



tamho

tennessee association of
mental health organizations

An Economic and Fiscal Impact Assessment

2019

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**MIDDLE
TENNESSEE**
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Glossary of Terms	
Regional Economy	The regional economy is defined as the 95-county territory in which TAMHO is active in Tennessee.
Net New	In terms of economic impact, net new includes changes from outside sources (out of region) or a previously uncaptured component.
Grand Division	Tennessee counties are divided into three divisions: the West, the Middle, and the East, pursuant to Tennessee Code Ann. Title 4, Chapter 1, Part 2.
Direct Impact	Total employment, sales, and personal income due to the presence of TAMHO in the economy.
Indirect Impact	Total employment, sales, and personal income driven by business-to-business transactions in the local economy.
Induced Impact	Total employment, sales, and personal income driven by employee spending in a local economy.
Total Effect	Sum of direct, indirect, and induced impacts.
IMPLAN Model	An input-output modeling system. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.
Disposable Income	The amount of money that households have available for spending and saving after income taxes.
Business Revenue	All economic activities (i.e., value added, income, taxes, property income, etc.) associated with the activity.
Surveyed Companies	TAMHO sent the survey to collect data, and BERC collected the data; surveyed companies are those TAMHO organizations that submitted completed surveys.
Other Member Companies	TAMHO member organizations that did not respond to the survey. BERC estimated data for these from Reference USA.com and the organizations' websites.
Counterfactual Analysis	A measure of the economic impact that subtracts the entire organization, industry, or event from the economy.

I. Executive Summary

The Business and Economic Research Center (BERC) at Middle Tennessee State University (MTSU), in partnership with the Tennessee Association of Mental Health Organizations (TAMHO), has produced this assessment of the member organizations' contributions to the regional economy. The study findings show TAMHO organizations have greatly impacted individuals, communities, and businesses in the region.

Key Findings

Profile of TAMHO

- TAMHO in 2018
 - Member organizations: 20 organizations with 408 service locations
 - Total employment: 6,480
- In 2018, TAMHO organizations recorded serving 284,544 people across Tennessee counties: 81,227 in West TN; 77,047 in Middle TN; 126,270 in East TN. An additional 3,675 people served by TAMHO organizations were residents of counties outside the state or whose home county was unknown.
- Direct business revenue of \$641.84 million was associated with TAMHO organizations in 2018. When indirect and induced revenue of \$814.27 million is added to that, the total cumulative business revenue impact for the state was \$1.456 billion.
- TAMHO organizations are directly responsible for the employment of 6,480 individuals and \$356.5 million in wages and salaries, generating a total of 12,741 jobs and \$643.9 million in personal income across the study area.
- Tennessee's overall ranking in Mental Health America's report is 45 of 51 for 2019.

As demonstrated by these key findings, TAMHO is a critically important, diverse, and vibrant organization within Tennessee. The major impact of TAMHO organizations on individuals and communities in Tennessee makes TAMHO a significant contributor to the state's strong economy.

II. Introduction

TAMHO plays an important part in the regional economy as evidenced by its impact on the state since its inception in the 1950s. The mission of TAMHO is “to serve its members, promote the advancement of effective behavioral health services, and advocate for people in need of care.” This study shows that the impact of TAMHO goes beyond helping individuals by affecting communities and regional businesses, thus strengthening the overall economy. The Business and Economic Research Center (BERC) at Middle Tennessee State University (MTSU), in partnership with TAMHO, has produced this assessment of the organization members’ impact on the regional economy. The purpose of this study was to find answers to the following questions:

1. What role does TAMHO play in Tennessee’s economy?
2. What is the economic and fiscal impact of economic activities associated with TAMHO?
3. What is the breakdown by region of that economic and fiscal impact?

To answer those questions, BERC carried out a literature review, designed a conceptual framework for the study, and obtained necessary data from TAMHO organizations and additional sources. Study findings demonstrate considerable impact on the regional economy from the activities of TAMHO member organizations.

The remainder of this report is presented as follows. Chapter III is a discussion of the selected literature review and methodological issues surrounding the study framework. Chapter IV presents a summary of the characteristics of TAMHO organizations across the state. Chapter V presents a snapshot of mental health field occupational dynamics in Tennessee. Chapter VI is a comprehensive assessment of TAMHO organizations’ economic impact in Tennessee. Chapter VII breaks down that assessment regionally, by Tennessee grand division (East, Middle, and West). The conclusion and an appendix follow.

III. Literature Review and Methodology

How did BERC analyze the impact of TAMHO on the local economy? In this chapter, we briefly address the question by reviewing the literature, identifying the geographic areas of influence, and developing a conceptual framework for data analysis.

Literature Review

Before delving into the economic and fiscal impact of TAMHO, we looked at the definitions of mental health and mental illness. According to the American Psychiatric Association (American Psychiatric Association, n.d.), mental illnesses are “health conditions involving changes in emotion, thinking, or behavior (or a combination of these),” and mental health is “the way your thoughts, feelings, and behaviors affect your life.” Mental illnesses can impact mental health by affecting productivity, social relationships, and tolerance to adversity in daily life. Often those experiencing mental illness do not talk about their illness, sometimes leading to damaged self-esteem and personal relationships.

In 2017, the University of Michigan conducted a study of its mental health facilities and services for students (Eisenburg, 2017). It found that 34 percent of students at the university had suffered at least one mental health problem. Of this 34 percent, only about half utilized mental health services; the remaining students left their mental health issues untreated. In a survey completed by the students who used the services, the reported satisfaction rate was about 82 percent, suggesting that mental health services and facilities helped those in need to a significant degree. The study found that mental health challenges such as anxiety or depression might impact the economy, affecting students’ success in academics and the graduation rate. The University of Michigan’s School of Public Health estimated mental health services contributed to the retention of approximately 8.2 students per year who would otherwise have left prior to graduation, with an estimated savings \$509,870 in tuition revenue for the university and estimated increase in the total

expected lifetime earnings of those retained students of more than \$1,630,435. The cost to the University of Michigan for the services provided to 1,000 students would reportedly have been less than one million dollars.

In the report titled *The Cost of Mental Health and Substance Abuse Services in Canada* by the Institute of Health Economics (IHE) Alberta, Canada (Jacobs et al., 2010), it was found that in 2007–2008, 7.2 percent of Canadian government expenditures went toward mental health, and at least 14.3 billion Canadian dollars were spent on mental health services and support. Examples of mental health services funded included privately and publicly purchased pharmaceuticals, general and psychiatric hospitalization, community mental health services, and provincial income support. Through the funding of these programs, individuals were able to take advantage of the services offered to reach better health and to improve their personal economic situation. The goal of the community mental health services in the provinces was to support people with mental illnesses and help them participate in the life of the community while receiving treatment.

The IHE study also reported that British Columbia spent over 157 million Canadian dollars in housing assistance for the mentally ill, including both residential care and supportive housing services. Supportive housing also benefited the mentally ill homeless population. Another important application of funding for mental health services in Canada is Canada's Employment Insurance program. The program compensates workers who suffer from mental disorders due to work-induced stress, anxiety, or injuries. In 2007, there were 2,223 claims of mental disorder lost time, which cost over 36 million Canadian dollars in short-term disability compensation and related treatments. Without this funding, workers would have had to pay out of pocket for necessary mental health services. In turn, this would lead to a potential reduction in workforce due to people's inability to afford the services, thus reducing economic efficiency of a country as a whole. The

funding of mental health programs by the government and affiliated associations is essential to a country's workforce and economic efficiency.

According to *The State of Mental Health America 2019* report, more than 44 million Americans experience severe mental illness annually (Mental Health America, 2018). One out of five adults with a mental illness reported they were not able to receive the treatment they needed due either to lack of insurance or to insurance with limited coverage combined with insufficient personal finances to cover costs. This number has not declined since 2011.

The article *Differences in the use of Psychiatric Outpatient Services between the United States and Ontario* (Kessler, Edlund, Frank, Katz, Lin, and Leaf, 1997) is a comparative analysis of the psychiatric outpatient services of the United States and the Canadian province of Ontario. The Canadian case was limited to a single province, as health care systems in Canada are organized and operated at the provincial level. A comparison between these two specific regions was made because they are similar in terms of levels of industrialization, urbanization, and distribution of physicians. The study suggested that the United States faced more prevalent psychiatric problems than Ontario and also that the probability of use of services in the United States is greater for those with lower needs for service. This means that people who are in greater need of services are not being assisted. The authors suggest this may be because citizens in the United States are not as well educated about where to receive care as are Canadian citizens in Ontario or because Canada's health care system is more effective at reaching the majority of its population than is the U.S health care system.

Dobson DaVanzo LLC conducted a study to evaluate the economic impact of inpatient psychiatric facilities for the National Association of Psychiatric Health Systems in 2010 (Dobson et al., 2010). They found that in 2008 there were 2,257 inpatient facilities employing more than 223,000 persons, with direct expenditures totaling \$20.6 billion. The \$20.6 billion in direct expenditures translated to a \$61.2 billion impact on the U.S economy, and the direct employment of 223,000

contributed to 447,000 additional jobs at the national level. Inpatient psychiatric facilities also generated a total of \$7.9 billion in tax impact for the U.S, \$5 billion at the federal level and \$2.9 billion in state and local taxes. Comparing the impact of inpatient psychiatric facilities to other essential medical industries, psychiatric facilities' direct expenditures are similar in magnitude to the veterinary medicine industry, each representing approximately one percent of U.S health care expenditures.

Susan Ettner, Richard Frank, and Ronald Kessler (1997) conducted an analysis to examine the extent of the impact that psychiatric disorders had on the U.S workforce. Psychiatric disorders defined in this study included both mental and substance abuse disorders. Their survey results indicated that both men and women who have at least one psychiatric disorder had about an 11 percent lower employment rate in 1990–1992. Psychiatric disorders were shown to have an impact on annual income and conditional annual income for both men and women. Annual income drastically decreased for both men and women, a loss of \$6,383 and \$4,801 respectively, when calculated using a two-state instrumental variable (IV) method. In conditional annual income, women lost \$3,465 dollars, an 18 percent decline, and men lost \$4,521 dollars, a 13 percent decline (Ettner, Frank, and Kessler, 1997).

The study provided strong evidence that there is a large discrepancy in productivity, employment, and income between healthy individuals and those with at least one psychiatric disorder. The scale of loss is important to note because, as Ettner, Frank and Kessler mention in their discussion, “[a]lthough a comprehensive cost-benefit analysis is beyond the scope of this study, the productivity losses in our study seem substantial in comparison with the estimated costs of treatment.”

The review of selected literature suggests that mental health–related issues have a significant social, fiscal, and economic impact across regions and countries.

Geography and Scope of TAMHO Economic Activities

The geographical scope of this study is based on two categories. First, we consider the cumulative impact of TAMHO member organizations, surveyed and other, on the state as a whole. Then, we look at the impact of TAMHO activities within each of the three Tennessee Grand Divisions—West Tennessee, Middle Tennessee, and East Tennessee—as displayed in the map below. A clearly defined study area allows us to identify out-of-area flows.

Figure 3.1: TN Grand Divisions



How and why does this study include all 95 counties? TAMHO organizations serve residents of every one of the 95 counties in Tennessee. There is not a member organization service location in every county, however. In those counties where a physical service location is not present, TAMHO activities create economic impact through indirect and induced spending (ripple effect) across counties. To capture the regional economic impact better, we aggregated county-level activities at the Grand Division level.

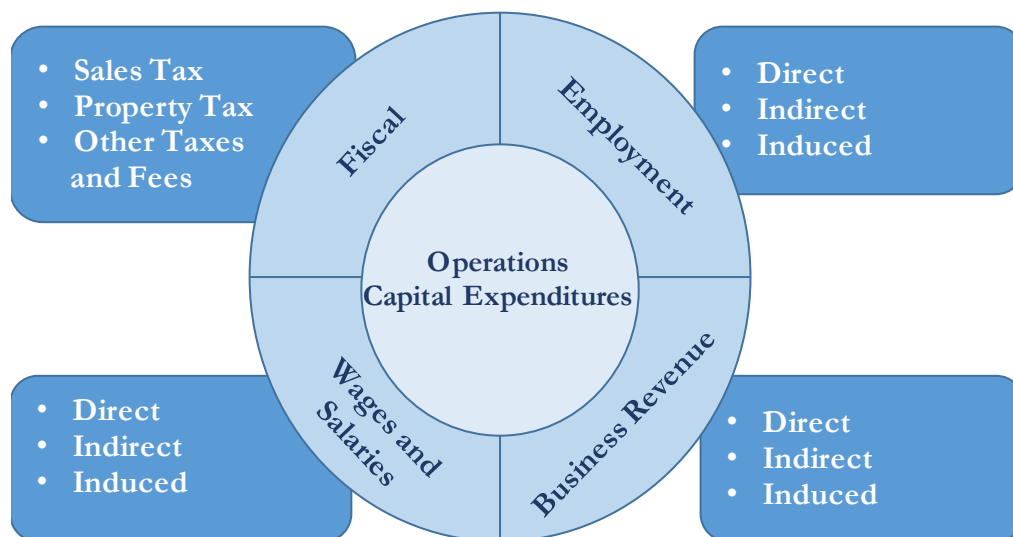
Economic Impact Definition and IMPLAN Software

What is the concept of economic impact, and how do we estimate it? Economic impact refers to economic activities that are net new to a local economy. For this study, such activities include providing services to patients from areas outside of the region, out-of-area visitor spending, and recapturing of economic activities sent outside the region due to lack of local business services.

This study also makes a distinction between economic impact and contributions. While the former refers to new economic activity, the latter deals with all activities of the TAMHO member organizations in the state. Because it is a broader concept, any measure of economic contributions includes the economic impact measures. To measure economic contributions, the study estimates and uses a total number of employees associated with the TAMHO member organizations.

IMPLAN Model. To estimate indirect and induced effects of economic activities, BERC uses the IMPLAN model developed for each Grand Division of Tennessee. IMPLAN is a nationally recognized input-output model commonly used to measure the economic and fiscal effects of economic development projects.

Figure 3.2: Identifying the Impact of TAMHO on Tennessee



Data Sources

What were the sources of the data? This study used multiple sources to construct the input database. In determining the impact, BERC has estimated the total number of employees of the TAMHO organizations using two methods: 1) data from the survey of TAMHO member organizations and 2) BERC-estimated data using publicly available information. For the first method, TAMHO sent to member organizations (www.tamho.org/links-and-resources) a brief survey to collect data. About 80 percent of member organizations responded to the survey. For the second method, BERC estimated data for nonresponding member companies based on information from ReferenceUSA.com (www.referenceusa.com) and each member organization's website. Additional demographic data at the county level came from the Census Bureau (www.census.gov).

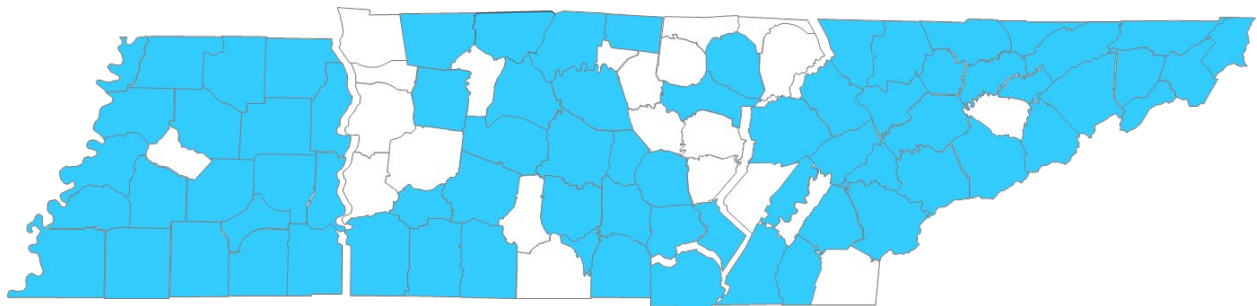
IV. Characteristics of TAMHO Member Organizations

TAMHO includes a diverse group of health care organizations creating impact in a multitude of areas including employment, revenue, expenditures, and health care services. This chapter reviews several attributes of TAMHO member organizations.

Size and Scope of TAMHO

TAMHO represents organizations serving residents of all Tennessee counties, with service locations in 73 counties (organizations are listed below and counties listed in the Appendix).

Figure 4.1: TAMHO Counties with TAMHO Service Locations



West TN Division

- Alliance Healthcare Services
- Carey Counseling Center Inc.
- Cherokee Health Systems
- CMI Healthcare Services
- Generations Mental Health Center
- Lowenstein House
- Pathways of Tennessee
- Professional Care Services of West TN Inc.
- Quinco Mental Health Center Inc.
- TN Mental Health Consumers' Association
- TN Voices for Children

Middle TN Division

- Centerstone of Tennessee
- Generations Mental Health Center
- LifeCare Family Services
- TN Mental Health Consumers' Association
- TN Voices for Children
- Vanderbilt Behavioral Health
- Volunteer Behavioral Health Care System

East TN Division

- Centerstone of Tennessee
- Cherokee Health Systems
- Frontier Health
- Generations Mental Health Center
- Helen Ross McNabb Center
- Peninsula, a Division of Parkwest Medical Center
- Ridgeview Behavioral Health Services
- The AIM Center
- TN Mental Health Consumers' Association
- Volunteer Behavioral Health Care System

According to the TAMHO survey, there are 408 service locations throughout Tennessee. Counties with service locations are displayed in Figure 4.1 in blue.

In FY 2018, TAMHO served 284,544 people from identified Tennessee counties. Of these, 81,227 were from West TN counties, 77,047 were from Middle TN counties, and 126,270 were from East TN counties. (An additional 3,675 people from out of state or from unidentified counties were served by these organizations.) A detail of client numbers by division can be seen in Table 4.1. As Figure 4.2 shows, 44 percent of those served were from East TN counties, with the other two divisions each making up less than a third of people served.

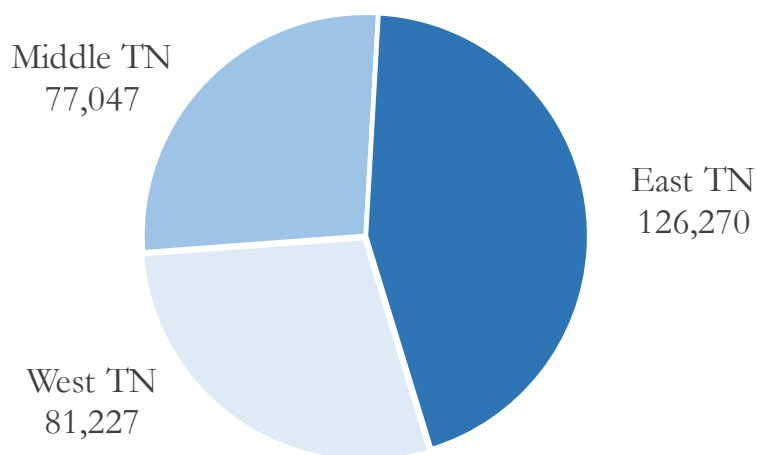
Table 4.1: Number of People Served by TAMHO: FY 2018

West TN Division	81,227
Middle TN Division	77,047
East TN Division	126,270
Total	284,544

Source: TAMHO's survey

Note: 3,675 people were categorized as either outside of TN or county is unknown. Those data are excluded from this research.

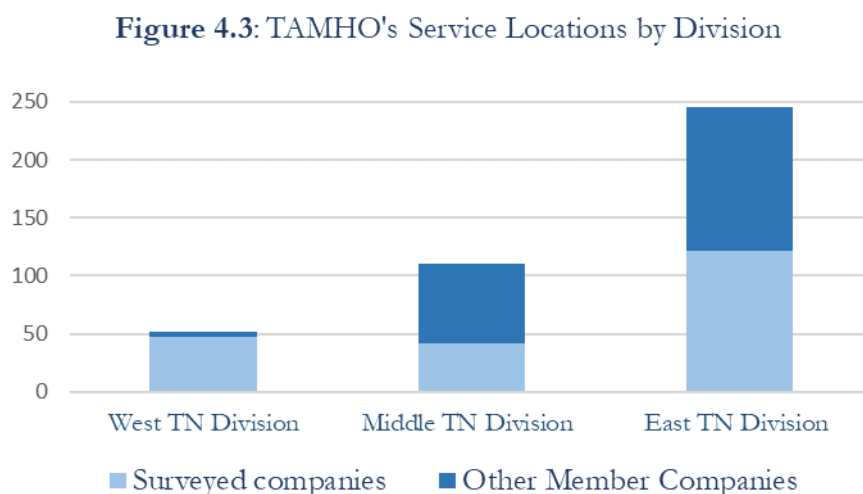
Figure 4.2: Number of People Served by Division



Looking at the activities of all TAMHO member organizations, TAMHO served at 408 locations in Tennessee. As shown in Table 4.2, the East TN division has the largest number of service locations at 245, making up 60 percent of TAMHO's service locations. The Middle TN division has the next largest number of service locations, and the West TN division has the fewest service locations. Figure 4.3 shows the number of service locations by Grand Division and by surveyed companies (those organizations that completed and returned the survey) and other member companies (organizations that did not return the survey). The East TN division had the most member companies that did not complete the survey, with nonrespondents making up half of service locations in the division.

Table 4.2: TAMHO Service Locations within Tennessee: FY 2018

	Surveyed Companies	Other Member Companies	Total	Percent
West TN Division	47	5	52	12.75%
Middle TN Division	42	69	111	27.21%
East TN Division	121	124	245	60.05%
Total	210	198	408	



V. Snapshot of Occupational Dynamics Associated with TAMHO Member Organizations

As the literature review makes clear, mental health organizations play a critical role in the economy. This section reviews the occupational dynamics of mental health organizations. This review relies heavily on the following data sources to identify and assess leading mental health occupations, educational attainment level for each occupation, and wage dynamics: 1) O*NET Online (www.onetonline.org), and 2) Bureau of Labor Statistics (www.bls.gov).

What are the top occupations in the employment sectors associated with mental health? The table below highlights the top 20 occupations in employment sectors associated with mental health organizations. As Table 5.1 shows, 18 of the top 20 occupations in the sector have a bright outlook, suggesting that the prospect of finding a job in these occupations is very good.

Table 5.1: Top Occupations in Mental Health Organizations and Outlook

SOC Code	Occupation Title	Outlook
21-1014.00	Mental Health Counselors	Bright
21-1023.00	Mental Health and Substance Abuse Social Workers	Bright
29-2053.00	Psychiatric Technicians	
21-1094.00	Community Health Workers	Bright
29-1141.02	Advanced Practice Psychiatric Nurses	Bright
11-9111.00	Medical and Health Services Managers	Bright
19-3031.02	Clinical Psychologists	Bright
25-1071.00	Health Specialties Teachers, Postsecondary	Bright
21-1022.00	Healthcare Social Workers	Bright
21-1013.00	Marriage and Family Therapists	Bright
31-1013.00	Psychiatric Aides	
21-1021.00	Child, Family, and School Social Workers	Bright
21-1011.00	Substance Abuse and Behavioral Disorder Counselors	Bright
21-1012.00	Educational, Guidance, School, and Vocational Counselors	Bright
21-1015.00	Rehabilitation Counselors	Bright
31-9099.00	Healthcare Support Workers, All Other	Bright
21-1091.00	Health Educators	Bright
19-3039.01	Neuropsychologists and Clinical Neuropsychologists	Bright
19-3031.03	Counseling Psychologists	Bright
21-1093.00	Social and Human Service Assistants	Bright

What is the educational attainment level required for the top mental health occupations? Most of the top 20 mental health occupations require an educational attainment level higher than an associate's degree, and many require graduate-level work. For example, as shown in Table 5.2, 62 percent of mental health counselors and 72 percent of mental health and substance abuse social workers hold a graduate degree. The table below suggests the mental health profession requires significant investment in education.

Table 5.2: Top 20 Mental Health Occupations and Educational Attainment

SOC Code	Occupation Title	Educational Attainment Level	
		Master's and Above	Bachelor's Degree
21-1014.00	Mental Health Counselors	62%	34%
21-1023.00	Mental Health and Substance Abuse Social Workers	72%	15%
29-2053.00	Psychiatric Technicians	N/A	N/A
21-1094.00	Community Health Workers	N/A	N/A
29-1141.02	Advanced Practice Psychiatric Nurses	73%	24%
11-9111.00	Medical and Health Services Managers	12%	65%
19-3031.02	Clinical Psychologists	N/A	N/A
25-1071.00	Health Specialties Teachers, Postsecondary	56%	14%
21-1022.00	Healthcare Social Workers	96%	4%
21-1013.00	Marriage and Family Therapists	N/A	N/A
31-1013.00	Psychiatric Aides	0%	12%
21-1021.00	Child, Family, and School Social Workers	26%	69%
21-1011.00	Substance Abuse and Behavioral Disorder Counselors	30%	19%
21-1012.00	Educational, Guidance, School, and Vocational Counselors	93%	0%
21-1015.00	Rehabilitation Counselors	49%	26%
31-9099.00	Healthcare Support Workers, All Other	N/A	N/A
21-1091.00	Health Educators	N/A	N/A
19-3039.01	Neuropsychologists and Clinical Neuropsychologists	100%	0%
19-3031.03	Counseling Psychologists	92%	0%
21-1093.00	Social and Human Service Assistants	18%	27%

What is the level of concentration of mental health occupations in Tennessee? Does Tennessee have enough people employed in the mental health sector? To assess the relative concentration of mental health occupations in Tennessee, BERC used a tool called Location Quotient (LQ) that measures the comparative strength of each occupation. According to our estimates, as shown in Table 5.3, Tennessee needs more mental health workers across almost all top 20 occupations: 15 out of the top

20 occupations were relatively less concentrated in Tennessee than in the U.S. This means there is significant room to grow in these occupations. According to BERC estimates, addressing the needs in these 15 occupations would require adding about 17,000 more mental health occupation employees.

Table 5.3: Relative Employment Concentration (U.S. vs. Tennessee)

SOC Code	Occupation Title	Employment		Employment Concentration (LQ)
		National (U.S.)	Tennessee	
21-1014.00	Mental Health Counselors	158,000	3,470	1.06
21-1023.00	Mental Health and Substance Abuse Social Workers	123,900	1,780	0.69
29-2053.00	Psychiatric Technicians	66,100	660	0.48
21-1094.00	Community Health Workers	57,500	920	0.77
29-1141.02	Advanced Practice Psychiatric Nurses	2,955,200	58,250	0.95
11-9111.00	Medical and Health Services Managers	352,200	9,560	1.31
19-3031.02	Clinical Psychologists	147,500	2,310	0.75
25-1071.00	Health Specialties Teachers, Postsecondary	233,500	7,810	1.61
21-1022.00	Healthcare Social Workers	176,500	3,140	0.86
21-1013.00	Marriage and Family Therapists	41,500	740	0.86
31-1013.00	Psychiatric Aides	73,600	2,730	1.79
21-1021.00	Child, Family, and School Social Workers	317,600	5,050	0.77
21-1011.00	Substance Abuse and Behavioral Disorder Counselors	102,400	1,890	0.89
21-1012.00	Educational, Guidance, School, and Vocational Counselors	291,700	4,430	0.73
21-1015.00	Rehabilitation Counselors	119,300	3,290	1.33
31-9099.00	Healthcare Support Workers, All Other	97,300	1,120	0.55
21-1091.00	Health Educators	61,000	970	0.77
19-3039.01	Neuropsychologists and Clinical Neuropsychologists	17,400	230	0.64
19-3031.03	Counseling Psychologists	147,500	2,310	0.75
21-1093.00	Social and Human Service Assistants	389,800	2,560	0.32
2016 U.S. Total Employment		142,549,250		
2016 Tennessee Total Employment		2,956,920		

Note: Location Quotient (LQ) Guide

Just Right (Relatively similar to the U.S.) ≈ 1

Underserved (Relatively need more people) **< 1**

Overserved (Relatively more concentrated in Tennessee) **> 1**

What is the level of compensation for the top 20 mental health occupations? Although many of the top 20 mental health occupations require graduate-level education, the median pay for many of those occupations is relatively low. For example, 72 percent of mental health and substance abuse social workers hold a graduate degree. However, the median wage for those employees is lower than the annual median wage for all occupations in Tennessee. Given the outlook, educational attainment level, and critical needs in many of these occupations, the extremely low level of wages is likely to create a disincentive for many to choose them, especially at a time when Tennessee is experiencing a tight labor market. As Table 5.4 shows, median wages for all of the top 20 mental health occupations in Tennessee were less than the national median wage for that occupation.

Table 5.4: Top 20 Mental Health Occupations and Compensation Level (2018)

SOC Code	Occupation Title	Median Wages (Annual)		Difference TN-U.S.
		National (U.S.)	Tennessee	
21-1014.00	Mental Health Counselors	\$43,300	\$37,760	(\$5,540)
21-1023.00	Mental Health and Substance Abuse Social Workers	\$43,250	\$32,440	(\$10,810)
29-2053.00	Psychiatric Technicians	\$31,670	\$23,830	(\$7,840)
21-1094.00	Community Health Workers	\$38,370	\$34,600	(\$3,770)
29-1141.02	Advanced Practice Psychiatric Nurses	\$70,000	\$59,080	(\$10,920)
11-9111.00	Medical and Health Services Managers	\$98,350	\$87,960	(\$10,390)
19-3031.02	Clinical Psychologists	\$75,090	\$63,150	(\$11,940)
25-1071.00	Health Specialties Teachers, Postsecondary	\$97,870	\$84,490	(\$13,380)
21-1022.00	Healthcare Social Workers	\$54,870	\$51,860	(\$3,010)
21-1013.00	Marriage and Family Therapists	\$48,790	\$34,100	(\$14,690)
31-1013.00	Psychiatric Aides	\$27,110	\$19,670	(\$7,440)
21-1021.00	Child, Family, and School Social Workers	\$44,380	\$41,990	(\$2,390)
21-1011.00	Substance Abuse and Behavioral Disorder Counselors	\$43,300	\$37,760	(\$5,540)
21-1012.00	Educational, Guidance, School, and Vocational Counselors	\$55,410	\$48,270	(\$7,140)
21-1015.00	Rehabilitation Counselors	\$34,860	\$19,910	(\$14,950)
31-9099.00	Healthcare Support Workers, All Other	\$37,220	\$36,620	(\$600)
21-1091.00	Health Educators	\$53,940	\$37,190	(\$16,750)
19-3039.01	Neuropsychologists and Clinical Neuropsychologists	\$97,740	\$97,250	(\$490)
19-3031.03	Counseling Psychologists	\$75,090	\$63,150	(\$11,940)
21-1093.00	Social and Human Service Assistants	\$33,120	\$32,140	(\$980)
Annual Median Wage in the United States (2017-2018):		\$37,690		
Annual Median Wage in Tennessee (2017-2018):		\$34,690		

In conclusion, mental health occupations in Tennessee require a relatively higher level of education and are in high demand. However, median pay for these occupations is lower than median pay for the state of Tennessee. Given the tight labor market, unless significant improvement is made to the salaries for these occupations, many people who are passionate about serving those with mental health conditions will nonetheless be discouraged from either entering or remaining in the field.

VI. Economic Assessment of TAMHO in Tennessee

In assessing the economic impact of the TAMHO member organizations, BERC performed two different economic and fiscal impact assessments: 1) one for organizations that responded to the survey, providing data directly, and 2) one for those member organizations that did not respond, with BERC-estimated data (see Appendix for breakdowns). In this section, we examine and discuss the cumulative impact (including both data groups) of TAMHO organizations on employment, personal income, business revenue, and taxes. To view the profiles by Tennessee Grand Division, see the Appendix.

Economic Impact

What is the meaning of economic impact? To review the earlier discussion of the major concepts, “economic impact” refers to the impact of new economic activity in an existing regional economy, measured by net change. Examples might include out-of-town visitor spending, a new manufacturing plant operating in the region, federal or out-of-region money flowing to an area to support a new program, or an activity that is unique to the region. Economic impact analysis is different from economic contribution analysis or economic significance analysis in which we often counterfactually remove an institution, program, or event from an economy to estimate the total economic activities associated with that removal. In this study, BERC *counterfactually* removes all members of TAMHO from the economy and then measures the economic contributions the removed members created.

How is the direct economic impact figure determined? BERC used institutional data provided by TAMHO member organizations as an input to determine the total contributions of the member organizations across Tennessee. BERC then created regional IMPLAN models for each Grand Division to assess the economic impact of member organizations within those regions. BERC used

the default regional purchasing coefficients to allow for leakages out of the region. Given the scope and impact of mental health issues, our estimate of the impact of member organizations is extremely conservative. In reporting economic impact and economic contribution estimates, we follow the procedure outlined below:

(1) Business revenue (output) effect—direct, indirect (the effect of business-to-business interactions), and induced (the effect of employee spending on wages and salaries) by TAMHO. These measures (indirect and induced) are also called the *ripple effect*. The business revenue effect represents all economic activities (i.e., trade, value added, income, taxes, proprietary income, etc.) associated with the activity. Therefore, this figure should not be aggregated with any other measures reported here.

(2) Employment effect—direct, indirect, and induced by TAMHO.

(3) Personal income effect—direct, indirect, and induced by TAMHO.

(4) Local and state taxes—total taxes generated by TAMHO.

In this context, it is also important to remember the major assumptions used for this section:

- (1) The study region is the state of Tennessee, both as a whole and by Tennessee Grand Division. A detailed map of the study region can be seen in the chapter on characteristics of the TAMHO.
- (2) There may be a certain degree of discrepancy in data files in terms of establishments, revenue, expenditure, and employment resulting from (a) the use of multiple databases, (b) several levels of aggregation, and (c) change in data year and impact year.

Cumulative Impact

The cumulative impact—the sum of all divisions—is displayed in Table 6.1 below, with impact categories employment, personal income, and business revenue separated by direct effects and indirect and induced effects. Fiscal impact of TAMHO on Tennessee is reported as total impact.

Table 6.1: TAMHO Cumulative Impact on Tennessee

	Cumulative Impact (\$Millions)			
	Employment	Personal Income	Business Revenue	Fiscal Impact
Direct	6,480	\$356.47	\$641.84	
Indirect and Induced	6,261	\$287.42	\$814.27	
Total	12,741	\$643.88	\$1,456.11	\$39.45

Source: IMPLAN, TAMHO survey, BERC

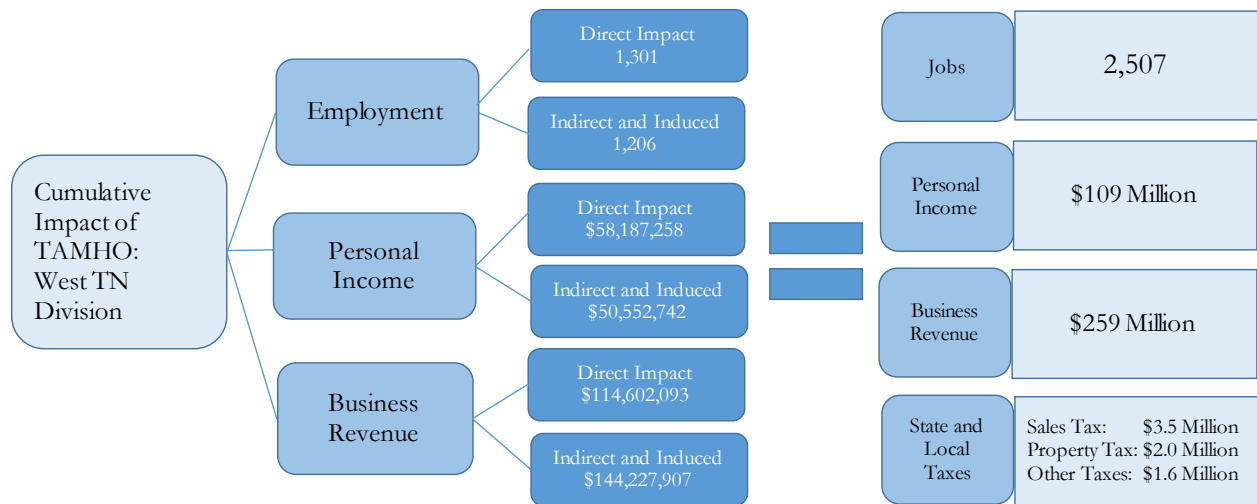
The economic impact of TAMHO member organizations on Tennessee is almost 12,800 jobs, \$644 million in personal income, \$1.5 billion in business revenues, and \$39.5 million in state and local taxes. These large figures underscore the important role TAMHO organizations play in the economic life of Tennessee. In the next section, the cumulative impacts by division are shown, giving a fuller picture of where TAMHO has the most impact.

VII. Economic Impact of TAMHO by Tennessee Grand Division

Cumulative Economic Impact by Segment

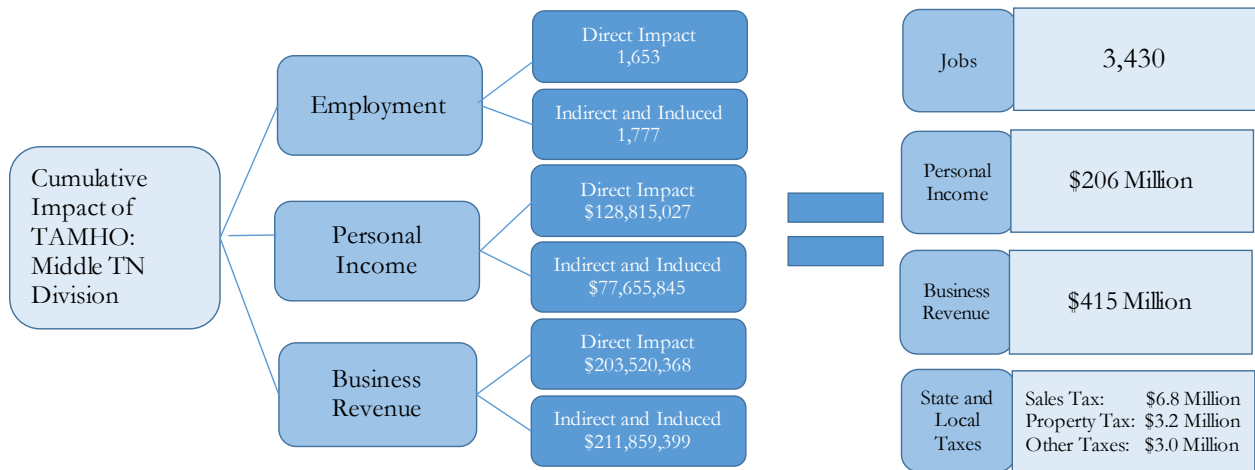
The flow charts below show TAMHO's cumulative employment, personal income, and business revenue impact for each of the Tennessee Grand Divisions: West TN, Middle TN, and East TN. Each flow chart breaks impact into direct effects and indirect and induced effects where applicable.

Figure 7.1: Cumulative Impact on West TN Division



As Figure 7.1 shows, TAMHO organizations account for more than 2,507 jobs, \$109 million in personal income, \$259 million in business revenue, and \$7 million in state and local taxes in the West TN division.

Figure 7.2: Cumulative Impact on Middle TN Division



As shown in Figure 7.2, the TAMHO organizations in the Middle TN division contribute more than 3,430 jobs, \$206 million in personal income, \$415 million in business revenue, and almost \$13 million in state and local taxes to the regional economy.

Figure 7.3: Cumulative Impact on East TN Division

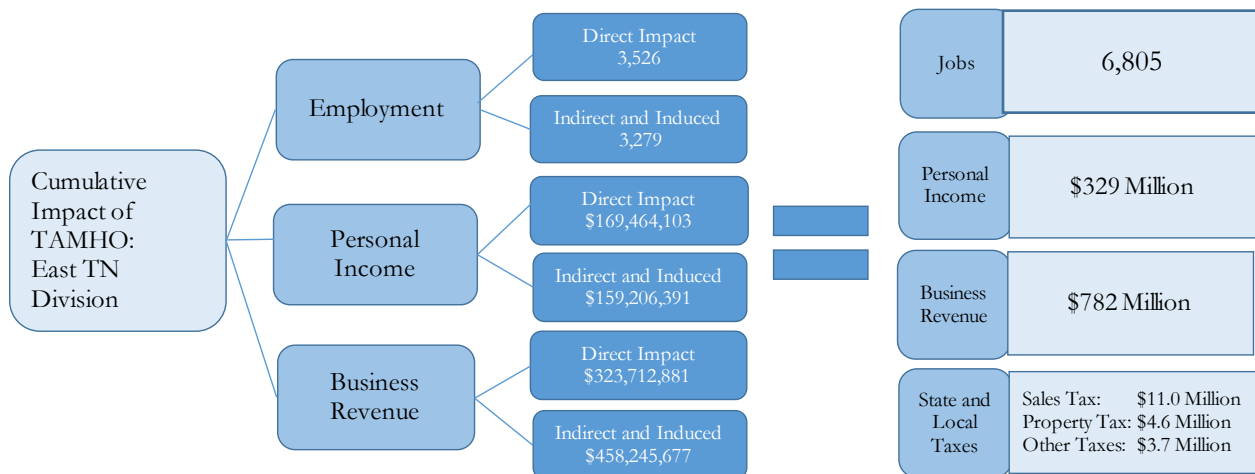
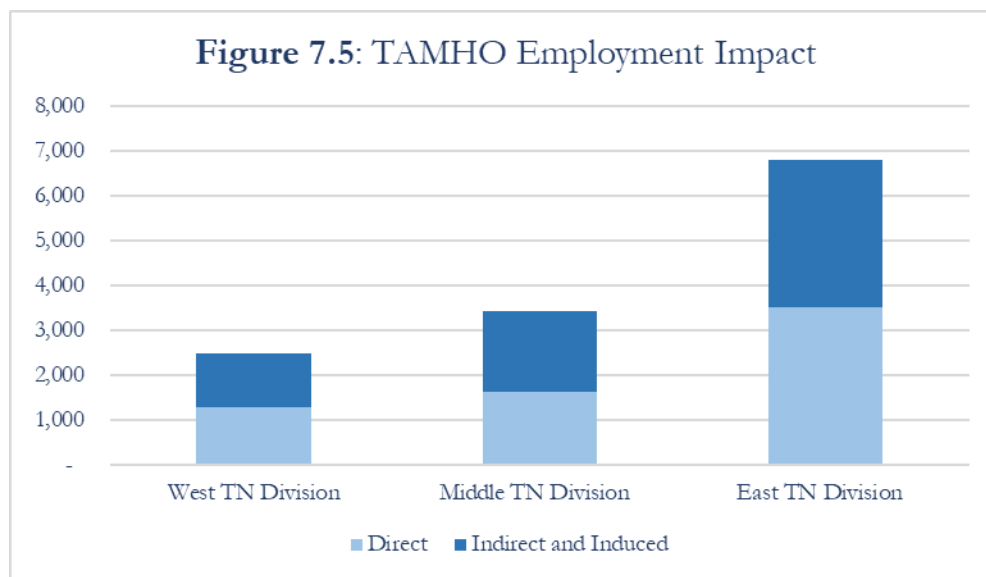
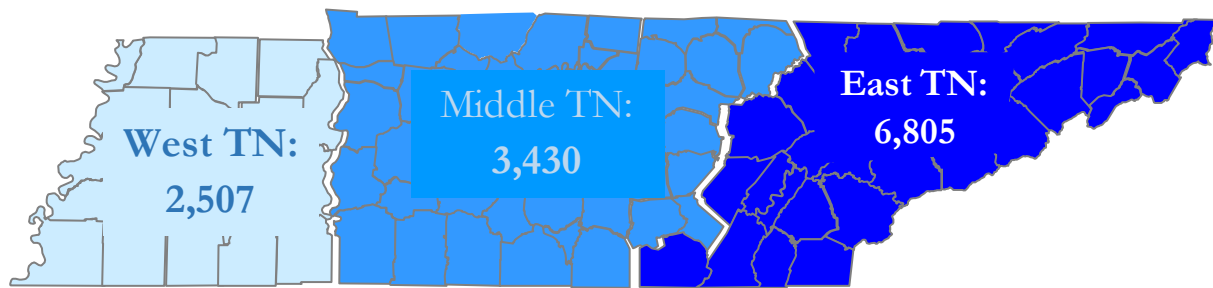


Figure 7.3 shows the largest impact of the TAMHO organizations takes place in the East TN division, accounting for more than 6,805 jobs, almost \$329 million in personal income, nearly \$782 million in business revenue, and \$19 million in state and local taxes.

Economic Impact by Impact Category: Employment

The TAMHO organizations directly create 6,480 jobs across all three divisions. Overall, these direct jobs have created an additional 6,262 jobs with a total job impact of nearly 12,800 jobs in Tennessee through direct, indirect, and induced effects. The regional breakdown of TAMHO's total employment impact is shown in Figures 7.4 and 7.5. The East TN division has the highest overall TAMHO employment impact of 6,805 jobs, more than half of TAMHO's total employment impact in Tennessee.

Figure 7.4: TAMHO Total Employment Impact (Direct, Indirect, and Induced)



Economic Impact by Impact Category: Personal Income

The TAMHO member organizations pay directly \$356.5 million in wages and salaries across Tennessee, accounting for a total impact of \$644 million in personal income. The regional breakdown of TAMHO’s total personal impact is shown in Figure 7.6. Figure 7.7 shows the regional impact by direct and indirect effects. East TN experiences the largest personal income impact.

Figure 7.6: TAMHO Total Personal Income Impact (Direct, Indirect, and Induced)

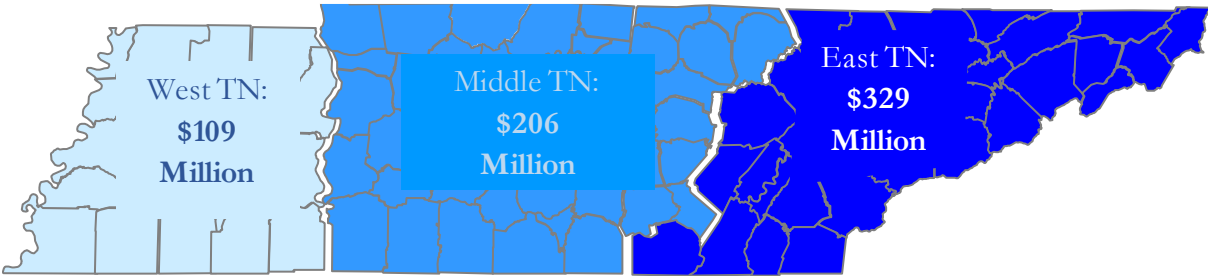
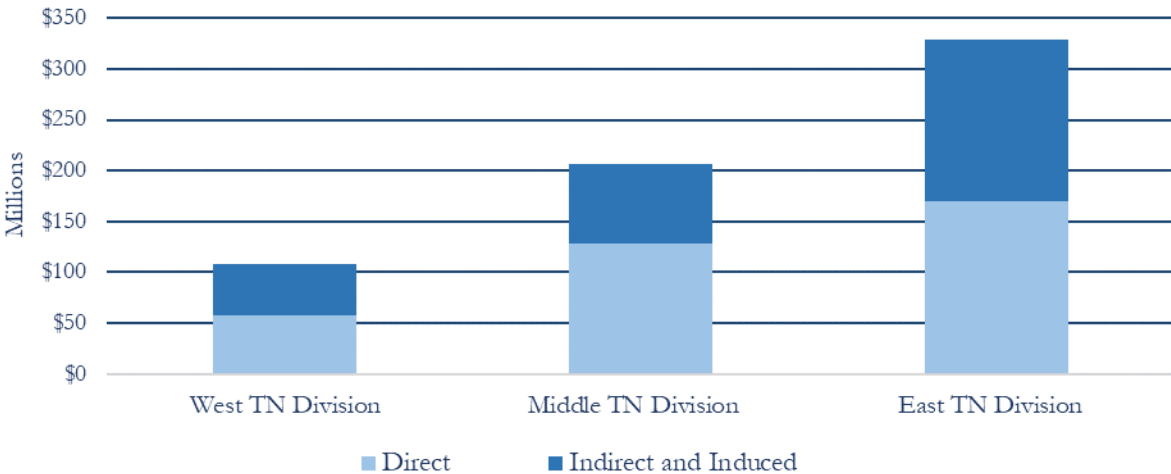


Figure 7.7: TAMHO Personal Income Impact



Economic Impact by Impact Category: Business Revenue

The TAMHO member organizations contribute to the Tennessee economy with \$1.5 billion in business revenues (including direct, indirect, and induced). Of the \$1.5 billion in total revenues, the East TN division has the largest share of this contribution (\$782 million), which represents more than half of the total business revenue impact. The regional breakdown of TAMHO's total business revenue impact is shown in Figure 7.8. Figure 7.9 shows that indirect and induced effects make up more than half of TAMHO's business revenue impact.

Figure 7.8: TAMHO Total Business Revenue Impact (Direct, Indirect, and Induced)

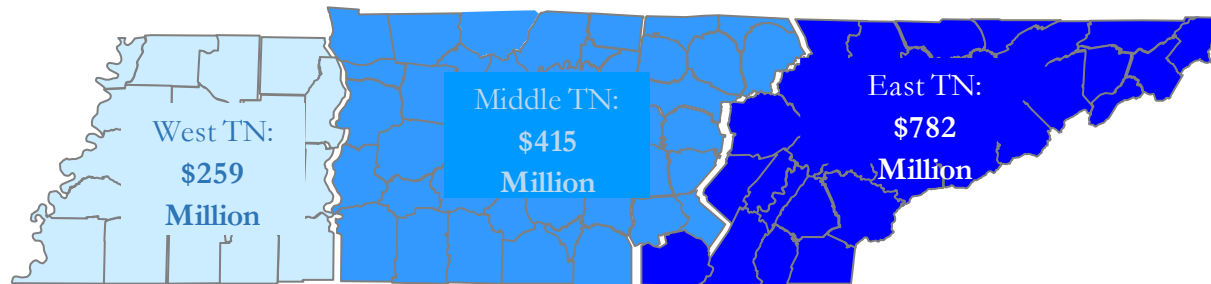
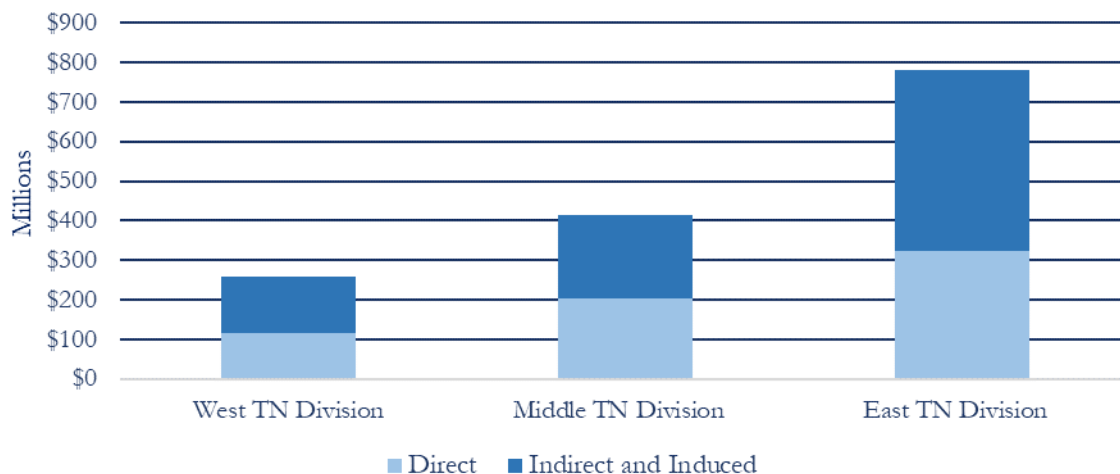


Figure 7.9: TAMHO Business Revenue Impact



Fiscal Impact

TAMHO's fiscal impact for the state is \$39 million, made up primarily of sales tax revenue of \$21 million as well as property taxes of \$10 million and other taxes and fees of \$8 million.

TAMHO's largest impact is on the East TN division. The regional breakdown of TAMHO's total fiscal impact is shown in Figure 7.10. Figure 7.11 shows TAMHO's fiscal impact is largely through sales taxes, with property taxes having the next largest impact, and other taxes and fees having the smallest impact in all regions.

Figure 7.10: TAMHO Fiscal Impact (Direct, Indirect, and Induced)

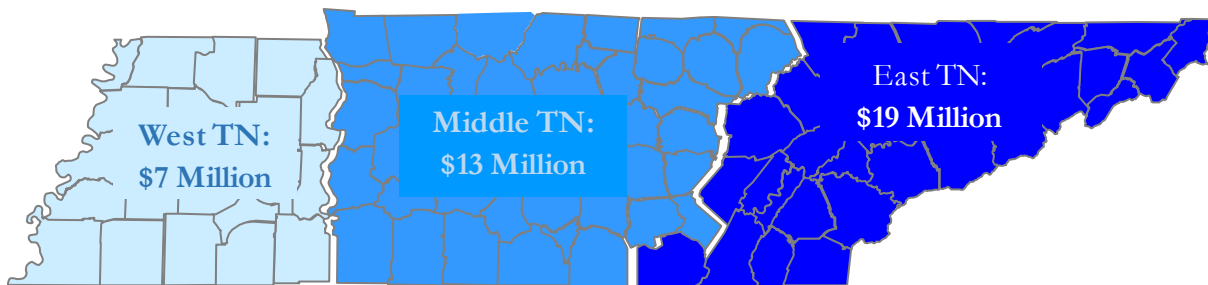
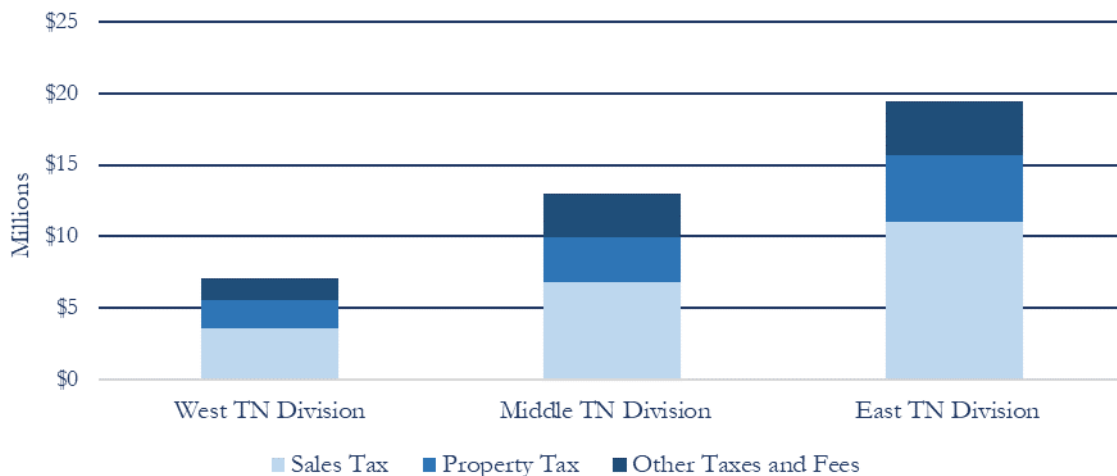


Figure 7.11: TAMHO Fiscal Impact



VIII. Conclusion

This study demonstrates that TAMHO member organizations not only provide mental health care services and offer help in times of need to community members throughout Tennessee but also represent a major economic driver for the state. TAMHO organizations have a significant impact in the areas of employment, business revenue, personal income, and state and local taxes. At the Tennessee Grand Division level, TAMHO also plays an important role in local economic dynamics. In the East TN division alone, TAMHO is responsible for almost 7,000 jobs. Additionally, any loss of TAMHO services would affect some counties drastically, especially those with high client/patient services percentages. Finally, TAMHO's presence stimulates business dynamics through mental health care services and employee spending.

Tennessee has the opportunity to increase its contribution to TAMHO services in order to decrease behavioral health problems and their consequent negative impact on the individuals, the community, and the economy. The findings in this report may provide a compelling reason to see TAMHO member organizations as more than mental health care providers. They represent a diverse group of organizations that have a considerable impact on the region.

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X. Appendix

A. Counties with TAMHO Service Locations

TAMHO organizations offer services to residents of the entire state of Tennessee.

TAMHO's 408 service locations are found in the following 73 counties:

Anderson, Bedford, Benton, Blount, Bradley, Campbell, Cannon, Carroll, Carter, Chester, Claiborne, Cocke, Coffee, Cumberland, Davidson, Decatur, Dickson, Dyer, Fayette, Franklin, Gibson, Giles, Grainger, Greene, Grundy, Hamblen, Hamilton, Hancock, Hardeman, Hardin, Hawkins, Haywood, Henderson, Henry, Johnson, Knox, Lake, Lauderdale, Lawrence, Lewis, Lincoln, Loudon, Macon, Madison, Marion, Marshall, Maury, McMinn, McNairy, Monroe, Montgomery, Moore, Morgan, Obion, Overton, Putnam, Rhea, Roane, Robertson, Rutherford, Scott, Sequatchie, Sevier, Shelby, Sullivan, Sumner, Tipton, Unicoi, Union, Warren, Washington, Wayne, Weakley, Williamson, and Wilson.

B. MHA Prevalence of Mental Illness Rates

The Mental Health America (MHA) Prevalence Ranking simply measures the prevalence of mental health and substance use issues within a state. Table A1 shows the three best and worst ranking states as indicated by the MHA; additionally, Tennessee's rank is included. The measures that make up the prevalence ranking are displayed in Table A2.

Table A1: MHA Prevalence of Mental Illness U.S. State Ranking

Worst States					
2017		2018		2019	
51	Oregon	51	Oregon	51	Oregon
50	Rhode island	50	New Hampshire	50	Alaska
49	Arizona	49	Colorado	49	Idaho
Best States					
2017		2018		2019	
1	Connecticut	1	South Dakota	1	New Jersey
2	Illinois	2	Hawaii	2	Georgia
3	New Jersey	3	Georgia	3	Hawaii
15	Tennessee	16	Tennessee	20	Tennessee

Table A2: The 6 measures that make up the MHA Prevalence Ranking include:

1	Adults with Any Mental Illness (AMI)
2	Adults with Substance Use Disorder in the Past Year
3	Adults with Serious Thoughts of Suicide
4	Youth with At Least One Major Depressive Episode (MDE) in the Past Year
5	Youth with Substance Use Disorder in the Past Year
6	Youth with Severe MDE

C. MHA Overall Ranking

The Mental Health America (MHA) Overall Ranking gauges two key components: 1) the prevalence of mental illnesses within a state and 2) the rates of access to care. A higher ranking indicates that a state has lower prevalence of mental illnesses and high access to care, and a low ranking indicates higher prevalence of mental illnesses and low access to care (Mental Health America, 2018). Table A3 shows the three best and worst ranking states as indicated by the MHA; additionally, Tennessee's rank is included. The measures that make up the overall ranking are displayed in Table A4 below.

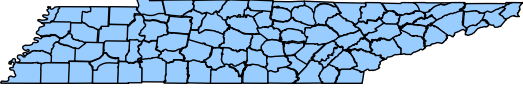
Table A3: Mental Health America Overall U.S. State Ranking

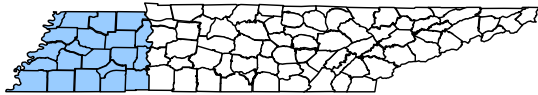
Worst States					
2017		2018		2019	
51	Nevada	51	Nevada	51	Nevada
50	Arizona	50	Mississippi	50	Idaho
49	Oregon	49	Arizona	49	Oregon
Best States					
2017		2018		2019	
1	Connecticut	1	Massachusetts	1	Minnesota
2	Massachusetts	2	South Dakota	2	Maine
3	Vermont	3	Minnesota	3	Massachusetts
41	Tennessee	46	Tennessee	45	Tennessee

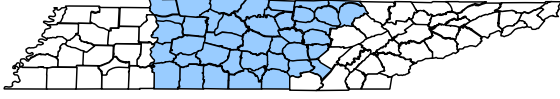
Table A4: The 15 measures that make up the Overall Ranking include:

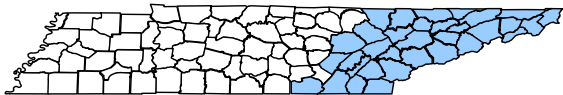
1	Adults with Any Mental Illness (AMI)
2	Adults with Substance Use Disorder in the Past Year
3	Adults with Serious Thoughts of Suicide
4	Youth with At Least One Major Depressive Episode (MDE) in the Past Year
5	Youth with Substance Use Disorder in the Past Year
6	Youth with Severe MDE
7	Adults with AMI Who Did Not Receive Treatment
8	Adults with AMI Reporting Unmet Need
9	Adults with AMI Who Are Uninsured
10	Adults with Disability Who Could Not See a Doctor Due to Costs
11	Youth with MDE Who Did Not Receive Mental Health Services
12	Youth with Severe MDE Who Received Some Consistent Treatment
13	Children with Private Insurance That Did Not Cover Mental or Emotional Problems
14	Students Identified with Emotional Disturbance for an Individualized Education Program
15	Mental Health Workforce Availability

D. Regional Templates

TN Total											
Geographic Location 				Number of counties in the division: 95 Population of TN: 6,715,984 TN population as percent of nation: 2.05%				Number of member companies served: 20 companies in 245 locations Total patients served in TN: 287,356 Total employment of member companies: 6,480			
Economic Impact				Fiscal Impact				Member companies operating in TN			
Current Economic Impact				Current Fiscal Impact							
	Surveyed Companies ** Impact	Other Member Companies *** Impact	Cumulative * Impact		Surveyed Companies Impact	Other Member Companies Impact	Cumulative Impact				
Employment	12,423	319	12,742	Sales Tax	\$ 20,770,317	\$ 604,208	\$ 21,374,525				
Direct	6,292	188	6,480	Property Tax	\$ 9,493,881	\$ 287,220	\$ 9,781,101				
Indirect	2,058	51	2,109	Other Taxes and Fees	\$ 8,005,333	\$ 286,028	\$ 8,291,361				
Induced	4,073	80	4,153	Total State and Local	\$ 38,269,531	\$ 1,177,456	\$ 39,446,987				
Personal Income	\$ 627,104,344	\$ 16,777,641	\$ 643,881,985	Business Revenue: all economic activities (i.e., value added, income, taxes, property income, etc.) associated with the activity. Indirect Impact: the effect of business-to-business interactions. Induced Impact: the effect of employee spending wages and salaries.							
Direct	\$ 346,381,132	\$ 10,085,256	\$ 356,466,388								
Indirect	\$ 96,889,840	\$ 2,583,889	\$ 99,473,729								
Induced	\$ 183,833,372	\$ 4,108,496	\$ 187,941,868								
Business Revenue	\$ 1,416,779,192	\$ 39,331,560	\$ 1,456,110,752								
Direct	\$ 621,536,966	\$ 20,298,376	\$ 641,835,342								
Indirect	\$ 280,454,379	\$ 7,686,682	\$ 288,141,061								
Induced	\$ 514,787,847	\$ 11,346,502	\$ 526,134,349								
Note: Due to rounding, the total numbers might slightly differ.											
* This number reflects total including surveyed companies and other member companies.											
** TAMHO sent the survey to member companies, and BERC collected those data.											
*** Member companies that did not respond to survey. BERC estimated data from ReferenceUSA.com and the company's website.											
								Alliance Healthcare Services Carey Counseling Center Inc. Centerstone of Tennessee Cherokee Health Systems CMI Healthcare Services Frontier Health Generations Mental Health Center Helen Ross McNabb Center LifeCare Family Services Lowenstein House Pathways of Tennessee Peninsula, a Division of Parkwest Medical Center Professional Care Services of West TN Inc. Quinco Mental Health Center Inc. Ridgeview Behavioral Health Services The AIM Center TN Mental Health Consumers' Association TN Voices for Children Vanderbilt Behavioral Health Volunteer Behavioral Health Care System			

West TN Division									
Geographic Location 				Number of counties in the division: 21 Population of TN: 1,561,304 Division population as percent of TN population: 23%				Number of member companies served: 11 companies in 52 locations Total patients served in the division: 81,227 Percent of member company patients in the division: 29% Total regional employment of member companies: 1,300	
Economic Impact				Fiscal Impact				Member companies operating in West TN	
Current Economic Impact				Current Fiscal Impact					
	Surveyed Companies ** Impact	Other Member Companies *** Impact	Cumulative Impact*		Surveyed Companies Impact	Other Member Companies Impact	Cumulative Impact		
Employment	2,448	59	2,507	Sales Tax	\$ 3,439,107	\$ 90,640	\$ 3,529,747	Alliance Healthcare Services	
Direct	1,264	37	1,301	Property Tax	\$ 1,928,253	\$ 50,843	\$ 1,979,096	Carey Counseling Center Inc.	
Indirect	411	10	421	Other Taxes and Fees	\$ 1,512,962	\$ 45,470	\$ 1,558,432	Cherokee Health Systems	
Induced	773	12	785	Total State and Local	\$ 6,880,322	\$ 186,953	\$ 7,067,275	CMI Healthcare Services	
Personal Income	\$ 106,307,161	\$ 2,433,457	\$ 108,740,618	Business Revenue: all economic activities (i.e., value added, income, taxes, propriety income, etc.) associated with the activity. Indirect Impact: the effect of business-to-business interactions. Induced Impact: the effect of employee spending wages and salaries.				Generations Mental Health Center	
Direct	\$ 56,709,028	\$ 1,478,230	\$ 58,187,258					Lowenstein House	
Indirect	\$ 17,754,427	\$ 445,081	\$ 18,199,508					Pathways of Tennessee	
Induced	\$ 31,843,706	\$ 510,146	\$ 32,353,852					Professional Care Services of West TN Inc.	
Business Revenue	\$ 252,475,556	\$ 6,356,871	\$ 258,832,427					Quinco Mental Health Center Inc.	
Direct	\$ 111,162,834	\$ 3,439,259	\$ 114,602,093					TN Mental Health Consumers' Association	
Indirect	\$ 51,352,499	\$ 1,413,686	\$ 52,766,185					TN Voices for Children	
Induced	\$ 89,960,223	\$ 1,503,926	\$ 91,464,149						
Note: Due to rounding, the total numbers might slightly differ.									
* This number reflects total including surveyed companies and other member companies.									
** TAMHO sent the survey to member companies, and BERC collected those data.									
*** Member companies that did not respond to survey. BERC estimated data from ReferenceUSA.com and the company's website.									

Middle TN Division										
Geographic Location 				Number of counties in the division: 41 Population of TN: 2,733,908 Division population as percent of TN population: 41%				Number of member companies served: 7 companies in 69 locations Total patients served in the division: 77,047 Percent of member company patients in the division: 27% Total regional employment of member companies: 1,654		
Economic Impact				Fiscal Impact				Member companies operating in Middle TN		
Current Economic Impact				Current Fiscal Impact						
	Surveyed Companies** Impact	Other Member Companies*** Impact	Cumulative Impact*		Surveyed Companies Impact	Other Member Companies Impact	Cumulative Impact			
Employment	3,194	236	3,430	Sales Tax	\$ 6,329,632	\$ 469,249	\$ 6,798,881	Generations Mental Health Center LifeCare Family Services TN Mental Health Consumers' Association TN Voices for Children Vanderbilt Behavioral Health Volunteer Behavioral Health Care System		
Direct	1,517	136	1,653	Property Tax	\$ 2,940,257	\$ 217,743	\$ 3,158,000			
Indirect	511	37	548	Other Taxes and Fees	\$ 2,777,432	\$ 224,095	\$ 3,001,527			
Induced	1,166	63	1,229	Total State and Local	\$ 12,047,321	\$ 911,087	\$12,958,408			
Personal Income	\$ 193,179,576	\$ 13,291,296	\$ 206,470,872	Business Revenue: all economic activities (i.e., value added, income, taxes, propriety income, etc.) associated with the activity. Indirect Impact: the effect of business-to-business interactions. Induced Impact: the effect of employee spending wages and salaries.						
Direct	\$ 120,863,578	\$ 7,951,449	\$ 128,815,027							
Indirect	\$ 22,248,506	\$ 1,962,783	\$ 24,211,289							
Induced	\$ 50,067,492	\$ 3,377,064	\$ 53,444,556							
Business Revenue	\$ 385,055,279	\$ 30,324,488	\$ 415,379,767							
Direct	\$ 188,123,651	\$ 15,396,717	\$ 203,520,368							
Indirect	\$ 62,926,827	\$ 5,757,099	\$ 68,683,926							
Induced	\$ 134,004,801	\$ 9,170,672	\$ 143,175,473							
Note: Due to rounding, the total numbers might slightly differ.										
* This number reflects total including surveyed companies and other member companies. ** TAMHO sent the survey to member companies, and BERC collected those data. *** Member companies that did not respond to survey. BERC estimated data from ReferenceUSA.com and the company's website.										

East TN Division								
<div>Geographic Location</div> 				<div>Number of counties in the division: 33</div> <div>Population of TN: 2,420,772</div> <div>Division population as percent of TN population: 36%</div>		<div>Number of member companies served: 10 companies in 124 locations</div> <div>Total patients served in the division: 126,270</div> <div>Percent of member company patients in the division: 44%</div> <div>Total regional employment of member companies: 3,525</div>		
Economic Impact				Fiscal Impact				Member companies operating in East TN
Current Economic Impact				Current Fiscal Impact				
	Surveyed Companies ** Impact	Other Member Companies *** Impact	Cumulative Impact*		Surveyed Companies Impact	Other Member Companies Impact	Cumulative Impact	
Employment	6,781	24	6,805	Sales Tax	\$ 11,001,578	\$ 44,319	\$11,045,897	Centerstone of Tennessee
Direct	3,511	15	3,526	Property Tax	\$ 4,625,371	\$ 18,634	\$ 4,644,005	Cherokee Health Systems
Indirect	1,136	4	1,140	Other Taxes and Fees	\$ 3,714,939	\$ 16,463	\$ 3,731,402	Frontier Health
Induced	2,134	5	2,139	Total State and Local	\$ 19,341,888	\$ 79,416	\$19,421,304	Generations Mental Health Center
Personal Income	\$327,617,606	\$ 1,052,888	\$328,670,494	Business Revenue: all economic activities (i.e., value added, income, taxes, property income, etc.) associated with the activity. Indirect Impact: the effect of business-to-business interactions. Induced Impact: the effect of employee spending wages and salaries.				Helen Ross McNabb Center
Direct	\$168,808,526	\$ 655,577	\$169,464,103					Peninsula, a Division of Parkwest Medical Center
Indirect	\$ 56,886,907	\$ 176,025	\$ 57,062,932					Ridgeview Behavioral Health Services
Induced	\$101,922,173	\$ 221,286	\$102,143,459					The AIM Center
Business Revenue	\$779,308,357	\$ 2,650,201	\$781,958,558					TN Mental Health Consumers' Association
Direct	\$322,250,481	\$ 1,462,400	\$323,712,881					Volunteer Behavioral Health Care System
Indirect	\$166,175,053	\$ 515,897	\$166,690,950					
Induced	\$290,882,823	\$ 671,904	\$291,554,727					
Note: Due to rounding, the total numbers might slightly differ.								
* This number reflects total including surveyed companies and other member companies.								
** TAMHO sent the survey to member companies, and BERC collected those data.								
*** Member companies that did not respond to survey. BERC estimated data from ReferenceUSA.com and the company's website.								



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