JULY 2021

ARKANSAS ECONOMIC RECOVERY STRATEGY

COMMISSIONED BY THE GOVERNOR'S TASK FORCE FOR ECONOMIC RECOVERY

HEARTLANDFORWARD.ORG

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Ross DeVol is President and CEO, Heartland Forward. Heartland Forward's goal is to promote regional innovation and entrepreneurial ecosystems that foster job creation, wage gains, health and wellbeing and economic growth for the American Heartland. Heartland Forward pursues its mission through independent, data-driven research, action-oriented convenings, such as the Heartland Summit, and impactful policy recommendations and programs such as "Connecting the Heartland." Heartland Forward works with universities, colleges, the business community, economic development officials, public policy leaders and philanthropy to analyze resources supporting the startup community and identify workforce and talent gaps. DeVol has raised the profile of Heartland Forward through media engagement with quotes in the New York Times, Wall Street Journal, Economist and Axios and op-eds in the Dallas Morning News, Milwaukee Journal Sentinel and Des Moines Register as well as TV appearances throughout the heartland. DeVol is former chief research officer for the Milken Institute where he spent nearly 20 years, an economic think tank headquartered in California. He oversaw research on international, national and comparative regional growth performance; access to capital and its role in economic growth and job creation; and health-related topics. He has been ranked among the "Superstars of Think Tank Scholars" by International Economy magazine.

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Roark Bluff overlook provides an amazing view of the Steel Creek recreation and the Buffalo River. Ponca, AR.

Northwoods Trail offers 26+ miles of world-class mountain biking trails. Hot Springs, AR.

To My Fellow Arkansans,

It has been an honor to serve our state throughout this difficult time in the nation, and our work is not over. The pandemic has brought to the forefront issues we cannot ignore or simply just acknowledge – we must act. So, what does that mean for our great state of Arkansas?

This is a question the members of the Arkansas Economic Recovery Task Force have been compelled to answer. While focusing on the immediate needs of our state -- needs that are critical to the health and safety of our residents, as a group, we've also known that we need to look further into the future with a long-range lens on what Arkansas should be considering for economic health and prosperity coming out of COVID.

The team of economists at Heartland Forward, a "think and do" tank, headquartered in Bentonville, Ark., compiled the following document with some big thinking for our consideration. The adage "a strategy is only as good as it is executed" holds true with what you are about to read. The thinking they propose is big – some might even say, aspirational, but as a state, we need to set our sights high most especially for the generations to come.

We hope as you read this document you will be inspired by what we can accomplish together.

With gratitude,
Steuart Walton
Arkansas Economic Recovery Task Force Chair

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Mark Young, Jonesboro Regional Chamber of Commerce
Hunter Yurachek, University of Arkansas
Randy Zook, State Chamber of Commerce

The Arkansas Economic Recovery Strategy was made possible, in part, through the generosity of donors:

- Steuart Walton, Runway Group
- First Orion
- Anonymous
- Mary Ann and Reed Greenwood
- Mack McLarty/McLarty Companies
- Annemarie Dillard Jazic
- Northwest Arkansas National Airport
- Arkansas Economic Development Commission Foundation
- Arkansas State Chamber of Commerce
- Arkansas Tourism Development Foundation
- Arkansas Hospitality Tourism and Education Foundation
- Anonymous

We want to thank the following individuals for their insights and ideas that have enriched this project:

- Jerry Adams, Arkansas Research Alliance
- Bill Allison, National Park College
- Jeff Amerine, Start-up Junkie
- David Avery, Windstream
- Chris Barber, St. Bernard's Healthcare
- Bryan Barnhouse, Arkansas Research Alliance
- Elston Blake Forte, DEI Development
- Steven Bloomberg, Southeast Arkansas College
- Clete Brewer, NewRoad Capital Partners
- Amy Callahan, Inmar Intelligence
- Sharon Cantrell, UA Monticello
- Mary Daggett, Jefferson Regional Medical Center
- Merritt Dake, Rock Dental Brands
- Angela Delille, Cox Communications
- Michelle Dillard, Dillard's
- Annemarie Dillard, Dillard's
- Melinda Faubel, AT&T
- Trent Fellers, Windstream
- Laura Fine, Arkansas Small Business and Technology Development Center
- Mildred Franco, Go Forward Pine Bluff
- Cindy Gillespie, Arkansas Department of Human Services
- Sarah Goforth, University of Arkansas Brewer Center for Entrepreneurship and Innovation
- Bill Gossage, State of Arkansas
- Nancy Gray, University of Arkansas for Medical Sciences
- Craig Harper, J.B. Hunt

- Andrea Henderson, Arkansas Association of Community Colleges
- Dan Hendrix, Arkansas World Trade Center
- Amy Hopper, Arkansas Research Alliance
- Stacy Hurst, Arkansas Department of Parks, Heritage and Tourism
- Leslie Lane, Arkansas Capital
- Esperanza Massana, Arkansas Economic Development Commission
- Tiffany Maurer, Economic Development for Sevier County
- Judy McReynolds, ArcBest
- David Merrifield, Arkansas Research and Education Optical Network
- Wayne Miller, Venture Center
- Regan Moffitt, Winthrop Rockefeller Foundation
- Cheryl Murphy, University of Arkansas Global Campus
- Cam Patterson, University of Arkansas for Medical Sciences
- Matt Pellki, University of Arkansas Monticello
- Steven Porch, Arkansas Economic Development Commission for the Arkansas Rural Connect
- Mike Preston, Arkansas Economic Development Commission
- Tracey Rosser, Transplace
- Bo Ryall, Arkansas Hospital Association
- Bill Ryan, University of Arkansas Pulaski Tech
- David Sanders, Innovate Arkansas
- James Shemwell, Arkansas North Eastern College
- David Snow, University of Arkansas
- Curt Stamp, Cox Communications
- Jeff Stinson, HealthTech Arkansas
- Remco Van Hoek, University of Arkansas Walton College
- Matt Waller, University of Arkansas Walton College
- Ken Warden, University of Arkansas Fort Smith
- Troy Wells, Baptist Health
- Rick West, Field Agent
- Kara Wilkins, Bank of AR+
- Brent Williams, University of Arkansas Walton College
- Debra Wright, Howard Memorial
- Bill Yoder, Arkansas Center for Data Sciences
- Mark Young, Jonesboro Chamber

. . . and all others who have supported this effort.

ABOUT HEARTLAND FORWARD

HEARTLAND FORWARD'S MISSION IS TO IMPROVE ECONOMIC PERFORMANCE IN THE CENTER OF THE UNITED STATES BY ADVOCATING FOR FACT-BASED SOLUTIONS TO FOSTER JOB CREATION, KNOWLEDGE-BASED AND INCLUSIVE GROWTH AND IMPROVED HEALTH OUTCOMES. WE CONDUCT INDEPENDENT, DATA-DRIVEN RESEARCH TO FACILITATE ACTION-ORIENTED DISCUSSION AND IMPACTFUL POLICY RECOMMENDATIONS.

THE VIEWS EXPRESSED IN THIS REPORT ARE SOLELY THOSE OF HEARTLAND FORWARD.

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COVID-19 has caused substantial economic dislocations in Arkansas and across the nation.

It has accelerated changes that were already underway, such as the ability to work remotely on a large scale and the necessity for high-speed internet access to conduct commerce, obtain educational and workforce training and access medical services. States and communities that are able to address these issues and adapt quickly to the post-pandemic economy not only stand a better chance of recovering employment losses quickly, but they can also position themselves to benefit from new economic development trends that emerged during the pandemic.

Every crisis presents opportunities to think and act differently. This is the time for Arkansas to commit to transformational economic development plans and embark upon new strategic directions.

Heartland Forward's objective is to provide guidance to state, regional and local policymakers and leaders that will position Arkansas' economy to rebound and expand at a faster pace than envisioned prior to the pandemic.

To formulate an economic recovery strategy for Arkansas, Heartland Forward has conducted an extensive analysis of areas where Arkansas can build upon existing strengths and mitigate existing weaknesses. Our team has compiled and condensed comprehensive data on Arkansas' economy in six primary areas:

- talent and workforce
- innovation and research
- entrepreneurship and small businesses
- health care

- supply chains and logistics
- high-speed internet

We augmented these hard data with focus groups and interviews of important actors in each of these vital sectors. We reached out to members of communities throughout the state to garner their informed assessment and ground our ideas. We have minimized our analytical elements to focus on big ideas with a series of specific recommendations for action. Some of our actions might be considered aspirational—if they weren't, we didn't accomplish our mandate—and perhaps viewed with a dose of skepticism.

Arkansas' economy entered the pandemic with disparate growth patterns across the state. Northwest Arkansas was among the fastest-growing communities in the nation. Jonesboro has outperformed the nation, Little Rock and Central Arkansas slipping below it while the communities in the Delta, and Southwest Arkansas were losing population and resiliency. Therefore, different emphasis must be placed on recommendations contained in this strategy as they pertain to geography. However, we have attempted to create strategies to link statewide assets to distribute maximum benefit and impact.

25th annual Toad Suck Daze,
Downtown Conway, AR.

1) Talent and Workforce

Creative, innovative and skilled talent is the defining ingredient for success in the knowledge economy. The most successful states and communities recognize that talent attraction, retention and development supplant industrial recruitment. Without talent, you can't recruit companies that require it for success. Capital follows where talent is created or attracted as traditional incentives have less efficacy. Arkansas has made improvements in creating talent, but woefully lags other states in its commitment and execution of new training paradigms. There are two primary measures of talent: one is based upon degrees and credentials and another is tied to occupations of people. Just 23.3 percent of Arkansas' above the age of 25 hold a bachelor's degree, ranking the state 48th,[1] while only 8.3 percent hold a graduate degree — 50th in the nation.[2] Arkansas performs better based on those belonging to the creative class, where it ranks 43rd.[3] Arkansas' comparative strength lies second in the nation for the share of its workforce in skilled trades. This is important as workforce segment presents upskilling opportunities. A key restraining factor on economic growth in Arkansas is the low engagement of women in the workforce, with their labor force participation rate at 69.6 percent (44th in the nation,) eight percentage points below men's.[4]

Arkansas requires a multifaceted approach to improving its talent position. The state's high quality of life, low housing costs with abundant recreational opportunities makes it attractive to the footloose talent that could relocate. Training partnerships between the private sector and community colleges will better align workforce skills with the requirement of employers. Additional focus on graduating more students with bachelor's degrees (especially in science, technology, engineering and math – STEM – fields) and retaining them will boost the knowledge intensity of businesses in the state. Providing assistance to graduating international students with their visa status would allow Arkansas to retain this human capital investment. As the pandemic highlighted, the skills demanded by employers are changing rapidly, and Arkansas' higher education system must adapt to generate a workforce that meets current skill needs but is nimble enough to meet future, possibly unknown, needs as well.

Recommendations

Arkansas needs to develop a cohesive and aligned talent creation, attraction and retention strategy. It should be tied to growing knowledge-based sectors such as data sciences, supply chain management, business services, health care, education and research and development. Apprenticeship programs, such as those provided by the Arkansas Center for Data Sciences,[5] providing employed trainees with experiential

knowledge at multiple levels of career paths should be adopted. For attraction, the state's quality of life and family-friendly features should be stressed. Building upon Northwest Arkansas' successful Life Works Here remote incentive program, offering relocation tax credits to individuals with skills in demand could jump-start this effort. Leaders in the state need to take bold initiatives to transform the state's high-skilled talent base, such as doubling the number of engineering graduates within ten years and a proportionally larger gain in data sciences. This would build upon and be enabled by Governor Hutchinson's Computer Science Initiative that provides exposure to computer science and coding.[6] More flexible credentialing at community colleges and universities in high-demand occupations are necessary. The state needs to transform its high school programs to provide career pathways and apprenticeship programs for students. The "Ready for Life" platform will align workforce development services and outcomes across the state; adoption at all education levels and by companies throughout the state could make it transformative. Technology should be infused into the curriculum consistent with those being deployed within the industry. Arkansas must target women for upskilling and retraining for opportunity occupations. A statewide initiative to provide women entrepreneurs with mentorship, technical assistance and capital should be considered. Employers should provide childcare services to women obtaining additional training, and philanthropy and state government should partner to provide it to those seeking to switch or enter professions.

45th Arkansas Rice Festival, Weiner, AR Arkansas produces more rice than anyone else in the whole USA.

2) Innovation and Research

High levels of innovation and research activity separate places creating well-paying jobs from those languishing, so Arkansas should elevate these activities to play a critical role in its economic recovery strategy.[7] Commercialization of university research, along with industry-performed research and development (R&D,) are key sources of knowledge-intensive economic growth. Industry clusters can be built and enhanced by actors staying at the innovation frontier. Arkansas captured $179 million of federal science and engineering funding in 2019, ranking it 50th per capita.[8] Arkansas must pursue its Science and Technology Plans updated in 2018 more aggressively and with greater commitment.[9] These are investments in the future of Arkansas' economy and workforce. Arkansas' congressional delegation, the governor's office and university leaders should actively advocate to federal agencies for additional research funding. The University of Arkansas System, especially UA-Fayetteville and UA for Medical Sciences, are positioned to make a strong case for additional funding.

Recommendations

The state's economic development efforts must embrace innovation as fundamental to its long-term growth objectives. An important signal of the state's commitment would be to increase and make permanent funding for the Arkansas Economic Development Commission (AEDC) and to identify and support ventures with high-growth potential. The AEDC should realign incentives and metrics with knowledge-based economic development. The state should provide matching funds for Small Business Technology Transfer (STTR) grants. Consideration should be given to scaling up the Science Studio model for supporting Arkansas start-ups as they pursue these grants. Arkansas should utilize the State Small Business Credit Initiative (SSBCI) funds of up to $56 million to make additional early-stage risk capital available. Funding for the Arkansas Research Alliance (ARA) to recruit faculty interested in generating intellectual property useful to local industries also enhances the knowledge-based economy. Greater emphasis should be placed on the ARA engaging with private sector firms to obtain additional funding. A hub and spoke system approach should be implemented to diffuse innovative activity through regional campuses such as UA -Monticello and -Fort Smith. Surveys should be conducted to assess business attitudes and experiences toward academic partnerships. Northwest Arkansas, with state support, should begin to develop a plan for why the region should be chosen as one of the 20 regional technology hubs contained in the U.S. Innovation and Competition Act legislation.

3) Entrepreneurship and Small Businesses

Entrepreneurs play an equally critical role in economic development as innovation and research. They are responsible for commercializing innovations and seize opportunities that many larger firms don't recognize or deem unworthy of investment. Through scaling their businesses, they add employees and infuse new revenue into the state's economy. Arkansas has a rich history of entrepreneurs such as Sam Walton, John H. Johnson, founder of Ebony and Jet magazines, and current entrepreneurs like April Seggebruch and her partner Stan Zolowski, founders of Movista, who are revolutionizing retail store management. Young firms (less than six years of age) are responsible for 10 percent of private-sector firm employment in Arkansas, while the national figure is 10.8 percent.[10] Arkansas performs worst among knowledge-intensive young firms (those with a high percentage of employees with a bachelor's degree or above.) These are the high-paying jobs that Arkansas requires to generate stronger economic growth for the state.[11] Arkansas attracts little venture capital or angel investment and is 43rd in the proportion of eligible individuals that are accredited investors.[12] The pandemic presents new opportunities for Arkansas to focus more attention and resources on entrepreneurship for economic development and job creation.

Recommendations

Just as Arkansas must embrace innovation and research, it must support its entrepreneurs and explicitly incorporate entrepreneurship as a key strategy for growing and diversifying its economy. A good first step was establishing the Small Business and Entrepreneurship program area at the AEDC. Now it must display its commitment by providing sufficient funding and resources to the division and altering economic development metrics for it to be impactful. Incentives should be redirected from industrial recruitment to target young firms. Additional funding of entrepreneurial support organizations (ESOs,) such as the Arkansas Small Business and Technology Development Center, can assist in spreading resources to rural parts of the state. These ESOs must collaborate more closely and exchange information to maximize the efficient delivery of services. Start-up funding for new businesses would be enhanced by altering the metrics of state-controlled risk capital funds to be more focused on Arkansas-based firms rather than primarily the rate of return on investment. Programs to assist entrepreneurs through the funding process and build entrepreneurial-support capacity in communities across the state are needed. Winrock International can play an enlarged role in providing these support services. More emphasis on forming mentorship support networks throughout the state is required. Arkansas should bring its personal income tax structure in line with neighboring states to encourage entrepreneurs to invest in businesses and reduce obstacles that encourage them to move to neighboring states.

4) Health Care

The COVID-19 pandemic has demonstrated the need to shift to a value-based system where payments are more aligned with health outcomes rather than a fee-for-service model. High rates of chronic conditions laid bare the need to address Arkansas' poor performance on social determinants of health, such as the state's obesity rate of 37.4 percent—third highest in the nation.[13] Low-income families in Arkansas have limited access to health care services, and the state is 47th for employer-provided insurance coverage of its population.[14] Even when minorities have coverage, they don't seek care regularly. The health care sector, including the life sciences, has been among the fastest-growing sectors of the U.S. economy. However, in Arkansas, it is seen as a rapidly rising cost requiring more state resources being directed at it. The state must have a more balanced perspective that recognizes health care as a source of economic growth. Arkansas should invest in developing nationally recognized areas of research, training and clinical care and translate these competencies into new commercial enterprises or new lines of business at established firms.

Recommendations

Strategic investments of public funds in educating residents about chronic disease and mental health are a necessity. Additional funding for the Arkansas Center for Health Improvement (ACHI) and a collaborative program with providers, insurers and others in the health community to develop these programs are necessary to reverse Arkansas' poor position on the social determinants of health. Approval and full implementation of the Arkansas Health & Opportunity for Me (ARHOME) could expand coverage to an estimated 300,000 people, encourage healthy behaviors and bring more participants into work.[15] Maintaining reimbursement parity between telemedicine and in-person service delivery in rural locations and expanding high-speed internet access is necessary to improve access. Arkansas can be among the national leaders in moving to value-based payment programs by building upon the work of Arkansas Blue Cross Blue Shield and the expertise of the Whole Health Institute. More Blacks and people of color must be targeted for potential careers as physicians and health care professionals.

The state should establish a unique medical and research cluster by building on existing assets such as the University of Arkansas for Medical Sciences (UAMS,) the two new schools of medicine in Jonesboro and Fort Smith and the announced Whole Health School of Medicine and Health Sciences in Bentonville, the forthcoming University of Arkansas Institute for Integrative and Innovative Research (I3R) in Fayetteville and the National Center for Toxicological Research (NCTR) in Jefferson. Additional state funding should be allocated to UAMS' Winthrop P. Rockefeller

Institute to secure National Cancer Institute Cancer Center designation. The BioVentures program at UAMS, which seeks to foster medical innovations and bring them to market through incubating startups, should be championed and receive increased public financial support. An annual report on the economic impact of health care and the life sciences should be prepared to demonstrate and advocate for the industry.

5) Supply Chains and Logistics

The knowledge economy is not just about software, digital media and other intangibles. Manufacturing and the movement of goods in the physical world are essential elements of Arkansas' economy. Transportation occupations account for 9 percent of American jobs, having grown by almost 25 percent over the last five years,[16] while production occupations in factories have declined 6.5 percent over the same time frame.[17] Arkansas' performance reflects these national patterns very closely. And with e-commerce sales growing as a share of retail sales (they increased from 11 percent in 2019 to 14 percent in 2020),[18] Arkansas has a significant competitive advantage. Arkansas has the third highest share of transportation industry employment in the nation—almost double the U.S. average.[19] J.B. Hunt, a leading U.S. transportation company, and other innovators in this space, such as ArcBest, as well as the global supply-chain expert in the U.S., Walmart, are all headquartered in Arkansas. Further, the University of Arkansas' Sam M. Walton College of Business boasts the top undergraduate program in supply chain management in the U.S.

Recommendations

Arkansas must leverage these existing strengths and make further investments in training and methods to become a national leader in supply chain, logistics and transportation services, and a larger player in the e-commerce revolution. The state should embrace a "new" type of blue-collar work found in the transportation and logistics sectors. A statewide assessment of workforce needs, such as truck driver occupations where many reach retirement age, should be undertaken. Community colleges and other training regimes should partner closely with firms to develop quick-to-market training. Arkansas should develop a supply chain cluster initiative, connecting its supply chain expertise at UA-Fayetteville to industrial and rural-based sectors located throughout the state. An emphasis should be placed on growing more small- and medium-sized logistics, supply chain and transportation firms in the state's diverse regions. Investments in port and land-based infrastructure are necessary to support Arkansas' position. By investing in innovations, Arkansas can become a leading laboratory for supply chain management. The University of Arkansas' Supply Chain Management Research Center should expand

to include a specific focus on creating a technological frontier advantage relative to other research centers.

6) High-Speed Internet

The pandemic made Arkansans acutely aware that access and adoption of high-speed internet impact economic development and quality of life. In 2019, 20 percent of Arkansans did not have internet access, and 18 percent of households with connectivity only had a cellular data plan. Further, 122,600 Arkansan households did not have access to any computing device, including a smartphone.[20] The share of households without internet access ranges from 7.1 percent in Benton County to 35.1 percent in Woodruff County.[21] Several internet service providers and rural electric cooperatives began 2020 with plans and federal funding to increase high-speed internet availability throughout the state. Governor Hutchinson's administration addressed the need by allocating $125 million of the state's Coronavirus Aid, Relief and Economic Security Act (CARES Act) funding to the Arkansas Rural Connect (ARC) program.[22] Additionally, regulatory changes were made to allow municipalities to provide high-speed internet services to constituents.

Recommendations

Arkansas should increase funding for deployment efforts to achieve aspirational levels of internet connectivity for Arkansans and ensure expansion and technological upgrades of the broadband infrastructure over time. The state can elevate funding for ARC and the Arkansas High Cost Fund (AHCF) to ensure continued expansion of broadband access in rural areas. Flexibility in using these funds for feasibility studies would also expand Internet connectivity. Additionally, infrastructure providers should determine the optimum deployment projects to maximize user access while minimizing the marginal costs of adding customers; thus, the state should not restrict infrastructure funding to areas with low or no-service regions. Multiple technologies should be incentivized, and the state should not attempt to select winners. Emergency Broadband Benefits (EBB) information must be provided through non-internet media. The state should subsidize the cost of minimum standards for high-speed internet services where they are available. Arkansas should deploy Heartland Forward's Connectivity Corps of fellows to educate underserved communities in using devices to access the internet and how to subscribe to available broadband services.

Conclusion

This strategy is not intended to be a detailed economic development blueprint for Arkansas encompassing all required actions. It will not replace

existing plans, but it serves to build upon those and provide guidance on how Arkansas can adapt and capitalize on opportunities presented by the COVID-19 pandemic. Arkansas has the incredible prospect to emerge out of the disruption in an advantageous position. As people and firms ease back into the "new normal," time is of the essence. Arkansas needs to move swiftly to attract talent, beef up its cluster strategies, upskill its workforce, prioritize research, embrace innovative endeavors, focus on and support entrepreneurs more fully, transform its health care services delivery model to reflect its potential as an economic development engine, and expand access to high-speed internet in underserved communities before people fall back into their old pre-pandemic patterns. This is Arkansas' moment to transform and dispel negative perceptions of the state. In some sense, it is a rebranding opportunity. The state can leverage and enhance work that the Arkansas Department of Commerce has performed (www.arkansas.com) on a digital platform for "welcome to Arkansas." Rebranding will require that Arkansas is perceived as open and tolerant of talented, diverse and creative people. Any actions that are not seen as welcoming of new ideas and people will be counterproductive. Leadership in the state must follow through by assigning responsibilities and committing to executing the strategies contained in this report.

Dickson Street, Fayetteville, AR. Dickson Street area is the heartbeat of Fayetteville and home to unique boutiques, galleries, bars and restaurants.

Arkansas is at an inflection point hastened by the COVID-19 pandemic and the economic restructuring occurring in its wake.

Navigating this transformation — and capitalizing on it — requires understanding the changes it brings and developing a concrete, intentional strategy to act upon them.

COVID-19 is less a disruption to ongoing trends than an accelerant.[23] In Arkansas, the pandemic has accelerated the ongoing shift from an industrial and resource-driven economy to a more globally connected knowledge economy, where the key resource is talent and the key asset is quality of place. Arkansas was already experiencing these trends — gradually losing manufacturing jobs and accumulating knowledge workers and tech-driven companies — but the pandemic has turbo-charged them.

This does not mean that the physical economy that defines the manufacturing and transportation sectors is not important. Arkansas has a considerable advantage as the country's logistics and supply chain hub. Many people will continue to be employed in these sectors even as they are restructured by technological developments like AI and big data. But these traditional sectors of the physical economy will not be enough, on their own, to power Arkansas' economic development goals forward. To achieve those goals, the state will need to become a magnet for the knowledge workers of the creative class, attracting and retaining the highly talented workers who drive economic growth in the 21st century.

Remote work is the most significant new development to emerge over the past year, and it's clear that it won't be going away after the pandemic is over; more than 50 percent of working Americans will continue to remote

weekly in some form, either full-time or part-time.[24] This trend will inform nearly every aspect of the state's economic development strategy, from business expansion to talent attraction and retention. Knowledge workers will increasingly be able to make their personal locational decisions, often searching for affordable homes, family-friendly communities, an escape from traffic and crime, and access to natural amenities.

Arkansas has these qualities in droves, and it will need to find new ways to "show off" these assets through coordinated communications campaigns and talent attraction efforts. The state can also boast of its rich history of entrepreneurship, as the birthplace of some of America's most successful companies (Walmart, Tyson Foods, Dillard's, and many more), appealing to ambitious, young entrepreneurs from expensive coastal cities.

Sugar Loaf Mountain Island, Greers Ferry Lake, Fairfield Bay, AR. The pinnacle is 1001 ft above sea level.

Beyond communicating its existing assets, Arkansas will also need to invest in amenities and support services benefitting newcomers and existing residents alike. The state should increase access to diverse, and affordable childcare options, making the state more family-friendly and increasing the state's lagging female labor force participation. Likewise, Arkansas must ensure that every corner of the state has high-speed internet access, helping to spread talented workers and successful firms to more remote areas.

Arkansas will need to find new pathways to connect the cutting-edge innovation at the University of Arkansas and at the state's Fortune 500 companies, to small and medium-sized firms on Main Street. This will require aligning workforce, business, educational, and infrastructural needs through a coordinated strategy across the state's leading industry clusters: supply chain and logistics, transportation, corporate headquarter services, health care, and agricultural innovation.

This economic recovery strategy charts a proposed plan for advancing Arkansas efforts to address talent and workforce development needs, catalyze innovation and research, support entrepreneurship and small businesses, deliver health care across the state, promote supply chain and logistics as an economic driver, and increase access to high-speed internet. It is designed to be as inclusive as possible, benefiting metros like Fayetteville-Springdale-Rogers and Little Rock-North Little Rock-Conway, as well as more rural areas in the eastern and southwestern Arkansas. The ultimate goal is to provide new pathways to the middle class for all Arkansas residents through talent attraction, new businesses and upskilling.

Arkansas has an incredible opportunity to emerge out of the disruption of this pandemic as a winner. As people and firms ease back into the "new normal," time is of the essence. Arkansas needs to move swiftly to attract talent, beef up its cluster strategies and upskill its workforce before people fall back into their old pre-pandemic patterns. This is Arkansas' moment to shine.

Why It Matters

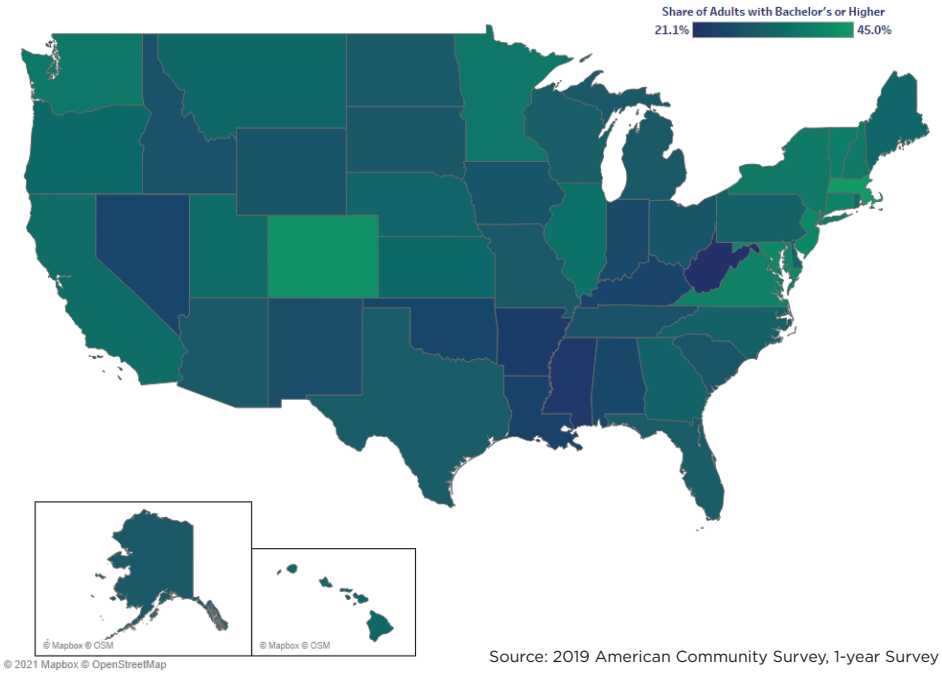
Creative, innovative, and skilled talent is the name of the game in the knowledge economy. It defines winners and losers in the geography of economic development. In recent years, the game has shifted from industrial recruitment to talent attraction, retention and development. States and communities with talent attract capital. Without this piece, it will be impossible for the state to execute its broader economic development goals. Arkansas needs both talent-focused and workforce development strategies to support its economic development efforts.

Arkansas has challenges when it comes to talent, but it has the foundation for making major strides in this all-important aspect of economic development.

There are two ways to measure talent — through educational levels and through the kind of work people do. On the first measure, educational attainment, Arkansas ranks 48th out of 50 states. Less than a quarter, just 23.3 percent, of the state's adults over age 25 have a bachelor's degree or higher.[25] And only 8.3 percent of the state has a graduate degree, ranking 50th, or last, among U.S. states.[26]

When it comes to creative and knowledge occupations, Arkansas ranks slightly better. The knowledge, professional and creative workforce are key drivers of innovation and economic prosperity.[27] Across the United States, 44.8 million workers or 32 percent of the workforce, are members of the creative class.[28] Arkansas ranks 43rd on this measure. Its 329,000 creative class workers represent 27 percent of the workforce, similar to South Dakota, Indiana and Louisiana.[29] Arkansas has the second-highest share of persons employed in skilled trades among U.S. states, and those 374,000 workers are both an important economic development asset, and a well of talent for upskilling.[30]

Share of Persons 25 Years or Older with a Bachelor's Degree or Higher Education, 2019

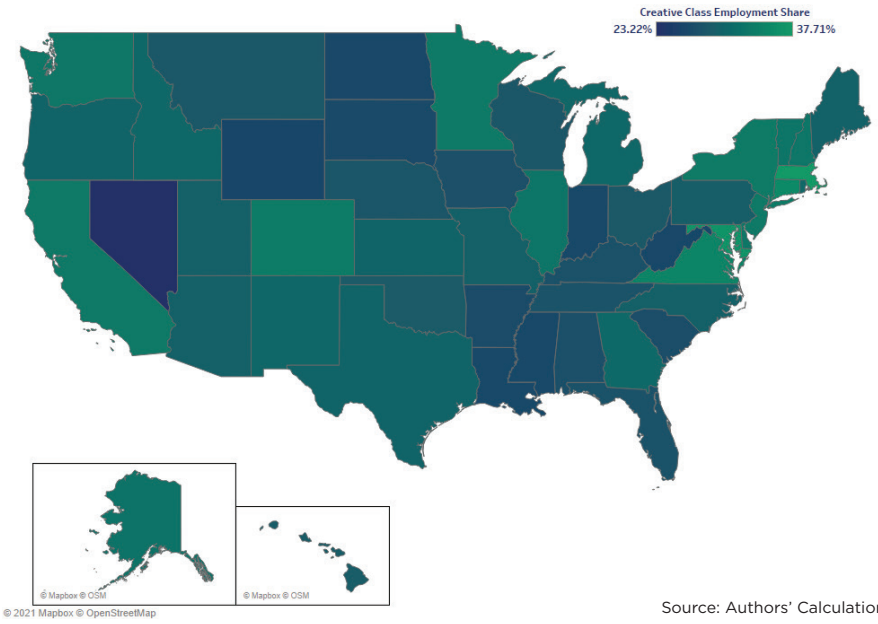


Source: 2019 American Community Survey, 1-year Survey

Arkansas can be much more effective at attracting and producing skilled and educated talent. The state's high quality of life, including affordable housing, little traffic, and access to recreation, not to mention its accessibility via road and air and commitment to ubiquitous internet access, are quite appealing for attracting and retaining workers. Leveraging these advantages will be essential to fill talent gaps and hold on to highly skilled talent. Boomerangs (people who left their hometowns only to return someday), recent graduates from local colleges and universities, and remote workers all desire to live in places with these characteristics.[31] And these workers can shore up the gaps in the state's skilled talent needs and build communities and businesses throughout Arkansas.

Arkansas also has a tremendous capacity for developing talent, which is increasingly important as relevant skills are constantly changing and becoming more technology-driven. Training partnerships with private industry and non-profit industry intermediaries are crucial to ensure relevance and alignment to workforce development needs. The state's community colleges face the unique opportunity to engage due to likely enhanced federal government support in the coming years.

Share of Employment in Creative Class Occupations



Source: Authors' Calculations

The University of Arkansas and Arkansas State University systems also play a role by providing life-long upskilling and learning certificate programs; flexible scheduling and modality, sometimes called "snackable experiences;" and co-creating programs with industry partners that serve both the college-educated as well as workers in the skilled trades and provide more robust pathways to the middle class. Additional career pathways and apprenticeship programs that guide high school students directly into targeted industries, such as transportation, advanced manufacturing, tech jobs, and the trades, will immediately help close the equity gap by allowing individuals to work while securing credentials.

Women in Arkansas are as educated like men; about 20 percent hold a college degree or higher.[32] That's a lot of untapped talent that can create more wealth for families and more economic opportunities in communities across the state. A large part of supporting women in the workforce will be expanding childcare options in the state. Thirty-five percent of Arkansas residents currently live in a childcare desert, representing an unmet need of $350 million. President Biden's American Jobs Plan could provide significant federal funding to meet that need.[33]

Recommendations

Create a talent attraction and retention strategy

Arkansas needs to be thoughtful and strategic about which talent it attracts. Specifically, the state should focus on attracting talent in its growing innovation sectors: supply chain management, health care, data sciences, business services, education, advanced manufacturing, and research and development (R&D). In executing its talent strategy, key focus areas should be the state's quality of place, and its family-friendly features that are especially appealing for boomerangs, recent college graduates and remote workers. Organizations such as Innovate Arkansas have already laid the groundwork for this type of statewide initiative.

What's needed?

- Convene a taskforce of leading business, economic development, community and university leaders to create a state-wide talent attraction and retention strategy that:
  - Identifies talent gaps in targeted industries such as data science and technology applications, health care, advanced manufacturing, and logistics and provides appropriate incentives to firms or individuals to fill the gaps.
  - Retains college and university graduates through greater industrial engagement and enhanced community experiences, like Campus Philly.[34]
  - Addresses the critical needs of graduating international students and their visa status to retain them in Arkansas after completing their degrees.
  - Draws remote workers to build on the success of Northwest Arkansas' "Life Works Here" project and think more broadly about attracting talent across the whole state, including rural areas (especially as the state invests in new digital infrastructure,) and that connects remote workers to their communities and each other. The state could offer relocation tax credits to individuals with skills in high demand to jump-start this effort. These tax credits could be applied to offset income in future years. As worker capacity and value-added to their employer's increases, ensure that wages are also increasing to support economic growth and vitality in communities across the state.

- Reevaluate the state's competitive identity and branding:
  - Position Arkansas' visit campaign as a 'live Arkansas' campaign targeting key metropolitan markets.
  - Develop a "welcome to Arkansas" digital platform that positions all Arkansas communities (rural and urban) as a place for opportunity. The State can leverage and enhance work that the Arkansas Department of Parks and Tourism already has done (www.arkansas.com) around a digital platform for "welcome to Arkansas."
- As worker capacity and value-added to their employer's increases, ensure that wages are also increasing to support economic growth and vitality in communities across the state.

Embrace data-driven and industry-led workforce development and flexible university credentialing

Economic development and workforce development strategies must be aligned with the needs of the private sector. Likewise, they must be data-driven, utilizing a shared collection of goals and metrics. Many private sector companies in Arkansas, including Dillard's, J. B. Hunt, Walmart and others, are already advancing their workforce development programs. The state government and its post-secondary education systems should work with these companies and enhance their workforce development programs in supply chain management, data science and analytics, marketing and communications, etc. The statewide "Ready for Life" initiative has developed a data-driven technology platform to help the state scale and align its workforce development offerings and outcomes.

To do so, government and educational leaders should work with private sector leaders to understand must-need skills and key occupations and incorporate these into programs. The Arkansas Department of Commerce, through the Office of Skills Development and the State Apprenticeship Office, is already starting this work by supporting flexible credentialing at local colleges and universities, enabling higher education to be more responsive to the needs of industry.

What's needed?

- Publicize and share widely the projected skills gap report completed by the Arkansas Department of Higher Education.
- Fully adopt and deploy the "Ready for Life" platform to align workforce development services and outcomes across the state.
- Ensure workforce initiatives like FutureFit; EdgeFactor; Be Pro, Be Proud; and others are aligned and celebrated for their contribution to statewide upskilling.

- Populate "Ready for Life" with training opportunities accessible to all throughout the state, especially those in hard-to-reach areas.
- Work with industry partners to develop training for value-adding skills that also provide work experience, such as apprenticeship programs, credentials and mentoring, and address local employers' skill needs.
- Ensure that our higher education system not only provides knowledge and skills of current technologies but equips trainees to anticipate and adapt to new technologies and future occupations.
- Change the training and higher education culture from a one-time completion mentality to a lifelong learning model.
- Direct state funding to non-credit training programs to help mitigate costs of delivering this training and increase their accessibility to potential workers.
- Test diverse training and credentialing programs in coordination with private-sector leaders. Scale and replicate; move on from those with little market traction. Examples might include:
  - Replicate the University of Arkansas' Data Science program across the state, allowing local institutions to tailor the data domain knowledge to local industry needs (e.g., how do automation and data inform different industries located throughout the state).
  - Apprenticeship programs, such as those provided by the Arkansas Center for Data Sciences, give employed trainees experiential knowledge at multiple levels of the particular career paths and should be expanded.
  - Leaders in the state need to take bold initiatives to transform the state's high-skilled talent base, such as doubling the number of engineering graduates within ten years and a proportionally larger gain in data sciences. This would build upon and be enabled by Governor Hutchinson's Computer Science Initiative to expose computer science and coding.
  - Deliver training in short, accessible modules that result in stackable and transferable credentials (micro-credentials, certifications and nano degrees) that employees can use to advance their skills and career opportunities, especially those interested in tech-driven career paths. Udacity and Generation USA are models that could be replicated.
- Create and provide funding for a "business and innovation partnership/ advisory" role at all universities and community colleges throughout Arkansas that build relationships with private sector partners.
- Promote the use of iDatafy's SmartResume (https://www.smartresume.com/about/) among the state's employers, connecting job opportunities to recent credentialed and trained workers.

Reimagine high school to industry pathways

Many high schools are too focused on university pathways and not focused enough on career pathways, leading high schools to industry pathways in the state to become stale and underinvested. Just as the private sector needs to get more engaged with general workforce development, they should also do so at the high school level, infusing our high school programs with technology and aligning them with the economy's needs in Arkansas. Getting Arkansas high school students in the mindset of being business creators will create virtuous feedback loops for talent and local businesses. This includes not just technical training but soft skills, too: communication, teamwork, leadership, work ethic, time management and more.

What's needed?

- Build high school programs that align with the needs of Arkansas' 21st-century economy in fields like supply chain management, health care, data science, and entrepreneurship.
- Provide talent assessments and career planning and pathways to students earlier in their academic careers to help guide them to appropriate training and educational opportunities (University of Arkansas – Fort Smith is trying this in the Portsmouth Public Schools.)
- Align more classes with credit programs outside of school, giving students direct career experience.
- Design and deliver a required statewide "soft-skills" course for graduating seniors.
- Explore best practices across the country for improving industry-informed initiatives.
- Start with a focus on rural Arkansas regions and opportunity sectors, piloting and then scaling programs.

Support the economic opportunity of Arkansas women

Women have experienced greater economic challenges during the pandemic than men. A quarter of women in the U.S. see their families as worse off because of the pandemic – in large part because many of them have not been able to work.[35] Across the country, there are 1.5 million fewer working moms since the pandemic began.[36]

Arkansas already had one of the lowest female labor participation rates in the U.S., ranking 44th among states and ahead of Kentucky, Louisiana, New Mexico, Mississippi, Alabama and West Virginia.[37] Women's low labor participation rates (69.6 percent compared to 77.3 percent for men) bring down the state's overall labor participation rate, which ranks 44th in the

country.[38] However, Arkansas women comprise 58 percent of the state's creative class, ranking third in the country.[39] Arkansas needs targeted programs to address the new and ongoing labor challenges for women.

What's needed?

- Assess the state's labor force gender gap, as well the economic opportunities for women.
- Support a statewide initiative to support (mentorship, technical assistance, capital) and celebrate women entrepreneurs.
- Consider the creation of a statewide women-focused mentoring network, connecting Arkansas women to one another.
- Create a public-private taskforce to evaluate childcare needs.
- Recognize Arkansas companies that are promoting women as leaders throughout their organizations.
- Pilot different models and forms of childcare and pursue best practices.
- Celebrate the successes of Arkansas women through marketing and communications campaigns.

45th annual Watermelon Festival, Hope, AR. Home of the Watermelon Olympics.

Why It Matters

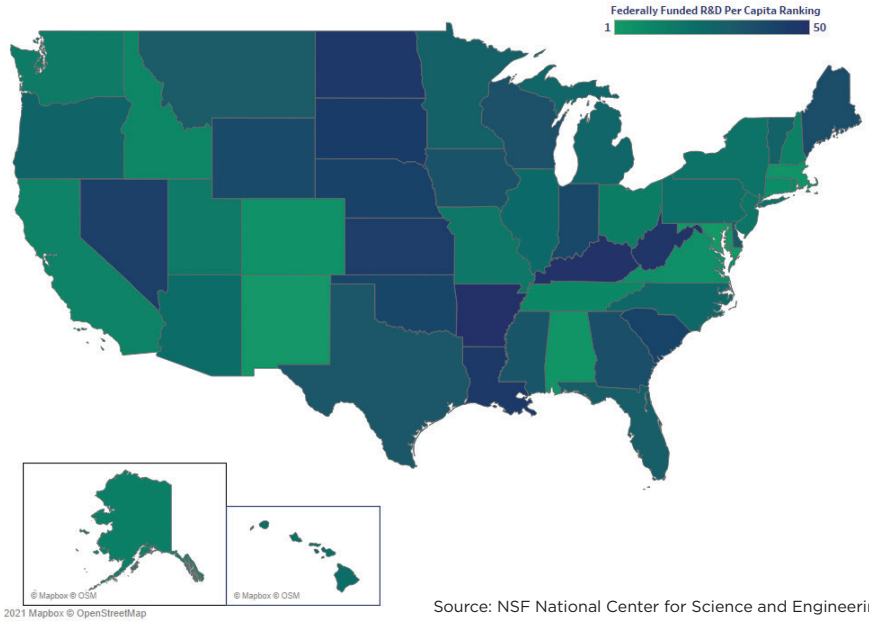
Innovation and research have a crucial part to play in the Arkansas Economic Recovery Strategy. Nobel prize-winning economists, including Robert Solow, Paul Romer and others, have detailed how innovation, research, and knowledge drive economic growth in advanced societies.[40] In the decade that followed the Great Recession, knowledge-based regional economies with significant research and innovation assets captured far more than their share of U.S. growth. Before the pandemic, many coastal cities were already beginning to see their growth slowed by expensive housing and congestion, pushing some talent to move away to pursue a better balance between opportunity and quality of life. Significantly, their destinations were cities like Austin, Texas; Nashville, Tenn.; Boulder, Colo. and Provo, Utah – non-coastal hubs with their anchor research institutions and culture of innovation.

While the pandemic may have accelerated and broadened this out-migration as amenities in big cities closed and offices switched to remote work, early indications suggest that only some of these moves are permanent. The advantages of proximity and unstructured interactions to create new solutions are well-studied. Firms that depend on idea generation and knowledge exchange and creation may lure their staff back into the lab and office. This means Arkansas must build its anchors and culture of innovation to succeed long term.

Research at universities helps drive regional job growth in knowledge-industries, by training a skilled workforce and generating new intellectual property. University R&D can also seed new clusters and attract talent, creating value in the long term. Applied research can give companies a competitive edge, while basic research can yield inventions that can shape tomorrow's markets. Public funding, especially federal funding, has been central to supporting research activities with broader economic benefits. In 2019, the most recent data available, Arkansas attracted $179 million in federal obligations for science and engineering, ranking 50th in the nation

on a per capita basis. This represents less than 0.2 percent of the national funds available and well below Arkansas' share of national gross domestic product or population.[41]

Federal Obligations for Research and Development Funding Per Capita, 2019



Source: NSF National Center for Science and Engineering Statistics

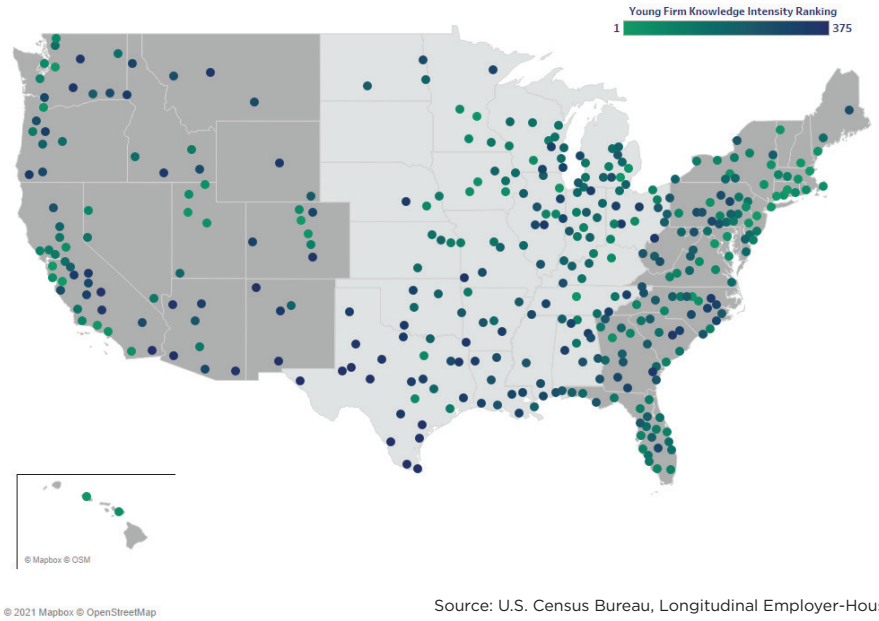
To claim a larger share of this activity, Arkansas needs to continue to develop its research and innovation assets that can help support a vibrant entrepreneurial ecosystem that creates new firms. As we noted in our report Young Firms and Regional Economic Growth, "Knowledge-intensive young firms have a higher probability of achieving middle-market status where they generate rapid job gains for their communities."[42]

The 2005 Accelerate Arkansas initiative catalyzed Arkansas's commitment to developing its innovation and research performance, and subsequently through the state's Science and Technology Plans, updated most recently in 2018.[43] By building on what has worked, Arkansas can respond boldly to the opportunities created by national trends, priorities, and investments post-pandemic.

In Northwest and Central Arkansas, anchor institutions like the University of Arkansas, Fayetteville and the University of Arkansas for Medical Sciences are leading the way. The private sector is also investing in R&D, with transportation logistics companies and software-as-a-service firms developing new processes and products with an eye for the national market. We heard in our focus groups that these strong networks of academic institutions, private firms, and support organizations connect and collaborate well.

Realizing Arkansans' full innovation capabilities requires finding ways to tap into the knowledge and creativity of a broader set of communities and community members. While exciting new intellectual property is more likely to be created by University of Arkansas faculty or private sector R&D researchers, process improvement is happening in workplaces across the state. Scaling up the development of new and improved agricultural processes could have major benefits for the sector and those who recognize and commercialize the successful discovery. Geographically distributed innovation training hubs could help catalyze new idea generation and economic growth in rural communities while taking advantage of remote work and increased acceptance of online collaboration to allow people to stay in their communities and participate in the innovation economy. A sustainable source of funding would need to be developed to maintain these hubs in the long-term.

Metropolitan Young Firm Knowledge Intensity Rankings



Source: U.S. Census Bureau, Longitudinal Employer-Household Dynamics, 2017

There are still significant regional differences in Arkansas's innovation infrastructure and support systems, with resources concentrated in Central and Northwestern Arkansas. While these more developed ecosystems still need investment to truly thrive, foundational work is needed in the rest of the state. Fortunately, national interest in investing in research and innovation, especially outside of traditional technology hubs presents a unique opportunity for Arkansas to pilot and transform its ecosystem by participating in new federal programs targeting rural communities. Strong statewide advocacy for innovation and commercialization opportunities could help the state make its case in Washington, D.C.

Blackberries are the leading crop of the fruit breeding program at the U of A Arkansas Agricultural Experiment Station.

Recommendations

Change the state's economic development culture to embrace innovation as an economic development strategy

To create meaningful change in the Arkansas economy, the state must embrace innovation as a critical driver of economic prosperity. This will require a cultural shift incorporating robust and long-term investments in the innovation ecosystem that harnesses local ingenuity as a significant part of the economic development portfolio. The Arkansas Innovation Council (AIC), formed by Gov. Hutchinson in 2019 to expand Arkansas's knowledge-based economy, is working toward this goal. Dynamic firms and talent need to see Arkansas as a state committed to supporting them and their growth.

What's needed?

- Increase, and make permanent, funding for the Arkansas Economic Development Commission (AEDC) and work through the recently established Small Business and Entrepreneurship Division to:
  - Provide effective coordination of the state's economic development portfolio.
  - Identify and support ventures with high-growth potential to facilitate their scaling up.[44]
  - Support recruitment, retention, and recognition of top scientific talent.
- Support and promote the work of the Arkansas Innovation Council (AIC)
- Revisit the AEDC incentives and metrics to align them with knowledge-based economic development priorities and support for innovation.
- Advocate for federal legislation with bipartisan support to spur innovative activities, such as the U.S. Innovation and Competition Act, which seeks to create 20 innovation hubs throughout the country by investing $10 billion over the next five years, or the Modern Workforce, Entrepreneurs & Researchers Act (also known as the WERC Act.)
- Northwest Arkansas, with state support, should begin to develop a plan for why the region should be chosen as one of the 20 regional technology hubs contained in the U.S. Innovation and Competition Act legislation.

Fund startup ventures

Funding is overwhelmingly the biggest obstacle to launching a business in Arkansas, especially for persons of color.[45] Strategic investments in risk capital by the state could enhance the availability of funds for entrepreneurs and better position Arkansan entrepreneurs to be more competitive for federal funding opportunities.

What's needed?

- Utilize the State Small Business Credit Initiative (SSBCI) to make seed and early-stage capital investments in export-oriented, high-growth firms. This could be done directly or through the Arkansas Institutional Fund, and it could mean up to $56 million of federal funds available for risk capital in Arkansas. A group of entrepreneurs, investors and entrepreneurial support organizations could be convened to inform the allocation of SSBCI funds.
- Provide a state match for Small Business Technology Transfer (STTR) grants, in addition to that already provided for Small Business Innovation Research (SBIR) grants.
- Consider options for gap financing between Phase 1 and Phase 2 of SBIR and STTR grants, which would allow researchers and entrepreneurs to develop their ideas and prepare the second SBIR or STTR grant application, and consider scaling up the Science Venture Studio model for supporting Arkansas start-ups as they pursue these grants.[46]
- Encourage the pursuit of federal agency funding to increase academic research and meet industry needs, allowing university research to benefit local firms and train R&D workforce indirectly; the University of Arkansas-Fayetteville and the University of Arkansas Medical School both have the potential to attract additional federal research funding from agencies like National Institutes of Health, Department of Defense and National Science Foundation.
- Capitalize on once in a lifetime opportunity of federal fund availability.

Promote academic research discoveries into ventures with high growth and export potential as an engine of economic prosperity

Academic research is a vital asset in Arkansas' plans to convert novel research discoveries into high-growth and export potential ventures as an engine for future economic prosperity. Areas in which researchers in Arkansas' academic institutions specialize have significant patenting and licensing potential, meaning that these research discoveries might be bought or 'rented' by businesses. Applied research conducted in partnership with local industries represents another way academic research can spur economic development; however, different approaches, timelines,

and motivation between the academic and private sectors can make collaboration seem onerous. Thus, both academics and industry should be incentivized to collaborate to the benefit of our state.

What's needed?

- Accelerate the potential for patenting and licensing of academic research through support of the Arkansas Research Alliance's (ARA) recruitment of faculty interested in generating intellectual property useful to local industries.[47]
- Create a complementary fellowship program through ARA for existing or visiting faculty to assist with commercialization of intellectual property using a Scientist-in-Residence and Entrepreneur-in-Residence model to encourage academic and industry collaboration and assist with commercialization of intellectual property.
- Encourage Arkansas' higher education institutions to recognize the commercialization activities of faculty for promotion and tenure decisions and fund and staff technology transfer support.
- Develop a hub and spoke system to diffuse innovation activity throughout the regional university campuses; University of Arkansas campuses at Monticello and Fort Smith, for example, should serve their students, faculty and neighboring communities as central resource points for training, high-speed internet hubs, and convening space for those interested in generating new ideas and research.
- Expand the scope of the Agricultural Experiment Station Research Centers and Cooperative Extension Offices throughout the state to provide transformative training and resources to extend the culture of innovation statewide.
- Survey businesses to assess their attitudes toward and experiences with academic partnerships, the results of which could guide the development of tools to reduce friction and encourage clearer communication between the parties.
- Establish the Arkansas Innovation and Commercialization Alliance (AICA) to serve as a catalyst to better link industry interests with university-based research initiatives by engaging with Arkansas universities and institutions from a business perspective; AICA would work collaboratively to complement existing entrepreneurial support organizations.[48]
- Establish the UAMS Winthrop P. Rockefeller Institute as National Cancer Institute-Designated Cancer Center.

Created by Arkansas Regional Innovation Hub participant Drew Lovell, miniature models of the "Johnny 5" robot from the 1986 film Short Circuit.

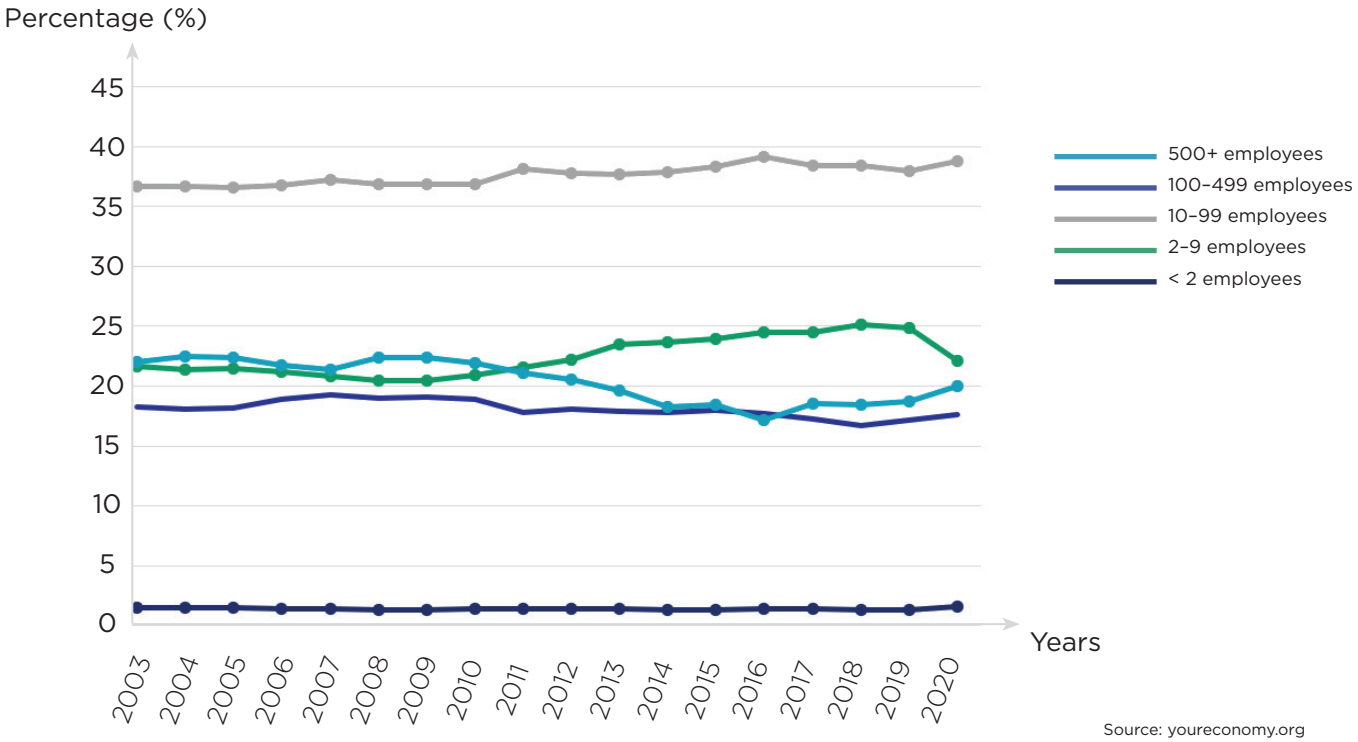
Why It Matters

Many entrepreneurs have called Arkansas home throughout its history. Sam Walton is arguably the most famous as the founder of Walmart, which continues to transform the retail shopping experience to this day. Others include John H. Johnson, founder of Ebony and Jet magazines, and Al Bell, who transformed the music industry using marketing and promotion technologies.[49] Ben Pearson established the first bow and arrow company in the United States in Pine Bluff, while Forrest L. Woods is credited with inventing the bass boat in Flippin, and Mike Mills established the Buffalo Outdoor Center in Ponca to host outdoor experiences along the Buffalo River.[50] April Seggebruch, along with her business partner Stan Zylowski, started Movista to revolutionize retail store management; she also raised the most venture capital among Arkansan female founders in 2018: $13.3 million.[51] And there are many, many others. Arkansas needs to reclaim this legacy of entrepreneurship to ensure its future growth.

Over 62 percent of jobs in Arkansas' economy are at companies with less than 100 employees. Employment at small businesses, with less than ten employees, were rising between 2008 and 2019, displacing the share of employment at companies with 500 or more employees (i.e., large companies.) The 2020 pandemic, however, saw a decline in small businesses and their share of employment, as reduced customer traffic resulted from changes in consumer preferences and capacity limitations.[52]

And while small businesses are important to Arkansas' economy, the presence of young firms (firms less than six years old) has been shown to increase overall employment growth dramatically. Thus, entrepreneurs play a particularly important role in economic development.[53] In Arkansas in 2018 (the most recent data available) 10 percent of private employment was at young firms. While data is not available at the state level for 2019 and 2020, the U.S. saw employment share in young firms grow over these years, rising from 10.2 percent to 10.8 percent.[54]

Share of Total Arkansas Employment by Establishment Size, 2003-2020



Source: youreconomy.org

Entrepreneurs and small business owners provide several benefits to the local and state economy. In addition to being a major source of employment, small business owners play a significant role in taking on part-time and new workforce entrants, helping to increase labor force participation across Arkansas. They also broaden the tax base with increased sales, property and income tax revenues for local and state governments. Entrepreneurs often live where their businesses operate, which provides roots and a commitment to a place that relocated firms usually do not share; locally owned businesses are more likely to buy and supply local products and services, increasing the economic impact of sales in the community. Small business owners and entrepreneurs also benefit their communities through diversifying the mix of businesses, increasing the resiliency of the local economy during economic cycles, and they help fill empty storefronts and buildings, enhancing the community's appearance and desirability as a place to live.

Entrepreneurs have an additional benefit to the local economy: as their businesses grow, they attract additional forms of risk capital and gain experience that benefits the entire local entrepreneurship community. Research has shown that venture capital flows to where growing businesses are, so, as entrepreneurs attract venture capital and other forms of investment, the investors become more aware of other local opportunities (and therefore more willing to invest in that place).[55]

Furthermore, networking and knowledge-sharing are common among entrepreneurs and business owners. As the number of successful businesses grows, there is more knowledge and experience to share with first-time and less experienced entrepreneurs and business owners.

Entrepreneurship is often classified into two groups: small businesses that meet local needs, such as restaurants and retail stores (sometimes dubbed “Main Street” businesses,) and innovation-driven businesses that export goods and services outside of the region (i.e., traded goods or services.) Both are important: the former provides quality of life and place, and the latter creates more new jobs and injects new money into the local economy. While most people think innovation-driven businesses are associated with digital technology, they could be any new good or service, process, or input used to produce another good. For example, using recycled materials to make shoe soles is an innovation-based business. A community economy is not healthy unless it has both kinds of entrepreneurship present. The two exist in a symbiotic relationship: small businesses make a community attractive to labor, and, in turn, businesses producing traded goods and services provide income for households to spend at Main Street businesses. The businesses also benefit from a common labor pool, and the skills acquired at Main Street businesses (e.g., customer service skills) are still relevant and useful at traded goods

Champion Yaupon Holly Tree in Hampton, AR.

businesses and vice versa. However, our current career pathways used in high schools and workforce development rarely acknowledge this crossover, limiting the career potential of many workers.

Arkansas possesses many of the key components of an entrepreneurial ecosystem, the combination of resources and processes to increase the number and survival of new businesses. Throughout the state, incubators, accelerators and the Arkansas Small Business and Technology Development Center exist to provide technical assistance, in addition to entrepreneurship training programs at most state universities.[56] Small Business Administration loan guarantees are available through banks across the state, and over $42 billion in private equity and venture capital investment have been secured by Arkansas firms since 2011.[57]

The COVID-19 pandemic disproportionately impacted small businesses in Arkansas, resulting in almost 25 percent fewer businesses open since the first COVID case was identified in January 2020.[58] Many of the reasons so many businesses in Arkansas closed were present before the pandemic started, but the pandemic exacerbated conditions to force closure. These reasons range from inadequate capitalization and/or cash flow; ineffective use of technology to manage costs, provide new services and access new markets; lack of awareness or access to support services and inability to retain talent.

Crises present new opportunities for entrepreneurship, but entrepreneurship is particularly difficult without adequate support from local, regional and state entities. While access to startup capital is critical, hopeful business owners also need access to coordinated support services, access to technology and the ability to use it effectively. Our recommendations for enhancing Arkansas' entrepreneurship environment and small business health focuses on these three themes.

Recommendations

Coordinate support services

First and foremost, Arkansas needs to embrace its entrepreneurship heritage and explicitly incorporate entrepreneurship as a key strategy for growing and diversifying its economy.

What's needed?

- Sufficient funding and capacity and appropriate metrics to support AEDC's new program area in Small Business and Entrepreneurship Development, particularly focused on building a collaborative network of service providers across the state.
- Funding for entrepreneur support organizations (ESOs,) such as the Arkansas Small Business and Technology Development Center (ASBTDC;) such resources are necessary to promote and deliver services throughout the state, especially in the rural portions of the state.
- Trust and collaboration among ESOs to increase the efficiency of public funds; outcomes like referring clients to the best resources available imply awareness and spirit of reciprocity between organizations that currently do not exist; through collaboration, engaged ESOs could aid one another in meeting performance networks through client referrals.
- Direct other state agencies, such as Education and Workforce Development, to promote problem-solving and critical thinking skills (essential for entrepreneurial success) and entrepreneurship as a viable career path or job option through partnerships with ESOs.
- Build capacity to allow existing ESOs to serve remote clients via alternative advising models, such as regional hubs, virtual advising via the internet or itinerate advisors that meet with clients in their community; local libraries and/or Chambers of Commerce could be potential hosts for such activities.
- Build collaborations to deliver culturally competent and relevant support that recognizes the specific barriers to entrepreneurship for persons of color.

Increase access and availability of startup capital

Today, small business owners face dwindling opportunities to access capital. According to a Federal Reserve's regional banks survey, only 35 percent of small businesses with at least one employee and annual revenue between $100,000 and $1 million had received bank funding in the past five years. For firms with $100,000 or less in annual revenue, the figure dropped to 24%.[59] Even loans that are more accessible, such as Small Business Administration backed loans, lack the flexibility required in a small business environment. This lack of access to capital stifles job creation and business innovation across local and national economies.

Access to capital is an even bigger issue for black and brown business owners, who are twice as likely to be denied credit.[60] Thirty percent of consumers in low-income neighborhoods are credit invisible, contributing to the barriers to accessing conventional capital sources.[61] One example that demonstrates this inequity in access to capital is Congress's COVID-19 relief program for small businesses, where the distribution of loans varied considerably - with small businesses in majority-white neighborhoods receiving PPP loans more quickly than small businesses in majority-Black and majority-Latino or Hispanic neighborhoods.[62] In a recent survey, women of color who own businesses sponsored by the Women's Foundation of Arkansas and conducted by the University of Central Arkansas, over 80 percent of respondents stated that access to capital was a barrier to starting a business in Arkansas, higher than even racial bias or discrimination.[63]

What's needed?

- Changing the evaluation metrics for state-controlled funds, such as the Arkansas Institutional and Arkansas Venture Development Funds, to increase funding available for Arkansan start-ups; specifically, these funds should focus on providing risk capital to Arkansas-headquartered, early-stage firms instead of return on investment.
- Adjust the personal income tax structure to encourage investment in businesses and reduce obstacles that enable entrepreneurs to move to neighboring states.
- Aid existing organizations that provide startup capital to businesses to promote their services, especially among historically unbanked or remotely located populations.
- Establish a program to locate entrepreneur-support capacity in communities across the state to walk with entrepreneurs through the funding process, much like the Phillips County (AR) Loan Application Assistance project by Winrock International to help business owners apply for Payroll Protection Program loans.

- Promote early-stage company investments as an asset class and build a pipeline of angel investors based in Arkansas.
- Encourage Arkansan company philanthropies to focus their venture capital efforts on Arkansan startups.
- Boost microloan opportunities available through community development financial institutions (CDFIs) and crowdfunding platforms like Kiva, Wefunder and Republic Cities.

Delta Dirt Distillery is a family-owned craft distillery located in the richest farmland in the country growing sweet potatoes - the Arkansas Delta. Helena, AR.

Invest in other forms of entrepreneurship infrastructure

In addition to financial capital, entrepreneurs are most successful when surrounded by a network of other entrepreneurs with varying experience levels. These networks provide mentoring and knowledge about different forms of financial capital and help solve problems that occur throughout the startup process; they also offer mental, emotional and technical support when ideas fail. Entrepreneurs often locate in areas with high quality of life and have expertise in an industry or process like their own.

What's needed?

- Create networks and/or periodic events to cultivate interactions between entrepreneurs, investors, and support organizations.
- Educate small business owners to use technology to develop and enhance their businesses effectively; the Digital Navigator program in Pine Bluff, from the National Digital Inclusion Alliance, maybe a model to replicate throughout the state.
- Retain entrepreneurial talent by:
  - Investing in and promoting quality of place and life projects (e.g., state parks, bike trails, museums and cultural events.)
  - Growing access to startup capital and entrepreneurial talent.
  - Reduce the costs of workforce training to small and mid-sized enterprises (SMEs; because many workers require additional training to learn the latest technology, SMEs are hesitant to invest in new workers; the cost is relatively high, as is the likelihood that the trained worker will pursue opportunities at a larger firm – with better benefits and career opportunities – once trained.)

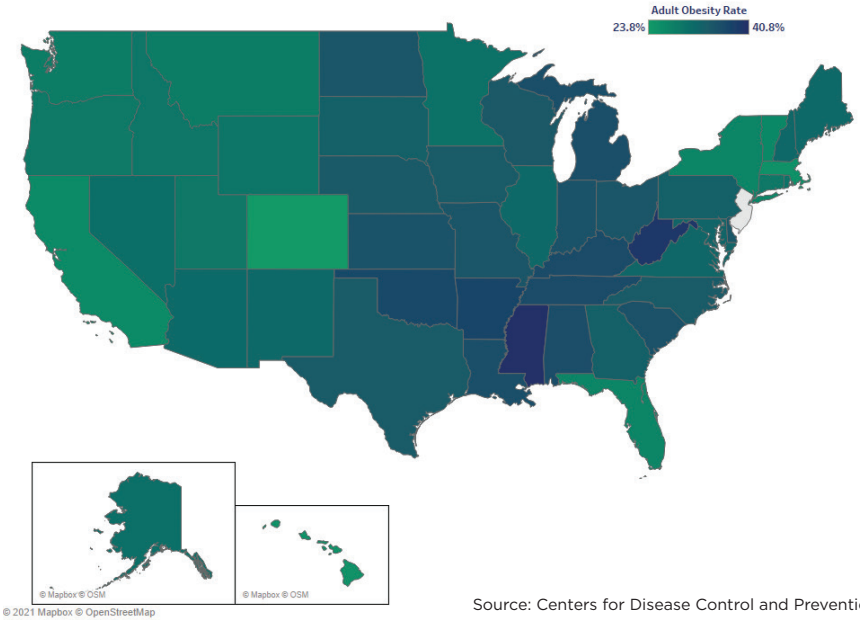
Why It Matters

The COVID-19 pandemic has demonstrated inefficiencies in the U.S. health care system, prompting many to suggest shifting to a value-based system that ties payments to health outcomes. Additionally, a lack of access to health care, particularly by persons of color, has contributed to the proportionally more severe adverse impacts experienced by these populations during the pandemic. Structural changes are necessary to increase access, including using technologies like telehealth, which could also benefit persons living in rural or remote areas.

High rates of chronic diseases, especially obesity, diabetes, COPD, heart disease, hypertension and other cardiovascular diseases (CVD), left rural areas of Arkansas susceptible to contracting COVID-19, experiencing more severe cases and witnessing high death rates due to these comorbidities.[64] Geographic-based health inequality corresponds with the pattern exhibited in population health indicators and mirrors variations in income, education, and other socioeconomic factors.[65] Smoking, alcohol abuse, poor diet, and lack of exercise tend to be more common in geographies with high rates of certain diseases.

As COVID-19 has highlighted, Arkansas scores poorly on measures of the social determinants of health. Arkansas' self-reported obesity rate at 37.4 percent is the third-highest in the nation, contributing to associated elevated chronic conditions.[66] Mental health is another acute problem associated with obesity and other underlying factors. Chronic disease comorbidities also push the labor force participation rates lower in Arkansas. Health care costs are high due to the challenges in managing these conditions. This is a drain on employers, the Medicaid system (since states pay half of these costs) and insurers. Access to health care services further compounds the ability to treat chronic disease cost-effectively. Due to regional hospital closures and the large rural share of the population in Arkansas, many patients must travel extensive distances to obtain primary and specialized care. While COVID-19 has demonstrated that such care can

Adult Obesity Rate, 2019

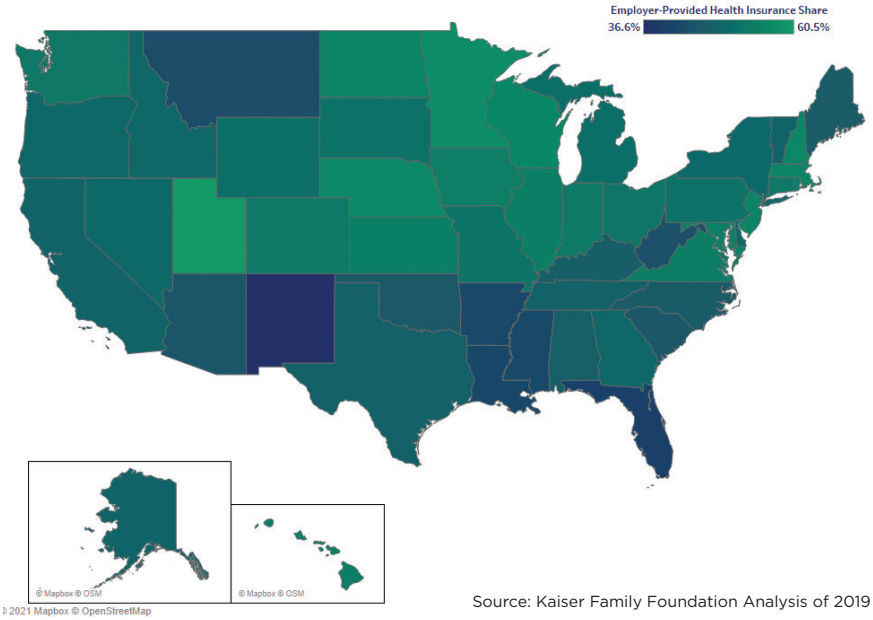


Source: Centers for Disease Control and Prevention

be delivered remotely using telemedicine, poor high-speed internet access and a lack of devices where high-speed internet is available in rural parts of the state limits health care providers from utilizing these services. Many individuals that participated in our health care focus groups expressed these views.

Low-income families in Arkansas have limited access to health care services, and at 42.0 percent, the employer-provided insurance coverage share of the population ranks the state at 47th.[67] Arkansas Works, the state's private option alternative for Medicaid expansion, expires at the end of 2021 and its work requirement was overturned by federal courts. Thus, the state has an opportunity to address health care affordability as it develops Arkansas Works' replacement program.

Share of the Population with Employer-provided Health Insurance, 2019



Source: Kaiser Family Foundation Analysis of 2019 ACS 1-Year Data

Health disparities and access are exacerbated by a lack of medical professionals that are Black or other people of color. The Black population in Arkansas, even those with access, don't seek care regularly. Studies have demonstrated that Black patients are more engaged with the health care system if Black physicians and healthcare professionals provide the services.[68] To become a practicing physician in the U.S., you must complete three to seven years of residency training after graduation from medical school. This presents a significant hurdle for persons of color, from both access to higher education and affordability perspectives. This is exacerbated by the limited availability of graduate medical education slots available in Arkansas, partly because hospitals throughout Arkansas fund and pay more for resident training than what is reimbursed by the federal government.

Arkansas can be among the leaders in moving from a traditional fee-for-service model to a value-based health care system. A value-based system is where reimbursement programs and care models advance the quality of care while increasing patient access. Provider payments are based upon managing the care of the covered population, and providers are incentivized to keep them healthy. Providers use evidence-based medicine, actively interact with patients, deploy health information technology and incorporate data analytics in their services.[69] Studies indicate that patients receiving more coordinated, appropriate, and effective care have better

outcomes. A value-based plan incentivizes providers by allowing them to share in the cost savings.

For several decades, the health care sector has been among the fastest-growing sectors of the U.S. economy. The industry ranges from health services, such as health practitioners and hospitals, drugs and pharmaceuticals, medical instruments and supplies, medical services and health insurance to research and testing services where much of the burgeoning biotechnology sector is recorded. Many communities across the nation have recognized health care and the life sciences as an economic engine (Boston, Cleveland, Rochester and San Francisco, among others) and targeted it for development purposes.[70]

However, in Arkansas, most legislators, state and local economic development officials and government policy leaders do not view health care as a way to promote broad economic growth. Perhaps this is because health care is seen as a rapidly rising cost claiming more government resources such as Medicaid expenditures. Arkansas needs to invest in developing nationally recognized areas of specialty research, training and clinical care. Additionally, Arkansas must translate these research and clinical competencies into new commercial enterprises or new lines of business at established firms.

Stout's Point overlook, the mountain sits 1,120 feet above the Arkansas River Valley- Picture of Petit Jean State Park, Morrilton, AR.

Recommendations

Improve health behaviors and access to services

Strategic investments of public funds could greatly enhance education about chronic disease and mental health, access to health care providers, and address affordability, particularly for low-income Arkansans. These investments also have the potential to address inequities faced by persons of color and those living in rural and remote areas and positively impact the productivity of Arkansas' labor force.

What's needed?

- Additional funding for the Arkansas Center for Health Improvement (ACHI) to expand their capacity to conduct evidence-based research, public issue advocacy, and collaborative program development and work with providers, insurers and others in the health community to develop programs to educate, mitigate and reverse the poor performance on social determinants of health in the state.
- A public service campaign with sufficient marketing resources is essential to achieving the desired educational and awareness outcomes about chronic diseases.
- Expand utilization of telemedicine by ensuring ubiquitous high-speed internet access, adoption, device availability and digital literacy.
- Maintain reimbursement rate parity between telemedicine and in-person service delivery to expand access to specialized services.
- Utilize a spoke and hub model to deliver remote health care services via telemedicine in partnership with the three medical schools in Arkansas to reduce costs and dramatically increase access to mental health care.
- Expand health care access to low-income populations by implementing Arkansas Health & Opportunity for Me (ARHOME,) which could improve health outcomes, reduce the growth in state spending and move an estimated 300,000 participants out of poverty and into work.[71] While the Arkansas legislature passed enabling legislation for ARHOME, a waiver from the Biden administration must still be secured and funding, planning and coordination is needed from the state to implement the program fully.

Innovate for health care sector transformation

Arkansas can be a national innovator in value-based payment programs and their utilization by building upon the work of Arkansas BlueCross BlueShield and the Whole Health Institute. In addition, Arkansas can lead by expanding the health care workforce with Black and people of color through early exposure to health care occupations, scholarships and expanding graduate medical education in Arkansas. Supporting the development of device and biotechnology innovation is another opportunity for the state.

What's needed?

- Better marketing campaigns and provider support to promote the adoption rate of value-based health care programs, particularly among large, self-insured corporations.
- Target promising Black and persons of color by late elementary or middle school to expose them to opportunities to become medical care providers.
- Create scholarships for targeted students to pursue undergraduate and medical school in collaboration with private and philanthropic organizations.
- Establish a unique medical and research cluster building on existing and emerging health care investments, such as the announced Whole Health School of Medicine and Health Sciences, the University of Arkansas Institute for Integrative and Innovative Research (I3R) and the University of Arkansas for Medical Sciences (UAMS), and the National Center for Toxicological Research and other state-based resources.
- Expand graduate medical education (GME) slots in Arkansas by:
  - Supporting Senator Boseman's proposed legislation to increase Centers for Medicare and Medicaid Services (CMS) funding for GME and adjust the funding formulas to benefit Arkansas and other more rural states.
  - Encourage and incentivize Arkansas institutions and foundations to participate and fund additional residency training (GME.)

Promote health care research and economic development

Economic development officials should adjust their view of health care as a cost center to a more balanced perspective, including its economic growth and diversity opportunities. Quality and accessible health care not only creates well-paying jobs and associated multiplier effects, but it can also draw in federal sources of research funding, reduce health care spending leakage and even increase revenues from out-of-state patients, and stimulate innovation and entrepreneurship through the commercialization of new products, procedures and treatments.

What's needed?

- An annual report on the economic impact of health care services and the life sciences industry in Arkansas to demonstrate and advocate how health care is an industry sector that can benefit the state's economy and highlighting federal sources of research funding (NIH, NSF, DOD, etc.,) industry research and development spending and all health care industry-sector contributions (revenue, employment and wages) including indirect and induced impacts of the industry.
- Secure the National Cancer Institute (NCI) Cancer Center designation[72] for the UAMS Winthrop P. Rockefeller Institute to yield high health returns by addressing Arkansas's high cancer incidence rate and attracting patients from outside the state to receive treatment and provide economic benefit to the state.
- Provide commercial support to engage the National Center for Toxicological Research (NCTR) in Jefferson, AR, the only FDA funded Center located outside of Washington, D.C. metropolitan area that conducts research, generates data and supports innovative tools and approaches that FDA uses for decision-making and to protect and promote individual and public health, to foster medical innovations and bring them to market with companies based in Arkansas and complement the Arkansas Research Alliance's engagement with NCTR to integrate them with university research resources. AEDC could provide funding to ARA to manage the relationship between NCTR and publicly funded institutions across Arkansas. Perhaps the most important operational changes would be for NCTR to partner with universities to attract world-class research talent and collaborate on clinical and pre-clinical needs. Advocate for increased federal funding to modernize and sustain NCTR.
- Support and underwrite BioVentures at University of Arkansas for Medical Sciences to start and incubate biomedical firms based upon medical research innovations developed at UAMS, which have a long investment cycle that requires patience but can have a high rate of return; part of the resources should be directed toward developing a stronger connection between BioVentures and the UAMS Translational Research Institute.

Why It Matters

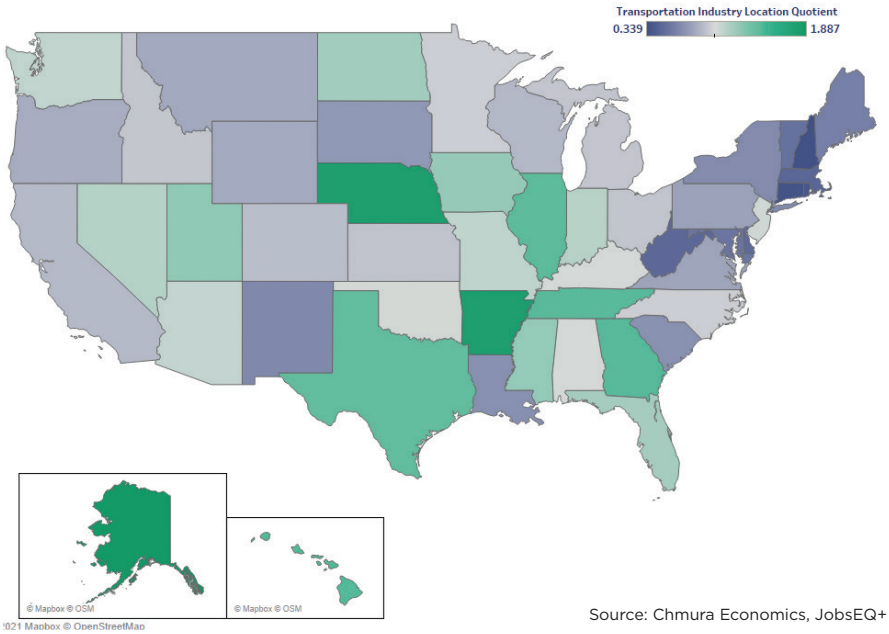
The knowledge economy is not just about software, digital media, and other intangibles. It is also about the physical environment. And the reality is that the new industrial economy is less about making things than moving them. Just 6 percent of Americans are employed in direct production occupations in factories, a decrease of 6.5 percent over the past five years.[73] Meanwhile, transportation occupations account for 9 percent of American jobs and have grown by nearly 25 percent over the last five years.[74]

Arkansas reflects these trends to a degree — although its outlook is better than the nation. The state has a higher-than-average workforce share employed in manufacturing occupations (9.5 percent) and this sector is shrinking at a slower rate than the U.S., at just 2.9 percent over the past five years.[75] Transportation occupations account for 10.9 percent of Arkansas' workforce, slightly higher than the national average. And this sector is growing at a similar rate as the rest of the nation, increasing its workforce by 23.6 percent over the past five years.[76]

These trends are more important as logistics and supply chains dominate the economy. These sectors are poised to grow even more with the rise of e-commerce. E-commerce sales grew by 32 percent between 2019 and 2020, jumping from 11 percent of total sales to 14 percent of total sales in just one year.[77]

Arkansas has a significant competitive advantage in this space. The state has the third highest location quotient (LQ; 1.82) of transportation industry employment in the U.S., according to JobsEQ+,[78] meaning this sector is heavily concentrated here relative to other states. Northwest Arkansas – and the rest of the state – is the "beating heart of the world's supply chain industry."[79]

Location Quotient for the Transportation Sector, 2020



Source: Chmura Economics, JobsEQ+

Arkansas' Fortune 100 companies boast significant expertise in the space, including Walmart, J. B. Hunt, and Tyson Foods, as well as other major corporations like Dillard's. Walmart's presence is particularly significant. Over 300 Fortune 500 companies have established satellite operations in Arkansas to support the world's largest retailer.[80] Smaller firms such as ArcBest are innovators in logistics. And the University of Arkansas Sam M. Walton College of Business boasts the top Supply Chain Management program in the U.S.[81]

Arkansas can build on these existing advantages and become a national and global leader in supply chains, logistics, transportation, and a leading player in the e-commerce revolution.

Recommendations

Embrace a "new" type of blue-collar work in Arkansas, from manufacturing to transportation and logistics

Arkansas' competitive advantage in the logistics and transportation sector is growing stronger compared to its production occupations. Arkansas should focus on the sub-sectors within transportation and logistics where it enjoys the biggest competitive advantage over other states and regions. Truck transportation stands out as a particularly strong sub-sector, with an LQ of 2.38 (nearly two and half times the U.S. average.) Logistics is also quite a strong sub-sector, with an LQ of 1.82. The sector provides household-supporting jobs and offers a career pathway for those who haven't completed college. And while automation will eventually produce major changes in transportation, it remains a long way off due to the challenges of perfecting this extremely advanced technology, meaning the need for many workers will continue for the foreseeable future.

What's needed?

- Conduct a statewide assessment to understand the workforce needs impacting the sector, especially for occupations in truck driving, as the sector expands and employees leave the workforce for retirement or other reasons.
- Partner with private-sector partners to develop quick-to-market training programs.
- Promote Arkansas as the center for growth of U.S. transportation and logistics efforts.

Build a state-wide supply chain cluster initiative, connecting the state's knowledge hubs and its industrial and rural sectors

Arkansas has advantages in both the "brains" (white-collar) and the "brawn" (blue-collar) in the broader transportation and logistics sectors; it's a complete ecosystem. But now, the state needs to find a way to expand this synergy beyond Northwest Arkansas, making it a truly statewide focus. In the process, Arkansas can grow more small- and medium-sized logistics, supply chain and transportation firms throughout the state's diverse regions — creating wealth and jobs.

Arkansas has a prime opportunity to link its growing supply chain management sector, consisting mostly of knowledge jobs based in Northwest Arkansas, and its blue-collar transportation and logistics sector located throughout the state.

The state needs to develop cluster initiatives that can link these two related sectors, and the urban and rural places where they happen, more closely together. Strategies are based on extensive research and promoted through major marketing and communications campaigns, similar to how Massachusetts approached life sciences or how South Carolina has approached advanced manufacturing.[82,83] A sector cannot grow unless there is a concerted cluster strategy to ensure competitiveness.

What's needed?

- A statewide cluster strategy to support the long-term growth and competitiveness of the transportation, logistics and supply chain management sectors.
- Utilize the state's growing outdoor and recreation sector as an example of how a statewide supply chain initiative can support other sectors.
- Evaluate business support programs for scalable Arkansas enterprises within the sector.
- Promote Arkansas as a national leader in this sector through marketing and communications campaigns.
- Ensure the state's commercial land use and real estate codes match economic development priorities.
- Continue to invest in infrastructure to support the sector's growth.
- Assess port and in-land port advantages and understand investment needs.

Become a leading laboratory for supply chain management innovations

Innovations will change the supply chain management and transportation sector, from autonomous vehicles and electric and hydrogen batteries to machine learning and big data. Many of these advances are driven by initiatives at universities in Arkansas, including cutting-edge research into hydrogen fuel cell batteries and private sector companies in the state.[84] At the government level, Arkansas has pioneered innovative policy on autonomous vehicles, with the strong support of Walmart.[85,86] These already existing advantages need to be fostered and built upon through a coordinated public-private growth strategy.

Similar to how Pittsburgh has become a hub of autonomous vehicle innovation, Arkansas can do the same with supply chain management by leveraging the research happening here to advance the state's brand in the space.[87] Arkansas already has a structure in place to catalyze this effort in the University of Arkansas' Supply Chain Management Research Center (SCMRC.) Research and public sector investment could yield significant dividends with the rapid rate of commercialization and firm formation in this space. Specifically, Arkansas' existing research and private sector companies can transform how forecasting and management are done, by building out a new data-driven field tied to University of Arkansas' degree programs.

What's needed?

- Continue to build support for the R&D efforts that are transforming transportation and supply chain management.
- Offer a flexible policy environment for supporting and testing long-haul and short-haul autonomous vehicles.
- Be more "boastful" about the state's efforts as a policy lab for this sector; tell a compelling story to the world. The State can start by leveraging the successes and recognition of Plug & Play Supply Chain NWA.
- Give the University of Arkansas' Supply Chain Management Research Center an even broader mandate with a specific focus on fostering innovation within the state.

Build industry-informed workforce pipelines throughout the state, from community colleges and technical schools to universities

The skills and technology needed for the management of logistics are constantly changing. The sector is always in need of new skills training and professional development courses, responding to innovations like new forecast software, advances in machine learning, etc. Training and upskilling are likewise important for helping small- and medium-sized firms compete. Then there exists a shortage of truck drivers: There are approximately 63,000 truck-driving jobs in the bulk tanker market that are vacant today.[88] These shortages hamper the productivity of the whole transportation and logistics sector.[89] While the University of Arkansas has the #1 supply management program in the U.S., many Arkansas community colleges offer supply chain programs to help grow the state's workforce.

What's needed?

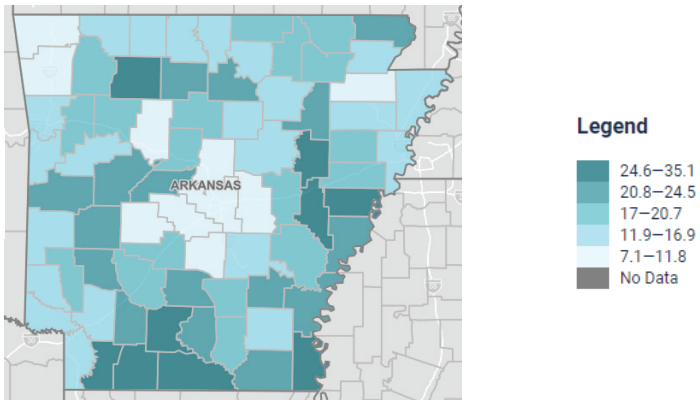
- Convene a taskforce of supply chain experts and workforce providers to assess Arkansas' training in logistics management and data-driven decision-making programs; incorporate those findings into university programs.
- Consider the creation of a database and new forecast modeling boot camps for small- and medium-sized firms who need access to quick training programs.
- Partner with associations like the Arkansas Trucking Association and private sector companies to develop recruitment and training strategies for truck drivers.

Why It Matters

While internet infrastructure development was underway before the pandemic, a dramatic shift to work-from-home and online education to decrease COVID-19 transmission highlighted the fact that many still do not have adequate internet access for these activities as the need to upgrade capacity throughout the existing network. According to the American Community Survey 2019 1-year sample, 20 percent of Arkansan households did not have an internet subscription of any kind, and 18 percent of Arkansan households only had internet access through a cellular data plan. Over 122,600 Arkansan households (over 10 percent) did not have access to a computing device of any kind (i.e., computer, smartphone or tablet).[90]

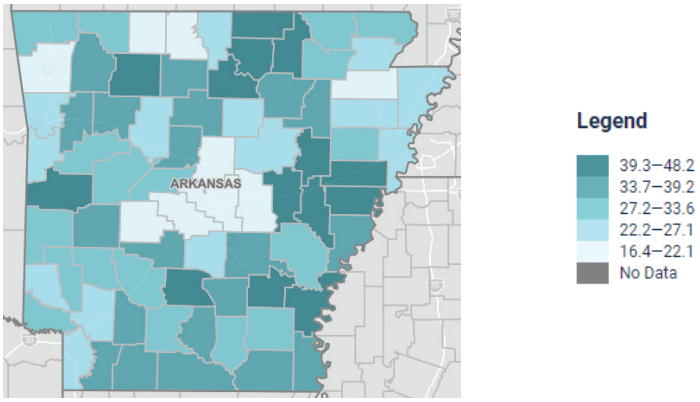
Looking more granularly, the share of households without a computing device at the county level ranges from 7.1 percent in Benton County to 35.1 percent in Woodruff County. The share of households without an internet subscription of any kind ranges from 16.4 percent in Saline County to 48.2 percent in Stone County.[91]

Share of Households Without a Computing Device, 2019



Source: 2019 American Community Survey, 1-Year Survey

Share of Households Without Internet Access, 2019



Source: 2019 American Community Survey, 1-Year Survey

As one might expect, the affordability of the internet is a major barrier to household internet access. Among households with income less than $75,000, Boone County has the lowest share of households without an internet subscription of any kind at 21 percent; Woodruff County has the highest share of households without an internet subscription at 53 percent. In total, nearly 270,000 Arkansan households with incomes less than $75,000 lack internet access, which is nearly 1 in 4 (23.3 percent) Arkansan households that lack internet access.[92]

As a result of not connecting with the internet, these Arkansan households were less able to benefit from it during the COVID-19 pandemic, when work, school and life generally shifted to internet-based systems. Numerous internet platforms and services became lifelines during the pandemic as means of avoiding transmission – from education, communicating with co-workers, friends and family members, delivering food, doctor e-visits, medicines and accessing enhanced unemployment benefits. Even initial signups for vaccine distribution, Payroll Protection Program loans, and Enhance Broadband Benefit programs required internet access to participate.

But these issues were known prior to the pandemic. Several internet service providers and rural electric cooperatives began 2020 with plans and federal funding to increase high-speed internet availability across the state. Governor Hutchinson's administration was swift to address access further by allocating $125 million of the state's Coronavirus Aid, Relief, and Economic Security Act (CARES Act) funding to the Arkansas Rural Connect program.[93] In addition, the state's Telecommunications Regulatory Reform Act was modified to allow municipalities to provide high-speed internet services to their constituents just before the pandemic shutdown occurred.[94] As a result of this bill, new financing and public-private

partnership opportunities exist to expand high-speed internet availability and possibly lower subscription costs.

But making high-speed internet accessible and affordable only helps Arkansans and the Arkansas economy if they can utilize the technology effectively. From acquiring new skills via online training to improving a business' customer experience, emphasis on the adoption and utilization of the internet is critical to maximizing its impact on the economy, including higher standards of living for Arkansans (in terms of better health, accessing higher wage jobs) and prospering Arkansan businesses (accessing new markets, utilizing more efficient supply chains and delivering new products and services.)

Recommendations

Ensure ubiquitous availability of high-speed internet in Arkansas

The pandemic demonstrated that high-speed internet is a necessary and essential infrastructure for the 21st-century household. Much like electricity, telephone service, and indoor plumbing, every Arkansan should be able to connect to this basic utility due to its multiple benefits: access to education, health care, work and work opportunities, government services, etc. Even though the pandemic-related restrictions are waning, the use of technologies that arose during the pandemic are not likely to diminish. For example, nearly 30 percent of the labor force is expected to continue to work remotely, if only part-time, once offices reopen. And strong consumer preferences for e-commerce, curbside pickup and delivery services are expected to continue and transform the retail shopping experience for the foreseeable future. Pro-active education systems will continue to rely on internet-based curriculum supplements and communication platforms to reinforce learning and ensure student support outside of the classroom.

What's needed?

- Increase funding for deployment efforts at aspirational standards to ensure the adequacy of the infrastructure over time:
  - Increase funding for the Arkansas Rural Connect (ARC) and Arkansas High Cost Fund (AHCF) to ensure deployment of high-speed internet infrastructure with adequate capacity in remote areas of the state.
  - Allow infrastructure providers to determine where and how to use state funds for new deployment projects instead of restricting funds to regions with little or no high-speed internet available.
- Enact "right to attach" regulations to enable high-speed internet infrastructure to attach to existing utility poles and public structures.
- Explore and experiment with internet delivery technologies, including TV white space and new generation satellite technologies, to reduce deployment costs in challenging terrain.
- Incentivize academic institutions and private internet service providers to commercialize cost-effective solutions for Arkansas' expensive deployment issues.
- Develop public/private partnerships to provide additional technical capacity for the ARC program, state agencies, and community partners.

Empower Arkansans to adopt and utilize internet technologies effectively

Affordability is a key issue in addressing internet access issues in Arkansas. In addition to revising or replacing the federal Lifeline subsidization program to meet 21st-century needs, Arkansas needs to ensure that every household can afford to subscribe to high-speed internet and reap its benefits. This includes funding feasibility studies for communities, so municipalities can make well-informed decisions when building or upgrading networks and have the technical information they need to apply for state and federal grant dollars. Additionally, households need to have access to affordable devices that enable them to best use the internet for their purposes. This includes funding feasibility studies for communities, so municipalities can make well-informed decisions when building or upgrading networks and have the technical information they need to apply for state and federal grant dollars. Lastly, all Arkansans should have access to digital literacy programs to ensure that they know how to utilize the internet effectively, safely and productively.

What's needed?

- Ensure that internet access is affordable and cost-effective devices are available for all Arkansans:
  - Provide EBB information through non-internet media, such as public service announcements, billboards, etc., such as those being developed by the Connecting the Heartland digital divide campaign.
  - Promote basic internet service packages that meet minimum, aspirational speed standards for households participating in other government assistance programs.
  - Recondition and distribute used computers and other devices from state agencies to households in need.
- Enhance digital literacy to cultivate a cadre of sophisticated consumers who appreciate the benefits of high-speed internet access and demand it:
  - Promote the use of ARC funds for digital literacy.
  - Promote computer programming and internet of things (IoT) adoption/innovation to accelerate the need for high-speed internet access further.
  - Educate local government and economic development officials to better advocate and negotiate services/contracts for high-speed internet provision.
  - Teach small business owners to use computers and the internet to lower costs, increase revenues and grow their businesses; The Generator's (in Pine Bluff) Digital Navigator program could be a model to replicate across the state.
  - Facilitate the deployment of local resources to provide digital literacy and assistance through public-private partnerships and grassroots organizations like Cooperative Extension Service offices, public libraries, and civic organizations; Heartland Forward's America Connection Corps with Lead for America and Volunteer Income Tax Assistance (VITA) programs provide models for such a program.
  - Enlist state university and college faculty and cyber forensics experts to contribute content, develop culturally competent digital literacy materials, mapping expertise and other relevant information.
- Expand the scope of state funding for high-speed internet projects to include feasibility research:
  - Advertise feasibility study opportunities to municipalities, particularly in high-need areas, as a way to get local leaders thinking about adoption.
  - Establish a state partnership with the University of Arkansas that enables their researchers, who are already helping ARC grant recipients assess their needs, to work in additional locations at no cost to the communities.

CONCLUSION

This strategy is not intended to be a detailed economic development blueprint for Arkansas encompassing all required actions.

It complements existing plans by guiding how Arkansas can adapt and capitalize on opportunities presented by the COVID-19 pandemic, such as attracting and retaining workers with skills missing from the region's labor pool, accelerating the acquisition of technology skills for workers and businesses, innovating and commercializing new products and services, and leveraging our competitive advantage in supply chain and logistics. Arkansas has the incredible prospect to emerge out of the disruption in an advantageous position.

As people and firms ease back into the "new normal," time is of the essence. Arkansas needs to move swiftly and implement the recommendations included in this report to position itself as a first-mover in the post-pandemic economy. The organized recommendations are around the following themes: Talent and Workforce Development, Innovation and Research, Entrepreneurship and Small Business Health, Health Care, Supply Chains and Logistics and High-speed Internet. Within each theme, the emphasis is on accelerating Arkansas' transition to a knowledge-based economy by attracting needed talent, reinforcing and expanding its cluster strategies, upskilling its workforce, prioritizing research, embracing innovative endeavors, focusing on and supporting entrepreneurs more fully, transforming its health care services delivery model to reflect its potential as an economic development engine, and expanding access to high-speed internet in underserved communities. In the absence of transformational action now, traditional approaches to economic development and familiar processes will re-emerge and constrain Arkansas' potential for growth and prosperity.

This is Arkansas' moment to transform and dispel negative perceptions of the state. In some sense, it is a rebranding opportunity. The state can leverage and enhance work that the Arkansas Department of Commerce has performed (www.arkansas.com) on a digital platform for "Welcome to Arkansas." The rebranding will require that Arkansas is perceived as open and tolerant of talented, diverse and creative people. Any actions that are not seen as welcoming of new ideas and people will be counterproductive. Leadership in the state must follow through by assigning responsibilities and committing to executing the strategies contained in this report.

Hot Springs Mountain Tower view, 1,256 feet above sea level. Hot Springs, AR.

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