week. The data set for this section is primarily the filtered data from the 5 percent PUMS (Public Use Microdata System) files of the American Community Survey (2005) for the peer states and the U.S.

Workforce skill composition. How does Tennessee’s workforce compare with the peer states and the U.S. in terms of skill composition? We use three skill levels: low, medium, and high.⁴

Figure 8 (p. 20) presents the skill composition of Tennessee’s workforce from a comparative perspective. The graphs are quite revealing: Tennessee has the lowest percentage of work-

Figure 1. Labor Force Dynamics

Compared with the peer states labor force dynamics in Tennessee are not favorable.

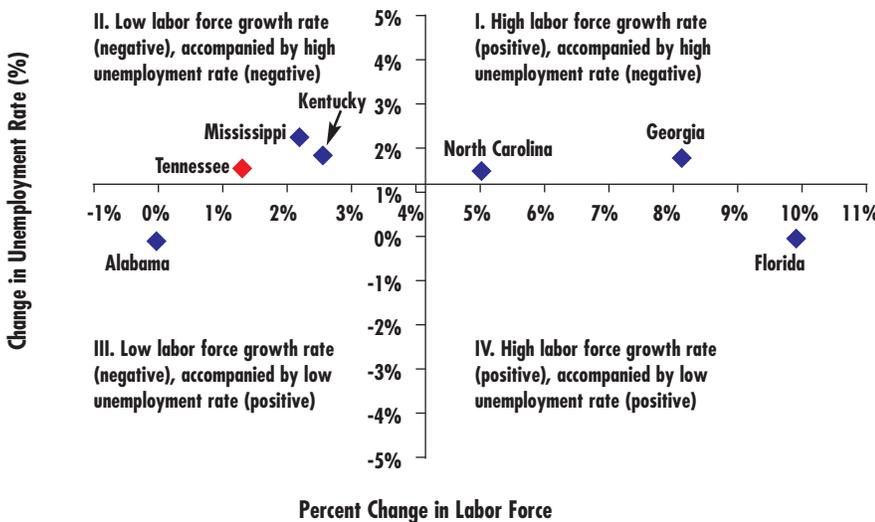
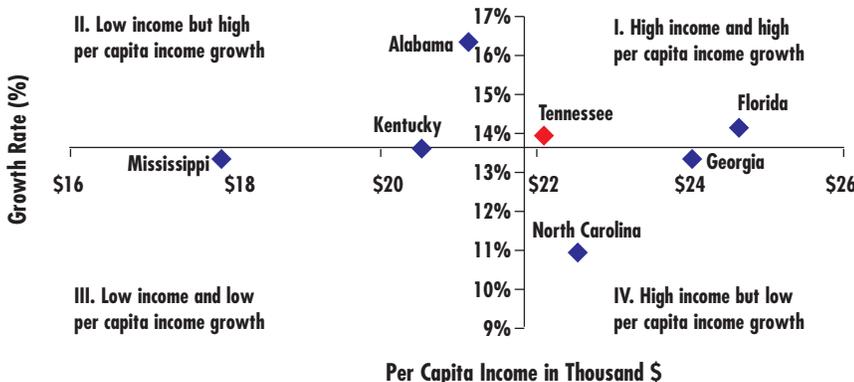


Figure 2. Per Capita Income and Growth Rate

Tennessee’s per capita income and growth rate are close to the averages of seven states.



force with medium skill and the highest percentage of workforce with low skill relative to the peer states and the U.S. Florida and Mississippi have the highest percent of workforce at the medium skill level. However, Florida diverges from Mississippi in an important way: while Florida has one of the highest percentages of workforce with a high skill level, Mississippi has the lowest.

Tennessee's poor competitive position in terms of medium and high skill levels is further reinforced with the findings in a recent study, which provide a comprehensive assessment of workforce skill development across states and countries.⁵ Even though skill composition based on years of schooling is important and measures are readily available, a critical aspect of a knowledge economy is the ongoing preparation of the workforce to adapt to the changing economic environment.

According to Wagner (2006), Tennessee is critically behind the peer states in terms of preparing its workforce: only 2.6 percent of its workforce enrolled part-time in any type of postsecondary institution, ranking second lowest after Mississippi (2.4 percent). Among the peers, 3.7 percent of Florida's and North Carolina's workforce are updating their skills, followed by Kentucky (3.6 percent), Alabama (3.5 percent), and Georgia (2.9 percent).

Workforce by gender and skill. Two general observations about Figure 9 (p. 21) clearly stand out across all states and the U.S. First, the percentage difference between males and females at the medium skill level is negative, indicating that relatively more of the female workforce is acquiring education at the medium skill level. Second, the percentage difference between males and females at the low skill level is positive across all states, indicating that relatively more of the male workforce has a low skill level than the female workforce. While the gaps at the medium and low skill levels are large in the U.S., North Carolina, and Mississippi, they are somewhat smaller in Georgia, Alabama, and Florida. Tennessee and Kentucky are in the middle of these two extreme groups. In terms of gender skill gaps at the high skill level, however, there are significant variations across the states: the gap is in favor of females in the U.S., North Carolina, Mississippi, and Kentucky but in favor of males in Florida. The gap is negligible in Tennessee, Alabama, and Georgia, running +/-0.5 percentage points.

Workforce skill composition by major sectors. The skill makeup of major sectors is different:

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Figure 3. Racial Composition of Population and Diversity Index

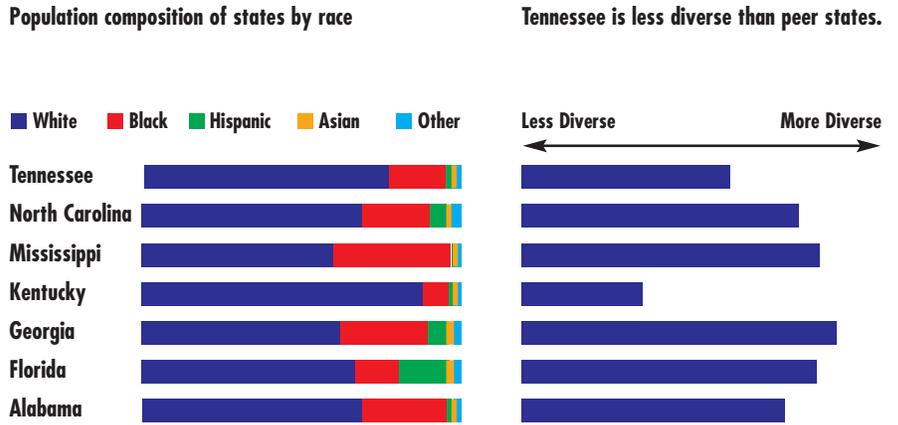


Figure 4. Population by Age

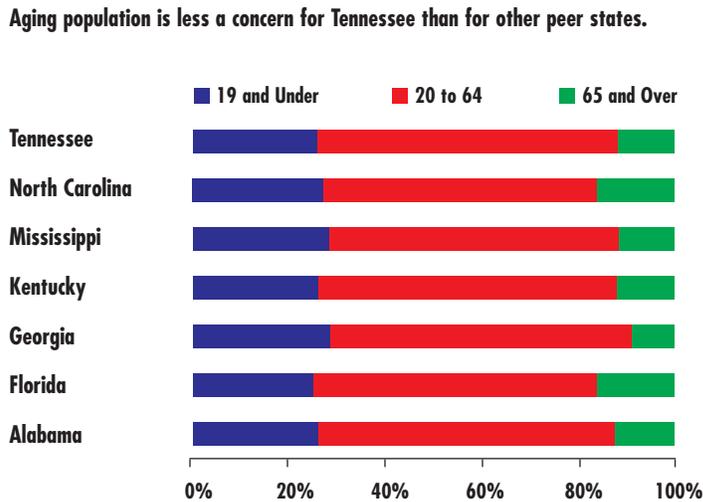


Figure 5. Dependency Rates 2005

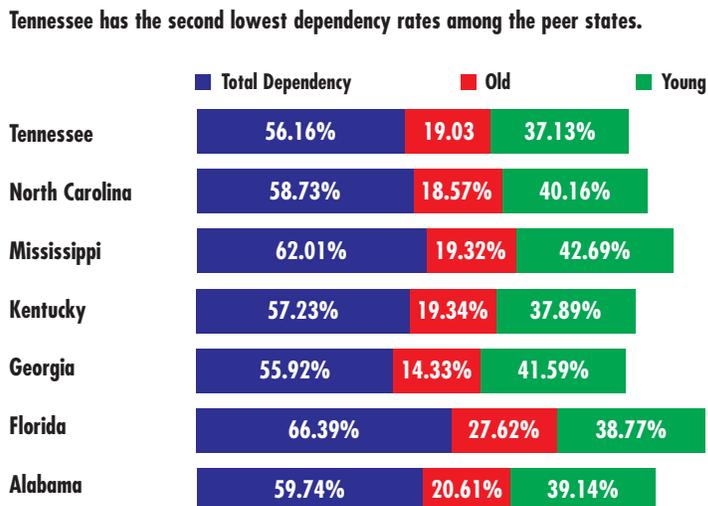
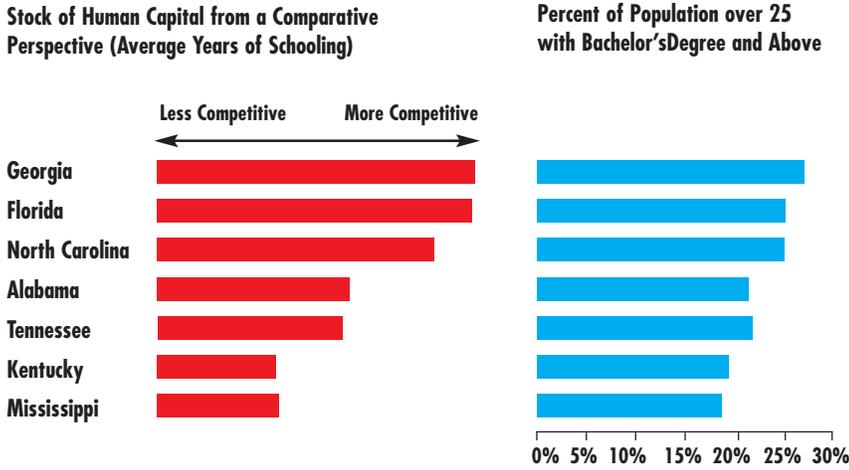


Figure 6. Educational Attainment of Population over 25



some sectors heavily rely on a medium-skill workforce, while others rely on a high-skill workforce. A survey of literature indicates the demand in major industries for workers with higher skill is increasing.⁶ As the skill makeup of industries differs, so does the industry structure of each state relative to other states or the U.S. Before analyzing the skill composition of each major industry by state, we highlight differences of industry makeup across peer states.

As Figure 10 (p. 21) indicates, among the peer states, industry structures in Tennessee, Mississippi, and Florida are less similar to the U.S. economy, but this does not imply any similarity between Tennessee's and Florida's economies. Of the peer states, North Carolina's economy is most similar to the U.S. economy.⁷

In terms of the skill composition of the workforce by industry, we highlighted two major skill levels: medium (Table 2, p. 21) and high (Table 3, p. 22). Each level by industry and state is then ranked by a given industry's skill level in the U.S. These two tables should be considered together. According to Tables 2 and 3, only a few industries have medium and high skill levels larger than the U.S. Overall, Tennessee is the second less competitive after Kentucky in terms of relative medium- and high-skill share of the workforce by major industries. North Carolina and Florida are relatively more competitive than the peer states and the U.S. Although Georgia has few sectors that are relatively competitive at the medium skill level, the high skill composition of its workforce across major industries is extremely competitive.

The medium skill composition of Mississippi's workforce is very competitive compared to the peer states, but none of Mississippi's major sectors have a high skill content larger than the U.S. average. Alabama is performing somewhat better than Tennessee in terms of the medium and high skill sets of its major industries, but Alabama's workforce is less competitive than many peer states and the U.S.

Trend in Workforce Skills

How can we measure the trend in workforce skill composition by industry and state using the American Community Survey (2005)? We first calculated workforce skill composition by age cohort: young (25-34) and old (55-54). The age difference between the two cohorts is about 25 years. Assuming the skill composition of each cohort remains the same as when its members were first hired, the percentage difference between the skill composition of the young and old workforce reflects the trend in workforce skill composition.

Figure 7. Is Language a Problem?

Florida, Georgia, and North Carolina have the highest proportional population who speak English less than very well.

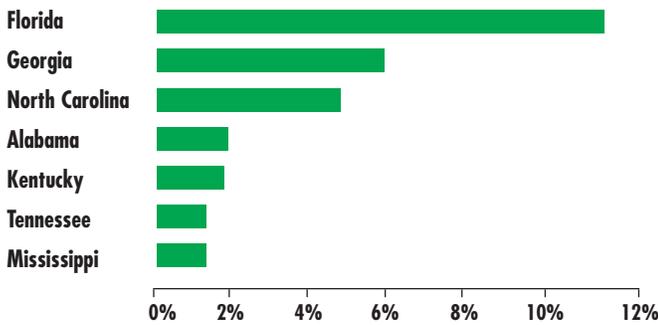
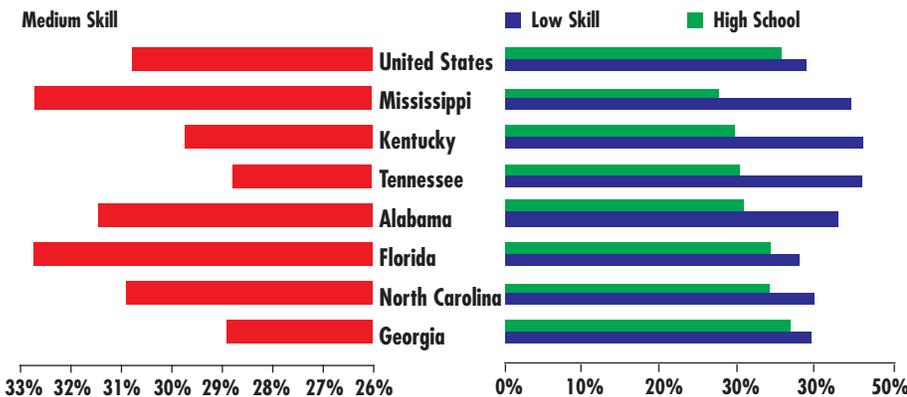


Figure 8. Workforce Skill Composition

Tennessee has the lowest percentage of workforce at the medium skill level, while it has the highest percentage of workforce at the low skill level.



Source: American Community Survey (2005) for the workforce ages 25-64

Intergenerational shift. Table 4 (p. 22) presents intergenerational shift in skill composition by states. A clear general trend is that, regardless of the initial level of skill composition of states by age cohort, the share of new recruits with low skill tends to shrink across states. In all states, the percent of new recruits with medium skill is increasing considerably, as the percentage difference between young and old medium-skilled workforce demonstrates. At the medium skill level, the largest percentage shift took place in Mississippi (6.4 points) and Kentucky (6.3 points).

Overall, the skill trend in Tennessee shows an impressive movement from low to high, as the intergenerational skill difference by level indicates: the low skill shift was -8.44 percent, medium 5.55 percent, and high 2.89 percent. While the trend is promising, when we look at the overall initial skill composition by age cohort and percentage difference between young and old, Tennessee's performance becomes an average of peers at best.

Intergenerational skill shift by industry. It is not easy to show intergenerational differences by skill level and industry in one table. No single indicator of stock of educational attainment would capture the trend in skill composition of major industries across peer states. Tables 5 (p. 22) and 6 (p. 23) present two aspects of the trend in stock of educational attainment by industry.

Table 5 indicates the total intergenerational shift in skill composition (low, medium, and high) of each industry. Since absolute values are used, the index value changes from 0 to 200, 0 indicating no difference between the skill composition of the young and old workforce for a given industry.⁸ In other words, the higher the index value, the larger the shift in the skill composition of the industry workforce over the years. This index, however, does not tell us which skill category (low, medium, or high) is in high or low demand. Table 5 ranks data by intergenerational shift by industry in the U.S.

According to Table 5, the largest intergenerational skill shifts by industry in the U.S. took place in arts, entertainment, and recreation; healthcare; finance, insurance, and real estate; information and communications; and educational, health, and social services. A look at industries by peer states clearly highlights the fact that an intergenerational skill shift has occurred across industries by states. The major sector that recorded the highest intergenerational skill shift is educational, health, and social services. There are, however, significant variations by industry across states. For exam-

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Figure 9. Male–Female Gender Gaps in % Difference by Skill Level

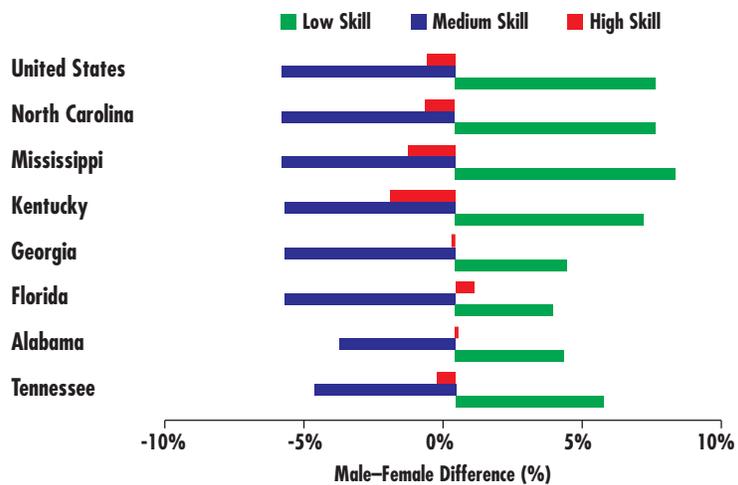


Figure 10. Industry Structure

Tennessee's industry structure is less similar to the U.S. industry structure compared to peer states.

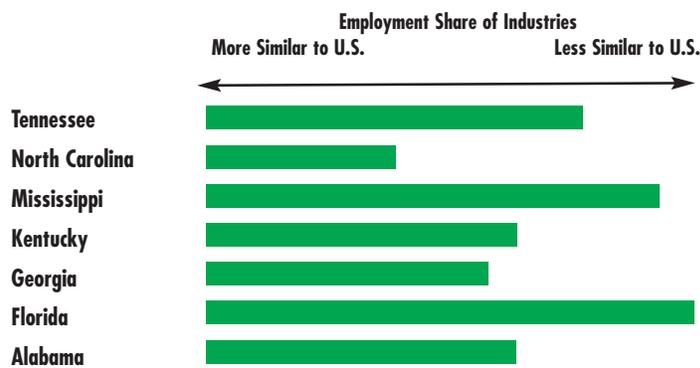


Table 2. Medium Skill Level of Workforce by Industry

Green indicates that the medium skill level for a certain industry is greater than the U.S. average.

	AL	FL	GA	KY	MS	NC	TN	U.S.
Educational, Health, Social Service	16.66%	17.19%	15.11%	15.71%	17.40%	18.80%	14.82%	17.36%
Manufacturing Apparel	23.83%	27.13%	19.91%	19.72%	26.73%	22.69%	21.76%	23.98%
Professional, Scientific, Management	30.33%	32.39%	26.20%	30.86%	31.74%	28.79%	31.06%	28.14%
Construction	25.23%	27.33%	23.94%	25.02%	25.25%	25.10%	21.75%	28.38%
Manufacturing Chemical	28.88%	28.49%	26.20%	30.14%	33.43%	27.18%	25.81%	29.18%
Arts, Entertainment, Recreation, Accommodations	29.61%	32.80%	28.23%	29.73%	30.68%	30.94%	27.54%	29.93%
Manufacturing Machinery	31.03%	31.67%	25.53%	29.24%	28.29%	28.81%	24.95%	29.93%
Wholesale Trade	38.22%	32.84%	30.80%	31.38%	33.97%	33.20%	32.33%	32.03%
Retail Trade	32.82%	35.06%	31.79%	29.21%	36.09%	34.33%	31.39%	33.70%
Information and Communications	40.92%	37.81%	32.58%	30.30%	39.49%	36.11%	34.66%	33.82%
Finance, Insurance, Real Estate	39.44%	38.40%	33.02%	34.48%	44.40%	34.92%	35.43%	34.77%
Transportation and Warehousing	32.19%	37.79%	34.65%	32.97%	35.09%	32.32%	32.43%	35.85%
Public Administration	34.63%	39.87%	38.77%	35.93%	42.20%	38.75%	35.41%	37.95%
Healthcare	43.13%	38.68%	38.09%	42.03%	44.66%	41.07%	36.93%	38.49%
Utilities	34.70%	33.81%	31.26%	31.28%	30.23%	34.32%	29.84%	38.76%

Source: American Community Survey 2005

Table 3. High Skill Level of Workforce by Industry

Green indicates that the high skill level for a certain industry is greater than the U.S. average.

	AL	FL	GA	KY	MS	NC	TN	U.S.
Construction	11.31%	12.29%	14.27%	8.08%	8.19%	12.74%	8.83%	11.73%
Manufacturing Apparel	7.05%	15.55%	15.79%	13.26%	9.18%	12.78%	12.05%	14.77%
Transportation and Warehousing	12.16%	18.67%	21.71%	15.46%	12.37%	15.48%	18.65%	16.08%
Arts, Entertainment, Recreation	14.44%	19.35%	19.76%	16.59%	12.68%	19.86%	16.93%	19.41%
Retail Trade	17.86%	20.03%	22.66%	17.04%	16.37%	19.47%	17.62%	20.32%
Manufacturing Chemical	18.80%	24.11%	23.28%	15.07%	16.57%	24.11%	18.20%	22.05%
Utilities	28.08%	28.89%	24.34%	23.46%	18.60%	27.88%	27.21%	25.22%
Wholesale Trade	19.41%	29.06%	31.54%	20.97%	19.73%	27.92%	24.02%	27.05%
Manufacturing Machinery	21.06%	31.93%	28.35%	17.39%	11.47%	21.65%	14.06%	27.41%
Healthcare	31.59%	36.72%	36.32%	32.32%	29.59%	34.08%	36.16%	36.30%
Public Administration	41.48%	39.34%	35.76%	35.02%	29.76%	37.70%	34.91%	39.53%
Finance, Insurance, Real Estate	34.21%	35.69%	42.07%	35.20%	31.27%	45.22%	35.50%	41.36%
Information and Communications	34.15%	37.97%	48.65%	35.15%	33.85%	42.80%	36.53%	44.42%
Professional, Scientific, Management	40.37%	41.04%	50.71%	38.97%	37.59%	46.27%	37.99%	47.12%
Educational, Health, Social Services	66.06%	66.81%	67.36%	63.72%	65.53%	65.02%	66.36%	67.09%

Increasing High Skill Makeup

Source: American Community Survey 2005

ple, three major industries that experienced the largest intergenerational skill shifts (from highest to lowest) were information and communications, healthcare, and educational, health and social services in Tennessee. Overall, the largest shifts in skill composition by industry took place in Kentucky and Mississippi, followed by Tennessee. Florida's major sectors experienced the lowest intergenerational shifts in the skill composition of the workforce.

The intergenerational skill shift index tells us the extent of intergenerational skill transformation by industry but does not show us which skill sets are in demand or declining. Table 6 provides additional information on the direction of skill shifts by skill category and major industry. Shifts in low skill by industry are excluded from the table, as the sum of percentage shifts for medium and high skills equals the shifts in low skill.

As Table 6 clearly indicates, intergenerational shifts in skill categories by major industry reflect the economic structure in each state. Three major sectors that recorded the largest intergenerational shifts in high skill by major industry are educational, health, and social services; information and communications services; and finance, insurance and real estate in the U.S. As Figure 10 indicates, the North Carolina and Florida economies are more similar to the U.S. economy than other peer economies. Similarly, the same major sectors in North Carolina and Florida recorded the largest intergenerational shifts in the high skill category.

When the intergenerational shift in high workforce skill is compared across peers, the following general observations emerge: almost all sectors except construction experienced shifts toward high skill across the peer states. Five major sectors experienced the highest intergenerational shift toward high skill across the states: finance, insurance and real estate; education, health and social services; information and communications; healthcare; and utilities.

Similarly, many peer states recorded an intergenerational shift toward medium skill. However, as Table 6 makes clear, not all peer states experienced similar shifts. For example, patterns of intergenerational shift in medium skill follow a similar pattern in the U.S., Florida, North Carolina, and Georgia, while a similar pattern emerges among Mississippi, Alabama, and Tennessee. To draw a general conclusion regarding intergenerational shifts in medium skill, not all sectors across the states recorded gains; the share of the workforce with medium skill in certain industries declined over the years based on cohort data. The largest gains

Table 4. Intergenerational Difference in Workforce Skill Composition

(Ages 25–34 and 55–64), Ranked by Gains in Medium Skill

State	Young (25-34)			Old (55-64)			Difference (Young-Old)		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Florida	34.47%	33.07%	32.46%	35.33%	31.67%	33.00%	-0.86%	1.40%	-0.54%
Georgia	33.20%	28.87%	37.93%	40.62%	27.29%	32.09%	-7.43%	1.59%	5.84%
North Carolina	34.18%	31.28%	34.55%	41.11%	29.30%	29.59%	-6.94%	1.98%	4.96%
Alabama	37.18%	33.68%	29.14%	42.95%	29.51%	27.54%	-5.77%	4.18%	1.59%
Tennessee	37.98%	30.69%	31.33%	46.42%	25.14%	28.45%	-8.44%	5.55%	2.89%
Kentucky	37.43%	33.08%	29.49%	45.50%	26.80%	27.70%	-8.06%	6.27%	1.79%
Mississippi	37.02%	35.20%	27.78%	44.08%	28.84%	27.08%	-7.06%	6.36%	0.70%
United States	33.20%	31.27%	35.53%	37.48%	29.23%	33.29%	-4.27%	2.04%	2.24%

Source: American Community Survey 2005. Note: Low = less than high school and high school; medium = some college and associate's degree; high = bachelor's and above.

Table 5. Intergenerational Skill Shifts: Young to Old Workforce

Ranked by shifts in the U.S.: Shift between young (25–34) and old (55–64) workforce

	AL	FL	GA	KY	MS	NC	TN	U.S.
Transportation and Warehousing	21.82	17.54	12.16	20.82	12.11	27.51	6.76	4.68
Utilities	21.90	12.17	39.64	50.57	60.61	23.30	10.69	6.53
Manufacturing Apparel	20.88	6.93	11.40	21.53	20.81	11.76	9.93	8.17
Wholesale Trade	14.14	6.64	12.76	35.09	24.22	11.64	5.19	8.55
Professional, Scientific, Management	9.93	11.02	19.58	12.70	10.70	26.23	3.41	9.68
Manufacturing Chemical	21.25	25.55	15.50	12.83	13.77	17.58	8.16	9.80
Manufacturing Machinery	18.18	7.24	19.49	30.25	13.97	29.11	13.57	12.10
Construction	21.52	10.61	22.67	7.99	13.16	9.75	28.91	14.18
Retail Trade	26.65	19.95	9.98	27.89	21.87	25.21	4.31	14.43
Arts, Entertainment, Recreation	17.73	24.20	21.40	31.28	26.22	8.22	15.66	14.57
Healthcare	36.64	7.04	29.47	34.32	29.06	24.91	13.45	20.71
Finance, Insurance, Real Estate	22.70	36.99	22.37	42.27	30.26	33.11	13.02	22.19
Information and Communications	44.40	7.25	46.62	15.60	28.75	33.57	22.18	25.19
Educational, Health, and Social	27.92	33.78	37.87	22.24	29.93	37.99	17.43	25.27

From Small to Large Shifts in Skill Makeup

Source: American Community Survey 2005 and BERC

across industries and states took place in arts, entertainment, and recreation; healthcare; retail trade; information and communications, manufacturing (chemical); and utilities.

In Tennessee, only two of the 14 major sectors recorded an intergenerational shift from medium and high to low skill (construction and utilities). Tennessee's 12 major industries experienced intergenerational skill shifts at varying degrees from low to medium or high. The top three major industries experiencing intergenerational skill shifts from low to medium or high are information and communications; healthcare; and education, health and social services.

Compared with its peer states, Tennessee's experience with intergenerational skill shifts from low to medium and high was somewhat competitive, placing it second after Kentucky but on par with Georgia. These results should be interpreted thus: a greater percentage of new recruits in Tennessee is required to have medium and high skill compared to the aging workforce.

Conclusion and Policy Implications

Although Tennessee's population dynamics are more or less competitive, certain characteristics of its population and labor force—such as educational attainment—put it in a less competitive position than its peer states. A more detailed look shows its workforce skill composition is also somewhat less competitive than that of its peer states.

Tennessee's trend indicates a relatively larger major skill shift from low to medium and high than its peer states. Taking into account the level of skill across age cohorts, this indicates a major catch-up effort with its peers, which have a competitive workforce skill composition.

A number of issues deserve attention with regard to workforce skill in Tennessee. The workforce and employers should be more receptive to the concept of lifelong learning and skill upgrading. To increase the number of employees and employers in skill-retraining programs may require attitudinal changes. The nature of the workforce skill question in economic development circles is also shifting from how much educational stock a region has to how good a region's educational stock is. This has important policy implications for policymakers, employers, employees, and training institutions alike.

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Notes

1. The racial diversity index, or Rae Index, is calculated using the following formula, borrowed from political science literature to measure political fragmentation: Diversity index = $1 - \sum(f)^2$, where (f) represents the fraction of (i th) racial group in a population. The higher the index value, the more diverse the community is.

2. For a comprehensive discussion of measurement issues regarding human capital stock, see OECD, Center for Educational Research and Innovation, *Human Capital Investment: An International Comparison* (Organization for Economic Cooperation and Development, 1999). Average years of schooling in this section are calculated using average number of years for each educational attainment category (i.e., less than high school, high school, associate's degree).

4. This designation of skill levels is somewhat arbitrarily constructed using years of schooling completed. This categorization of educational attainment does not take into account experience, on-the-job training, or quality of formal training. Low skill = any schooling at high school level and below; medium skill = any schooling higher than high school but below bachelor's degree; and high school = bachelor's degree and above.

5. For a comprehensive treatment of skill development across states and countries, see Alan Wagner, *Measuring Up Internationally: Developing Skills and Knowledge for the Global Knowledge Economy* (National Center for Public Policy and Higher Education, 2006).

6. For articles dealing with various issues regarding industry skill shifts, see Bureau of Labor Statistics (www.bls.gov), *Monthly Labor Digest*.

7. A simple but useful formula, the Krugman Regional Specialization Index, is used to calculate structural similarities between two types of economies and intergenerational shifts in skill makeup of each industry within the peer states. Structural similarity or shift index = $\sum |e_{i,TN} - e_{i,US}|$, where ($e_{i,TN}$) = percent of employment of (i th) industry in Tennessee, and ($e_{i,US}$) = percent of employment of (i th) industry in the U.S.

8. See note 7.

Although Tennessee's population dynamics are more or less competitive, certain characteristics of its population and labor force—such as educational attainment—put it in a less competitive position than its peer states.

Table 6. Intergenerational Skill Shifts Ranked by High Skill Shift in the U.S.

Intergenerational skill gaps between young (25–34) and old (55–64) workforce (percentage difference)

	AL		FL		GA		KY		MS		NC		TN		U.S.	
	Med	High	Med	High	Med	High	Med	High	Med	High	Med	High	Med	High	Med	High
Construction	-3.5%	-7.3%	1.0%	-5.3%	-4.8%	-6.6%	-2.1%	-1.9%	5.9%	-6.6%	-1.8%	-3.1%	-7.6%	-6.8%	-1.9%	-5.2%
Transportation and Warehousing	5.5%	5.4%	5.6%	-8.8%	-1.5%	6.1%	6.2%	4.2%	-5.4%	6.1%	13.8%	-3.8%	-3.4%	1.3%	2.1%	0.3%
Arts, Entertainment, Recreation	8.8%	0.1%	12.1%	-4.2%	6.8%	3.9%	15.6%	-4.2%	13.1%	-10.7%	3.6%	0.5%	5.8%	2.1%	6.6%	0.7%
Retail Trade	9.6%	3.8%	9.4%	0.6%	3.2%	1.8%	12.4%	1.5%	10.9%	-8.6%	7.8%	4.8%	0.5%	1.7%	5.2%	2.0%
Manufacturing Apparel	4.4%	6.0%	-0.3%	3.5%	3.1%	2.6%	9.5%	1.3%	-5.4%	-5.0%	3.2%	2.7%	5.0%	-0.2%	1.5%	2.6%
Utilities	-11.0%	5.0%	-5.9%	-0.1%	-11.2%	19.8%	23.5%	1.8%	17.2%	13.1%	-6.3%	11.7%	-5.3%	1.5%	-0.2%	3.3%
Healthcare	8.8%	9.6%	0.9%	2.6%	7.6%	7.1%	11.2%	6.0%	0.2%	14.4%	9.9%	2.5%	5.8%	1.0%	6.4%	3.9%
Manufacturing Chemical	10.6%	-3.0%	12.8%	-3.4%	1.8%	6.0%	-4.4%	6.4%	6.8%	-6.9%	-0.1%	8.8%	-1.1%	-3.0%	1.0%	3.9%
Wholesale Trade	-1.3%	7.1%	-2.5%	3.3%	-1.8%	6.4%	4.9%	12.7%	2.6%	9.5%	-4.6%	5.8%	-2.0%	2.6%	-2.0%	4.3%
Professional, Scientific, Management	3.7%	1.3%	0.1%	5.4%	-2.8%	9.8%	-6.3%	4.6%	5.3%	-1.1%	-10.9%	13.1%	-1.3%	1.7%	-2.8%	4.8%
Manufacturing Machinery	4.8%	4.3%	3.4%	0.2%	1.1%	8.7%	6.0%	9.1%	2.3%	4.7%	9.1%	5.4%	3.3%	3.4%	-0.1%	6.0%
Finance, Insurance, Real Estate	-5.9%	11.3%	-4.6%	18.5%	0.3%	10.9%	-4.0%	21.1%	5.2%	9.9%	-9.2%	16.6%	0.3%	6.3%	-1.5%	11.1%
Information and Communications	14.3%	7.9%	-3.6%	2.2%	-7.4%	23.3%	7.8%	-4.7%	12.8%	1.6%	-0.1%	16.8%	-5.9%	11.1%	-2.3%	12.6%
Educational, Health, and Social	2.6%	11.4%	-2.2%	16.9%	-1.1%	18.9%	2.9%	8.2%	5.3%	9.6%	-4.9%	19.0%	1.9%	6.8%	-1.8%	12.6%

Source: American Community Survey (2005) and BERC

SOUTHEASTERN MANPOWER

A collaboration to produce an adequate construction craft labor force



OVER TRIPARTITE ALLIANCE



by Barbara S. Haskew

The nation and the Southeast face a major shortage of the construction craft labor necessary to undertake major power generation and industrial projects over the next 10 years. This looming shortage reflects both projected economic growth and its mismatch with a stagnant and slow-growing supply of skilled craft labor. In 2005 the Washington-based Construction Labor Research Council (CLRC) estimated that over the next decade 185,000 new craft workers would enter the construction industry each year.¹ About half of this annual number will be needed just to replace retiring baby boomer construction workers; the remaining craft workers are required to address increased construction demands fueled by projected population and economic growth. Members of the Construction Users Roundtable (CURT) classify the construction workforce shortage as critical and estimate the “industry must recruit 200,000 to 250,000 new craft workers a year to meet future needs.”² CURT’s higher estimates recognize that the existing labor shortage escalated to crisis level when the demands produced by Hurricane Katrina were added to those produced by a recovering economy.³

The projected shortage in the Southeast is particularly compelling both because it is a high growth region and because the massive devastation produced by Katrina and other storms is on its Gulf Coast. Growing concerns about the projected mismatch between the supply and demand for industrial craft labor in this region initiated the formation of the Southeastern Manpower Tripartite Alliance (SEMTA) in 2005. SEMTA is an informal alliance of industrial owners, contractors, and labor organizations “formed to develop a better understanding of the craft labor market in the Southeast United States and cooperatively seek ways to mitigate risks of labor shortages.”⁴ Using data provided by a sample of major project owners in the region, the CLRC estimated in October 2006 that craft labor was close to or at full employment in the Southeast and projected that “demand in the industrial construction sector will increase by 25 percent during the next two years and remain at that higher level through 2010.”⁵ The CLRC predicted that demands for

several of the construction crafts—painters, ironworkers, pipefitters, and insulators—would increase by more than 40 percent during this same period.⁶

Power generation companies in the region such as Southern Company and the Tennessee Valley Authority (TVA) are actively involved with SEMTA because the projected labor shortage has clear implications for their operation and maintenance needs, the installation of environmental controls, and the construction of new generation capacity. Some of these projects are imminent. In mid-February TVA announced that over the next five years it plans to spend more than \$1.2 billion on pollution control devices designed to address sulfur dioxide, nitrogen oxide, and mercury emissions at its eastern coal-fired plants.⁷ Approximately 350 construction workers will be required to install the scrubbers and selective noncatalytic reduction systems designed to produce cleaner air in the Great Smoky Mountains.⁸ Power companies in the Southeast are also planning both new coal-fired and nuclear generation capacity to address the anticipated economic expansion of the region. Construction of new capacity could begin as early as 2010. One report notes that power companies across the nation “are pursuing licenses for more than 30 nuclear plants and plan to site most of them in the Southeast.”⁹ Additional nuclear capacity could further stress the impending labor shortage since craft labor will also be required to support the refueling and maintenance outages at nuclear plants.¹⁰

SEMTA is working through four subcommittees to probe the dimensions of the labor shortage in the region and develop possible strategies to address it. These subcommittees are focused on the following areas:

- Critical Needs Assessment,
- Identifying the Impact of Hurricane Katrina,
- Demand Leveling, and
- Recruitment and Workforce Development.

The vice president for Technical Services at Southern Company indicated that “by 2010, when peak labor demand is projected, demand for trades workers is expected to more than triple on new power generation projects and

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CONSTRUCTION CRAFT LABOR

New workers are needed in all the crafts, but critical shortages are projected for boilermakers, electricians, insulators, ironworkers, and pipefitters.

nearly double on petrochemical and LNG (liquefied natural gas) projects.”¹¹ New workers are needed in all the crafts, but critical shortages are projected for boilermakers, electricians, insulators, ironworkers, and pipefitters. Another subcommittee is focused on estimating the impacts of Hurricane Katrina. The results of their five-year hurricane recovery labor forecast indicate the demand for approximately 10,000 craft workers in 2007 will grow to over 40,000 by 2011.¹² These workers will be needed for debris clean-up, for rebuilding the levee system, and for repairing and rebuilding the housing stock in Louisiana and Mississippi. Industry analysts note the impacts of Katrina include “the loss of experienced journeymen to demolition and cleanup crews for premium wages, extreme recruitment incentives to come to the area, recruitment of foreign nationals to supplement crews, widespread wage increases, and higher overtime costs, bids, and budgets.”¹³

Eddie Clayton, outage manager for Southern Company, indicates SEMTA’s subcommittees “are beginning to identify opportunities that could help narrow the gap between the supply and demand for craft labor in the Southeast.” One opportunity is demand leveling. This approach uses shared information about industrial project schedules to identify and explore opportunities to shave labor demand for critical crafts during peak periods. For example, power generation companies in Kentucky and Tennessee are planning major projects using craft labor in the fourth quarter of 2007. New power generation projects are planned in Florida for the second quarter of 2008. Knowing the demands these projects will place on the craft labor supply will permit the companies to integrate their plans for use of craft labor and minimize the impacts of shortages. Demand leveling also considers the expanded use of new technologies such as modularization and improved supply chain processes. Such approaches are consistent with recommendations of the Lean Construction Institute, which argues that “a shift in how projects are designed, carried out, and delivered can and will benefit the industry and the labor shortage.”¹⁴ Jerry Payton, senior manager of TVA Industrial Relations, explains that benefits from participating in SEMTA include “better utilization of existing construction craft labor though demand leveling, improved scheduling of projects with more information about the availability of craft labor, and increased utilization of apprentices and nonjourneymen (to grow a future labor force).”

Craft unions represent approximately 45 percent of the region’s industrial craft workers.

In addition to training craft workers, the unions are partnering with contractors to increase productivity through improving employee efficiency and performance on the job. For example, the Code of Excellence promoted by the IBEW is designed to decrease absenteeism and lower job-related accidents.¹⁵ An alliance of boilermakers, industry contractors, and owners celebrates their joint efforts, which have raised worker productivity over a 20-year period.¹⁶ But the improved scheduling and increased productivity of the existing construction craft labor supply cannot fully address the magnitude of the labor supply problem. Declining or stagnant numbers in apprenticeship and other training programs clearly signal that young craft workers in the pipeline in this region are insufficient to replace the massive number of “baby boomer” retirees expected over the next 10 years.

While rising wages for craft labor will attract additional workers to the Southeast from other markets, such increases would need to be substantial to attract significant numbers of trained workers since wages in other regions are measurably higher for many construction crafts. According to a recent publication, the average California construction worker earns about \$24 an hour, and journeymen workers earn up to \$70,000 annually.¹⁷ Lower construction wages in the Southeast may reflect the significant concentration of Hispanic workers in the industry.¹⁸ These workers are often unskilled and undereducated. Many are undocumented. Even after controlling for work experience and years of schooling, one study found “Hispanic laborers and carpenters are paid a lower hourly wage than their non-Hispanic counterparts in the Southern and Western states.”¹⁹ The study emphasizes “the construction industry needs to develop safety and skills training for this growing community” and concludes education and training are important if this growing segment of the construction labor force is to contribute to “the adoption of new technology and workforce strategies.”²⁰ Another analysis notes “both contractors and owners . . . need to dramatically increase their efforts in immigration-compliant hiring processes,” and “extensive bilingual training (both in safety and the specific trade)” while “educating themselves in the language and cultures of their labor to communicate effectively.”²¹

SEMTA is aggressively considering a multitude of approaches to develop a larger construction craft labor force within the region. These plans include encouraging high school graduates to enter construction crafts, recruiting returning military through the Helmets to Hardhats program, and encouraging new diversity

and recruitment initiatives to attract more women and Hispanic immigrants into the craft apprenticeship programs. A recent survey of companies/owners of construction projects identified the labor shortage as a major concern and suggested more

aggressive measures to retain, recruit, and otherwise make careers in the construction industry more attractive to the upcoming generation. Increasing pay scales and importing labor from outside of our borders are only temporary solutions. In the end, the industry will need to increase productivity and work to compete with the alternative careers available to the next generation.²²

Unions and contractors are also exploring approaches that could provide more continuous employment/earnings opportunities for craft workers and particularly for apprentices. Some unions are assessing and crediting the experience of new entrants to provide for faster advancement in their apprenticeship programs. As it focuses on bringing young workers into the construction industry, SEMTA is aware it must wrestle with an image problem. Since the advent of the knowledge economy, parents and educational leaders have focused on encouraging students to seek four-year college degrees and white-collar jobs. Construction jobs are viewed as dirty, dull, and dangerous, dead-end careers characterized more by grime than glamour. To change that image will require partnering with the educational system at all levels and a multitude of community groups. The message must be clear and sufficiently persistent to influence the career choices of high school and community college students. Continued support from both federal and state governments in resources and rhetoric can provide the continuity to support the development of a trained professional construction labor force.

The cooperative efforts of owners, contractors, and unions in SEMTA are not without stresses. Owners walk a fine line in sharing information and engaging in collaborative efforts but are careful not to enter into activities that might violate antitrust provisions. Some contractors and owners are anxious to preserve and support open-shop labor while simultaneously working closely with unions to improve training and expand the skilled-labor supply. Craft unions are interested in improving opportunities and earnings for members and increasing regional membership. For all parties the future of U.S. immigration policy remains a major wildcard. But each partner in the alliance

is enthusiastically committed to increasing and improving the construction craft labor force in this region. Failure to effectively address this imminent shortage can escalate construction costs, postpone projects, and potentially produce an electric power shortage. The success of SEMTA in addressing the shortage may minimize or avoid these problems and collaboratively produce byproducts that will improve the industry, increase the skills and earnings of the regional workforce, and impact economic development in Tennessee and the Southeast. ■

Barbara Haskew is a professor of economics at MTSU and director of the Tennessee Center for Labor-Management Relations.

Endnotes

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11. Brian Lockett, “2010 Will Test Southeast Labor Supplies According to Data from SEMTA Coalition,” *Construction Labor Report* 52 (2590), September 27, 2006.
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19. *Ibid.* p. 558.
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Unions and contractors are also exploring approaches that could provide more continuous employment/earnings opportunities for craft workers and particularly for apprentices.



SMOKING AND OBESITY



By Charles L. Baum II, William F. Ford, and Jeffrey D. Hopper

A growing body of research suggests that those who smoke and are obese, in addition to facing significantly greater health risks, may also receive lower wages.

Current research indicates that people who are smokers or who are obese incur significant wage penalties.¹ And, if they are both, the penalty can be even worse. This is bad news for large portions of the U.S. population.

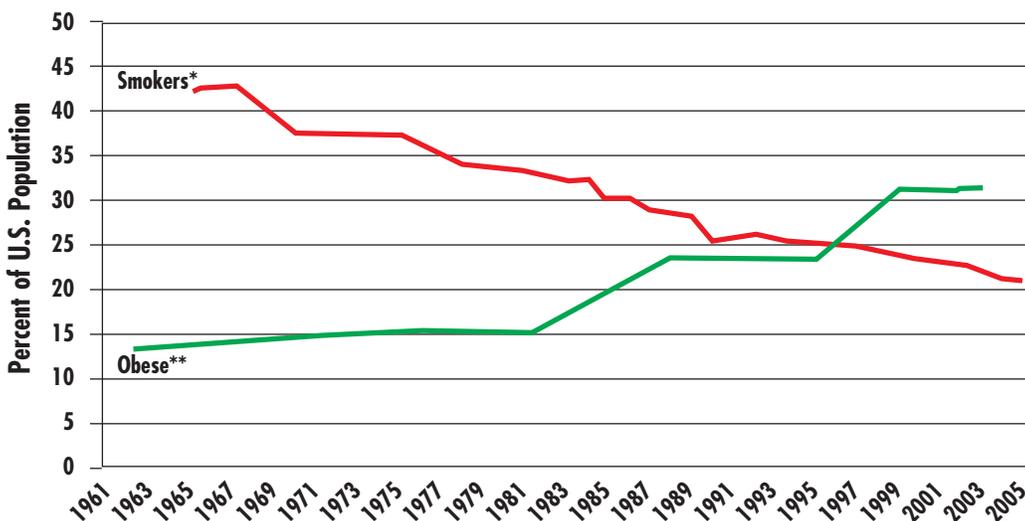
Data from the Centers for Disease Control and Prevention (CDC) illustrate that while there has been a decline in the proportion of the U.S. population that smokes cigarettes from more than 40 percent in the 1960s to less than 21 percent in 2005, the share of the U.S. population that is obese has risen sharply since the early 1980s from about 15 percent to a recent level of more than 30 percent (see the chart below). Though the CDC does not report the portion of adults who smoke and are obese, if the fraction of smokers who are obese is roughly propor-

tional to the obesity rates in the population as a whole, then as many as 4.2 percent of adults may exhibit both behaviors.² This suggests approximately 36 million U.S. workers are smokers, nearly 46 million are obese, and about 6.4 million are obese smokers whose earnings may be affected by both behaviors.³

Trends in the smoking and obese populations have been closely monitored in past decades primarily out of concern for associated health risks and costs. However, there is an additional, less researched, cost associated with these problems: the reduced wages these workers receive. A growing body of research is documenting the disparity in wages between

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U.S. Population: Smokers and Obese



Sources: *Center for Disease Control and Prevention: National Health Interview Survey (NHIS)
**Center for Disease Control and Prevention: National Health and Nutrition Examination Survey (NHANES)

ARE THERE WAGE PENALTIES?

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Over a 45-year career, this penalty could mount to more than \$360,000 in 2003 dollars. Certainly this would provide another incentive, in addition to improving health, to stop smoking or lose excessive weight.

smokers and nonsmokers and between obese and nonobese workers, indicating that those who smoke or are obese earn lower wages. The research consensus shows that the unadjusted wage difference in these groups observed in survey data continues to exist and is generally found to be significant when controlling for differences between the individuals.⁴

Just how large is this wage penalty? As noted in the table below, descriptive unadjusted statistics from the National Longitudinal Survey of Youth (NLSY) survey data indicate that obese smokers earn 27.3 percent or \$4.33 less per hour than their nonsmoking, nonobese counterparts. Assuming an average work year of 1,800 hours, this translates into an annual penalty of almost \$8,000. Over a 45-year career, this penalty could mount to more than \$360,000 in 2003 dollars. Certainly this would provide another incentive, in addition to improving health, to stop smoking or lose excessive weight.

Whether you individually face this specific penalty, or a larger or smaller penalty, depends on many factors such as your age, gender, race, education, marital status, work experience, local unemployment rates, the industry in which you are employed, and possibly other socioeconomic factors. While the simple descriptive statistics suggest that wages generally are lower for smokers and the obese compared to their respective counterparts (nonsmokers and non-obese workers), these correlations do not neces-

sarily imply a direct causal relationship. For example, wages tend to increase with age, and BMI tends to increase with age as well. Thus, there may appear to be a positive correlation between BMI and wages when, in fact, this correlation is partly due to age-related changes. To determine the causal effect of smoking and weight on wages, we use multivariate regression analysis to control for the other factors listed above that might be correlated with smoking and weight. From this analysis we can determine which variables have a significant effect on an individual's wages.

Other factors that cannot be controlled for in the regression analysis may potentially be sources of the raw wage penalties observed. These factors include possible discrimination against smokers or obese workers by their employers, reduced productivity due to the health problems generally associated with smoking and obesity, and what has been referred to as "economic myopia," whereby individuals are less concerned about their future and thus may invest less in human capital (education, training) and less in maintaining their health (making them more likely to smoke or overeat).

Our analysis was conducted using NLSY data, which are generally representative of the U.S. population as a whole in terms of sample characteristics and provide data on a continuous sample of individuals from 1979 to 2002. Several re-specifications of the model were con-

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Wage Penalty for Smoking and Obesity by Demographic Group

Dependent Variable	Number	Percent	Wage (\$)
Full Sample	15,669	100.00	14.77
By Demographic Group			
Whites	8,148	52.00	16.23
Blacks	4,637	29.59	12.43
Hispanics	2,884	18.41	14.42
Males	8,044	51.34	16.29
Females	7,625	48.66	13.17
Smokers	4,408	28.13	12.37
Nonsmokers	11,261	71.87	15.71
Obese	3,532	22.54	13.36
Nonobese	12,137	77.46	15.18
By Combined Demographic Group			
Nonobese Nonsmokers	9,379	59.86	15.85
Obese Nonsmokers	2,707	17.28	13.93
Nonobese Smokers	3,583	22.87	12.57
Obese Smokers	825	5.27	11.52

Notes: The sample size contains 15,669 NLSY person-year observations. Wages are in year-2003 dollars.



structured to examine the robustness of the results.⁵ We found that smoking and obesity are significant factors contributing to some of the observed raw wage penalties. We note that the wage penalties were different for men than women and present the results accordingly.

As indicated, the OLS model shows that smoking and obesity significantly reduce wages for both males and females. The smoking wage penalty is 5.3 percent for males and 2.7 percent for females. The obesity wage penalty is 4.0 percent for males and 7.6 percent for females. For perspective, in these regression models, black males earn 13.4 percent less than white males, and black females earn 4.8 percent less than white females. Hispanic males earn 6.0 percent less than white males, and Hispanic females earn 3.8 percent less than white females. Thus, the female obesity wage gap is larger than the female white/black and female white/Hispanic wage gaps. If combined, obese smokers incur a wage penalty that is larger than the white/Hispanic wage gap for men and the white/black and white/Hispanic wage gaps for women. This suggests that modifiable characteristics such as cigarette smoking and obesity potentially play about as large a role in wage determination as skin color.

We next explore whether wage penalties due to smoking and obesity are additive or interactive. To do this, we add to the first model an interaction term for smoking and being obese. If smoking and being obese have interactive effects, then this interaction term will be statistically significant. In our OLS model we found no interactive effects (i.e., this term is statistically insignificant), and the separate effects of smoking and being obese can be added together to get the total effect on wages of both behaviors.

There is some variation in the findings when examining other model specifications that prevents us from adamantly claiming a causal relationship between the wage penalties and smoking or obesity in all cases. There is one exception: the female obesity variable was negative and significant in most specifications, allowing us to conclude that obesity has a negative causal effect for females.

In an examination of unadjusted data, we observed a raw wage disparity between smokers and nonsmokers and between obese and nonobese individuals. After isolating the effects of these behaviors, our results suggest that these modifiable personal characteristics can have an effect on an individual's wages. So, if the negative health effects of these behaviors weren't bad enough, we now see negative personal economic effects as well. Readers are referred to the authors' December 2006 article in the *Social Science Quarterly* for additional detail on this study. ■

Charles L. Baum II is an associate professor and the graduate director; William F. Ford holds the Weatherford Chair of Finance, and Jeffrey D. Hopper is an instructor, all in the Department of Economics and Finance at MTSU.

Notes

1. Obesity is defined as a Body Mass Index (BMI) greater than 30.
2. About 21 percent smoke, and about 17.9 percent of smokers are obese.
3. This is calculated from the November 2006 Bureau of Labor Statistics Civilian Labor Force estimate of 152,381,000.
4. See Baum, Ford, and Hopper, "The Obese Smoker's Wage Penalty," *Social Science Quarterly* 87(4): 836-850, for a complete review of these studies.
5. Only general conclusions from the OLS specification are discussed rather than addressing the specific results of each recalculation.

Modifiable characteristics such as cigarette smoking and obesity potentially play about as large a role in wage determination as skin color.

Wage Penalties for Smoking and Obesity Based on Gender

Dependent Variable: Log Wages	Males		Females	
OLS Specification 1				
Smokes Dummy Variable	-0.053***	(0.013)	-0.027**	(0.013)
Obese Dummy Variable	-0.040***	(0.014)	-0.076***	(0.013)
OLS Specification 2				
Smokes Dummy Variable	-0.061***	(0.014)	-0.028*	(0.014)
Obese Dummy Variable	-0.051***	(0.016)	-0.077***	(0.015)
Smokes • Obese Interaction Term	0.042	(0.029)	0.002	(0.028)

Notes: Standard errors are in parentheses. ***p < .01; **p < .05; *p < .10. Only the effects of key variables of interest—smoking and obesity—are presented.

MIDDLE TENNESSEE



by E. James Burton, Dean, Jones College of Business, and Christine Bradley

It has been my privilege to serve on the Workforce Investment Board, Area IX, since its inception, working closely with Dr. Christine Bradley, former executive director, now with Vanderbilt University, who here shares her thoughts about investing in the workforce.

“Why can’t employers find the workers they need when so many people are looking for work, especially in communities where jobs have gone overseas?” As technology and the global economy have evolved, it is becoming clear that unless employers can find the workers they need, in terms of both hard and soft skills, corporations will turn to other places and countries to get the work done. Unless we can better match our workers’ skill set with employers’ needs, we will not attract good jobs to the area. It is everyone’s job—government, education, private industry, and community-based organizations—to support the changes needed to develop skills in the existing workforce.

The federal government passed the Workforce Investment Act of 1998 to help assure the alignment of public and private resources and activities to support the development of a skilled workforce. Federal dollars for this initiative are housed in the Department of Labor and earmarked under formula funding for each state, which then implements a delivery system to assure that local communities are provided workforce development services and oversight.

A key component in this legislation was the creation of workforce boards across the U.S. In Tennessee, the State Workforce Investment Board is overseen and supported by the State Department of Labor and Workforce Development. Thirteen local boards combined represent all 95 counties. Charged with overseeing the operation of career centers in their areas, the local boards also identify and address systemic workforce development issues that affect businesses and job seekers on a broader scale. The activities of each local board differ according to the needs of that area.

The board’s role is to visualize a skilled workforce in a community that promotes self-sufficiency, economic opportunity, lifelong learning, and business and economic growth. Composed of representatives from area businesses reflecting major sectors of the local econ-

omy and key figures in education, government, and nonprofit sectors, the board is well positioned to create partnerships needed for change.

The Middle Tennessee Workforce Investment Board covers Rutherford, Wilson, Trousdale, and Davidson counties. In addition to overseeing the career centers, they have primarily focused efforts on growth sectors, assuring a trained workforce, and attracting new and expanding businesses. Over the past several years, the board has provided the oversight needed to assure that workforce services to dislocated and unemployed workers, through the career center system, are of high quality and meet customers’ needs. The board realized the career center in Rutherford County was not nearly of the size and scope needed to serve this fast-growing area. Through board members working with local elected officials, a commitment by the Tennessee Department of Labor resulted in a new 22,000-square-foot facility.

The board has provided increased awareness of and training in sectors including healthcare, technology, and teaching. The “Health Care Career Handbook,” created with MTSU, addresses a significant current and projected shortage of healthcare workers. The manuscript and Web site provide job seekers and students with employment data, training venues, and employment opportunities. This site had 17,000 visits in the past year. A “Teaching as a Career” handbook, created with the Tennessee Department of Education to address the need for teachers, outlines the steps needed to obtain a teaching certificate in Tennessee, fast-track methods for obtaining certification, and educational entities available to help. Distributed to high school guidance counselors and career centers, it has provided an opportunity for students and career changers to learn how to enter the profession.

A \$3 million H1B grant the board received has positively affected the technology sector. Numerous businesses in the area benefited from the technology training afforded to both their existing and prospective workers.

The board’s ability to facilitate relationships with other business organizations, local political entities, educational personnel, and economic development entities helps to provide the collaboration needed to come up with real solutions to tough problems. ■

WORKFORCE INVESTMENT BOARD