

Fall 2026
Vol. 3, No. 1

THE JOURNAL OF Urban and Regional Perspectives

Business and Economic Research Center • Jennings A. Jones College of Business • Middle Tennessee State University

REGIONAL PROSPERITY

LOCAL LEADERS ON LIVABILITY

Middle Tennessee Mayors discuss how their communities address livability challenges.

PLUS

REGIONAL
MOBILITY &
ECONOMIC
COMPETITIVENESS

A CONVERSATION
ON ECONOMIC
DEVELOPMENT

RAIL
INFRASTRUCTURE
& REGIONAL
COMPETITION

TENNESSEE
INTERNATIONAL
TRADE
REPORT

**MIDDLE
TENNESSEE**
STATE UNIVERSITY

THE JOURNAL OF Urban and Regional Perspectives

Fall 2026, Vol. 3, Issue 1

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**MIDDLE
TENNESSEE**

STATE UNIVERSITY

I AM *true* **BLUE**

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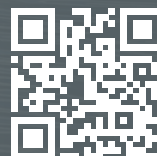
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Editor's Note

The Journal of Urban and Regional Perspectives

Welcome to a new issue of *The Journal of Urban and Regional Perspectives*. This edition continues our commitment to advancing thoughtful dialogue at the intersection of research, policy, and community engagement across Tennessee and beyond. As Middle Tennessee navigates rapid demographic change, evolving economic dynamics, and growing pressures on infrastructure, health, housing, and mobility, the need for evidence-based insight and collaborative leadership has never been more urgent.

Undergraduate Scholars Program

This issue features original research produced through the Undergraduate Scholars Program, where students investigate pressing regional questions using data-driven and interdisciplinary approaches:

[“What Motivates Undergraduate Students in Middle Tennessee to Pursue a Career in Nursing – Ciin Kap](#) examines examines the personal, educational, and professional factors that influence students’ decisions to enter the nursing profession. Its findings offer useful insight for educators, health care institutions, and workforce-development leaders seeking to strengthen the region’s nursing pipeline.

[“Rail Infrastructure and Regional Competitiveness” – Marco Guanchez](#) explores how investments in passenger and freight rail can influence economic growth, accessibility, and regional connectivity. It also considers the role of rail infrastructure in enhancing Middle Tennessee’s long-term competitiveness as population and transportation demands continue to increase.

The Jennings and Rebecca Jones Chair of Excellence in Urban and Regional Planning remains dedicated to connecting people, places, and policy through applied scholarship, interdisciplinary learning, and meaningful engagement with community partners. This issue reflects that mission by bringing together undergraduate researchers, practitioners, and regional leaders whose work collectively illuminates the challenges and opportunities shaping our communities.

[“Stuck in Traffic, Stuck in Place: How Congestion Limits Labor Mobility in US Cities” – Trinity Johnson](#) investigates how traffic congestion affects workers’ access to employment opportunities and employers’ access to labor. It highlights the close relationship among transportation performance, economic mobility, and the ability of metropolitan regions to sustain inclusive growth.

Together, these studies demonstrate the power of undergraduate scholarship to contribute meaningfully to regional discourse - advancing not only academic inquiry but also practical insight for policy makers and community stakeholders.

Invited Articles and Expert Conversations

Complementing the student research, this issue presents perspectives from practitioners and regional leaders whose work shapes Tennessee's economic and community landscape:

"International Trade" – **Steven Livingston**, BERC Associate Director, provides an analysis of Tennessee's recent international trade activity, including changes in exports, major industries, and key trading partners. It places these trends within a broader economic context and considers their implications for the state's businesses and regional economies

"A Conversation on Economic Development in Middle Tennessee" – Moderated by **Patrick Cammack** of Economic Development of Rutherford Co. Chamber of Commerce with insights from **Ryan Egly, Lori Odom, Kendrick Curtis, and Kalee Harryman**, this discussion highlights the critical role of economic development in Tennessee.

"A Forum on Growth and Regional Challenges in Middle Tennessee" - This feature highlights the central themes and discussions emerging from the annual Growth and Challenges Forum. It captures perspectives from public officials, researchers, and community leaders on how Middle Tennessee can manage rapid growth while preserving opportunity, resilience, and quality of life.

"Infrastructure: The Backbone of Tennessee's Economic Competitiveness" – Dr. Cliff Lippard examines the essential role infrastructure plays in supporting population growth, business activity, and quality of life. The article underscores the need for coordinated planning and sustained investment as communities respond to increasing demands on transportation, utilities, and public services.

"Building Tennessee's Future: Innovations, Investment, and Regional Growth" - Commissioner Stuart McWhorter presents insights from one of the forum's featured speakers and expands upon the ideas shared during the event. The discussion connects regional challenges with practical leadership strategies and emphasizes the value of collaboration across jurisdictions and sectors.

"Protecting Tennessee's Water Future: Why Stormwater Matters Now More Than Ever" – Dr. Cynthia Allen explains why stormwater management is becoming increasingly important as development expands and extreme weather places greater pressure on local systems. It considers the planning, environmental, and fiscal dimensions of building more resilient communities

Regional Indicators and BERC Activities

"Business Confidence Index" - The latest Business Confidence Index provides a timely assessment of local business conditions and expectations. Drawing on input from regional employers, the report identifies changes in sentiment, emerging concerns, and the issues likely to influence business decisions in the months ahead.

"BERC Activities" - The issue also highlights recent BERC activities and partnerships, illustrating how applied research, public engagement, and student involvement support better-informed decision-making throughout Tennessee.

Across every article and conversation in this issue runs a shared commitment—to healthier communities, stronger economies, and more resilient regions. By elevating student voices, practitioner expertise, and policy-relevant research, this journal seeks to foster informed decision-making and meaningful civic dialogue.

Our hope is that the ideas presented here will inspire continued collaboration and innovation throughout Tennessee and beyond.



Sincerely,

A handwritten signature in blue ink, appearing to read 'Murat Arik'.

Murat Arik, Ph.D., PDBP
Editor, *The Journal of Urban and Regional Perspectives (JURP)*



Tennessee International Trade Report *1st Quarter 2026*

Steven Livingston, Ph.D.

With assistance from Summer Intern, Vanessa Vega

Tennessee exported a little over \$9.4 billion in goods during the first quarter of 2026. This was a 1.6 percent decline from the first quarter of 2025. Total American exports, on the other hand, grew by some 15 percent. So it was not the best of quarters for state exporters. Tennessee in fact ranked a lowly 33rd among all American states in its export performance.

What Happened?

What accounted for the relatively poor quarter? Several commodities suffered serious losses, notably cotton (from \$186 million to \$90 million), computers (\$442 million to \$256 million), and synthetic polymers (polyester, cellulose acetate and cellulose acetate filament exports combined were \$105 million lower than a year ago). But the big problem, was once again the automotive sector. SUV exports fell by more than \$100 million (\$149 million to \$36 million), car exports fell by \$180 million (down to 24 million), and EV exports dropped from \$101 million to \$26 million. These losses were formidable. Long-time Tennessee export watchers must be shocked at the steepness of decline in the state's auto industry over these past several years.

Lost in the Headlines

The headline quarterly decline in exports does, however, disguise a number of industries that had great quarters. The state's largest export sector, medical instruments, returned to form after a tough 2025 first quarter. Foreign shipments of these goods climbed by more than \$200 million (to \$760 million). Commercial aircraft shipments also soared, from \$229 million to \$518 million. This industry is prone to big swings, so we should be cautious about interpreting this as a long-term trend. What we should be declaring as trends are big export gains in smartphones and in the shipment of waste and scrap. Smartphone shipments continue their strong performance of recent quarters, rising by 70% (to \$681 million).

Figure 1: Tennessee Monthly Exports

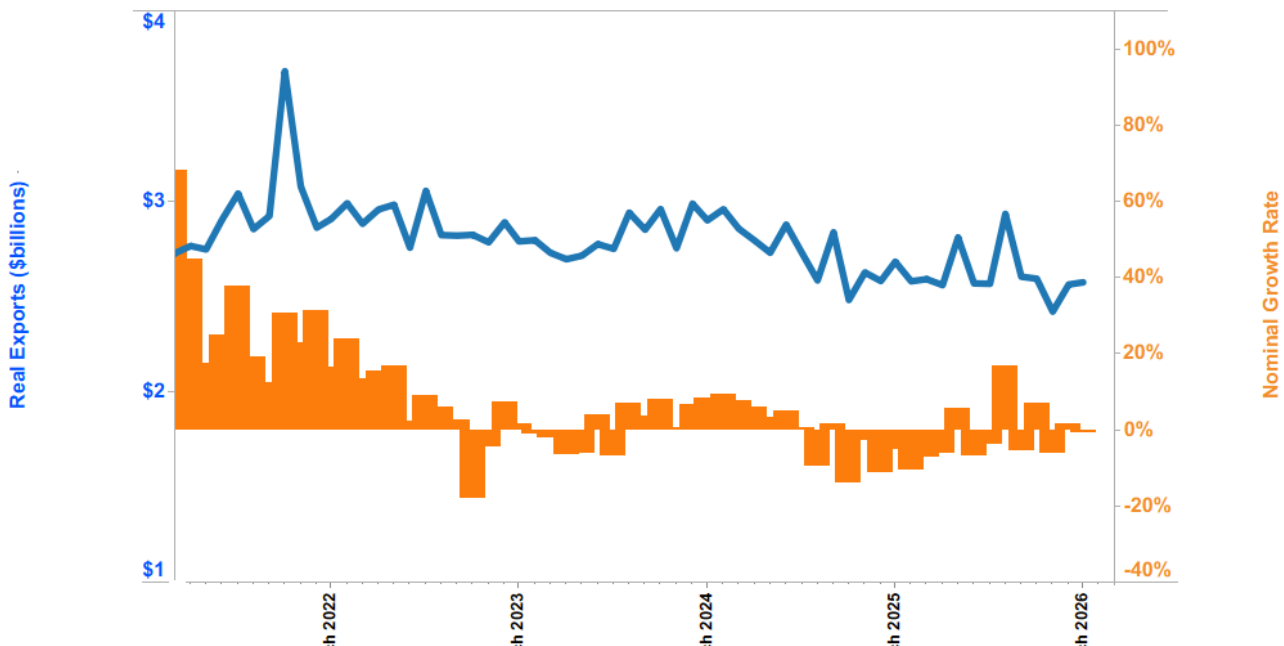
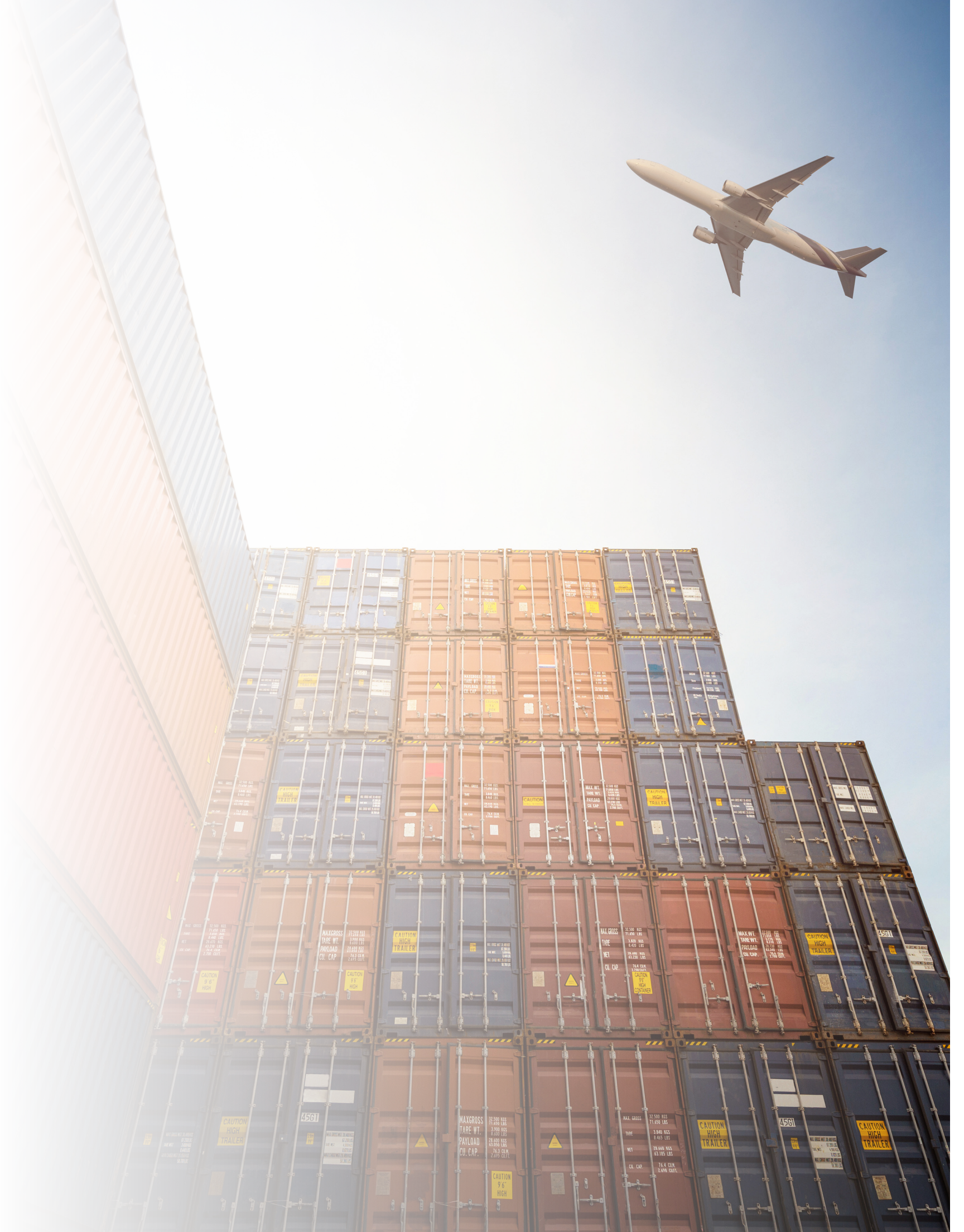


Figure 2: Tennessee's Largest Export Markets

	Exports	Change from Last Quarter	Change from Last Year
Medical Equipment	\$1,096,603,760	-4.01%	5.37%
Communications Equipment	\$940,791,446	4.30%	106.29%
Auto, Industrial, and Medical Instrum..	\$756,949,849	10.65%	20.20%
Motor Vehicle Parts	\$602,525,805	17.14%	1.72%
Computer Equipment	\$562,326,886	-35.58%	-11.09%
Aerospace	\$522,137,287	30.23%	123.41%
Basic Chemicals	\$423,067,811	10.73%	-11.25%
Waste and Scrap	\$346,928,482	21.39%	106.24%
Plastics	\$329,374,640	14.31%	-22.47%
Motor Vehicles	\$272,543,233	-4.20%	-53.71%



By now these are being shipped from Tennessee to every continent. Waste and scrap exports grew by an even bigger 170 percent (to \$295 million), mostly to several European countries. We have previously discussed this oddly named commodity. It includes materials used for catalytic converters, which account for the big dollars.

Two other export sectors had dynamic quarters as well. The computer storage sector (flash drives as well as older drives such as CD drives) grew from \$13 million to \$121 million in the first quarter. The export of equipment that connects phones and networks (routers, modems, etc.) grew by over \$200 million, more than six times the value of the shipments of these products in the first quarter of 2025. These are two state export industries to keep an eye on.

A Tough Quarter for the USMCA

Given the centrality of the auto industry to North American exports, it likely does not surprise that it was tough quarter for state exports to both Canada and Mexico.

Exports to Mexico fell by over \$300 million for the quarter, a loss of close to 20 percent. There were losses across the automotive sector, even in such minor exports as car radios. Given the centrality of the auto industry to North American exports, it likely does not surprise that it was tough quarter for state exports to both Canada and Mexico. Exports to Mexico fell by over \$300 million for the quarter, a loss of close to 20 percent. There were losses across the automotive sector, even in such minor exports as car radios. Export gains were limited to a handful of commodities, including aluminum foil, bicycle lighting, and felt pens and markers.

...Bur Better Elsewhere

Once outside of North America, Tennessee’s export numbers were relatively good. Exports to the rest of the Americas were strong, rising from \$702 million to \$999 million. The star countries were Brazil, where exports nearly doubled (from \$193 million to \$383 million), and Peru, where exports did double (\$47 million to \$95 million). The latter was driven by smartphones, while civilian aircraft exports accounted for the lion’s share of the Brazilian growth.

Figure 3: Largest Export Changes

		Exports	Growth	Decline
Fastest Growing	Ecuador	25,028,538	257.89%	
	Uruguay	34,441,516	195.68%	
	Switzerland	94,789,619	115.07%	
	Ireland	97,490,851	111.02%	
	Peru	94,600,766	102.15%	
Largest Declines	Qatar	4,350,823		-59.62%
	Pakistan	21,075,862		-58.10%
	Ukraine	25,081,771		-57.95%
	Paraguay	3,029,456		-54.07%
	Portugal	5,074,335		-48.32%

Among countries averaging more than \$5m in sales per quarter.



Shipments to the Eurozone were up ten percent, to \$1.7 billion, with Germany, France, and Ireland leading the way. Exports of gold and silver items led to a big increase of exports to Switzerland. The only big exception to the good numbers coming out of Europe was in the U.K., where Tennessee exports fell by more than 20 percent (to \$168 million).

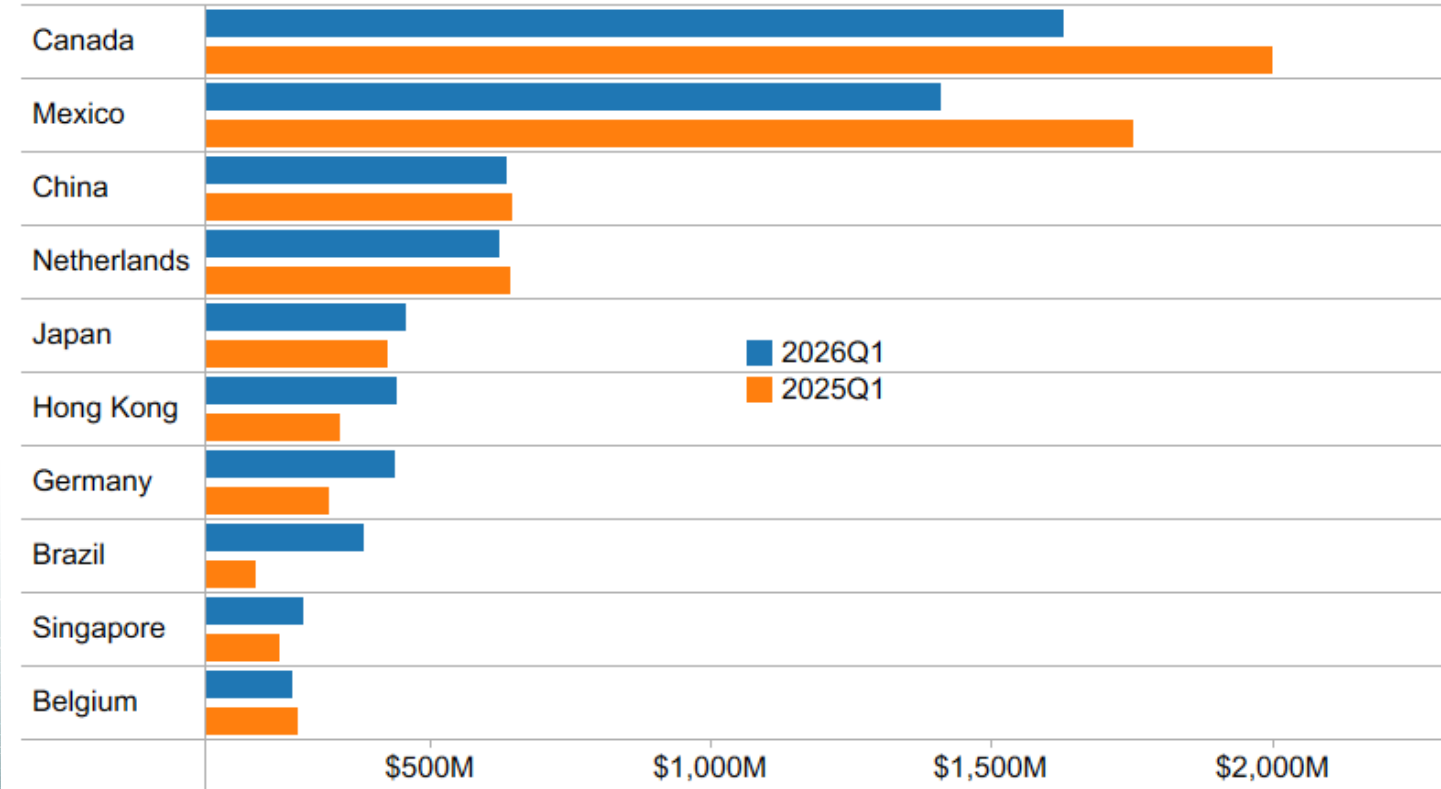
Exports to Southeast Asia were up by 16 percent (to \$643 million), thanks in large part to increases in smart-phone shipments to the Philippines and aircraft and medical instruments to Singapore. In East Asia, South Korea was the main reason for the big increase in the state's exports of communication storage devices. A massive \$46 million shipment of these devices this February powered an overall seventy percent increase in Tennessee quarterly exports to Korea. Tennessee shipments to East Asia were up 11 percent. Exports to Japan increased 8 percent, while those to Hong Kong surged by 30 percent (to \$444 million). The latter was also largely due to smart.

The only region of Asia where Tennessee exports did not fare well was the Middle East. The war with Iran must explain much of this, although motor vehicles constitute the largest Tennessee export to the Gulf States, and, as we have seen, it was a very poor quarter for that industry.

Going Forward

It is easy to see what might be the big trends emerging in Tennessee exports. On the plus side, there are substantial increases in hi-tech exports such as smart-phones and communication equipment (including storage devices) and the continuing strong growth of the medical sector. Balanced against this is a serious decline in automobile shipments (though many motor vehicle parts have held up better than automobiles themselves). So far, these trends have combined to essentially cancel each other out. We will see how either half of this balance progresses as we go forward in 2026.

Figure 4: Top Export Markets: Q1 2025 Compared with Q1 2026



A Conversation on **Economic Development in Tennessee**

The Chair of Excellence in Urban and Regional Planning Scholars Program is a nine-month undergraduate research initiative designed to cultivate students analytical skills, communication, and problem-solving skills while exploring the challenges facing Tennessee's growing communities. Each gathering features a guest speaker or expert panel to deepen students' understanding of key regional planning issues.

On January 23, 2026,

This session provided our students, faculty, and community members with key insight into the challenges small businesses face and the local organizations that are working with them to overcome obstacles. The following article is adapted from the panel conversation during our scholars session.

The panel was moderated by Patrick Cammack, Senior Vice President of Economic Development at the Rutherford County Chamber of Commerce

Panelists Included:

Ryan Egly - President & CEO, Lawrence County Chamber of Commerce

Lori Odom - Senior Vice President of Economic Development, Nashville Area Chamber of Commerce

Kendrick Curtis - Executive Director, Middle Tennessee Industrial Development Association

Kalee Harryman - Business Development Consultant, Tennessee Department of Economic and Community Development



INVESTMENT

STRATEGY



“Economic development is a team effort.”

The panel provided an inside look at how economic development functions in Middle Tennessee, emphasizing that successful business recruitment depends on collaboration among local, regional, and state partners rather than competition. Members from the Chamber of Commerce, regional economic development organizations, utilities, and the Tennessee Department of Economic and Community Development (TNECD) explained that attracting investment requires long-term planning, relationship building, technical expertise, and coordinated marketing. While the public often associates economic development with announcement of new companies, the panel demonstrated that those announcements are a result of years of preparation and cooperation.

Local organizations focus on serving their individual communities, regional organizations market Middle Tennessee as a unified economy, and the TNECD coordinates statewide recruitment efforts. Rather than competing against one another, these organizations share information, coordinate resources, and work toward a common goal of attracting investment to Tennessee. Success is measured by keeping projects within the region, regardless of which county ultimately secures the investment. This collaborative approach creates what panelists described as a "one front door" experience, allowing companies to begin the process with any economic development partner and be connected to the community that best fits their needs.

The speakers also emphasized that supporting existing businesses is just as important as recruiting new ones. While new company announcements generate headlines, expansions by existing employers often create significant job growth and reflect confidence in the local economy. The Chambers of Commerce therefore dedicate substantial resources to business retention, workforce development, and helping current employers continue expanding within their communities.



Kendrick Curtis engaging in discussion at the Panel on Economic Development. Photo by Tom Beckwith.

The panel explained that recruiting a company is an extensive and highly competitive process. Before a company ever visits Tennessee, economic developers spend months cultivating relationships, completing detailed requests for information, and demonstrating that their communities meet a project's technical requirements. These requests often include data on workforce availability, utilities, transportation, infrastructure, environmental conditions, and industrial site readiness. Rather than immediately trying to "win" a project, communities focus on avoiding elimination as companies narrow their list of potential locations. Responsiveness, accuracy, and persistence often determine whether a community remains under consideration.

Once a company agrees to a site visit, coordination becomes even more important. Every minute is carefully planned because executives typically spend only a short time in each location. Economic development partners work together to showcase industrial sites, introduce community leaders, and answer technical questions effectively. Panelists shared examples of adjusting schedules and presentations on short notice when a company's facility requirements changed during a visit, illustrating the flexibility required to keep projects moving forward.

Throughout the discussion, speakers repeatedly highlighted the value of relationships. State project managers, regional organizations, local chambers, utility providers, and community leaders maintain strong professional networks that allow them to respond quickly when opportunities arise. These relationships are particularly important when projects change unexpectedly. One example described how a community was added to a company's itinerary after another site no longer met revised building requirements. Because local leaders trusted one another and communicated effectively, the community was able to present itself despite receiving very little advance notice. The panel also stressed the importance of product knowledge. Economic developers must understand every detail about the sites they market, including acreage, utility capacity, transportation access, soil conditions, environmental restrictions, zoning, and surrounding land uses. During the due diligence process, companies evaluate these factors carefully before making investment decisions. Tennessee's Select Tennessee Certified Sites Program was highlighted as an important initiative that helps communities prepare industrial properties by completing engineering, environmental, and infrastructure assessments before companies begin searching for locations.

Another major focus of the discussion was regional marketing. Since the early 1900s, the Nashville Area Chamber of Commerce has promoted Middle Tennessee as a unified economic region rather than marketing individual counties independently. This collaborative strategy has contributed to remarkable regional growth, with Middle Tennessee expanding from approximately 1.1 million residents to nearly 2 million residents while employment has grown from roughly 568,000 jobs to nearly one million. Instead of competing internally, regional partners identify which community best fits a company's operational needs, increasing the likelihood that projects remain within Middle Tennessee.

The panel also underscored the significance of foreign direct investment in Tennessee's economic success. Nissan's decision to locate its manufacturing operation in Smyrna during the early 1980s marked a turning point for the state, demonstrating that Tennessee could compete for major international investment. Today, the Nashville region's ten counties are home to approximately 344 foreign-owned companies employing nearly 56,000 people, with Japanese firms representing the largest source of international investment. Advanced manufacturing, automotive production, logistics, and industrial technology continue to be major sectors supported by foreign companies.

Panelists explained that attracting international investment depends on more than financial incentives. Tennessee maintains overseas representatives who build long-term relationships with corporate leaders, identify expansion opportunities, and promote the state's business advantages. These sustained international partnerships have helped establish Tennessee as a trusted destination for global companies seeking to expand into the United States. Even amid global economic uncertainty, approximately half of the jobs announced through the Nashville Area Chamber's economic development efforts during the previous year resulted from foreign direct investment, demonstrating the continued importance of international business to the regional economy.

Overall, the panel illustrated that Middle Tennessee's economic success is built on collaboration, preparation, and long-term relationships. Whether supporting existing industries, recruiting international companies, preparing industrial sites, or coordinating regional marketing efforts, economic development depends on organizations working together rather than independently. The discussion demonstrated that sustained partnerships, technical readiness, and a shared regional vision have positioned Tennessee as one of the nation's leading destinations for business investment while creating long-term economic opportunities for communities across Middle Tennessee.



Patrick Cammack presenting at the Panel on Economic Development. Photo by Tom Beckwith.

Factors Influencing Nursing Career Choices

What Motivates Undergraduate Students in Middle Tennessee to Pursue a Career in Nursing

Ciin Kap

The United States faces a projected nursing shortage of over 500,000 nurses by 2030, with Tennessee ranking fourteenth in the nation with the highest projected shortage. The Mid-Cumberland region of Middle Tennessee represents one of the areas most impacted by this regional shortage.¹ Contributing factors include limited nursing program capacity due to shortages in faculty and clinical placement opportunities, which prevent schools from admitting many otherwise qualified candidates.² Retention has decline due to burnout and workforce attrition following the COVID-19 pandemic, and the retirement of an aging nursing workforce.³ Together the challenges have intensified regional healthcare staffing concerns and highlighted the need for effective recruitment and retention strategies.

Methodology

The research utilized a quantitative survey utilizing a questionnaire, consisting of forty-eight questions, to examine demographic trends and key influencing factors related to workforce shortages. Each question used a 5-Point Likert scale to assess participants' responses to each statement, apart from Personal Factors, which were assessed based on nine statements the participants could choose from. Likert scale response options were coded as follows: Strongly Disagree (0), Disagree (1), Neither Agree nor Disagree (2), Agree (3), and Strongly Agree (4).

Three statistical methods were used to analyze ques-

tionnaire responses: descriptive statistics, Chi-Square Tests, and Point-Biserial Correlation analyses.

Descriptive statistics, including means and standard deviations, were calculated to access participant demographics and determine the average levels of agreements across statements. Secondly, the Chi-Square Test was conducted to examine whether consideration of a nursing-career field differed significantly across demographic and socioeconomic variables, including age and prior nursing or healthcare experience. Finally, Point-Biserial Correlation analyses were conducted to assess the strength and relationship between personal motivational factors and participants' consideration of pursuing a nursing career.

Findings

Descriptive statistics revealed that economic factors were the highest-rated motivations overall. Students strongly agreed that salary, financial benefits, career stability, and opportunities for career flexibility were important considerations. Professional motivations, including career advancement and professional respect, ranked second. Personal and intrinsic factors also ranked highly, especially the desire to make a difference in society and help others. In contrast, social factors were the weakest motivations, with family pressure, parental influence, and social prestige receiving the lowest agreement scores.

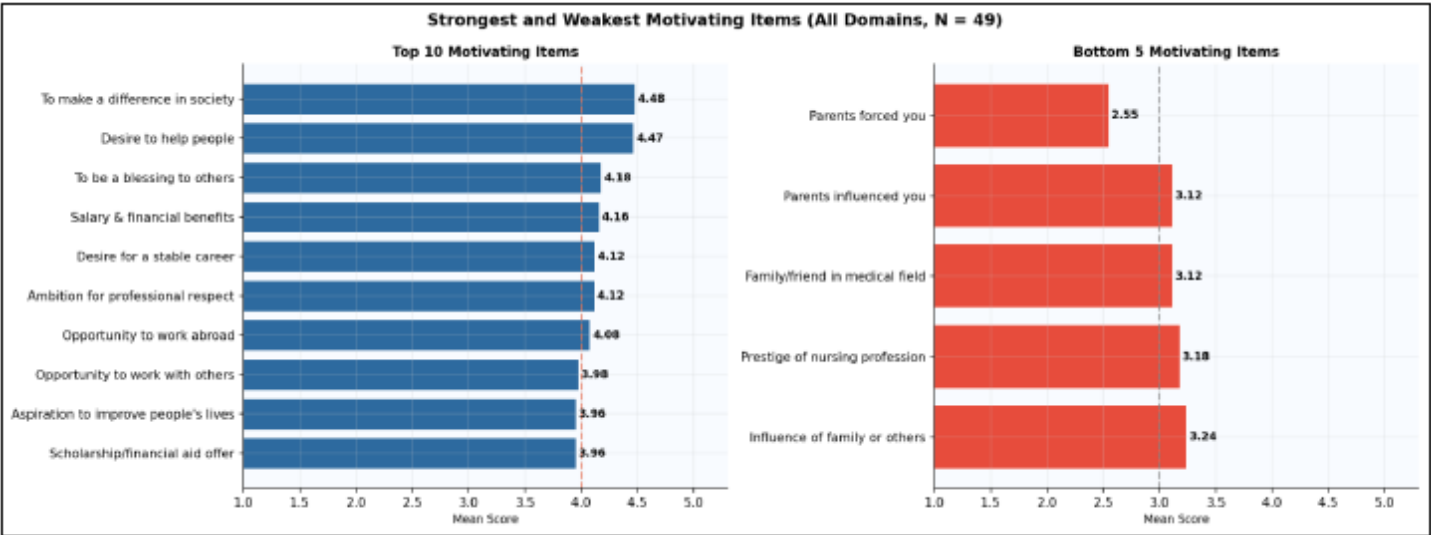


Figure 1: Strongest and Weakest Motivation Factors



Chi-Square Test analyses identified significant demographic differences in nursing career consideration. Older students were significantly more likely to consider nursing careers than traditional college students.

Participants, aged 25-29 and 35-39, demonstrated the highest level of nursing career consideration, while students aged 18-20, showed the lowest rates. Prior nursing or healthcare experience strongly influenced the consideration of nursing careers. Students with nursing or healthcare experience were more likely to consider nursing over those without experience. The Chi-Square test analyses showed no significant differences based on gender, race/ethnicity, income, academic year, employment status, first-generation status, or intention to remain in Middle Tennessee.

Point-Biserial Correlation analyses further clarified which personal motivation factors were most strongly associated with pursuing a nursing career. Intrinsic and clinical motivations demonstrated the strongest positive relationships, particularly the desire to improve lives, work with the sick, and improve the nursing profession. Medical interest and opportunities for collaboration also showed significant positive correlations. Although economic factors such as salary and career stability were highly rated in the descriptive analyses, they did not significantly predict nursing career consideration.

The findings in this study reveal a gap between students stated priorities and the factors that influence career decisions. While financial stability and career security are viewed as important baseline expectations, intrinsic motivations and clinical exposure appear to be the strongest drivers of nursing career consideration. These results suggest that recruitment strategies should focus more on early healthcare exposure and experiential opportunities rather than emphasizing salary or prestige alone.

Discussion

This study examined the factors influencing undergraduate students in Middle Tennessee to consider a career in nursing, with the broader goal of addressing the ongoing nursing shortage in the Mid-Cumberland region. Specifically, the research explored the extent to which personal, social, economic, and professional motivations, as well as demographic characteristics, affect nursing career consideration. Data was collected through a 48-question survey administered to undergraduate students, and responses were analyzed using descriptive statistics, Point-Biserial Correlations, and Chi-Square tests. Findings revealed that economic motivations were the highest-rated factors overall, with career stability and salary receiving the strongest average ratings among respondents. However, despite their importance, these factors did not significantly predict whether a student

would consider pursuing a nursing career. Instead, intrinsic motivations emerged as the strongest indicators of career consideration. Students who expressed a desire to improve lives, help others, and work directly with patients were significantly more likely to consider nursing as a profession.

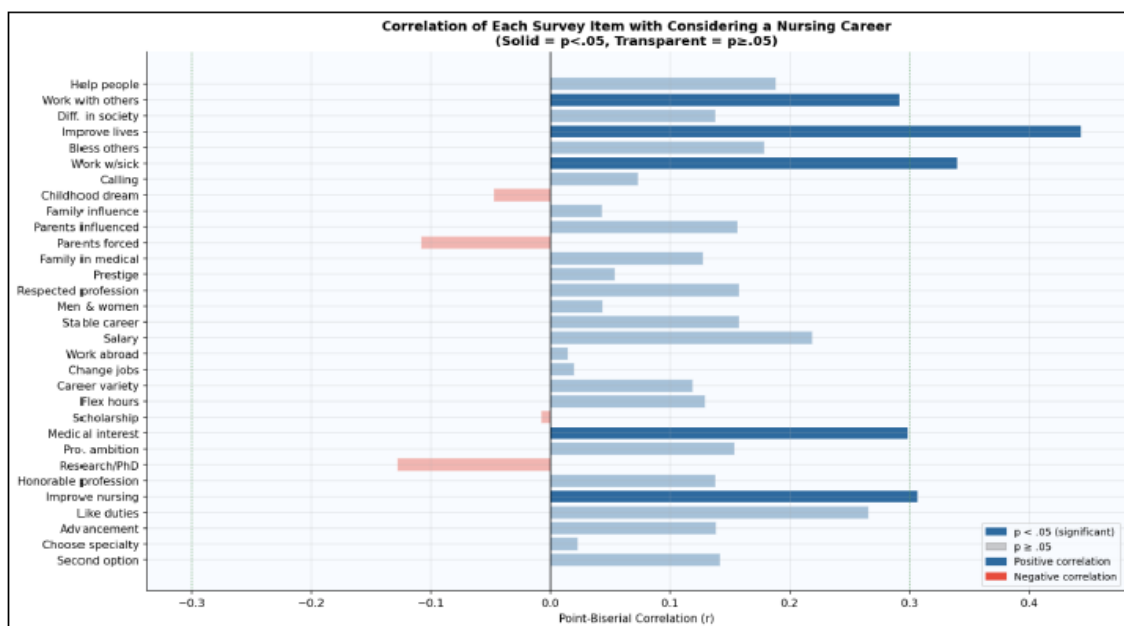


Figure 2: Motivation Factors & Nursing Career Consideration Correlation

These findings align with Self-Determination Theory and Two-Factor Motivation Theory, suggesting that while financial security may make nursing an attractive option, intrinsic and altruistic motivations ultimately drive career decisions.

Demographic variables also played a significant role. Prior healthcare or nursing experience demonstrated a strong association with nursing career consideration. Students with previous exposure to healthcare environments were substantially more likely to pursue nursing than those without such experience. Age was another significant factor, with non-traditional and older students showing greater interest in nursing careers than younger, traditional-aged undergraduates. These results suggest that nursing is increasingly viewed as a deliberate and informed career choice rather than a profession pursued solely through childhood aspirations or preconceived vocational callings.

In contrast, social motivations were the lowest-rated category. Factors such as parental influence, family expectations, and professional prestige received comparatively low ratings and showed little relationship with career consideration. This finding reflects broader trends identified in post-pandemic nursing literature, which suggest that public awareness of workforce challenges, burnout, and occupational stress has diminished the influence of traditional social pressures. Contemporary students appear to evaluate nursing based on personal interests, values, and realistic assessments of workplace demands rather than external expectations.

The study contributes to the existing literature by providing region-specific data on nursing career motivations in Middle Tennessee, an area facing persistent workforce shortages. The findings indicate that recruitment strategies should move beyond emphasizing salary and job security and instead highlight opportunities for patient care, community impact, and meaningful clinical engagement. Furthermore, the results support policies that increase healthcare exposure among younger students and expand pathways for older and second-degree learners entering nursing programs.

Several limitations should be considered when interpreting these findings. The relatively small sample size limits the generalization ability of the results, and the cross-sectional design captures motivations at only one point in time. Future research should utilize larger samples and longitudinal approaches to better understand how motivations evolve throughout educational and professional development. Additionally, combining quantitative surveys with qualitative interviews may provide deeper insight into the motivations driving non-traditional students toward nursing careers.

Conclusion

This study shows that undergraduate students in Middle Tennessee are motivated by a highly pragmatic combination of financial stability and altruistic intent, but their actual entry into the nursing career is determined by clinical exposure, experience, and age. Competitive salary and career stability are basic expectations; however, a motivation for clinical influence and medical interest is the actual catalysts that predict a student's decision to pursue a nursing career. To address the significant nursing shortage in Middle Tennessee, especially the Mid-Cumberland region, recruitment and public policy need to change beyond outdated assumptions of career prestige. Instead, Middle Tennessee institutions need to prioritize providing early clinical exposure and developing career pipelines for older and non-standard students who are most prepared to enter the workforce.

Ciin Kap is an undergraduate political science, pre-law major at Middle Tennessee State University in Murfreesboro, TN.

Sam Zaza, Ph.D., is an associate professor of Information Systems and Analytics at Middle Tennessee State University. She served as the faculty mentor on this project.

¹ Nehring, W. M. (n.d.). A Review of Workforce Data for Tennessee by Region and County-2016.

² Harnois-Church, P. A., Horsley, L., Wilhoit, K. W., & Wei, H. (2024). Addressing the nursing shortage. *Nurse Leader*, 22(3), 317-321. <https://doi.org/10.1016/j.mnl.2023.11.013>.

³ Christianson, J., Bekhet, A., Guttormson, J., Singh, M., & Johnson, N. L. (2024). Why we quit: Relationships between work-related burnout, work rewards, and intention to leave in nursing. *Nursing Economic\$,* 42(1), 7. <https://doi.org/10.62116/nec.2024.42.1.7>



Ciin Kap presenting her research at the scholars program graduation ceremony. Photo by Tom Beckwith.

Middle Tennessee

Business Confidence Index

Still optimistic — with less conviction.

Confidence scored **57.2 out of 100**, down 2.9 points from Q1. National CEO confidence fell much harder — 12 points, to 47 — leaving Middle Tennessee **10.2 points ahead** of the national benchmark.

BUSINESS CONFIDENCE INDEX

Middle Tennessee

57.2

▼ 2.9 from 60.1 in Q1

CONFERENCE BOARD INDEX

National

47.0

▼ 12.0 from 59.0 in Q1

0 50 neutral 100

Q2 2026 positions · [see both quarters plotted](#)

Launching the Business Confidence Index

The Nashville Area Chamber of Commerce and Middle Tennessee State University's Business and Economic Research Center (BERC) recently launched the Middle Tennessee Business Confidence Index (BCI), a quarterly survey designed to measure the outlook of businesses across the region. The index serves as a new economic indicator that provides policymakers, business leaders, and community stakeholders with insight into current business conditions and expectations for future growth. By establishing a consistent benchmark for business sentiment, the BCI offers a valuable tool for monitoring regional economic performance and identifying emerging trends that may affect long-term competitiveness.

The inaugural survey reported an overall score of 60.1 on a 100-point scale, indicating a positive outlook among regional business leaders and placing Middle Tennessee slightly ahead of the national CEO Confidence Index. Respondents expressed strong confidence in current business conditions, particularly regarding sales, profitability, and overall business activity. These findings suggest that businesses continue to benefit from the region's strong economic growth, population increases, and diverse industry base. While optimism remained positive regarding future performance, respondents also expressed greater caution about economic uncertainty and external factors that could influence future investment and expansion decisions.

Growth Opportunities and Structural Challenges

Although the overall outlook remains favorable, the survey identified several structural challenges that could affect Middle Tennessee's future economic growth. Housing affordability emerged as one of the region's

most significant concerns, reflecting growing difficulties in attracting and retaining workers as housing costs continue to rise. Business leaders increasingly view housing not only as a social issue but also as an economic development concern, as workforce availability is closely tied to access to affordable housing near employment centers.

The survey also highlighted concerns related to infrastructure capacity, operating costs, and regulatory uncertainty. As Middle Tennessee continues to experience rapid growth, transportation networks, utilities, and public services face increasing pressure to keep pace with demand. Tax and regulatory policy received the lowest ratings among survey categories, indicating apprehension about how future policy decisions could affect business operations, costs, and investment strategies. These concerns underscore the importance of coordinated planning between the public and private sectors to ensure that growth remains sustainable.

Despite these challenges, the report paints a picture of a resilient regional economy. Strong consumer demand, continued business expansion, and a favorable business climate continue to support confidence among employers. As the Business Confidence Index is administered on a quarterly basis, it will provide an important resource for tracking how issues such as housing affordability, infrastructure investment, workforce development, and public policy influence Middle Tennessee's economic competitiveness. Over time, the index may help guide decision-makers as they work to balance growth opportunities with the structural challenges accompanying one of the nation's fastest-growing regions.

GET INVOLVED

Help shape the Q3 2026 index.

The Business and Economic Research Center at Middle Tennessee State University runs the Middle Tennessee CEO Panel every quarter. If your company would like to be part of the next survey panel, share data, or collaborate on research, we'd love to hear from you.

Direct inquiries to **Dr. Murat Arik**, Director, Business and Economic Research Center.

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— MODERATOR —

A Forum on

Growth and Challenges in Middle Tennessee

Benjamin Goad

The Tennessean

Michael Skipper

*Greater Nashville
Regional Council*



CUMBERLAND
REGION
TOMORROW
creating a better region together



GREATER
NASHVILLE
REGIONAL
COUNCIL



MIDDLE
TENNESSEE
ECONOMIC
DEVELOPMENT
improving lives



Southern
Bancorp

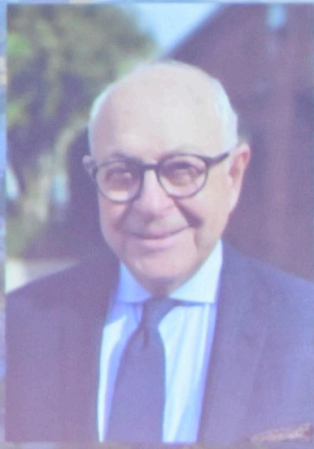


MAYORS PANEL



Shane McFarland

Mayor,
Murfreesboro, TN



Ken Moore

Mayor,
Franklin, TN



David Morgan

County Executive,
Lawrence County, TN

southern
ancorp



The Forum on Growth and Regional Challenges at Middle Tennessee State University brings together leaders and community members to explore the dynamics of growth in one of the fastest-expanding regions of the United States. This year's forum featured a mayoral panel centered on (Insert Topic) in the middle Tennessee region. The panel was moderated by Benjamin Goad, executive editor of the Tennessean, and the panelists included Michael Skipper, executive director of the Greater Nashville Regional Council; Shane McFarland, mayor of Murfreesboro; Ken Moore, mayor of Franklin; and David Morgan, County Executive for Lawrence County.



Stephaine Coleman (Left), David Morgan, Paul Martin, Alan Thompson, Murat Arik, Benjamin Goad, and Michael Skipper at Middle Tennessee State University for the Forum on Growth and Regional Challenges. Photo by Tom Beckwith.

We have explosive growth throughout our region, but growth alone does not guarantee competitiveness. - Sidney McPhee, President of MTSU,

What are the gaps between the growth and ensuring the economic competitiveness that the region is looking for?

Mayor McFarland: Tennessee's low-tax environment is a significant driver for industry, but more importantly individuals are looking at the quality of life within their community, including traffic, crime, and education, which is often overlooked. In Murfreesboro, we have MTSU and we want to focus on the partnership we have and want to have with the university. Industries looking to come, while they do have an existing workforce, they are looking at where their next employees come from. Luckily, with 20,000 students that is something we want to emphasize.

Mayor Moore: Franklin and Williamson County have been competitive for industry headquarters for a while now. We attribute our competitiveness to the quality of life, very low taxes, and an educated workforce. The most important item in our calling cards for our county is the high-quality education system that we have and that we have attracted a very, very talented workforce in our community for these companies that want to relocate.

Michael Skipper: In terms of the question around gaps, one of the things that we look at long-term, based on some recent experiences, is making sure that there isn't a growing gap between where people live and where jobs are. The pressure that puts on the transportation system and the infrastructure needed to support those long commutes is something we have to keep our eye

on. As we continue to create jobs across the region, we need to be mindful of how easy - or difficult - it is for people to live close to those jobs.

Workforce readiness emerged as a recurring theme throughout the panel. What strategies are you employing to attract and retain the workforce needed to support your community's growth?

David Morgan: One of the big things for us that's helped is the coordinated effort across the board. In our high-schools, we have allowed TCAT programs to come in and take over the traditional vocational programs that were in place when I was a student back in the 90s. By putting TCAT teachers in there, it saves us money from the school's budget. It puts in a qualified professional teacher in that room and our students are graduating with the certifications they need to enter the workforce making above the average living wage in Lawrence County.

Mayor Moore: I love what David's said about collaboration. I think that's one thing we found in our county and it's very important to have those working relationships with the county commission and with other cities. Not every county in their state and not every city in those

counties get along with each other, One thing, that companies looking to relocate look at, is how well the county commissions get along, because they're going to have to navigate that process if they are going to relocate there. If there is discord and arguments all the time, why would they want to fool with that when they can go someplace else.

Mayor McFarland: Mayor Moore and David bring up good points, but I think there are a lot of times we focus on new businesses that come in, but we have all these small businesses that our communities often forget about. I think in addition to recruiting new businesses is making sure we retain our small businesses and make it easier to deal with the government. You want to make sure when they come to your city to do business, it's easy, it's fast, and more importantly thrive in your community.

Housing affordability is an issue that impacts everyone in this room. Can you speak on growth and workforce housing that impact housing affordability and how the overall quality of life is impacted in your communities?

Michael Skipper: The biggest issue that we see in the work we do across the region is the ability of communities, city, and county governments, who are trying to entitle more density and multi-family development, and us running into difficulties with pre-existing residents who don't want to approve the change in land policy because they're afraid of that density. Rather than dismissing their concerns on density, we really have to tackle some of the issues associated with density that people don't like. The only way to make homes more affordable in Middle Tennessee and the places where jobs are located is to get more out of the land.

How are you all managing infrastructure investments and what innovations can be used to prove effective in tackling burdens these investments may bring?

Mayor Moore: In Franklin, we have a lot of density, but we've chosen as we allow density, to also make sure that we're preserving land. For example, we have a concept called Village Green, where 70% of that development is left open and the remainder is used for density. In Franklin we have impact fees and we expect the developer to put the infrastructure in to support what they're going to do. We are creating that financial mechanism for developers to pay for the bulk of what it costs for them to impact our community.

Mayor McFarland: We have impact fees in Murfreesboro, but all of that goes into the affordability mecha-

nism. Our biggest complaint is why was the infrastructure not in place first and like Franklin, we hope the developer pays for the majority of that infrastructure. TDOT has shifted more of the financial responsibility to local governments, requiring municipalities to cover a larger share of the project costs. One thing as a municipality that our residents are going to have to understand is that it's a pay-to-play, and we're going to have to be able to invest more money into state roads to secure funding.

David Morgan: One of our biggest challenges is that, Lawrence County has over a thousand miles of county roads. We are fourth or fifth in the state for the amount of road miles that are just county roads. A huge issue for us is there's never enough funding to go around to be able to keep up with the road mileage and the needs that Lawrence County has. Franklin and Murfreesboro have impact fees, but Lawrence County is not allowed by state law to implement an impact fee, because our growth rate was not high enough. Every county in the state should have that opportunity. If the local legislative body wants to enact impact fees in a county to let the growth pay for the growth or help pay for the growth, then we should have the prerogative to do that in our local elected body.

Mayor Moore: We have a funding issue in our state, and it can't all be pushed down on our local communities, because we have to tax our citizens to be able to raise that type of money. Transportation funding is a huge issue that we all need to be talking to our legislators about. You can see that the need is so much greater than what our revenue stream is.



Mayor Shane McFarland at Middle Tennessee State University for the panel Forum on Growth and Regional Challenges.

Photo by Tom Beckwith.

We talk about regional prosperity, but population growth and general growth do not hit communities the same. What does inclusive regional growth look like and what does it entail?

Mayor Moore: If we talk about growth, it is important to talk about regionalism. When a company looks at our communities, they're looking at the region. They don't care where the county line is or where a river runs, but they know that their people are going to be dispersed throughout the region.

Michael Skipper: In the policy arena, we tend to oversimplify the conversation about urban versus rural, thinking it's all sort of the same for the challenges that we're addressing. But there really are multiple contexts for some of the challenges that we're talking about that require unique approach to address the problems that are associated with them.

What do you all see as the biggest opportunities and biggest barriers to meaningful collaboration in Middle Tennessee?

Mayor Moore: I think the real opportunities are exactly what the Lieutenant Governor talked about today. We've created a great business environment in our state, our county, and our cities, so that's a huge opportunity. The headwinds are housing and transportation. Eventually, if we don't continue to develop our workforce, it'll be our workforce.



David Morgan and Ken Moore presenting at the Forum on Growth and Regional Challenges. Photo by Tom Beckwith.

David Morgan: One of the barriers is that none of us can predict if we're going to be in these roles very long. Our commission flips every four years. Representatives get voted in and out too. So being able to do long-term strategic planning is a challenge because you may put something together on paper and it looks great, but the next administration comes in and scrubs it. More state-led projects would help us regionally.

Mayor McFarland: I do think as we talk about regional solutions, we talk about this as a city. There is no one in our community better than the people who live here. At the end of everything we talk about, local decisions should be made at the local level. I think overall regional discussion has to be, how can we participate together without putting the burden completely on one county or one municipality.

Looking ahead ten years, what is the single most important issue we need to address now to ensure that Middle Tennessee remains one of the most competitive regions in the country?

Mayor McFarland: Ten years from now, there has to be a better way to do the infrastructure than we're doing it right now.

Mayor Moore: I am going to go one step further. I think we are not using enough imagination on how we're going to solve the problems that face us over the next ten years. I think we have to be much more imaginative and much more creative going forward.

Michael Skipper: Whatever we do, we need to do it with intention, think about the long term, and just make sure it is the best way we can do something. I think that will allow us to stand out against our competitors if we are a place that people want to live.

Closing Remarks

Mayor McFarland: The good news is that we are sitting here talking about growth and we're not sitting here talking about, we're living in a dying community. There is a lot of good things that are happening in our region and our community. We cannot focus on all the bad things all the time. There is a lot of good things happening in all of these areas.

David Morgan: There's a reason why people are moving to Tennessee. It's a great place to live and I am always thankful to come home to this beautiful place.

The upcoming Forum on Growth and Regional Challenges is on **March 19, 2027**. Registration opens January 2027. Scan for more information!





THE SCHOLARS PROGRAM RESEARCH

The Adaption of Seoul's Apartment Model in Nashville, Tennessee

Chloe N. Waters

Nashville's housing shortage is not only a question of supply; it also raises questions of design, livability, and the type of *urban* environment the city seeks to create. This research examines how apartment-based models in Seoul, Korea, may inform housing development in Middle Tennessee. Using a comparative case study, the research draws on Korean policy documents, housing scholarship, architectural case studies, and local Nashville reporting to identify elements of Seoul's model that could be adapted to Nashville's decentralized, automobile-oriented context.

Background

Nashville and the broader Middle Tennessee region have experienced substantial population growth over the past two decades, placing an increasing pressure on the region's housing market. Rising home prices, rents, and limited affordable units have made housing less accessible for lower- and middle-income residents. With median home prices exceeding \$450,000 and only 32 affordable rentals available per 100 extremely low-income households, Nashville's housing shortage represents more than a temporary imbalance between supply and demand.¹ It is also connected to land use, development patterns, affordability, and the types of residential environments being created as the region grows.

Nashville's development has been shaped by single-family housing, automobile dependence, and decentralized growth. While these characteristics contribute to the city's identity, they also limit opportunities to increase housing capacity with established communities. However, resistance to density often reflects concerns about neighborhood character, privacy, infrastructure, and quality of life. This creates an important design question: How can Nashville increase housing density while maintaining livable and socially connected residential environments?

Seoul, South Korea, provides a useful comparison because rapid urbanization led to widespread apartment-based housing. During the second half of the twentieth century, Seoul responded to population growth through large-scale apartment complexes that included courtyards, playgrounds, community facilities, and internal circulation. These developments function as broader residential environments rather than a collection of individual units.

Research on Korean housing suggests that this organization influences residents' social relationships. The *Korean Apartment Complexes and Social Relationships of the Residents* study states that "the socio-spatial characteristics of apartment housing have impacts on the social relationships among the residents".² The research identifies complex design, spatial configurations, shared community facilities, building height, housing types, and community programs as factors influencing residents' social relationships.

However, Seoul also demonstrates that density alone does not guarantee social connection. The *Spatially Neighborhood and Socially Non-Neighborhood* cautions that apartment connections can become physically connected while remaining detached from their surrounding communities.³ This distinction is relevant to Nashville, where resistance to multifamily development often centers on concerns about isolation and neighborhood disruption.

Ultimately, Seoul suggests that Nashville can address housing shortages through carefully designed mid-rise, transit-orientated development with shared amenities and strong connections to existing neighborhoods. The goal should not be to reproduce Seoul's model, but adapt its successful principles to Nashville's cultural and spatial context.

Methodology

This study used a qualitative, comparative case study design to look at two housing systems in Seoul, South Korea, and Nashville, Tennessee. The methodology was selected to support an in-depth comparison of spatial organization, cultural meaning, and material impact, while avoiding the assumption that one model is better than the other. Instead, the analysis focused on identifying which aspects of Seoul's apartment system could be adapted to Nashville's more decentralized, car-oriented context while respecting local expectations for residential space and community.

Data was sourced from five primary source categories; scholarly literature on Korean urban development and housing, Korean and Seoul Metropolitan Government policy documents, architectural case studies and design literature, archaeological and material culture scholarship, and Nashville policy documents and local reporting. Together, these sources provided both macro-level context and micro-level detail, making it possible to compare Seoul and Nashville in a way that is broad and specific.

The analysis was organized around four experiential and spatial lenses: (1) Circulation and thresholds, examining how residents move between private and public spaces; (2) Domestic comfort, including light, ventilation, spatial hierarchy; (3) Shared programming, focusing on amenities and community facilities; and (4) Material memory, considering how housing reflects cultural values through form and materiality. Seoul's *danji* apartment complexes and Nashville's single-family residential patterns were examined through these categories.

The final analytical stage focused on contextual adaption. Rather than directly transferring Seoul's high-density model, the study evaluated how selected principals, such as shared amenities, pedestrian circulation, and integrated community spaces, could be translated to Nashville's car-oriented infrastructure and cultural preference for private residential space. An audit trail documented major design interpretations and their supporting evidence. Limitations include the absence of resident interviews, on-site observations, detailed material cost data, and quantitative spatial measurements.

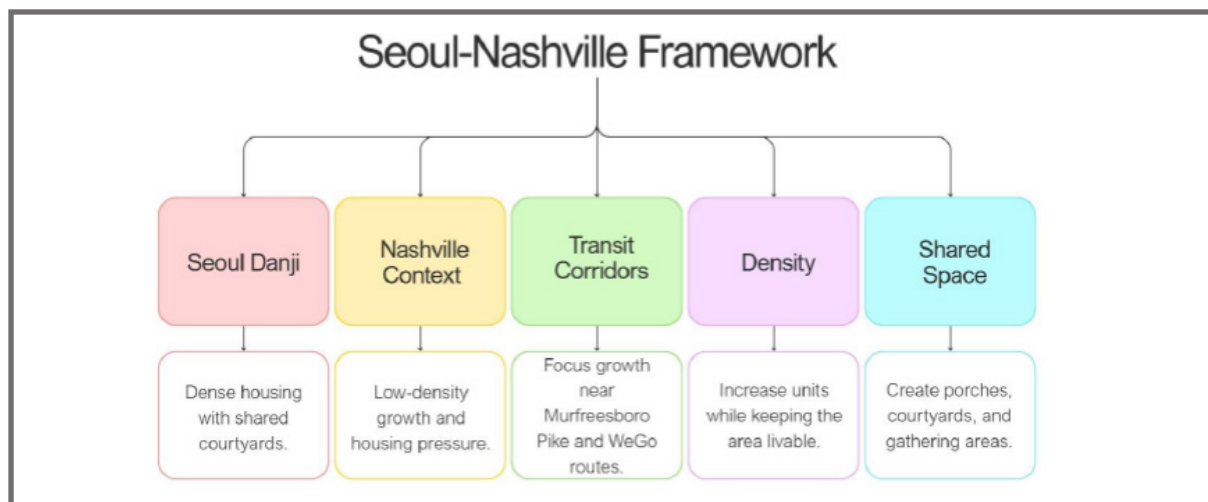
Consequently, findings should be seen as an initial qualitative interpretation, requiring further material investigation, rather than a comprehensive evaluation of resident experience and housing feasibility.

Findings

The comparative analysis reveals distinct patterns between Seoul and Nashville, while highlighting opportunities for selective adaptation. Organized thematically according to the study's four analytical lenses, the findings demonstrate that Seoul's apartment model functions effectively because density is supported by institutional coordination, infrastructure, and spatial programming. Nashville's fragmented governance, limited transit infrastructure, and strong cultural preference for single-family homes create significant adaption challenges that require spatial and cultural translation rather than direct importation.

From a circulation and threshold perspective, Seoul organizes residential density around corridors as "organizing spines for urban form." *Danji* apartment complexes integrate housing with transit, childcare, retail, and community facilities, often placing daily needs within approximately 300 meters of residents. Nashville, however, remains automobile-dependent with virtually no rail capacity and limited bus transit. Although WeGo transit improvements may create opportunities long corridors like Murfreesboro Pike and Charlotte Avenue, current infrastructure does not support Korean-scale transit-oriented density. New housing developments therefor should prioritize existing and planned transit corridors rather than dispersed suburban development.

Domestic comfort and shared programming further distinguish the two contexts. Seoul demonstrates that high-density housing can directly strengthen resident relationships. Nashville lacks equivalent programming, and public discourse associates high-rise development with social isolation and infrastructure strain rather than community potential. A transitional model of four-eight-story mid-rise housing could respond to this gap through shared 'super porches', community kitchens, playgrounds, co-working spaces, and visible terraced landscapes while maintaining Southern privacy expectations with density benefits.



Additionally, the comparison between these two models reveals major institutional and economic differences. Seoul's centralized planning authority enables land re-adjustment scheme, redevelopment acts, and public-private coordination, producing large-scale complexes efficiently. Nashville's fragmented governance and land markets limit comparable approaches. However, corridor-specific incentives, tax increment financing, density bonuses, and regional housing coordination could encourage larger connected developments.

Conclusion

This study argues that Seoul's high-density apartment model offers valuable lessons for Nashville's housing affordability crisis, but direct replication remains unfeasible due to profound differences in governance, infrastructure, cultural preferences, and land markets. Instead Nashville, can adapt Seoul's spatial strategies, like efficient circulation, shared amenities, daylight strategies, and community programming, to create livable density.

As an Interior Architecture major, the strongest approach is mid-rise development of 4-8 stories along Nashville's existing transit corridors such as Murfreesboro Pike, Charlotte Avenue, and Nolensville Pike. Features such as daylit corridors, shared southern-style porches, rooftop gathering areas, screened play spaces, community kitchens, and connections to green space could translate Seoul's communal design principles into forms that reflect Nashville's culture.

An archaeological perspective reinforces this design emphasis by framing housing as enduring material culture that encodes societal values for future generations. Nashville can either continue automobile-oriented suburban sprawl or create new legacy of adaptive density that balances growth with southern identity.

Successful implementation requires three conditions: coordinated transit-oriented zoning and land banking, strong spatial design standards, and cultural adaptation. Future research should examine resident behavior, construction costs transit expansion, zoning changes, and community preferences. Ultimately, Nashville possesses the capacity to transform the housing crisis into sustainable urban evolution through spatially intelligent adaption rather than wholesale imitation.

Chloe N. Waters is an undergraduate interior design major at Middle Tennessee State University in Murfreesboro, TN.

Steven Livingston, Ph.D., is a professor of Political and Global Affairs at Middle Tennessee State University. He served as the faculty mentor for this project.

¹ Affordable Housing Task Force. (2025). *Nashville Affordable Housing Task Force Report*. Nashville Metro Government.

² Korean Apartment Complexes and Social Relationships of the Residents. (2022). *University of Washington Research Repository*.

³ Spatially Neighborhood and Socially Non-Neighborhood. (2023). *Journal of Asian Architecture and Building Engineering*.





Infrastructure

The Backbone of Tennessee's Economic Competitiveness

Cliff Lippard, Ph.D.



Cliff Lippard is the executive director of the Tennessee Advisory Commission on Intergovernmental Relations (TACIR), a state agency that serves as a bipartisan forum for discussing and resolving intergovernmental problems. With over twenty-five years of experience researching and analyzing public policy, Cliff is responsible for assisting the commission's twenty-five members in setting the organization's strategic direction and for supervising the staff's public policy research. He is also an adjunct associate professor at Wake Forest University, where he teaches courses on public policy, research methods, and fiscal administration, and an adjunct in the Master of Public Administration program at Tennessee State University.

For more than three decades, the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) has tracked the state's infrastructure needs through its Public Infrastructure Needs Inventory. During a recent presentation, TACIR Executive Director Dr. Cliff Lippard highlighted the findings of the newest inventory and explained why infrastructure remains one of the most important factors influencing Tennessee's economic future.

Building Tennessee's Tomorrow - Insights from TACIR's Infrastructure Needs Report

Every year, the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) publishes its Public Infrastructure Needs Inventory, a comprehen-

sive assessment of the state's infrastructure requirements. TACIR defines infrastructure as capital facilities and physical assets—including transportation networks, utilities, schools, and public buildings—that support economic development and enhance quality of life. The inventory includes projects that are conceptual, in the planning and design phase, or currently under construction. Although state and local governments report infrastructure needs extending up to twenty years into the future, TACIR's published analysis focuses on a five-year planning horizon, providing policymakers and stakeholders with a practical framework for assessing immediate and near-term infrastructure priorities.



The newly approved report identifies approximately \$82.6 billion in public infrastructure needs across Tennessee between July 2024 and June 2029. While headlines often portray rising infrastructure costs as evidence of neglect or growing backlogs, Lippard argued that increasing infrastructure needs are often a sign of economic success. As Tennessee's population grows and communities expand, demand for roads, schools, utilities, and public services naturally increases. Infrastructure, therefore, becomes both a consequence and a driver of economic development. Industrial parks and business districts cannot attract investment without supporting systems such as transportation networks, schools, utilities, and public facilities.

Where the Need Lies - Infrastructure Categories and Sub-Categories

Transportation remains Tennessee's largest infrastructure category, accounting for \$42.7 billion in identified needs. Education follows at nearly \$20 billion, while health, safety, and welfare infrastructure—including water and wastewater systems—represents almost \$13 billion. Although projects specifically categorized as economic development account for less than one-half of one percent of total needs, Dr. Lippard emphasized that all infrastructure contributes to economic development.

Examples from the inventory illustrate the broad scope of these investments. Projects range from streetscape improvements in Knoxville and bridge construction

in Hardin County to sewer expansions, new schools in Tullahoma, and major school renovations in Nashville. At Middle Tennessee State University alone, identified infrastructure needs total more than \$756 million, demonstrating how higher education institutions also rely heavily on long-term infrastructure planning. One recurring trend highlighted during the presentation is the steady increase in infrastructure costs. While inflation explains part of the growth, Dr. Lippard noted that construction materials and transportation-related expenses have risen faster than overall inflation, placing additional pressure on state and local governments. Even when adjusted for inflation, infrastructure needs continue to trend upward, reflecting both population growth and an increasing demand for public services.

Analysis of Infrastructure Trends and Growth Patterns

TACIR's analysis also reveals a strong relationship between local wealth and infrastructure capacity. Counties with larger tax bases, higher incomes, and greater populations tend to report more infrastructure needs, but they are also more likely to complete projects because they possess greater financial resources and stronger access to grants and funding opportunities. This creates a significant challenge for rural communities, many of which face substantial infrastructure needs despite having fewer resources available to address them.



You cannot have economic development or economic competitiveness without infrastructure.

Dr. Lippard's presentation emphasized that infrastructure needs are not limited to Tennessee's largest metropolitan areas. While rapidly growing counties such as Rutherford, Davidson, Williamson, and Knox report substantial needs, some smaller rural counties face even higher infrastructure costs on a per-capita basis. Investments that may appear modest from a statewide perspective can have transformative economic impacts for smaller communities, particularly those seeking growth through tourism, recreation, and heritage-based development.

One recurring trend highlighted during Dr. Lippard's presentation is the steady increase in infrastructure costs. While inflation explains part of the growth, Dr. Lippard noted that construction materials and transportation-related expenses have risen faster than overall inflation, placing additional pressure on state and local governments. Even when adjusted for inflation, infrastructure needs continue to trend upward, reflecting both population growth and increasing demand for public services.

Discussion

Audience discussion expanded the conversation beyond the inventory itself. Questions addressed disaster recovery following Hurricane Helene, public-private partnerships, transportation funding, and comparisons with neighboring states. Lippard noted that future reports will likely reflect increased infrastructure needs resulting from storm damage, particularly transportation-related projects in East Tennessee. He also discussed an ongoing TACIR study examining transportation funding options and whether Tennessee's traditional "pay-as-you-go" model remains sufficient to meet growing infrastructure demands.

Throughout the presentation, Lippard repeatedly returned to a central theme: infrastructure planning is fundamentally about connecting communities to opportunity. The inventory helps local governments prioritize projects,



Audience engagement during Dr. Cliff Lippard's presentation on Infrastructure. Photo by Tom Beckwith.

identify funding opportunities, and communicate needs to policymakers. It also provides one of the state's most comprehensive sources of information on school facilities, transportation systems, water infrastructure, and other public assets.

Conclusion

Dr. Cliff Lippard concluded his presentation with a reminder that infrastructure should be viewed not simply as physical construction but as an investment in Tennessee's future. Roads connect workers to jobs, utilities support businesses, schools develop human capital, and public facilities enhance quality of life. As Tennessee continues to grow, strategic infrastructure investment will remain essential for maintaining economic competitiveness, supporting regional development, and ensuring prosperity for communities of every size.

Rail Infrastructure and Regional Competitiveness

Marco Guanchez

Middle Tennessee, particularly the Nashville metropolitan area, has experienced significant population and economic growth, increasing strain on its transportation network. Rising traffic congestion, longer commute times, and limited public transit options have reinforced the region's dependence on automobiles. Transportation infrastructure is critical to workforce mobility and economic competitiveness, influencing access to jobs and labor markets. Unlike regions with established rail systems, Middle Tennessee lacks comprehensive rail infrastructure, raising concerns about the long-term sustainability of its growth. This study examines how the absence of rail transit affects workforce mobility and regional economic performance through a comparative analysis of Nashville and a similar metropolitan region with rail access.

Background

Research consistently demonstrates a strong relationship between transportation access, workforce mobility, and regional economic performance. Improved transit access expands the range of jobs workers can reach within a reasonable commute, increasing labor market efficiency and strengthening economic competitiveness. Tomer (2012) found that many U.S. metropolitan areas provide limited job accessibility through transit, restricting connections between workers and employers.¹ Likewise, Sanchez, Shen, and Peng (2004) emphasized that employment outcomes depend not only on transit availability but also on travel time, service reliability, and the geographic distribution of jobs.²

Studies on rail transit suggest that fixed-route systems can significantly improve job accessibility and economic outcomes. Fan (2010) found that light rail systems increased access to employment opportunities, particularly for low-wage workers, while Fan, Guthrie, and Levinson (2020) linked transit investments to broader benefits such as regional economic growth, increased employment, and improved accessibility. Transportation access also affects employers by ex-

panding the available labor pool and improving workforce recruitment and retention.³

The literature further highlights the importance of integrating transit investments with land-use planning to maximize benefits. Despite extensive research on transportation and accessibility, limited attention has been given to rapidly growing, medium-sized regions like Middle Tennessee. This gap underscores the need to examine how rail infrastructure could influence workforce mobility and economic competitiveness in a highly car-dependent region.



Marco Guanchez presenting his research at the scholars program graduation ceremony. Photo by Tom Beckwith.

Methodology

This study uses a qualitative comparative case study approach to examine how the absence of rail infrastructure affects workforce mobility in Middle Tennessee. The focus is on the Nashville metropolitan area, a rapidly growing region that relies heavily on automobile transportation and has limited public transit options.



To provide context, Middle Tennessee is compared to a similar U.S. metropolitan region with an established rail system, such as Atlanta. This comparison helps highlight differences in accessibility, connectivity, and workforce mobility between regions with and without rail infrastructure.

The study relies on secondary data sources, including regional transportation plans, census data, and existing academic literature on transit accessibility and labor markets. Key concepts such as “commute shed” expansion and spatial accessibility are used to evaluate how transportation systems influence the ability of workers to reach employment opportunities.

Rather than conducting primary data collection or statistical modeling, this research uses qualitative analysis to interpret existing information and identify patterns related to workforce mobility. This approach allows for a practical understanding of how transportation limitations affect job accessibility and regional economic competitiveness.

Findings

Evidence from existing research and regional planning reports suggests that Middle Tennessee is experiencing increasing transportation constraints as population and economic activity continue to grow. The Nashville metropolitan area remains highly dependent on automobile travel, and congestion along major corridors such as I-24 and I-65 has reduced travel reliability and increased commute times. Regional planning documents, such as the GNRC Unified Transportation Plan, identify congestion and limited transit options as ongoing challenges for the region.⁴

Studies on transit accessibility show that limited transportation options reduce the number of jobs workers can reach within a reasonable commute time. In Middle Tennessee, the absence of a regional rail system restricts the effective “commute shed,” particularly for workers living in suburban areas such as Murfreesboro, Gallatin, and Clarksville. As a result, workers face

longer and less predictable commutes, which limits access to employment opportunities and reflects a spatial mismatch between residential areas and job locations.⁵ As shown in Figure 1, transit coverage rates vary significantly across U.S. metropolitan areas, with many Sun Belt cities — including those like Nashville — falling in the lowest coverage category. An idealistic upgrade—it is a rational economic response for a region experiencing rapid growth, rising land prices, and strained capacity.

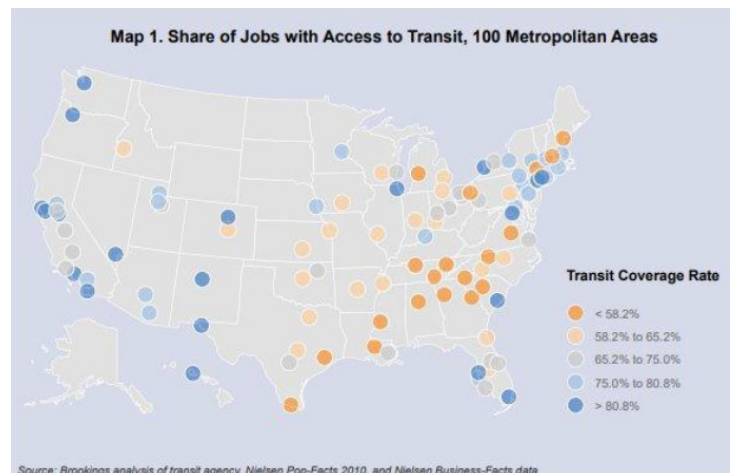


Figure 1: Share of Jobs with Access to Transit, 100 Metropolitan Areas (p. 5), by A. Tomer, 2012, Brookings Institution.

Research also indicates that transit investments, particularly rail systems, can improve job accessibility by expanding connections between residential areas and employment centers. For example, studies have shown that improved transit systems increase the number of jobs accessible within standard commute times and enhance overall labor market efficiency.⁶ These findings suggest that regions with more developed transit networks provide greater workforce mobility. Figure 2 illustrates that transit job coverage varies across industry sectors, with finance, high-skill services, and public administration among those with the strongest coverage in transit-served metros.

In comparison, metropolitan regions with established rail systems, such as Atlanta, demonstrate stronger connectivity between residential areas and employment centers. Rail infrastructure allows workers to access a broader range of job opportunities without relying entirely on congested highway systems. This increased accessibility supports more efficient labor market connections and improves overall workforce mobility.

Overall, the findings suggest that the absence of rail infrastructure in Middle Tennessee limits workforce mobility by reducing job accessibility and increasing dependence on congested road networks. Compared to rail-enabled regions, this limitation indicates a less efficient connection between workers and employment opportunities across the metropolitan area.

Discussion and Conclusion

This study examined how the absence of a regional rail system affects workforce mobility and economic competitiveness in Middle Tennessee. The findings indicate that the region's heavy dependence on automobiles, combined with increasing traffic congestion, creates significant barriers to efficient workforce movement. As commute times become longer and less predictable, workers face greater challenges accessing employment opportunities across the region.

Transportation infrastructure plays a critical role in connecting workers to jobs. In Middle Tennessee, both housing and employment centers are geographically dispersed, yet the lack of a comprehensive rail network limits efficient connections between them. This reduces labor market accessibility and may hinder overall economic productivity. Comparisons with metropolitan areas that have established rail systems, such as Atlanta, demonstrate how rail transit can provide reliable transportation options, expand access to employment opportunities, and strengthen connections between workers and employers. Existing research supports these findings, showing that improved transit systems enhance accessibility and contribute to stronger labor market performance.

However, the study also recognizes that rail infrastructure alone is not a complete solution. The success

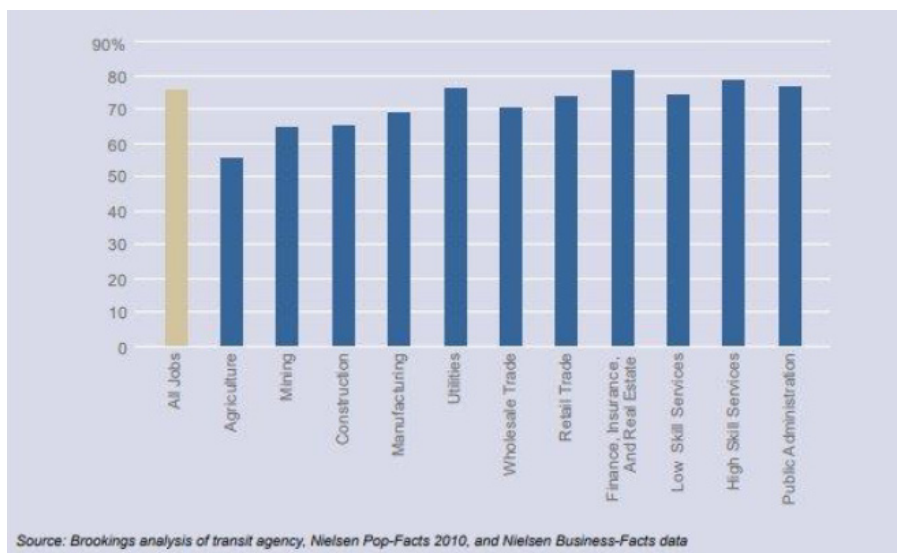


Figure 2: Transit Job Coverage by Industry, 100 Metropolitan Areas (p. 8), by A. Tomer, 2012, Brookings Institution.

of rail systems depends on factors such as station placement, integration with land-use planning, and effective first- and last-mile transportation connections. Without these supporting elements, the benefits of rail investment may be diminished.

Overall, the findings suggest that the absence of rail infrastructure limits workforce mobility and may reduce Middle Tennessee's long-term economic

competitiveness. While rail transit should be viewed as one component of a broader transportation strategy, its development could improve regional accessibility, expand employment opportunities, reduce congestion pressures, and support sustainable economic growth as the region continues to expand.

Marco Guanchez is an undergraduate global studies and human geography major at Middle Tennessee State University in Murfreesboro, TN.

Ugur Orak Ph.D., is an associate professor of Sociology and Anthropology at Middle Tennessee State University. He served as the faculty mentor on this project.

¹ Tomer, A. (2012). Where the jobs are Employer access to labor by transit. Brookings Institution.

² Sanchez, T. W., Shen, Q., & Peng, Z.-R. (2004). Transit mobility, jobs access, and low-income labor participation in U.S. metropolitan areas. *Urban Studies*, 41(7), 1313–1331.

³ Fan, Y. (2010). How light rail transit improves job access for low-wage workers (CTS Research Brief 2010-02). Center for Transportation Studies, University of Minnesota; Fan, Y., Guthrie, A., & Levinson, D. (2020). Transitway impacts on regional economic development: Evidence from U.S. metropolitan areas. University of Minnesota.

⁴ Greater Nashville Regional Council. (2020). Unified Transportation Plan 2050.

⁵ Sanchez, T. W., Shen, Q., & Peng, Z.-R. (2004). Transit mobility, jobs access, and low-income labor participation in U.S. metropolitan areas. *Urban Studies*, 41(7), 1313–1331; Tomer, A. (2012). Where the jobs are Employer access to labor by transit. Brookings Institution.

⁶ Fan, Y., Guthrie, A., & Levinson, D. (2020). Transitway impacts on regional economic development: Evidence from U.S. metropolitan areas. University of Minnesota.

Building Tennessee's Future

Innovation, Investment, and Regional Growth

Presented by Commissioner Stuart C. McWhorter

Deputy Governor and Commissioner, Stuart McWhorter, addressed more than three hundred attendees at MTSU's Forum on Growth and Regional Challenges. Commissioner McWhorter emphasized, at the beginning of his presentation, that Tennessee is at a pivotal point in its economic development and that decisions made today will shape the state for decades to come. Reflecting on 2025, Commissioner McWhorter described it as a record-setting year in which Tennessee secured seventy-five new business projects, announced more than 8,000 new jobs, and attracted more than \$11 billion in capital investment. The total included a historic \$6.6 billion investment, which became the largest single announced capital investment in the state's history at that time.

Foreign investment played a particularly important role, accounting for approximately seventy percent of the state's total announced investment for a second consecutive year. Commissioner McWhorter attributed this success to Tennessee's deliberate international strategy, including five offices across Europe and Asia. By meeting companies where they are and building long-term relationships, state officials have helped to position Ten-

nessee as a hub for major global investments. Although international outreach does require time and resources, Commissioner McWhorter argued that these efforts are worth every penny and every minute when those relationships lead to billion-dollar investments in our states.

Aside from foreign investment, Commissioner McWhorter highlighted the economic growth in rural Tennessee. Nearly sixty percent of the 8,000 announced jobs, were located in rural communities, representing the highest share the state has recorded at this time. Tennessee has distributed \$123 million in grants across ninety of its ninety-five counties, with forty percent directed towards the state's most economically distressed Tier 4 counties. Since Governor Lee took office in 2019, the state has invested more than \$2.5 billion in grant funding across all ninety-five counties.

These investments reflect the administration's goal of ensuring that economic opportunity is not determined by a person's ZIP code. With a significant share of Tennessee's population growth occurring in rural areas, Commissioner McWhorter emphasized that expanding jobs, infrastructure, and investment across rural Tennessee remains a central priority during the final year of Governor Lee's administration.

Looking ahead, Commissioner McWhorter identified broadband expansion as one of Tennessee's most significant priorities. The state recently announced \$200 million in funding through the Broadband Equity, Access, and Development Program, which is expected to provide every Tennessee home and business with access to high-speed internet. This represents substantial progress since 2019, when approximately 20% of the state lacked reliable broadband access. Since then, Tennessee has invested more than \$1 billion in broadband infrastructure, digital literacy, and skills development. Commissioner McWhorter emphasized that broadband access is not simply about connecting Tennesseans, particularly those in rural communities, to education, workforce training, employment, and other opportunities that improve the quality of life.



Over 300 attendees listen to Commissioner McWhorter's Presentation at the Forum on Growth and Regional Challenges. Photo by Tom Beckwith.



Commissioner McWhorter presenting at the Forum on Growth and Regional Challenges. Photo by Tom Beckwith.

The state is also increasing its focus on innovation, research, and development as economic competition intensifies globally. Although job creation remains important, Commissioner McWhorter argued that Tennessee's long-term competitiveness will increasingly depend on capital investment, resilient supply chains, research capacity, and technological innovation. Tennessee already has momentum in advanced industries such as aerospace and defense, pharmaceuticals, biotechnology, quantum computing, cybersecurity, and nuclear energy. These sectors are important not only for economic development, but also for national security and the country's future.

To strengthen Tennessee's position, the state is expanding partnerships among government, private industry, and higher education institutions. Examples include Volkswagen's partnership with the University of Tennessee, Nisssha Medical's collaboration with Vanderbilt University, Tennessee Tech's expansion of federally supported cybersecurity programs, and MTSU's emerging work in quantum research. By connecting academic research with industry needs, Tennessee seeks to translate innovation into investment, economic opportunity, and sustainable statewide growth.

Commissioner McWhorter emphasized Tennessee's growing investment in entrepreneurs and small businesses through initiatives such as Fund Tennessee. In the previous year LendTN, the department's debt-financing program, provided more than \$9 million to twenty-six businesses, while InvestTN deployed over \$7 million in equity-based funding to support thirty-eight companies. Since 2019, the department has announced more than 700 projects, creating over 110,000 net new jobs and generating approximately \$55 billion in capital investment. To sustain this growth, the state is making long-term investments

in transportation, workforce development, and infrastructure, including a \$3 billion transportation modernization plan and a \$1 billion for the Tennessee Colleges of Applied Technology system.

Commissioner McWhorter also highlighted Tennessee's expanding role in nuclear energy. Since its launch in 2023, the state's Nuclear Energy Fund has supported projects representing approximately 2,000 jobs and more than \$7 billion in investment, with additional projects in development. A recently announced U.S.-Japan partnership could bring more than \$40 billion in small modular reactor investment to Tennessee and Alabama. With Oak Ridge National Laboratory serving as a major asset, the commissioner described this opportunity as a 'Manhattan Project 2.0' that could position Tennessee as a national leader in nuclear innovation while producing economic benefits across the state and region.

The commissioner highlighted Tennessee's emerging opportunities in quantum computing, supported by assets at Oak Ridge National Laboratory, Chattanooga, and MTSU. These strengths reflect a broader transformation in economic development: rather than simply recruiting individual companies, the state is building interconnected ecosystems that align capital, workforce talent, infrastructure, research, and public policy. As more companies seek to bring critical industries back to the United States, Tennessee is positioned to strengthen national competitiveness. The speaker acknowledged that continued growth will create challenges involving housing, transportation, education, and utilities, requiring coordinated solutions across state agencies and community partners.

Ultimately, Commissioner McWhorter emphasized that economic development should improve the lives of Tennesseans across all ninety-five counties, whether through major industrial investments or support for small businesses and entrepreneurs. Tennessee's success was attributed not only to its economic assets but also to cooperation among the governor's office, the General Assembly, federal delegation, local governments, chamber of commerce, and industry leaders. According to Commissioner McWhorter, maintaining this alignment and collaboration will be essential to sustaining balanced prosperity.

Tennessee's greatest competitive advantage, however, remains its people and their shared commitment to the state's long-term success.

THE SCHOLARS PROGRAM RESEARCH

Stuck in Traffic, Stuck in Place

How Congestion Limits Labor Mobility in US Cities

Trinity Johnson

Traffic congestion has become a significant challenge in rapidly growing metropolitan areas, increasing commute times and limiting access to employment opportunities. Because labor mobility, often measured through job-to-job (J2J) transitions, is an important indicator of labor market efficiency, congestion may create barriers that reduce workers' ability to change jobs and improve economic outcomes. While previous studies have explored the effects of commuting on productivity and well-being, fewer have examined its direct relationship with job mobility. This study investigates whether traffic congestion influences labor mobility by comparing the Travel Time Index (TTI) with changes in job-to-job transitions across metropolitan areas. It hypothesizes that higher congestion levels are associated with lower rates of job mobility due to increased commuting barriers.

Background

Traffic congestion has emerged as a significant barrier to labor market efficiency in growing metropolitan regions, including Nashville, where rapid population growth has increased commuting challenges. Research shows that longer and less reliable commutes are associated with greater stress, lower job satisfaction, and reduced willingness to pursue new employment opportunities.¹ Congestion also imposes economic costs by limiting workers' access to jobs, reducing labor market flexibility, and constraining the geographic area in which workers can reasonably seek employment.² Studies suggest that these transportation barriers can negatively affect income growth, productivity, and overall economic mobility.

Job-to-Job (J2J) transition data provide a useful measure of labor mobility, reflecting how frequently work-

ers move between positions to improve employment outcomes. Higher mobility is generally linked to better job matching, wage growth, and economic opportunity, while lower mobility may indicate structural barriers. Nashville's transportation plans identify congestion and limited infrastructure as major obstacles to workforce accessibility, particularly as residential and employment centers become increasingly dispersed.³

Although previous studies have examined commuting, labor market efficiency, and economic outcomes separately, few have directly analyzed the relationship between congestion and job mobility. This study addresses that gap by examining whether higher levels of traffic congestion, measured by the Travel Time Index (TTI), are associated with declines in job-to-job mobility across metropolitan areas, providing insight into how transportation systems influence workforce dynamics and economic opportunity.



Trinity Johnson presenting her research at the scholars program graduation ceremony. Photo by Tom Beckwith.

Methodology

This study examined the relationship between traffic congestion and job mobility across U.S. metropolitan areas using publicly available data from the U.S. Census Bureau's Job-to-Job (J2J) Flows Explorer and the Federal Highway Administration's Urban Congestion Reports. Job mobility data measured worker transitions between jobs, while traffic congestion was assessed using the Travel Time Index (TTI), a standard measure comparing peak-period travel times to free-flow travel conditions. Higher TTI values indicate greater congestion.

Job mobility was operationalized as the year-over-year percent change in job-to-job transitions by comparing third-quarter (Q3) 2024 data with Q3 2023 data for each metropolitan area. Data were manually collected from both sources, and metropolitan areas were included based on the availability of matching job mobility and congestion data. After collection, percentage changes in job mobility were calculated for each metropolitan area using a standardized formula. These measures allowed for a comparison of congestion levels and labor market mobility patterns, providing a basis for analyzing whether higher traffic congestion is associated with declines in workers' ability or willingness to change jobs.

Findings

The results indicate a significant negative relationship between traffic congestion and job mobility

across metropolitan areas. A scatter-plot revealed a downward trend, suggesting that cities with higher congestion generally experienced larger declines in job-to-job (J2J) transitions. Pearson correlation analysis confirmed this relationship, showing a statistically significant moderate negative correlation between the Travel Time Index (TTI) and changes in job mobility ($r = -0.35, p = 0.017$). This finding supports the hypothesis that increased congestion may limit workers' ability or willingness to pursue new employment opportunities.

Although the correlation was significant, its moderate strength suggests that congestion is only one factor influencing labor mobility. Considerable variation remained across metropolitan areas, indicating that other factors, such as local economic conditions, industry composition, population growth, and labor market dynamics, likely contribute to differences in job-switching behavior. Therefore, while congestion appears to play a role, it does not fully explain changes in job mobility.

Examples from specific cities further illustrate this trend. Nashville, which experiences relatively high traffic congestion, also showed a larger decline in job mobility, whereas Raleigh, with lower congestion levels, experienced a smaller decline. Overall, the findings suggest that transportation barriers may reduce labor market flexibility by limiting access to employment opportunities, highlighting the broader economic implications of traffic congestion in growing metropolitan regions.

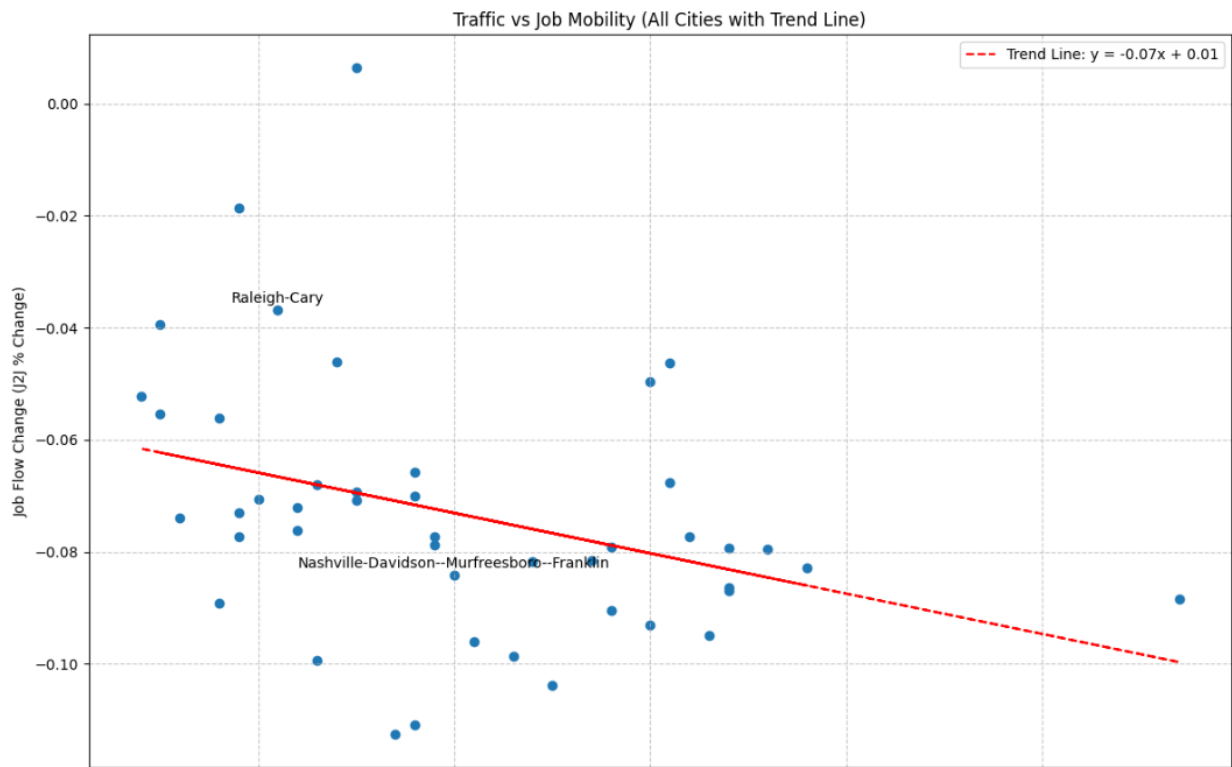


Figure 1: Correlation between traffic congestion and job mobility across metropolitan areas.

Discussion and Conclusion

The present study examined the relationship between traffic congestion and job mobility across metropolitan areas and found a statistically significant negative association between the two. Higher levels of congestion, measured by the Travel Time Index (TTI), were linked to larger declines in job-to-job transitions, suggesting that transportation barriers can influence labor market behavior. These findings support previous research indicating that congestion reduces labor market efficiency by increasing commuting costs, travel times, and uncertainty, thereby limiting workers' access to employment opportunities and reducing the effective labor market.

One explanation for this relationship is that workers in highly congested regions may be less willing to pursue new employment opportunities if those positions require longer or less predictable commutes. Congestion may also make it more difficult to maintain reliable work schedules or consider jobs located farther from home. The comparison between Nashville and Raleigh illustrates this pattern, with Nashville experiencing higher congestion and greater declines in job mobility, while Raleigh showed lower congestion and smaller declines.

Several limitations should be considered. The study relied on metropolitan-level data, examined only a single time period, and did not account for factors such as income, industry composition, remote work, or public transportation access. Future research should incorporate these variables and examine long-term trends. Overall, the findings suggest that reducing congestion through transportation investments could improve labor market efficiency, workforce mobility, and access to economic opportunities in growing metropolitan regions.

Trinity Johnson is an undergraduate psychology major at Middle Tennessee State University in Murfreesboro, TN.

Richard Tarpey, Ph.D., is an associate professor of Management, Supply Chain at Middle Tennessee State University. He served as the faculty mentor on this project.

¹ Liu, Y., Wang, F., & Xiao, Y. (2022). The impact of commuting on well-being: A systematic review. *Transportation Research Part A: Policy and Practice*, 155, 1–14.

² Weisbrod, G. (2003). The economic costs of congestion: Implications for business and workforce mobility. *Transportation Research Record*, 1839, 1–8. Whittle, P. (2024).

³ Tennessee Department of Transportation. (2022). *Tennessee Congestion Action Plan*.



Protecting Tennessee's Water Future

Why Stormwater Matters Now More Than Ever

Cynthia Allen Ph.D.

Dr. Cynthia Allen is an environmental specialist at Middle Tennessee State University (MTSU), where she has worked to protect and improve local rivers and streams since 2005. Throughout her career, she has collaborated closely with the City of Murfreesboro to advance water quality initiatives through community outreach and environmental education. Her work focuses on pollution prevention, stream monitoring, and the implementation of best management practices through a shared stormwater permit to improve water quality under the Clean Safety Act.

Stormwater is one of the most overlooked yet essential components of modern infrastructure. As communities across Tennessee continue to grow, effective stormwater management has become increasingly important for protecting water quality, reducing flooding, supporting economic development, and preserving public health. During a presentation at Middle Tennessee State University, Dr. Cynthia Allen examined the challenges and opportunities associated with stormwater management, highlighting how population growth, land development, water resources, and environmental stewardship are interconnected. Her presentation emphasized that protecting Tennessee's water future requires not only sound infrastructure and policy but also active engagement from communities, businesses, and individuals.

Stormwater As Critical Infrastructure

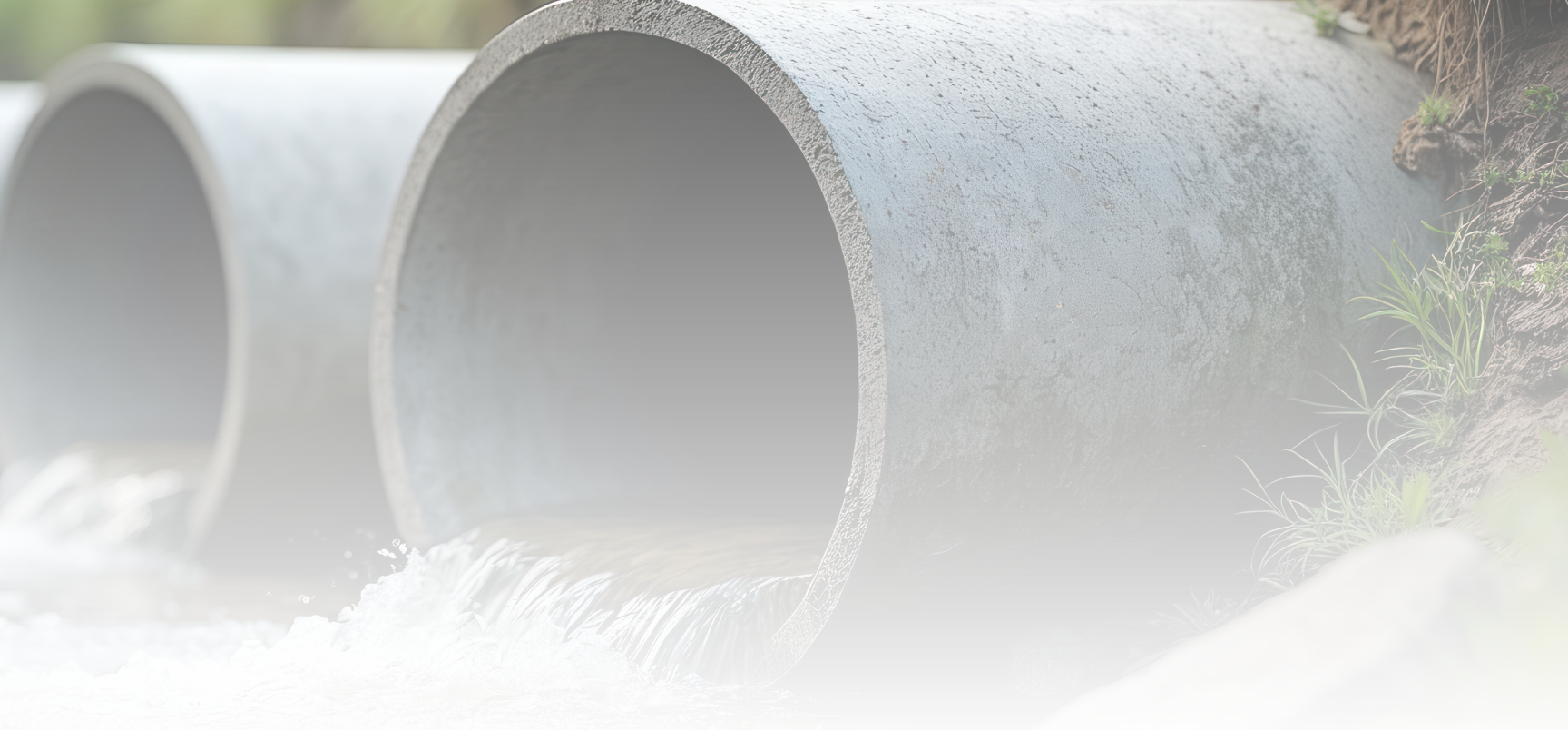
Stormwater management is often viewed as an engineering concern, but Dr. Cynthia Allen emphasized that it is closely tied to economic development, housing, public health, and environmental sustainability. As Middle Tennessee continues to grow, stormwater systems have become a critical component of community infrastructure, influencing everything from development costs to water quality and flood prevention. Unlike wastewater, which is treated before discharge, stormwater runoff flows directly into local streams and rivers, carrying pollutants such as sediment, chemicals, oils, litter, and bacteria collected from roads, parking lots, construction sites, and residential areas. Infrastructure needs extending up to twenty years into the future, TACIR's published analysis focuses on a five-year planning horizon, providing policymakers



Dr. Cynthia Allen presenting to community leaders and the 2025-26 COE-URP Scholars. Photo by Tom Beckwith.

and stakeholders with a practical framework for assessing immediate and near-term infrastructure priorities.

To address these challenges, municipalities implement stormwater management programs under the Clean Water Act. These programs focus on public education, stream monitoring, pollution prevention, construction oversight, and infrastructure maintenance. In Murfreesboro, efforts include river cleanups, community outreach, and partnerships with developers to ensure compliance with environmental regulations.



Dr. Cynthia Allen presenting on stormwater and why it matters now more than ever. Photo by Tom Beckwith.

Managing Growth While Protecting Water Resources

Dr. Allen highlighted the importance of green infrastructure, including rain gardens, wetlands, detention ponds, bioswales, and permeable pavement systems. These features help slow runoff, remove pollutants, reduce flooding, and replenish groundwater supplies. However, their long-term effectiveness depends on proper maintenance and continued investment.

The challenges of water management are compounded by Middle Tennessee's unique karst geology, which includes sinkholes, caves, and underground waterways. These systems create complex connections between surface water and groundwater, making development and infrastructure planning more difficult. At the same time, increasing population growth, industrial de-

mand, and periodic drought conditions are placing greater pressure on rivers, reservoirs, and aquifers throughout the state. Dr. Allen stressed that protecting water quantity and water quality must remain a priority as communities continue to expand.

The Challenges of Tennessee's Unique Geography

Middle Tennessee's geography presents additional challenges for water management. Dr. Allen explained that the region's karst landscape, characterized by sinkholes, caves, and underground waterways, creates complex connections between surface water and groundwater systems. Streams can disappear underground and reemerge miles away, making water movement difficult to predict and manage.

These geological features complicate development decisions and increase the risk of flooding, erosion, and groundwater contamination. At the same time, they contribute to the region's ecological diversity and unique environmental character. Dr. Allen emphasized that understanding local geology is essential for responsible land-use planning and infrastructure development.

Population growth further increases pressure on Tennessee's water resources. While many residents view Tennessee as a water-rich state, Dr. Allen cautioned against complacency. Groundwater aquifers recharge slowly, and growing demands from residential, commercial, and industrial users are placing increasing stress on rivers, reservoirs, and underground water supplies. Recent concerns surrounding the Mississippi River, the Duck River, and regional drought conditions illustrate that water availability cannot be taken for granted.

Pollution, Public Health, and Emerging Environmental Concerns

Beyond water quantity, Dr. Allen discussed the growing challenges associated with water quality. Stormwater runoff transports a wide range of pollutants into streams and rivers, including sediment, nutrients, bacteria, heavy metals, pesticides, and industrial chemicals. These pollutants can harm aquatic ecosystems, reduce recreational opportunities, and increase treatment costs for drinking water systems.



Students and community members attend a discussion on Stormwater Management at MTSU. Photo by Tom Beckwith.

In her presentation Dr. Allen highlighted emerging concerns related to PFAS chemicals, microplastics, and other contaminants that are increasingly being detected in water systems nationwide. While Tennessee benefits from strong water treatment infrastructure, she noted that evolving pollution sources require continued investments in monitoring, research, and treatment technology. Modern society uses thousands of chemicals, yet only

a fraction are currently regulated through drinking water standards.

The discussion also addressed waste management and recycling challenges. Dr. Allen emphasized that pollution does not simply disappear once discarded. Instead, contaminants move through waterways, ecosystems, and food chains. Addressing these issues requires not only better infrastructure but also changes in consumer behavior, product choices, and community engagement.

Biodiversity, Quality of Life, and Community Stewardship

One of the most compelling portions of the presentation focused on Tennessee's remarkable biodiversity. Dr. Allen described the southeastern United States as one of the most biologically diverse regions in the world, home to hundreds of fish species, mussels, crayfish, amphibians, reptiles, and aquatic insects. Tennessee's rivers and streams provide critical habitat for many of these species, making water quality protection a conservation priority. These geological features complicate development decisions and increase the risk of flooding, erosion, and groundwater contamination. At the same time, they contribute to the region's ecological diversity and unique environmental character. Allen emphasized that understanding local geology is essential for responsible land-use planning and infrastructure development.

Healthy waterways depend on more than clean water. They require functioning habitats, stable streambanks, native vegetation, and healthy riparian buffers. Dr. Allen discussed efforts to restore stream corridors through tree planting programs, habitat restoration projects, and community partnerships. These initiatives help reduce erosion, improve water quality, and create habitat for wildlife.

During the question-and-answer session, audience members raised concerns about the Duck River, wetland preservation, recycling, sinkhole development, industrial water consumption, and the restoration of Town Creek in Murfreesboro. Dr. Allen repeatedly emphasized that there are no simple solutions to these issues. Instead, communities must balance economic development, environmental protection, infrastructure investment, and quality-of-life considerations.

Discussion and Looking Towards the Future

Dr. Allen concluded by encouraging participants to view stormwater management as part of a much broader conversation about Tennessee's future. Water resources support nearly every aspect of modern life, including public health, economic development, recreation, agriculture, energy production, and environmental sustainability. As Tennessee continues to attract new residents and businesses, demands on water resources will only increase. Communities will face difficult decisions regarding land use, infrastructure investment, industrial growth, and environmental protection. Balancing these competing interests will require collaboration among government agencies, businesses, researchers, and citizens alike.

The presentation also highlighted the need for continued innovation and research. Emerging technologies, improved stormwater design practices, advances in water treatment, and university-led research initiatives can help communities address future challenges. However, Dr. Allen stressed that technological solutions alone will not solve these issues. Long-term success depends on public awareness, responsible development practices, and individual choices that reduce pollution and protect natural resources. Whether through supporting conservation efforts, participating in community cleanups, practicing responsible waste disposal, or advocating for sustainable policies, residents have an important role to play

in safeguarding Tennessee's water future.

Conclusion

Dr. Cynthia Allen's presentation demonstrated that stormwater management is far more than a technical infrastructure issue—it is a critical component of Tennessee's economic growth, environmental health, and quality of life. As population growth, development pressures, and water demands continue to increase, communities must balance progress with responsible stewardship of natural resources. Protecting Tennessee's waterways will require continued investment in infrastructure, research, conservation, and public engagement. Ultimately, Dr. Allen emphasized that the future health of the state's water resources depends not only on government action and technological solutions, but also on the everyday decisions made by businesses, communities, and individuals.



The 2025–26 COE-URP Scholars with guest speaker Dr. Cynthia Allen. Photo by Tom Beckwith.

BERC'S PROFILE OF ACTIVITIES



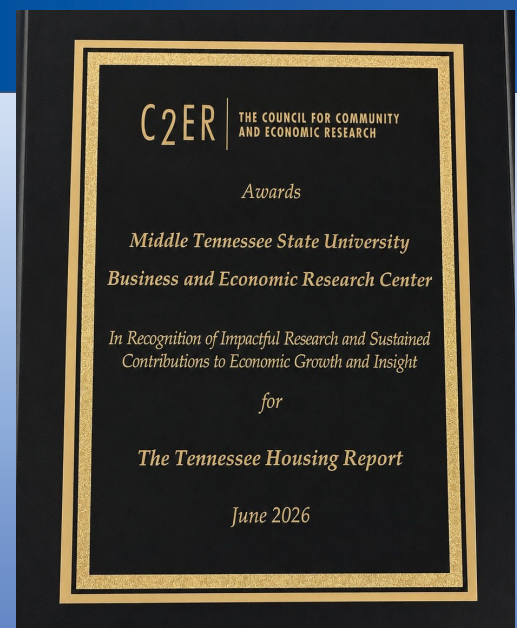
BUSINESS AND ECONOMIC
RESEARCH CENTER

Throughout the past year, the MTSU Business and Economics Research Center continued to strengthen its role as a regional resource leader and expanded its influence throughout Middle Tennessee and beyond. The Jennings and Rebecca Jones Chair in Urban and Regional Planning, had another productive year, not only with research initiatives but also with various awards and recognitions acknowledging the Business and Economic Research Center's contributions. In addition to research activities, BERC continued to actively engage with the community. The Business and Economic Research Center created opportunities for discussion and

collaboration by bringing together leading local industry professionals, sponsors, and invited guests through its monthly panels. These events, along with conference participation and presentation opportunities, provided enriching, educational, and professionally rewarding experiences for both students and community members. Looking toward 2026, BERC remains optimistic and firmly dedicated to deepening its engagement with the community and supporting the continued development of the region.

AWARDS & MILESTONES

The Middle Tennessee State University Business and Economic Research Center received an award from the Council for Community and Economic Research in recognition of its impactful research and sustained contributions to economic growth and insight. The award specifically honored the center's work on *The Tennessee Housing Report*, which provides an analysis of housing market conditions, affordability, construction activity, and broader economic trends affecting communities across the region. Through this work, BERC helps industry professionals and community leaders better understand Tennessee's changing housing landscape to make informed decisions.





Monique Little presenting on the Small Business Development Center and Economic Competitiveness Photo by Andy Heidt.

PARTNERSHIPS

The Business and Economic Research Center continues to strengthen its relationships with partners supporting and sustaining its research efforts. Through these collaborations, BEREC develops a range of initiatives and community projects that extend beyond academic research. Partnerships not only enable research but also create opportunities for applied learning and professional engagement.

Studies and events conducted in collaboration with partner organizations offer students the opportunity to gain insight into real-world challenges and practical problem-solving environments. As BEREC continues through 2026, and prepares for 2027, it continues its preparations for another year of meaningful collaborations, including enriched panel discussions and the upcoming Growth and Regional Challenges Forum, in partnership with local organizations and industry leaders.



MTSU Student Presenters and Dr. Arik at the IGBR Conference in Nashville, TN. Photo by Andrea Lawrence.

STUDENTS AT BEREC

BEREC students represent a diverse community, bringing different academic backgrounds and experience levels. During the academic year, students completed nine applied research projects for external clients, contributing to real-world economic and regional development studies while gaining valuable hands-on experience. Their professional development extended beyond the classroom through conferences, site visits, and job-shadowing opportunities focused on regional growth, technology, housing, and research,

During the academic year, five MTSU students, including former and current scholars, presented their research at the IGBR Conference in Nashville, TN, showcasing the university's commitment to student scholarship and experiential learning. Their presentations addressed a variety of ongoing challenges facing Middle Tennessee and gave students the opportunity to share their findings, engage with professionals, and receive valuable feedback. Participation in the IGBR Conference allowed the students to strengthen their presentation skills while contributing to broader academic and professional discussions.

After nine months of hard work and dedication, the 2025-26 COE-URP Scholars presented their research in front of faculty, family, and friends on May 8, 2026, showcasing the knowledge and skills they developed throughout the program. Following their presentations, each scholar received a certificate recognizing their successful completion of the COE-URP Scholars Program.



The 2025-26 COE-URP Scholars at the Tennessee National Housing Conference in Nashville, TN. Photo by Andrea Lawrence.



The 2025-26 COE-URP Scholars with Faculty Mentors and Advisory Committee Members, Photo by Tom Beckwith.



THE DEAN'S CORNER

Global Business Starts with Local Talent

Jones College of Business is a large, accessible, future-focused business school located at the geographic center of Tennessee. From Murfreesboro, we serve a region whose economic influence reaches across the state and whose business relationships reach around the world. Our location matters, but our greatest contribution is not simply where we are — it is whom we prepare.

In Fall 2025, Jones College enrolled 3,446 students, a 7.25 percent increase from the prior fall, with undergraduate enrollment growing 8.8 percent. During the 2024–25 academic year, the College conferred 872 business degrees. Thirty-eight percent of our students are first-generation college students, and nearly one-quarter are non-traditional students. These numbers describe an institution opening doors, strengthening families, and empowering the next generation of business leaders.

International Business Matters

Tennessee's economy is already international. A TNECD (Tennessee Economic and Community Development) report identifies 1,016 foreign-based establishments employing 155,253 people statewide, across manufacturing, automotive production, transportation, distribution and logistics, business services, chemicals, electrical equipment, food and beverage, healthcare and medical devices, aerospace and defense, and more. These companies are not confined to one location — they form a broad economic network with a particularly visible presence in Middle Tennessee.

Foreign-owned companies are not peripheral participants in Tennessee's economy. They are employers, investors, innovators, suppliers, exporters, and community partners, and their success affects household incomes, regional supply chains, technological capacity, and the state's ability to compete for future investment.

Talent Matters

When states compete for foreign investment, incentives and infrastructure get much of the attention. But companies ultimately ask a more enduring question: can we find, develop, and retain the people needed to operate and grow here? Talent isn't secondary — it's the foundation every other advantage depends on.

Jones College is built for that responsibility. Our students study accounting, economics, finance, information systems, management, marketing, supply chain management, analytics, entrepreneurship, and other disciplines international companies need every day. Jones College graduates have the highest average long-term earnings among MTSU degree groups, with advantages of 13 percent in entry wages, 20 percent in median wages, and 34 percent in experienced wages compared with other MTSU graduates.

Preparing globally capable talent also requires international exposure. Our study-abroad programs show students how markets, institutions, and cultures differ across borders, while our own student body adds an international dimension at home: 3 percent of Jones College students are international, with India, Nigeria, and The Bahamas as the leading countries of origin. Together, these experiences build adaptability, cultural intelligence, and the confidence to work across borders.

Dual Accreditation Matters

For a company evaluating a region, educational quality must be visible, credible, and transferable. Jones College's dual AACSB accreditation in business and accounting provides that assurance, signaling that our programs, faculty, curriculum, and processes meet rigorous global standards.

"International investment may begin with capital, technology, and market access, but it grows where talent is ready"



"To foreign-owned companies in Tennessee, our message is direct: Jones College is your essential local partner for talent, innovation, and long-term growth."

Foreign-owned companies need more than graduates with diplomas — they need employees who understand professional standards, analytical reasoning, ethical decision-making, communication, teamwork, and continuous improvement, backed by a university partner able to respond to changing business needs. Strong statewide rankings for our AACSB MBA, finance, and accounting programs reinforce the quality behind that talent pipeline.

Applied Business Initiatives Matter

Effective business education doesn't stop at the classroom door. Jones College is expanding applied initiatives that connect learning to real employer challenges. The Center for Cybersecurity Management prepares students to detect threats and support modern security strategies, with plans for a cutting-edge cyber range and educational Security Operations Center — capabilities especially relevant to companies managing complex data, global supply chains, and cross-border risk.

The College is also developing a Center for Student and Workforce Excellence, backed by a \$1 million private gift. Through the IGNITE career development program, we recorded more than 2,700 registrations across more than 60 sessions, engaging 1,200 unique participants

in 2025. Career fairs drew more than 800 students and more than 100 partnering organizations, including specialized events for information technology, accounting, real estate, and risk management and insurance. We've also hosted major convenings on supply chains, artificial intelligence, neuromarketing, and regional growth, bringing students, faculty, executives, and innovators into shared conversation.

That partnership can start with recruiting, internships, and study-abroad connections — but it shouldn't end there. International companies can engage our students, faculty, career programs, and centers to build stronger local talent pipelines, while Jones College gains the employer insight to keep its graduates prepared. International business matters. Talent matters. Accredited quality matters. Applied partnerships matter. Centrally located and globally oriented, Jones College is ready to connect all four.

Warm regards,



Joyce Heames, Ph.D.
Dean, Jones College of Business
Middle Tennessee State University



MIDDLE TENNESSEE
STATE UNIVERSITY.
JENNINGS A. JONES COLLEGE OF BUSINESS





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