



THE COLLEGE SYSTEM  
*of* TENNESSEE

# Economic Reach & Impact

2018



Prepared by:



Department of  
**Economic &  
Community Development**

Center for Economic Research  
in Tennessee (CERT)



## **Economic Reach & Impact of TBR | The College System of Tennessee**

Tennessee Department of Economic and Community Development  
Center for Economic Research in Tennessee (CERT)

May 24, 2018

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## EXECUTIVE SUMMARY

The Center for Economic Research in Tennessee (CERT) completed the following study to better understand the economic and fiscal impacts the TBR institutions, its workers, students and graduates have on the State of Tennessee.

- TBR institutions during the 2016-2017 academic year supported 9,950 Tennessee jobs, including 5,976 full-time equivalent jobs, and generated \$615.7 million in incomes for Tennessee workers.
- The economic impact of TBR operations supports activity in many other industries in Tennessee. TBR's operations last year supported \$610.3 million in value added (TBR's contribution to gross state product), and \$1.06 billion in total economic output.
- The cohort of students awarded a TBR credential last year are projected to earn \$940.7 million each year during their working careers (earnings include wages and supplemental benefits). These annual projections are \$224 million *more* than they would have realized without a postsecondary credential.

The paper begins with an overview of TBR's institutions and enrollment, and their contribution to the state's growth in both educational attainment and high-quality employment opportunities (Part I).

Community colleges and Tennessee Colleges of Applied Technology (TCATs) have a significant impact on their regional economies, supporting employment, new incomes, spending, economic output and tax revenues across the state. These impacts are described in Part II. Additionally, CERT analyzed TBR investments in capital projects the short-term impacts created through the construction industry.

Part III outlines the economic impacts generated by student expenditures during their time of enrollment, with a specific focus on students attending from locations outside the traditional service area.

The last and most significant component of this report (Part IV) describes the impacts of higher education on workforce participation and earnings. Postsecondary credentials create higher earning potential for Tennesseans, which in turn drives higher levels of spending among local businesses and tax revenue generation for the state and local economies. Postsecondary attainment also improves workforce participation among Tennessee's adult population, thereby reducing workforce gaps realized by Tennessee employers.

## PART I: OVERVIEW OF TBR INSTITUTIONS

TBR--The College System of Tennessee is the state’s largest higher education system comprising all two-year public institutions in Tennessee. TBR governs 40 institutions across Tennessee, including 13 community colleges and 27 Tennessee Colleges of Applied Technology (TCATs). These institutions operate at over 200 teaching locations in the state providing higher education access for Tennessee’s residents. In 2016–2017, over 116,000 students were enrolled at TBR institutions with over 30,000 degrees, certificates, diplomas, or other credentials awarded.

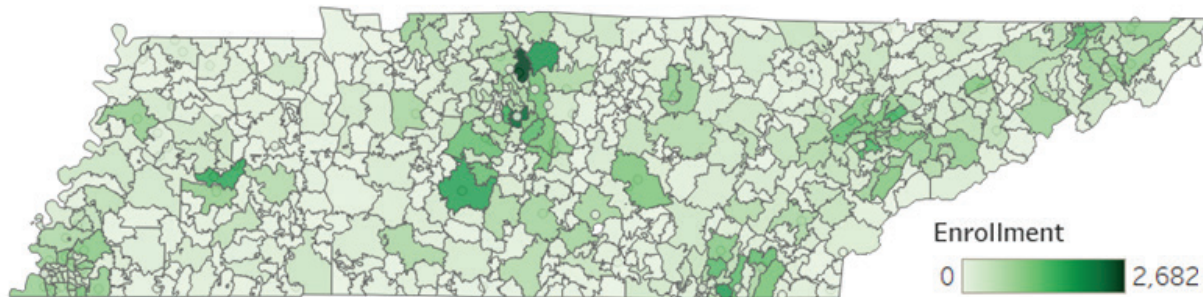
The state’s community colleges are two-year public institutions with specified service areas. Currently, these community colleges operate across more than 65 campuses and offer nearly 500 academic programs. The Colleges of Applied Technology focus on preparing students with technical and professional training in wide-ranging subject areas.

**Table 1: Enrollment and Awards by Institution Type<sup>1</sup>**

Institution	Enrollment (Total)	Out of Service Area Enrollment (Share of Total)	Full-Time Employment	Awards
Community Colleges	87,220	13,913	4,976	16,477
TCATs	29,600	Not avail.	930	13,884
All TBR Institutions	116,820	Not avail.	5,906	30,361

Of the over 116,000 students enrolled at TBR institutions, 87,220 students were attending a Tennessee community college in fall 2017. Each community college is responsible for providing programs of study relevant to counties in their service areas that help support the regional workforce. As depicted in Figure 1, residents from across the State of Tennessee are enrolled in community colleges.

**Figure 1: Community College Enrollment by Zip Code**



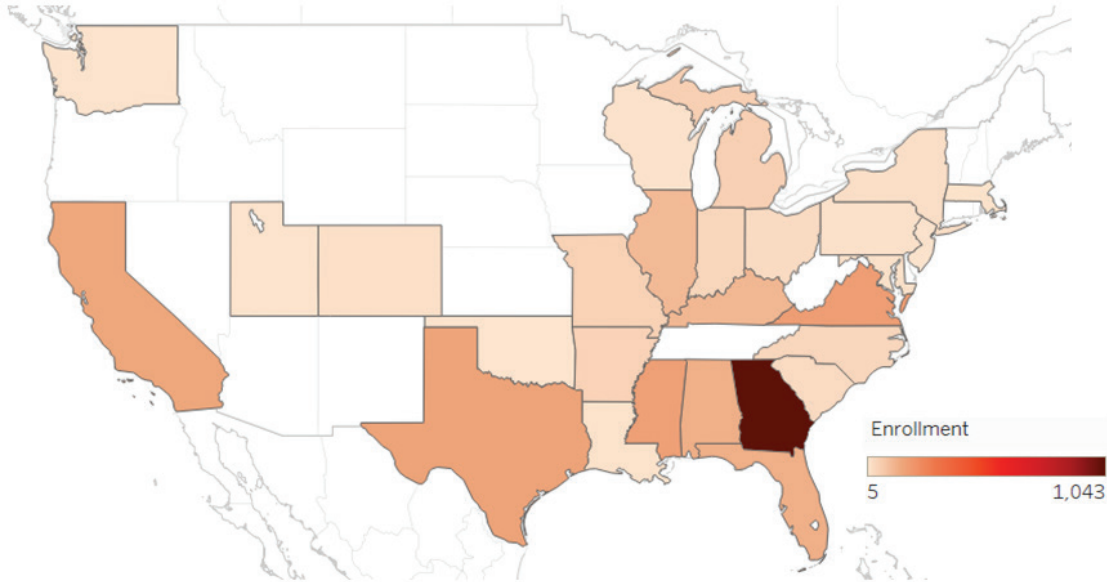
Approximately 84 percent of the community college students resided within their institution’s service area during the fall 2017 term. Community colleges attracted an additional 13,913 students to their local regions—thereby bolstering the institution’s regional economy.<sup>2</sup> This includes 11,355 Tennesseans that were attending an institution outside of the school’s residential service area, and 2,558 students from another state.

<sup>1</sup> This study uses the most recent data available at the time of the analysis. Community college enrollment data is from fall 2017. TCAT enrollment data and all employment data is from 2016–17. Community college awards data is from the 2016–17 academic year and includes associate degrees, technical certificates, and academic certificates. TCAT awards data is from 2016–17 and includes diplomas, certificates, supplementary certificates, and sufficient credentials.

<sup>2</sup> Out of service-area student data is not available for Tennessee Colleges of Applied Technology.

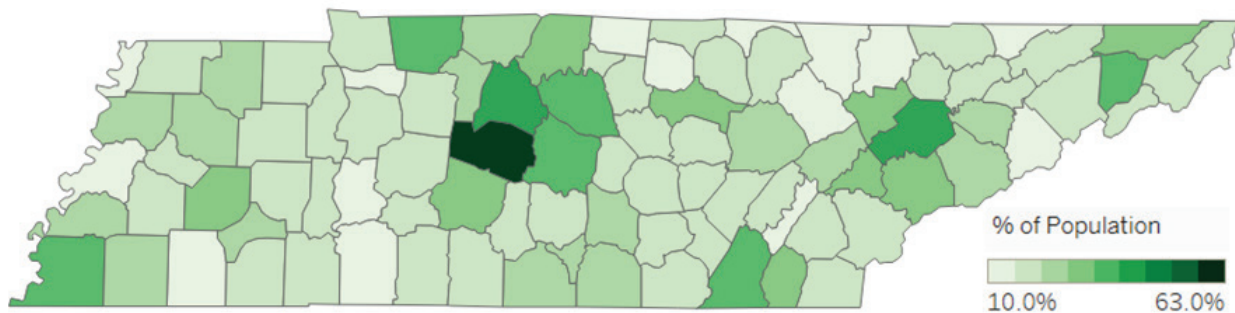
Out-of-state students have an economic impact on Tennessee during the course of their enrollment that likely would not have occurred if they were not enrolled in a Tennessee community college. Students that choose to live across state lines while attending a Tennessee community college can be expected to spend money in Tennessee, which will have a positive economic impact for local businesses and state and local sales tax revenues. In addition, out-of-state students may choose to live and work in the state after completing their post-secondary education, bringing further economic gains to Tennessee. These college graduates help to increase the local area’s available workforce while supporting Governor Haslam’s Drive to 55 initiative. While some out-of-state students live just across the state line as they attend a bordering community college, 56 percent attend from counties outside of border areas.

**Figure 2: Out of State Community College Enrollment<sup>3</sup>**



The TBR system is an integral part of making Governor Haslam’s Drive to 55 initiative a reality. The goal of this initiative is to equip 55 percent of working-age Tennesseans with a post-secondary credential by 2025. The Drive to 55 initiative positions the state’s workforce to meet the demand of Tennessee employers for a highly skilled and knowledgeable workforce. A critical piece of the Drive to 55 initiative are the Tennessee Reconnect and Tennessee Promise programs, which provide free tuition to high school graduates and adults for enrollment in a community college or technical school.

**Figure 3: % of Population Age 25+ with an Associate’s Degree or Higher**



Source: US Census Bureau, 2011-2016 American Community Survey

<sup>3</sup> Map excludes states that are home to fewer than five students.

Since the initiation of the Drive to 55, Tennessee has seen marked growth in educational attainment levels and other supplemental improvements. The Lumina Foundation estimates 40.7 percent of Tennessee’s working-age population held a postsecondary credential in 2016. This falls below the national average of 46.9 percent, however reflects an increase from 39.3 percent in 2014.<sup>4</sup> Since the implementation of Tennessee Promise, Tennessee has led the nation in FAFSA filing, leading to a 5.9 percentage point growth in the state’s college-going rate in the first year of implementation.<sup>5</sup>

TBR provides a crucial role in the state’s rising educational attainment levels. From the first cohort of Tennessee Promise students (high school graduating class of 2015), 16,206 enrolled at eligible institutions; the second cohort (graduating class of 2016) had 17,172 Tennessee Promise students enroll. Approximately 81 percent of these students enrolled in Tennessee’s community colleges; and 12 percent enrolled at TCATs. The volume of students served and impacted by programs offered at TBR institutions continues to rise—as demonstrated by a 32.3 percent increase in first-time freshmen enrollment at TCATs between Fall 2014 and Fall 2016, and a 19.5 percent increase at community colleges.

**Table 2: First Enrollment of Tennessee Promise Students by Institution Type<sup>6</sup>**

	High school graduating class of 2015		High school graduating class of 2016		High school graduating class of 2017		High school graduating class of 2018	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Applied for Tennessee Promise	57,660	--	59,355	--	60,461	--	62,570	--
Filed the FAFSA	45,744	--	49,020	--	51,866	--	55,126	--
Enrolled at an Eligible Institution	16,206	--	17,172	--	17,782 <sup>7</sup>	--	--	--
Community College	13,368	82.5%	13,845	80.6%	Not yet available			
TCAT	2,038	12.6%	2029	11.8%				
Private Institution	423	2.6%	666	3.9%				
APSU or TSU	377	2.3%	632	3.7%				

Training and education provided at Tennessee’s community colleges and TCATs supports the continued growth of Tennessee’s business community. TBR institutions are an important partner in helping to recruit new and expanding companies in Tennessee. They support existing and prospective businesses through customized training programs, facilitate job placement of students, provide academic facilities, and offer other forms of assistance.

## PART II: ECONOMIC IMPACT OF TBR OPERATIONS

The Center for Economic Research in Tennessee (CERT) conducted an analysis to estimate the annual economic impact of TBR institutions on the State of Tennessee.<sup>8</sup> The institutions’ operations support jobs and incomes for Tennessee residents, and generate growth in economic output for the Tennessee economy. Data employed in the impact model was provided by TBR; the 2016-2017 academic year was used for this analysis, with additional data from the fall 2017 term.

<sup>4</sup> Source: The Lumina Foundation’s *A Stronger Nation: Tennessee’s Report 2018*: [blob:http://strongernation.luminafoundation.org/a376fc4d-0134-4d0f-a5e7-fa649e532ca5](http://strongernation.luminafoundation.org/a376fc4d-0134-4d0f-a5e7-fa649e532ca5)

<sup>5</sup> Source: THEC and TSAC’s *Tennessee Promise Annual Report: 2018*: <https://www.tn.gov/content/dam/tn/thec/bureau/research/promise/TN%20Promise%20Report%20-%202018%20-%20Final.pdf>

<sup>6</sup> Source: THEC and TSAC’s *Tennessee Promise Annual Report: 2018*

<sup>7</sup> Enrollment as of 4/30/2018

<sup>8</sup> Model Information: This analysis utilizes a customized impact model developed and supported by economic consulting firm Impact DataSource. The projections reflect impacts occurring over a 1 year time period. CERT’s analysis relies on prospective estimates that may not be realized. The economic impact estimates are based on the Regional Input-Output Modeling System (RIMS II), a widely used regional input-output model developed by the U. S. Bureau of Economic Analysis.

Thousands of direct, indirect, and induced jobs have been created through TBR operations as a result of the institutional activity. During the 2016-2017 academic year, TBR's institutional activity supported 9,950 Tennessee jobs. This included 5,976 full-time equivalent jobs<sup>9</sup> employed directly by TBR's 40 institutions, as well as 3,974 indirect and induced jobs that have been created in the regional economy in support of TBR operational activity.

The *direct jobs* include faculty, administrative support, professional and clerical positions employed by TBR's institutions. In addition to full-time jobs, temporary workers<sup>10</sup> including adjunct professors and student employees help generate economic activity in the regional economy.

*Indirect jobs* are those created at businesses or other organizations which act as a supplier network in support of the institution. While not employed by the TCATs and community colleges, their activities contribute to the continued operation of the institutions. The direct and indirect activity of TBR's institutions induces additional business activity in the regional economy—leading to the creation of *induced jobs* (or "spinoff jobs") such as doctors, real estate agents, grocery store cashiers, retail salespersons, restaurant waiters and other supporting economic activity. Economic impacts to other industries of the state's economy can be visualized in Table 4.

CERT estimates that TBR institutions generated \$615.7 million in incomes last year. This included \$351.6 million in direct earnings, or earnings created at TBR's institutions; and \$264.1 million in earnings for the 3,974 indirect and induced workers in the regional economy.

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<sup>9</sup> Employment totals include full-time and full-time equivalent (FTE) positions. Part-time positions were calculated into FTE positions using wage and employment data provided by TBR.

<sup>10</sup> Due to data availability, temporary workers are excluded from this evaluation's full-time equivalent employment figures, but their earnings are incorporated in the income impacts.



**Table 3: Annual Economic Impacts of TBR Operations**

	Direct Impacts <sup>11</sup>	Indirect and Induced Impacts	Total Impacts
Tennessee Jobs	5,976	3,974	9,950
Incomes	\$351.6M	\$264.1M	\$615.7M
Economic Output	\$469.5M	\$594.5M	\$1.06B

In addition to jobs and incomes, TBR institutions were projected to generate \$1.06 billion in economic output<sup>12</sup> in 2016-2017. This projection includes \$469.5 million in economic output generated by the institutions' activities (direct economic output); and the remainder is generated by indirect and induced economic activities. TBR's operations last year generated approximately \$610.3 million in value added, or contribution to gross state product.<sup>13</sup> The value of these goods and services produced occur across several industries, as reflected in Table 4.

Nearly every sector of the state's economy receives a positive impact from TBR institutions. Excluding educational services, industries receiving the largest economic impact from TBR institutions include Real Estate, Rental and Leasing, Retail Trade, Health Care and Social Assistance, and Administrative, Support Services, and Waste Management. These sectors account for a large portion of the total indirect and induced employment (59%) and economic output (37%) created as a result of the community college and TCAT operations.

**Table 4: Annual Economic Impacts of TBR Operations, by Industry**

Industry Sector	Tennessee Jobs	Workers' Earnings (\$)	Economic Output (\$)	Value Added (\$)
11 Agriculture, Forestry, Fishing & Hunting	26	1,440,016	5,869,342	1,737,460
21 Mining, Quarrying, and Oil and Gas Extraction	2	160,001	516,502	281,749
22 Utilities	74	11,280,113	31,224,894	20,286,003
23 Construction	48	3,600,037	5,963,250	2,958,376
31-33 Manufacturing	307	24,880,252	86,772,334	28,221,964
42 Wholesale Trade	140	15,360,156	29,393,658	19,816,419
44-45 Retail Trade	459	23,200,235	40,615,837	26,625,379
48-49 Transportation & Warehousing	152	13,600,137	23,195,634	12,819,627
51 Information	128	11,120,115	29,816,252	16,153,668
52 Finance and Insurance	262	23,120,232	49,349,419	29,677,672
53 Real Estate and Rental & Leasing	596	16,480,166	110,437,516	83,163,218
54 Professional, Scientific, & Technical Services	194	22,400,227	29,863,206	19,581,626
55 Management of Companies & Enterprises	38	5,520,056	8,217,079	5,071,501
61 Educational Services	6,058	355,801,418	475,839,199	264,469,365
56 Administrative & Support & Waste Mgmt.	321	15,680,160	23,759,089	15,120,585
62 Health Care & Social Assistance	422	37,280,378	47,471,229	29,114,169
71 Arts, Entertainment, & Recreation	79	3,200,032	5,211,973	3,099,250
721 Accommodation	69	3,520,036	6,902,346	4,461,042
722 Food services and drinking places	310	10,080,102	18,969,710	9,861,252
81 Other Services	225	17,200,174	34,746,498	17,327,628
Households	40	800,008	-	469,582
<b>Total</b>	<b>9,950</b>	<b>615,724,046</b>	<b>1,064,134,966</b>	<b>610,317,534</b>

<sup>11</sup> Direct impact incomes include full-time equivalent and temporary employees. Tennessee jobs totals only include full-time equivalent employees.

<sup>12</sup> Economic output is the value of goods and services produced in the state as a result of the institutions. Economic output can be thought of as the new revenue generated by the institutions and their indirect and induced activity.

<sup>13</sup> Value added is defined as gross output (total value of goods and services produced by an industry) less intermediate inputs (goods and services used up by an industry in the process of producing its gross output). The sum of value added across all industries is equal to gross domestic product for the economy. (Sources: Impact DataSource and U.S. Bureau of Economic Analysis).

The economic impacts described above generate fiscal impacts for the State of Tennessee. CERT estimates the anticipated fiscal benefits which employees of TBR institutions and its spinoff businesses have on the economy. Fiscal benefits for the State of Tennessee include the generation of new taxes including sales, franchise, excise and miscellaneous taxes and user fees. Local benefits, including local property and sales taxes, are not included in the analysis.

TBR’s direct, indirect and induced activity is anticipated to generate \$109.6 million in taxable sales and purchases in Tennessee during the academic year. Taxable sales and purchases include spending by individuals employed directly by TBR and other workers which indirectly support TBR operations<sup>14</sup> on general items and food. Workers’ purchases from local area businesses are estimated to have generated \$6.3 million in state sales tax collections during the academic year.

**Table 5: Fiscal Impacts**

Fiscal Impact	Total Impacts
<b>Taxable Sales and Purchases from Direct and Indirect Worker Spending</b>	<b>\$109.6M</b>
Direct and Indirect Workers’ General Spending	\$44.3M
Direct and Indirect Workers’ Food Spending	\$65.3M
<b>State Sales Tax Collections from Direct and Indirect Worker Spending</b>	<b>\$6.3M</b>
Direct and Indirect Workers’ General Spending	\$3.1M
Direct and Indirect Workers’ Food Spending	\$3.2M
<b>Indirect Excise and Franchise Tax Collections</b>	<b>\$2.0M</b>

Due to TBR institutions’ tax-exempt status, purchases made by community colleges and TCATs were not included in the taxable sales estimates. In addition, no state excise and franchise taxes are collected directly from TBR institutions. However, CERT estimates that businesses indirectly supported by TBR operations generated \$2.0 million in state excise and franchise tax collections in the academic year.<sup>15</sup>

**Temporary Construction Impact.** Many of TBR’s institutions made significant investments for on-campus capital projects, which totaled \$23.7 million during the 2016-2017 academic year.<sup>16</sup> These capital expenditures include investments in educational facilities, utility infrastructure and modernization, elevator upgrades, transportation, and other support services. Capital projects create temporary economic impacts in the community in the form of temporary construction employment, sales for local construction firms, and taxable spending by construction workers in the local economy. These capital projects created an estimated 367 temporary direct, indirect, and induced annualized jobs<sup>17</sup> in support of the construction activity, including 173 in the construction industry. These jobs earned a projected \$15.8 million in salaries with \$7.7 million paid to direct activity jobs, including construction workers.

These salaries create taxable spending in the state with an estimated \$1.4 million from construction workers directly employed on the capital projects. In addition, the capital investments and resulting construction impact created \$36.7 million in total revenues or sales for businesses related to the construction.

<sup>14</sup> Taxable spending by induced workers is not included in the fiscal impact analysis. The value of taxable sales (and resulting sales tax revenues) is estimated only for spending by direct and indirect workers.

<sup>15</sup> State franchise and excise tax revenues are only estimated for businesses supported indirectly by TBR (induced activity is excluded).

<sup>16</sup> While just one-year of capital investments was considered for this analysis, it can be expected that similar capital investments and related impacts would occur every year.

<sup>17</sup> An annualized job, also known as a job year, is defined as full employment for one person for 2,080 hours in a 12-month span.

The capital investment analysis does not include TBR statewide investments for the Drive to 55 Program Capacity Fund, ADA compliance, and support services investments, which totaled over \$26.8 million during the academic year. These investments were made statewide and were not captured as investments at individual institutions for this impact analysis. In addition, institutional expenditures for campus operations are not included in CERT's analysis. These expenditures cover various categories including academic support, student services, operations, and institutional support.

### **PART III: IMPACT OF STUDENT EXPENDITURES**

Student enrollment, tuition, and other expenditures associated with attendance create a significant economic impact for local communities.

Each higher education institution has a cost of attendance, which is the average cost for a student to attend an institution for one academic year. These costs include tuition, books, supplies, room and board, transportation, personal expenses, and fees. Expenses such as tuition, books and fees are often paid directly to the institution. However, many of the associated costs related to attendance occur outside of the institution, which creates a positive impact on the regional economy.

For students living within their institution's service area, it must be considered that some of their expenses would have likely occurred regardless of attendance. CERT is unable to quantify the value of expenditures by local-area students that can be attributed exclusively to their enrollment, and therefore this aspect is excluded from this economic impact evaluation. However, students living outside of their institution's service areas, particularly out-of-state students attending a TBR institution, provide an economic impact for local businesses that may not have otherwise occurred in the regional economy.

As discussed earlier in this report, approximately 14,000 students attending a Tennessee community college during the fall 2017 term year were from a location outside of their institution's service area, including 2,500 residents attending from out-of-state. These students help to support jobs, generate new salaries, and to increase local and state tax revenues.

CERT estimates expenditures by students from outside their selected institution's region (less tuition, fees, and books)<sup>18</sup> was over \$151 million during the academic year. These expenses include room and board, personal expenses, and travel costs. It is estimated that \$28.1 million of these expenses were incurred by out-of-state students attending a TBR institution. These expenditures generate new state and local tax revenues for the local economy.

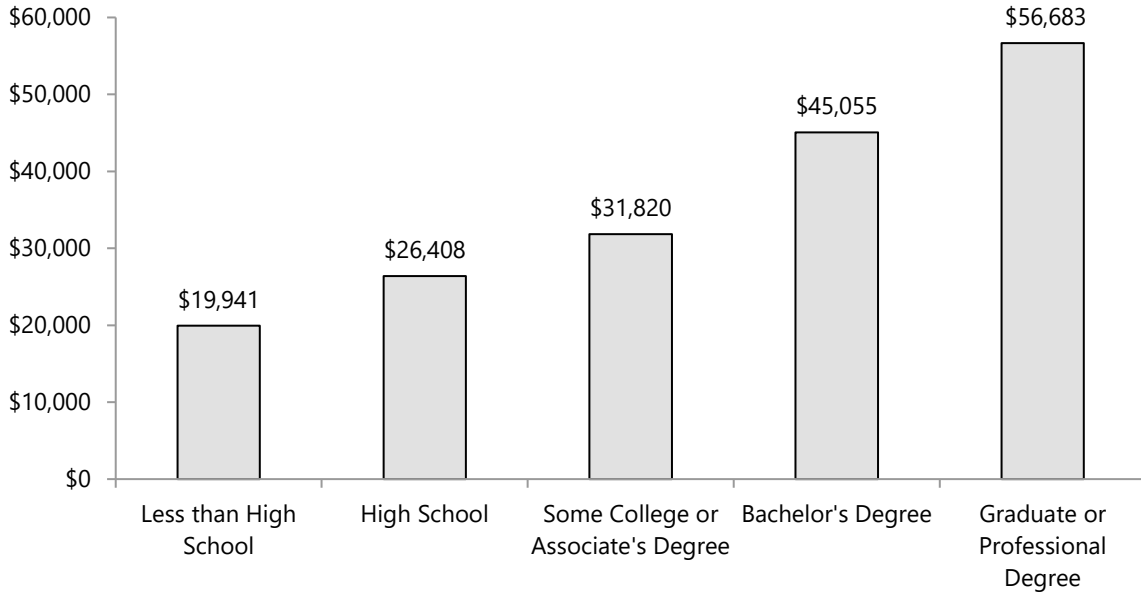
### **PART IV: ECONOMIC IMPACT OF HIGHER EDUCATION CREDENTIALS**

Postsecondary credentials have a tremendous impact on the earning potential of Tennesseans. Individuals who hold certificates and degrees from TBR institutions earn more on average than those with only a high school diploma. In Tennessee, the median earnings for individuals with some college or an associate's degree is \$31,820 per year, which is \$5,412 more than individuals with a high school diploma. The increase in annual income is even higher for those that go on to pursue additional degrees or certificates. Each level of educational attainment correlates with greater earning potential. (See Figure 4).

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<sup>18</sup> Expenses such as tuition, books and fees are often paid directly to the institution, and were therefore excluded from CERT's estimate of the students' economic impact to local-area businesses.

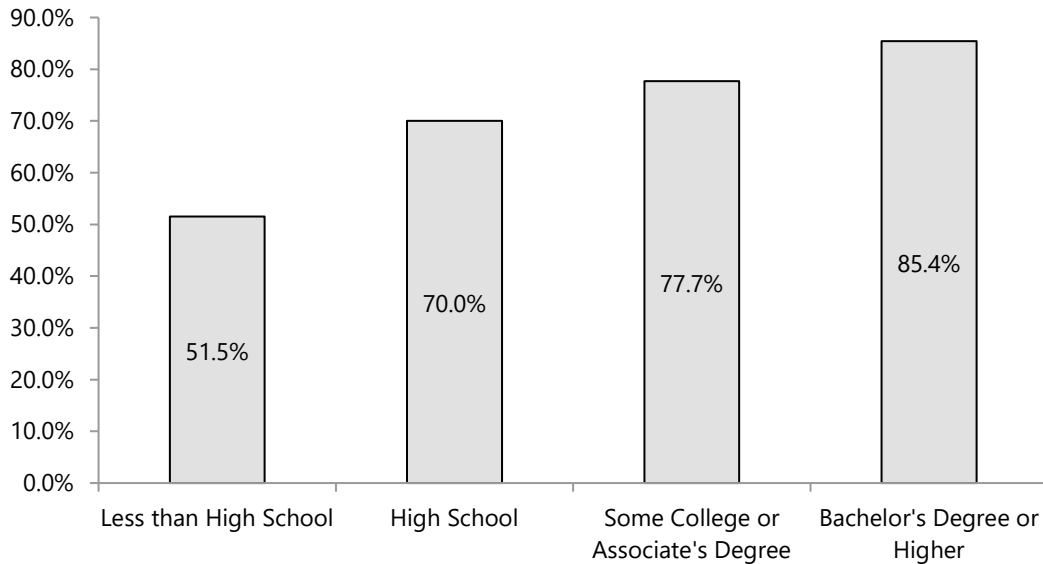
**Figure 4: Median Earnings by Educational Attainment in Tennessee\***



\*Data is for the Tennessee population age 25 years and over.  
 Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Moreover, Tennesseans with postsecondary credentials are more likely to enter the workforce than those without this level of educational attainment. Approximately 70.0 percent of Tennesseans age 25 to 64 with a high school degree are expected to enter the work force. For individuals with some college or an associate’s degree, the percentage increases to 77.7 percent.

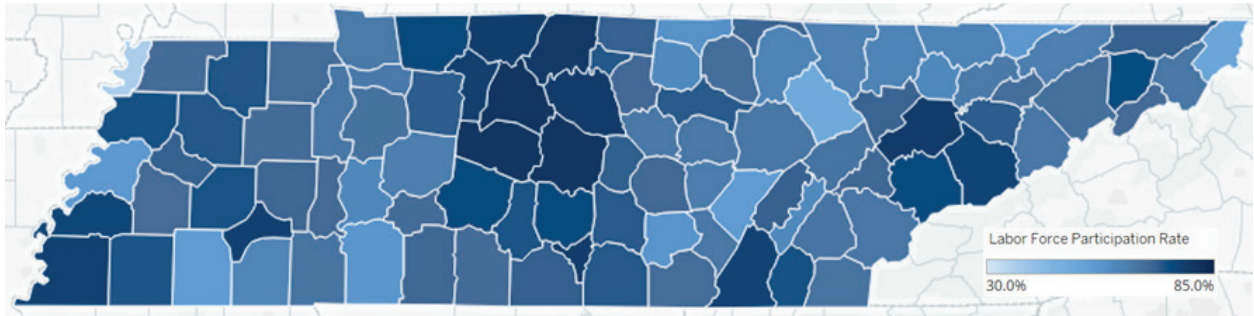
**Figure 5: Labor Force Participation by Educational Attainment in Tennessee\***



\* Data is for Tennessee’s noninstitutionalized population ages 25 to 64.  
 Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Tennessee’s labor force participation rate for individuals aged 25 to 64 (74.3 percent) ranks as one of the lowest in the nation.<sup>19</sup> The relatively low rate of engagement of Tennessee’s working-age population in the labor force (either employed or looking for work) creates a workforce gap for employers, underscoring the need for postsecondary and other workforce preparedness programs. Labor force participation for the population ages 25 to 64 years varies from county to county, ranging from 81 percent in Davidson, Rutherford and Williamson counties to 37 percent in Lake County.

**Figure 6: Labor Force Participation Rates in Tennessee Counties**



Source: CERT analysis of BLS data: <https://www.tn.gov/transparentn/jobs-economic-development/openecd/tneecd-performance-metrics/workforce/county-labor-force-estimates.html>

In 2016-2017, TBR institutions awarded 16,477 degrees and certificates to community college students and 13,884 diplomas, certificates, and other credentials to TCAT students, for a total of over 30,000 awards.<sup>20</sup> Of these graduates, 24,016 are projected to enter the workforce. Postsecondary education creates higher earning potential for all graduates while also improving the labor force participation of this population. A small number of these graduates (1,973) likely would not have participated in the labor force without postsecondary education.<sup>21</sup> Median annual earnings for these graduates are projected to be \$764.2 million on average during their working careers with an additional \$177.0 million in supplements in wages and salaries.

**Table 6: Combined Annual Earnings of 2017 TBR Graduates**

	Value
Median Annual Earnings	\$764,174,833
Supplements in Wages and Salaries	\$176,524,386
<b>Total</b>	<b>\$940,699,219</b>

Students awarded credentials by TBR institutions in the 2016-2017 school year are expected to earn substantially higher earnings over their careers than they would have without a credential award. These earnings projections are \$182.1 million more than they would have earned without a postsecondary credential. This \$182.1 million includes both additional earnings due to postsecondary completion (\$119.3 million) and increased labor force participation resulting from higher educational attainment in the community (\$62.8 million). Graduates will also earn an additional \$42.1 million in benefits and supplements. Based on the most recent data, employees in Tennessee received health care and other benefits that were on average equal to 23.1 percent of their wages and salaries.<sup>22</sup> Considering all these

<sup>19</sup> Approximately 61 percent of Tennessee population age 16 and above is engaged in the labor force, whether they be employed or unemployed (looking for work). This rate of workforce participation ranks 10<sup>th</sup> lowest in the United States. Source: U.S. Bureau of Labor Statistics (May 2018).

<sup>20</sup> Community college awards data is from the 2016-17 academic year and includes associate degrees, technical certificates, and academic certificates. TCAT awards data is from 2016-17 and includes diplomas, certificates, supplementary certificates, and sufficient credentials.

<sup>21</sup> These estimates are based on Census data regarding educational attainment and labor force participation in Tennessee.

<sup>22</sup> Bureau of Economic Analysis, Personal Income and Employment by Major Component.

factors, TBR certificates, degrees, diplomas, and other credentials awarded in 2017 will result in a combined \$224.2 million in additional income for program graduates on an average annual basis.

**Table 7: TBR’s Direct Impact on Earnings (Per Year)**

	<b>Value</b>
Additional Income	\$119,291,304
Increase in Labor Force	\$62,812,680
Supplements in Wages and Salaries	\$42,066,020
<b>Total</b>	<b>\$224,170,004</b>

} \$182.1 million in wages

Tax revenues result as Tennessee’s workforce earns more, spends more and engages in other taxable activities. Data from the U.S. Census Bureau and the U.S. Bureau of Economic Analysis indicated that Tennessee state and local government tax revenue equals 7.8 percent of the state’s personal income. Using this ratio, we estimate the additional \$224.2 million in earnings this cohort of TBR graduates receives each year will generate \$17.4 million more per year in state and local tax collections. These reflect tax revenues above levels the students would have generated without a TBR credential. The \$17.4 million in new annual tax revenues include \$10.2 million in state revenues and \$7.2 million in local revenues. <sup>23</sup>

Postsecondary programs have other indirect impacts as well. Studies have shown that greater educational achievement in the labor force produces more economic activity in a region, spurs innovation and business development, and improves the quality of life for residents. <sup>24</sup>

<sup>23</sup> State tax revenue accounts for 58.9 percent of Tennessee’s tax collections, and local tax revenue accounts for 41.1 percent of Tennessee’s tax collections. Source: U.S. Census Bureau, 2015 State and Local Government Tax Collections

<sup>24</sup> Rothwell, J. (2015). What colleges do for local economies: A direct measure based on consumption. <https://www.brookings.edu/research/what-colleges-do-for-local-economies-a-direct-measure-based-on-consumption/>