

LETTER FROM LT. GOVERNOR STRATTON

As Chair for the Governor's Rural Affairs Council, I have gained new perspective on the intricate connections every region of our state holds. Agriculture is one industry that connects all Illinoisans, fueled by our rural farmers. Illinois is a national and international leader in soybeans, corn, livestock, and specialty crops – all of these products feed Illinois while also providing food for our nation and the world. Our rural communities are constantly leading and learning in the industry areas of farming, agricultural sciences, equipment, and technology.

Illinois is proud of these impactful contributions by our rural communities, but we must also note that these communities are not defined by agriculture alone. Our rural residents are also leaders in education, manufacturing, medicine, and more. Rural Illinoisans face challenges accessing nutritional food, broadband, healthcare, and more – just like other people across the state and nation. In our rural areas, these challenges are complicated by unique problems around travel and resource scarcity. In aiming to address these obstacles, rural leaders and residents have shown that solutions are within reach when we collaborate and work together.

Serving as Illinois' Lieutenant Governor, I traveled across the state to gain input from key stakeholders on the pressing issues affecting rural communities. My office also launched the Cultivating Our Communities campaign to highlight a variety of small businesses in Illinois' agriculture industry. Through these efforts, I've had the privilege of learning about the challenges we face and the solutions that can be built in rural communities. But these solutions can not only benefit rural communities; they can transfer over to suburban and urban areas, as well. The wisdom found in rural communities can lead to policy change that can benefit every facet of the state.

Drafted as we continue to deal with an unprecedented global pandemic, this report lays out the challenges and successes of rural communities, as well as the work led by members of the Governor's Rural Affairs Council. It gives a glimpse into rural-led efforts to: improve access to care, support economic development in the wake of the pandemic, and improve educational outcomes for rural students. These efforts, led by councilmembers, display the work of community service and business in areas inhabited by 1.4 million Illinoisans. I am proud of the work the Council is accomplishing, and look forward to continue collaboration to advance this important work.

Respectfully,

Juliana Stratton

Illinois Lieutenant Governor

Chair, Governor's Rural Affairs Council

Executive Summary¹

Introduction

Pursuant to Executive Order 11-04, this report from the Governor's Rural Affairs Council (GRAC) provides a summary of current social and economic conditions in rural Illinois. It also summarizes the Council's policy and advocacy recommendations for improving the delivery of state services to rural Illinois, expanding opportunities, and enhancing the quality of life for all Illinoisans, with a particular focus on rural residents. These recommendations originated from three issue-based committees the Council created: Education and Workforce Development; Health and Healthcare; and Economic Development and Infrastructure.

Council Overview and Activities

The State of Illinois created the GRAC pursuant to Executive Order 86-07 in 1986. Since then, different Illinois Governors amended the original Executive Order three times by issuing Executive Order 91-13 (1991), Executive Order 00-01 (2000), and Executive Order 11-04 (2011). These executive orders establish the GRAC's responsibility to issue the Annual Report on the State of the Rural Illinois Economy, in collaboration with the Illinois Institute for Rural Affairs (IIRA) at Western Illinois University (WIU). These executive orders also require the GRAC to develop a comprehensive plan for improving the quality of life in rural Illinois.^{2,3} The Council executes its duties through its board – not to exceed 25 members – which includes representatives from state agencies and institutions, nonprofits, and individuals appointed by the Governor of Illinois.

Under the Pritzker-Stratton Administration, the GRAC has held quarterly meetings. Through these meetings, the Council developed three issue-based committees including the Education and Workforce Development Committee; Health and Healthcare Committee; and the Economic Development and Infrastructure Committee. These committees propose policy recommendations and initiatives outlined every year in the GRAC annual report. The GRAC also collaborates with the IIRA and Rural Partners each year to host a rural development conference.

Committee Recommendations, Rural Conditions, and Actions

Committees propose recommendations based on current conditions in rural Illinois, which include population decline, an aging population, workforce recruitment concerns, a rural-urban digital divide, as well as challenges to rural healthcare and education delivery. The recommendations also address the impact of COVID-19 on rural communities, small businesses, and overall economic development. The Council will use these recommendations to advise the Governor's Office, General Assembly, and additional stakeholders on ways to advance policy and advocacy that improves the lives of rural Illinoisans. This report also documents the actions already taken by GRAC members to address the policy recommendations.

¹ As stipulated by Illinois Executive Orders 91-13 and 11-04, the 2021 Annual Report of the Governor's Rural Affairs Council is a collaboration between the Office of the Lt. Governor, the Illinois Institute for Rural Affairs at Western Illinois University, and the constituent members of the Governor's Rural Affairs Council.

Acronyms

ACS American Community Survey
ARPA American Rescue Plan Act
BEA Bureau of Economic Analysis
BLS Bureau of Labor Statistics

CNPP Community Navigator Pilot Program

CORI Center on Rural Innovation

DCEO Department of Commerce and Economic Opportunity

DOL Department of Labor

EIDL Economic Injury Disaster Loan
ERS Economic Research Service
GDP Gross Domestic Product

GRAC Governors Rural Affairs Council
HHS Health and Human Services
ICCB Illinois Community College Board

IDPH Illinois Community College Board
IDPH Illinois Department of Public Health

IINIllinois Innovation NetworkIIRAIllinois Institute for Rural Affairs

IMECIllinois Manufacturing Excellence CenterMCBSMedicare Current Beneficiary Survey

NAICS North American Industry Classification System

OMB Office of Management and Budget
PPP Paycheck Protection Program
SBA Small Business Administration
SIU Southern Illinois University

USDA United States Department of Agriculture

WARN Worker Adjustment and Retraining Notification

WIU Western Illinois University

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Council Overview and Activities

Executive Mandate

Pursuant to Executive Order 11-04 the Governor's Rural Affairs Council must:iv, v

- Develop and implement strategies for improving the delivery of state services to rural Illinois.
- Expand opportunities and enhance the quality of life for rural residents.
- Issue the Annual Report on the State of the Rural Illinois Economy in collaboration with the Institute for Rural Affairs at Western Illinois University.

Composition

The following membership positions compose the Governor's Rural Affairs Council, pursuant to Executive Order 11-04:vi

- 1 chair
 - o Illinois Lt. Governor's Office Lt. Governor
- 17 agency and institution representatives from these agencies and institutions:
 - o Illinois Department on Aging
 - o Illinois Department of Agriculture
 - o Illinois Department of Commerce and Economic Opportunity
 - o Illinois Department of Employment Security
 - o Illinois Department of Human Services
 - o Illinois Department of Natural Resources
 - o Illinois Department of Public Health
 - o Illinois Department of Transportation
 - o Illinois Environmental Protection Agency
 - o Illinois Community College Board
 - Illinois State Board of Education
 - o University of Illinois Cooperative Extension Service
 - University of Illinois President
 - o Illinois Housing Development Authority
 - Southern Illinois University
 - o Institute for Rural Affairs at Western Illinois University
 - Illinois Finance Authority
- 2 nonprofit representatives from the following:
 - o Illinois Agricultural Association (The Illinois Farm Bureau)
 - Rural Partners
- 0-6 citizen members appointed by the Governor of Illinois, with the total number of appointees bringing active membership to 25 people at most.

Membership

Lieutenant Governor Juliana Stratton (Chair)	Office of the Illinois Lieutenant Governor Juliana Stratton
Amy Lulich	Illinois Department of Aging
Rob Baren	Illinois Department of Agriculture
Wendy Bell	Illinois Department of Commerce and Economic Opportunity
Francisco Alvarado	Illinois Department of Human Services
Rachel Torbert	Illinois Department of Natural Resources
Don Jones	Illinois Department of Public Health
Holly Ostdick	Illinois Department of Transportation
Christine Davis	United States Environmental Protection Agency
Lavon Nelson	Senior Director for Workforce Development, Community College Board
Susie Morrison	State Board of Education
Anne Silvis	University of Illinois Urbana Champaign Cooperative Extension Service
Shelly Nickols-Richardson	University of Illinois Urbana Champaign Cooperative Extension Service
Ben Fenton	Illinois Housing Development Authority
Laura Kessel	Southern Illinois University
Christopher Merrett	Institute of Rural Affairs, Western Illinois University
Sandy Wittig	Institute of Rural Affairs, Western Illinois University
Charles Myart	Illinois Finance Authority
Brenda Matherly	Illinois Agricultural Association
Molly Hammond	Rural Partners
Heather Hampton-Knodle	Montgomery CEO Program, Knodle Limited
Norman Walzer	Emeritus, Institute for Rural Affairs
Sameer Vohra	Southern Illinois University, School of Medicine
David Ardrey	Association of Illinois Rural and Small Schools
Sonja Reece	McLean County Board of Health

Activities

Under the Pritzker-Stratton Administration, the GRAC held quarterly meetings each year from the time of inauguration to the development of this report. The Lt. Governor led discussions focused on the Council's goals and potential strategies to achieve these goals. The GRAC formed three issue-based committees: Education and Workforce Development; Health and Healthcare; and Economic Development and Infrastructure. Subsequent quarterly meetings focused on developing committee recommendations to include within this report. Committee meetings supplemented this work, wherein committee members proposed, reviewed, and discussed recommendations.

In addition, the GRAC collaborates each year with the IIRA and Rural Partners to host the Annual Rural Development Conference. This conference has been held every year for the past 32 years. In 2021, the IIRA and GRAC delivered the conference virtually with technical assistance from the Illinois Innovation Network (IIN) and University of Illinois System.

The GRAC has also hosted guest speakers at quarterly meetings, including the Director of the Illinois DCEO Office of Broadband, and the Executive Director of the IIN—representing a consortium of 15 Illinois public universities and community partners.

Conditions in Rural Illinois and Recommendations

Introduction

The following sections include a summary of the changing rural demographic landscape. Subsequent sections include GRAC committee status reports, which describe the challenges and opportunities faced by rural communities as they relate to the three issue-based committees in the GRAC. The status reports briefly describe the landscape relevant to the different issue areas, and do not reflect the entire policy environment related to these issues within Illinois. This GRAC report also explores current issues affecting rural Illinois, including COVID-19's impact on rural communities and businesses.

Population Change in Rural Illinois

The US Census defines any community as rural if it has fewer than 2,500 residents. An OMB definition focuses on counties. It defines a county as metropolitan if its core has one or more cities of at least 50,000 people. Metropolitan counties also include those adjacent to a core metropolitan county and are part of the core commuting zone. As a corollary, a non-metropolitan or rural county is therefore one with fewer than 50,000 residents at its core and not adjacent to a county that has at least 50,000 residents.

As population within a state changes, the number of non-metropolitan counties in a state can change, too. When the GRAC submitted its first report to the Illinois General Assembly in 1992, there were 74 non-metropolitan counties. After each decennial census, the US Census Bureau reevaluates every county in a state to determine its metropolitan status. Currently, out of 102 Illinois counties, the US Census identifies 40 as metropolitan and 62 as non-metropolitan or rural counties (**Fig. 1**). Between 1990 and 2010, 14 Illinois counties moved from non-metro to metropolitan status. The process will happen again. The US Census bureau will likely change the status of at least one or two Illinois counties from non-metro to metro due to demographic changes reflected in the 2020 census.

The declining number of non-metropolitan counties shows the demographic changes affecting Illinois. In 1980, Illinois was 14.2% rural. By 2010, rural residents only represented 11.3% of the Illinois population (**Table 1**). This decline of 170,122 between 1980 and 2010 shows Illinois' rural population is shrinking. It is worth noting, however, that the estimated 2019 rural Illinois population of 1,443,236 is larger than the entire populations of 11 states, including Hawaii, New Hampshire, and Vermont. Rural Illinois still matters.

Figure 1. Location of Non-Metropolitan Counties in Illinois^x

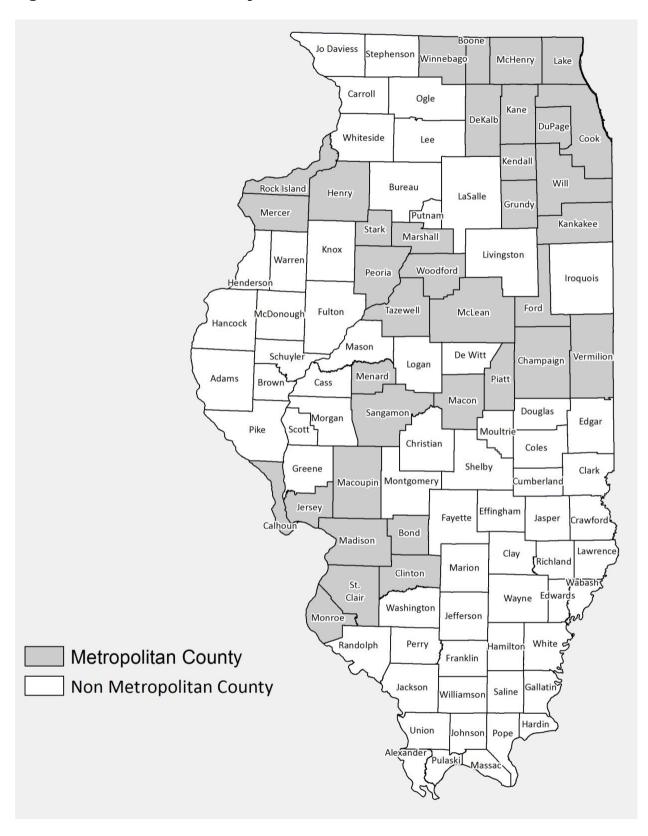


Table 1. A Comparison of Rural versus Urban Population Change in Illinoisxi

Year	Rural	% Rural	Urban	% Urban	Total
	Population	Population	Population	Population	Population
1980	1,624,924	14.2	9,802,485	85.8	11,427,409
1990	1,534,076	13.4	9,896,526	86.6	11,430,602
2000	1,558,686	12.5	10,861,241	87.5	12,419,927
2010	1,528,925	11.9	11,302,647	88.1	12,831,572
2018	1,454,802	11.3	11,286,278	88.7	12,741,080
2019	1,443,236	11.4	11,228,585	88.6	12,671,821

While Illinois has a large rural population, the population decline raises significant policy questions. The contracting rural population has already affected health care, education, and economic development outcomes in these regions. We can expect more of these impacts in the future. Rural Illinois has a surprisingly large reliance on manufacturing. As the population declines, it may become increasingly difficult to find good workers.

Mechanization of agriculture has also been driving down the American and Illinois farmer population since the 1930s. Technological innovation in agriculture means that Illinois needs fewer farmers because each farm can produce more food. This decades-long trend has transformed the rural landscape in Illinois. Farm consolidation drives rural-to-urban migration. As communities decline, there are fewer opportunities for young people in rural Illinois. Young people leave to go to college and many never return. Youth outmigration weakens the rural labor force. It also represents a rural brain drain.xii

Committees and Recommendations

The following section outlines the work of issue-focused committees on the GRAC.

1. Education and Workforce Development Status Report

Recommendations

As outlined below, many challenges confront rural Illinois' education and workforce development. In summary, there is a rural-urban educational attainment gap, rural-urban wage gap, and rural-urban workforce development gaps. The GRAC has at least two strategies to address these challenges:

1) Improve access to opportunities for technical and university education, emphasizing the importance of post-secondary education in the future of rural economies.

2) In partnership with the Illinois DCEO, increase alignment of workforce development programs across the state with Illinois' Unified State Plan.

Conditions

The first GRAC working group focused on education and workforce development. One can justify connecting education and workforce development for at least two reasons. First, research shows a direct connection between educational attainment and economic productivity.xiii Therefore, communities, states, and the federal government should invest in education because it will improve economic competitiveness, which will increase regional and national prosperity.

Second, it makes sense to connect education and workforce development because evidence shows a direct relationship between educational attainment and worker wages. Hence, investment in education can improve the economic well-being of individual workers, too.xiv With these justifications in mind, the GRAC logically continues to focus on rural education and workforce development because there is a persistent gap between rural versus urban educational attainment at the high school and college level (**Table 2**). This educational attainment contributes to the persistent rural versus urban salary gap (**Fig. 3**).

The rural-urban educational attainment gap has narrowed over time as the overall Illinois populace has become more educated. However, urban residents are still more likely to have a high school diploma than rural residents are.

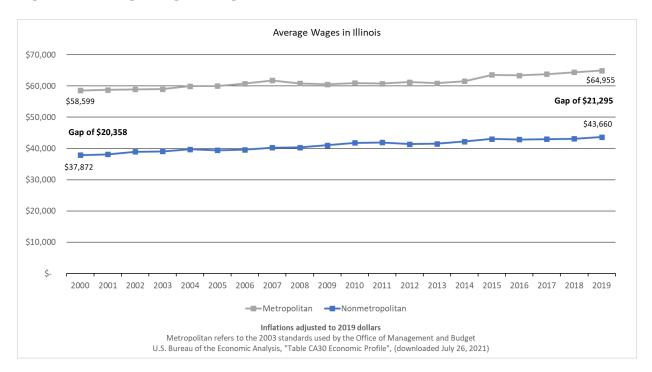
At the college level, there is a higher proportion of rural residents with a college education in 2019 than in 1980. However, the proportion of urban residents with a college education was already higher than rural areas in 1980 at 16.2 percent, and grew much more quickly to 36.8 percent, by 2019.

Table 2. Rural versus Urban Educational Attainment, 1980 to 2019xv

Not completing high school	Rural	Urban	Total
1980	38.8	33.5	33.5
1990	27.6	23.2	23.8
2000	20.1	18.3	18.6
2015-2019	10.8	10.8	10.8
Completing high school only			
1980	40.0	35.1	35.1
1990	38.7	28.6	30.0
2000	37.8	26.2	27.7
2015-2019	36.1	24.6	26.0
Completing some college			
1980	11.7	15.2	15.2
1990	22.7	25.6	25.2

2000	28.6	27.5	27.6
2015-2019	34.6	27.8	28.6
Completing college			
1980	9.5	16.2	16.2
1990	11	22.6	21.0
2000	13.5	28.0	26.1
2015-2019	18.6	36.8	34.7

Figure 3. Average Wage Change in Rural versus Urban Illinoisxvi



There are several factors contributing to the difference between rural and urban educational attainment. First, many rural students simply cannot afford to attend college. The persistent rural versus urban wage gap means that a higher proportion of rural families do not have the financial resources to send their children to college. Rising tuition costs complicate the situation, as many students are unwilling to take on student loans. Furthermore, a recent report showed that when rural students do take on student loans, the need to find a good paying job to help repay the loan accelerates rural-to-urban migration.^{xvii}

Second, many rural residents live in so-called "education deserts." Many rural residents live too far away from an institution of higher education to pursue a college degree. While many urban students cut costs by living at home, rural students are less able to do this.

Many students reduce college costs by taking Advanced Placement (AP) courses. However, there is a rural-urban gap in AP course access.xix

These factors combine to perpetuate the rural-urban educational attainment gap. This also contributes to the persistent rural-urban wage gap (**Fig. 3**). This leads to an even larger issue: the declining size of the rural Illinois workforce (**Fig. 4**).

Between the 2010 and 2020 Census, the overall Illinois population dropped slightly, with rural areas declining proportionately more than urban areas. The shrinking rural population contributes to a declining rural workforce (**Table 1**). Young adults, representing the future workforce, compose the most rapidly declining age cohort. Manufacturing jobs require increasingly skilled workers with technological training. Without more investments in various forms of higher education, the rural economy will lag behind urban places.

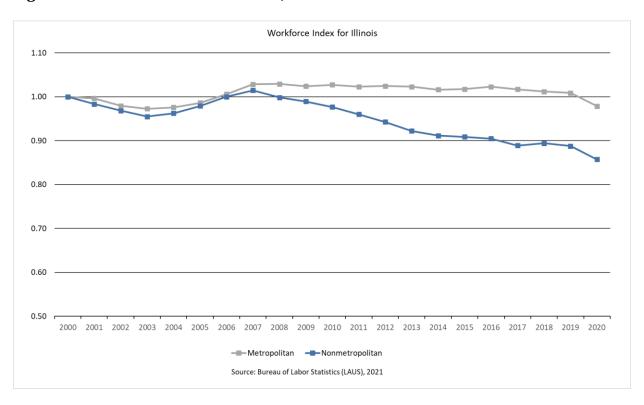


Figure 4. Index of Workforce Growth, 2000 to 2020xxi

Actions

The primary Education and Workforce Development Committee recommendation focuses on increasing access to education for underserved students and communities. Here are two examples of how the Office of the Lt. Governor, the GRAC, and GRAC constituent members addressed education and workforce access issues during the past year:

- **Promoting Solutions to Educational Access Challenges**. In partnership with the Hunt Institute, the Office of the Lt. Governor and the GRAC sponsored a webinar series addressing a range of educational access issues relevant to both rural and urban communities. These webinars focused on the following topics:
 - o Building a Pipeline of Higher Education Students.

- o Educator Prep during COVID-19.
- How Community Partnerships and Institutions of Higher Learning can Help Students Succeed.
- o K-12 Schools & Vaccine Distribution.
- o Post COVID-19 Kindergarten Readiness.
- o Social Emotional Health of Students in the Upcoming School Year.
- o STARTING AT ZERO: Reimagining Education in America.
- o Supporting Rural Students of Color.
- o The Rural Digital Divide for Higher Education Students.
- Using Data to Support Non-Academic Needs of Students.
- Connecting Students to Broadband through Rural Wi-Fi Hotspots. During the COVID-19 pandemic, most students in Illinois attended school remotely. This meant that students needed access to a computer and reliable internet service. COVID-19 laid bare the enormity of the pre-existing digital divide. To help underserved students gain access to broadband to attend school, two GRAC members (e.g. the Illinois Community College Board [ICCB] and the DCEO) collaborated with other state agencies to create a network of broadband hotspots. They also created a map to show families and students where these sites were located.xxii

2. Health and Healthcare Status Report

Recommendations

The aging, shrinking rural population, coupled with the more recent challenges of COVID-19 and opioid misuse, prompted the GRAC to propose these policy initiatives:

- 1) Improve access to healthcare by supporting telemedicine and broadband expansion in rural communities through partnerships with local, state, and non-government stakeholders.
- 2) Decrease opioid-related fatalities by supporting local programmatic efforts in conjunction with the Opioid Crisis Response Advisory Council.

Conditions

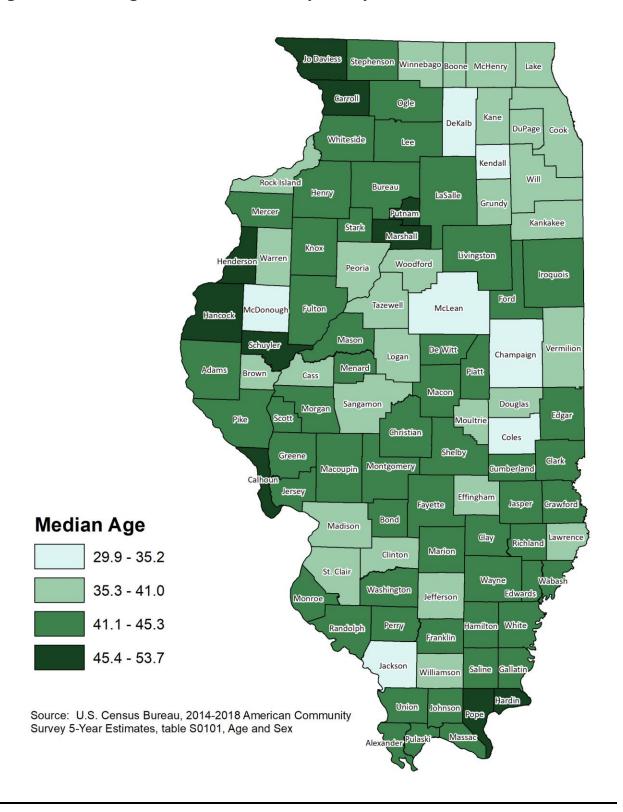
Two long-term divergent trends affect rural health and health care delivery in Illinois: a rising median age of the rural population, but a declining overall rural population (**Fig. 5**). As people age, they are more likely to experience chronic diseases, such as diabetes, and illnesses that are more costly to treat, such as cancer and heart disease. Population decline challenges rural America's market-based health care system because hospitals need patients as customers to survive.

The aging population with more complex medical issues often require medical specialists and technology, which rural hospitals are less likely to have. Rural hospitals struggle to recruit health care specialists, which prompts many patients to bypass local hospitals to

seek out health care in larger urban areas. Increased use of telemedicine might help rural residents gain access to quality health care in rural communities.

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Figure 5. Median Age of Illinois Residents by County, 2018



Illinois has managed to keep the COVID-19 pandemic under control by mandating public health policies such as mask-wearing and promoting vaccinations. Unfortunately, there is an enormous rural versus urban vaccination gap (**Fig 6**). The reluctance of rural residents to get a vaccination is a public health issue to be sure, but it will also hinder children's ability to go back to school in a normal fashion. It will also hurt small businesses and economic recovery. The fact that vaccination rates are lower in rural communities represents yet another factor perpetuating the Illinois rural-urban development gap.

Opioid misuse affects many facets of rural Illinois society. Treating OxyContin and fentanyl overdoses uses up scarce rural health care resources. Addressing opioid misuse uncovers other challenges in rural health care delivery, too. Patients who overdose may need emergency care. The added time it takes ambulances to reach rural residents in need points to the chronic challenge of providing emergency medicine to non-metro regions.

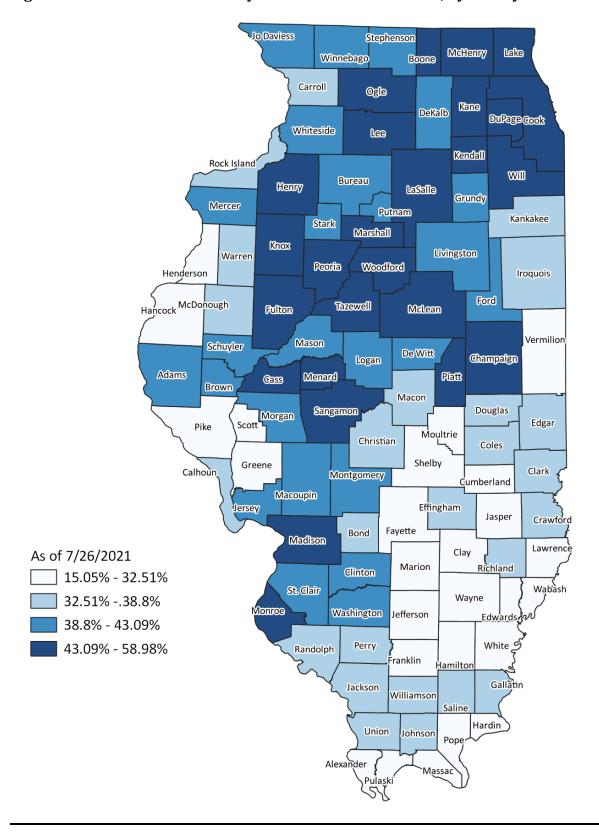
The opioid misuse crisis also exposes another rural health issue: "deaths of despair." xxiv Health researchers have shown how mental health issues and opioid misuse combine to cause premature deaths among rural residents. Improved telehealth and broadband infrastructure could make a difference by extending health care, including mental health counseling, across rural regions.

Recognizing the gaps in broadband accessibility, the DCEO Office of Broadband administers a \$420 million grant program to help expand broadband throughout Illinois, including rural communities.xxx xxxi The maps on the Office of Broadband website show regional differences in broadband deployment across the state, with large service gaps in rural areas.xxvii Some recipients of DCEO broadband grants are working to improve health care access in rural Illinois.

Unfortunately, broadband deployment is only part of the equation. Another challenge is increasing internet subscriptions by residents and businesses across the state. Data from the US Census American Community Survey (ACS) shows that rural counties have lower internet subscription rates (**Fig. 7**). In some rural Illinois counties, more than half of the households lack internet access.

Improved broadband access and internet subscription increases are a vital part of rural development infrastructure. As noted above, two GRAC members collaborated with other state agencies to create broadband hotspots in underserved regions.

Figure 6. Percent of Persons Fully Vaccinated for COVID-19, by Countyxxviii



Stephenson Jo Daviess Winnebago McHenry Lake **Carroll** Ogle Kane DeKalb DuPage Cook Whiteside Lee Kendall Rock Island will Bureau Henry Grundy Mercer Putnam Kankakee Marshall Knox Henderson Warren Livingston Woodford Peoria Iroquois Ford Tazewell Fulton McLean McDonough Schuyler DeWitt Vermilion Champaign Menard Adams Platt Cass Macon Douglas Moultrie Christian Coles Shelby Clark Cumberland Macoupin Fayette Crawford Bond Madison Richland Lawrence Marion Clinton Percent of Households St. Clair 51.6% - 75.8% Wayne Edwa Washington Jefferson Monroe 75.8% - 78.3%

Figure 7. Percentage of Households with an Internet Subscription, 2019

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates, table B2801 Internet Subscriptions in Household, downloaded July 27, 2021.

Randolph

Jackson

Williamson

Johnson

78.3% - 81%

81% - 92.4%

White

Gallatin

Hardin

Hamilton

Pope

Actions

Several members of the Health and Healthcare Committee are taking actions to address the recommendations focused on healthcare access. Here are several examples of these actions.

- Expanding Telemedicine Services. Laura Kessel, from Southern Illinois University (SIU) School of Medicine, is working on a pilot project to expand telemedicine access in rural counties. She is looking at two locations one in central Illinois and one in southern Illinois to demonstrate how telehealth services can work even for patients who do not have broadband access.
- Vaccine Awareness. Rural Illinois lags far behind urban areas in vaccination rates.
 Having a low vaccination rate exposes a region to a range of problems, including
 increased chances of infection from the COVID-19 Delta variant. If a region
 experiences increased infections, that could alter how children attend school in the
 fall, harm small businesses, and slow down the economic recovery for the region.
 The University of Illinois Extension will use its statewide network of educators to
 promote the vaccine.xxix
- Research on Rural Health Care including Telehealth and COVID-19.

 Researchers at the Illinois Institute for Rural Affairs at Western Illinois University completed several research reports on rural health care issues. Here are several studies on the impacts of telemedicine in rural Illinois:
 - o *Telemedicine in Illinois: Ecological Explanations*.xxx This paper explores the environmental correlates of telemedicine. Empirical analysis of telemedicine use in Illinois counties reveals that people who value collective responsibility over individual rights use the service.
 - o *The Value of Telemedicine*.xxxi This paper constructs a theoretical framework that aids in evaluating people's subjective utility of telemedicine, empirically tests the factors related to utility assessment, and employs relevant factors to compute the economic value of telemedicine for Illinois. This paper conducts a county-level 'value' analysis, using a secondary analysis of health insurance claims. Results suggest that from 2019 to 2020, telemedicine generated \$1.0 billion in healthcare savings for Illinois. The paper provides an interactive computer application to visualize value metrics for each Illinois county.
 - Who Uses Telemedicine, Believers or Disbelievers of COVID-19?xxxii This
 paper empirically explores the assertion that the stronger a patient's belief is
 that COVID-19 represents a threat the more likely she is to use telemedicine.
 - O Consumer Awareness of Telemedicine during the COVID-19 Pandemic: Demographic Influences. This paper explores two questions about telemedicine: (i) to what extent did awareness about telemedicine change during the COVID-19 pandemic, and (ii) is awareness related to the demographics of the population? This study uses data from the MCBS (Medicare Current Beneficiary Survey) to address the questions.

Economic Development and Infrastructure Status Report

Recommendations

Opportunities for rural Illinois to expand economic development and spur recovery from COVID-19 include:

- 1) Expanding affordable access to broadband so rural residents can take advantage of innovative health care, shopping, and telecommuting opportunities.
- 2) supporting private and public investments in rural communities to increase their attractiveness as places to live and work.
- 3) working with state agencies and local leaders to support rural businesses and help connect them with available federal relief during the COVID-19 pandemic.

Conditions

During the COVID-19 pandemic, the Illinois economy has performed as good if not better than its neighboring states. The most recent Bureau of Economic Analysis (BEA) report on state growth comparisons shows that Illinois' economy, as measured by the state's gross domestic product (GDP), grew by an annualized rate of 6.4% during the last quarter of 2020 and the first quarter of 2021 (**Table 3**). Over the past decade, the Illinois economy has grown more rapidly than other Midwestern states, using GDP as a metric.xxxiv

Table 3. GDP Growth Rates, 2020:40 & 2021:10xxxv

State	State GDP Growth Rate (%)
Indiana	6.8
Illinois	6.4
Kentucky	6.4
Missouri	6.1
Wisconsin	6.0
Iowa	5.2

Economists attribute Illinois' short-term recovery from COVID-19 to its proactive public health approach to the pandemic. The recovery from the pandemic and the longer-term growth is also due to its diverse economy.xxxvi Economic diversity helps because growth in one sector (e.g. manufacturing) can

offset stagnation in other sectors (e.g. low commodity prices in the farm sector). A rural-urban comparison of Illinois employment by sector economy reveals its diversity (Fig. 8).

While there are more manufacturing jobs in urban counties in absolute terms, manufacturing jobs make up a larger proportion of the rural workforce. The importance of manufacturing jobs to the rural economy justifies why Illinois must invest in rural workforce development and broadband. Also, note that a large proportion of the rural labor force works in health care and education, segments that rely on access to broadband and a skilled labor force.

Employment by Industry 2020 as a Percent of Total 30% 25% 20% 15% Construction Manufacturing Producer Education and Leisure and Natural resources and transportation. Services health services hospitality and utilities mining ■ Metropolitan ■ Nonmetropolitan Source: Bureau of Labor Statistics 2021

Figure 8. Rural versus Urban Employment by Industry, 2020xxxvii

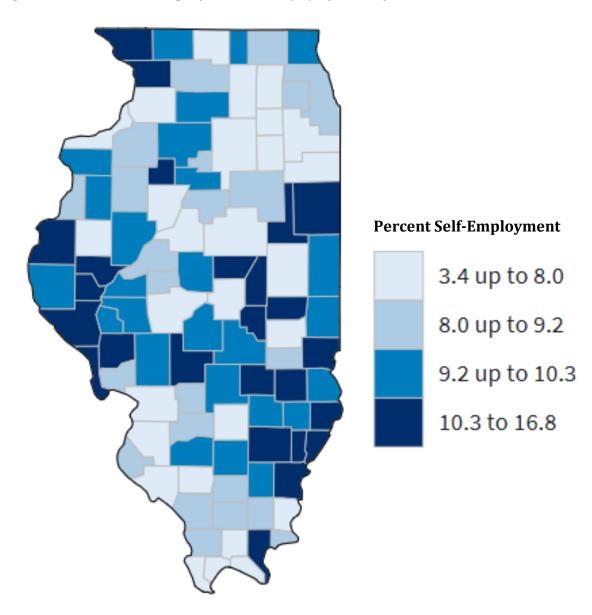
Small business and entrepreneurship also underpin the rural Illinois economy. The Small Business Administration (SBA) reports that in Illinois, rural counties rely on small businesses and self-employment more than urban counties do (**Fig. 9**). Two implications emerge for rural economic development based on this fact.

First, rural small businesses are at risk from population decline and the aging rural population (**Table 1**; **Fig. 5**). As the population declines, so does the number of customers for each store. Rural business owners themselves are approaching retirement age. These businesses owners need help developing an exit strategy to ensure that they can sell their business for a fair price, while positioning the new owner to thrive into the future. Without having a business succession plan, a viable business might close in a small town, leaving yet another empty storefront. Without paying attention to rural demographics and business succession planning, the main street economy will wither.

Second, the COVID-19 pandemic disproportionately hurt small businesses and the self-employed. Most small businesses serve customers face-to-face in the retail setting. The COVID-19 pandemic negatively impacted the global economy, affecting small rural businesses in Illinois who had to adapt as face-to-face interaction declined.

Some businesses dramatically altered their business practices. Some service sector business—such as restaurants and grocery stores—pivoted to online, delivery, or curbside sales. Many small businesses lost sales, were forced to lay off employees, and flirted with bankruptcy. Most small businesses do not have large cash reserves to survive a long economic downturn. Furthermore, rural areas do not have the same level of broadband access or internet use, and have smaller markets, making this pivot to online sales more difficult for rural businesses.

Figure 9. Illinois Self-Employment Rate (%) by County 2018xxxviii



The SBA recognized that the COVID-19 pandemic endangered small business survival. With support from Congress, the SBA created several programs such as the Paycheck Protection Program (PPP) and the Economic Injury Disaster Loan (EIDL) program to help small businesses survive. The challenge for rural areas is that they are more reliant on small businesses than urban areas, and there were no PPP funds specifically designated for rural, minority-, or female-owned businesses in the first round of PPP funding.xxxix

The concern is that the COVID-19 epidemic will exacerbate the existing rural versus urban income and poverty gaps (**Table 3**). With a great reliance on small businesses susceptible to bankruptcy, the COVID-19 virus could increase unemployment in rural Illinois more than in urban areas. This could also increase the rural poverty rate, which is already higher than the poverty rates in urban Illinois (**Fig. 11**).

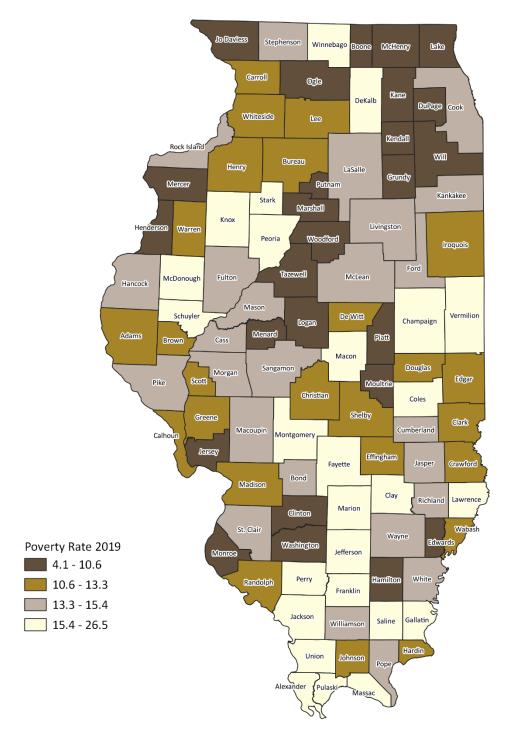
Table 3. Rural versus Urban Income and Poverty Ratesxl

Income	Rural	Urban	Total
Per-capita income (\$)			
2017	40,427	55,690	53,943
2018	42,622	58,671	56,839
2019	43,286	60,753	58,764
Percent change	7.1	9.1	8.9
Earnings per job (\$)			
2017	46,668	66,056	64,255
2018	48,226	67,852	66,044
2019	49,388	69,971	68,093
Percent change	5.5	5.9	6.0
Poverty rate (%)			
1979	10.5	11.1	11.0
1989	13.3	11.7	11.9
1999	10.7	10.7	10.7
2018	13.6	12.0	12.1
2019	13.2	11.2	11.4

The federal government did not initially conduct research to identify how COVID-19 would hurt particular business sectors or regions. Several organizations stepped in to conduct research to identify the businesses and regions most likely to be affected by COVID-19. This research is important because it helps direct federal funding support to the businesses and regions in greatest need.

In April 2020, the Brookings Institution did this kind of work at the national level and for metropolitan areas. The organization looked at a business' closure risk based on its industry sector as defined by its NAICS (North American Industry Classification System) code and its geography or metro status.

Figure 11. Poverty in Illinois by County, 2019



Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates, table S1701-Poverty Status in the Past 12 Months, downloaded July 27, 2021.

The Brookings report placed businesses into three risk categories: immediate, near term, and long-term risk of closure. Researchers then examined if businesses were more likely to close in smaller or larger urban areas. They concluded that service sector jobs in smaller places were most likely to close due to the pandemic.xli

The Brookings Institution study prompted the IIRA to conduct similar research for Illinois counties. In May 2020, the IIRA published *The Economic Impact of COVID-19 on Illinois Counties*. **Iii This report identifies businesses and their closure risk during the pandemic, by sector. Like the Brookings Institution study, the IIRA report places business sectors into three risk categories. These categories, ranked from least to most at risk, include: healthier sectors, pressured sectors, and vulnerable sectors. The report provides job and monetary loss estimates by sector and geography (**Table 4**). It based these estimates on unemployment claims made during April and May 2020 (**Table 5**). Note that the highest job losses in Illinois occurred in food, beverage, and tourism sectors, similar to the Brookings Institution study. The IIRA report also identifies the number of at-risk businesses and the potential jobs lost in each county. The IIRA completed this research because rural businesses struggled to receive federal recovery funds during the early stages of the pandemic.**Iiii

Table 4. Covid-19: Impacts on Metro and Nonmetro Workforce

	Employment Losses, Numbers and (\$)		
Business Sector Risk Levels	Metro	Nonmetro	
Healthier Sectors	24,772 (\$26.01mil)	1,254 (\$0.82mil)	
Pressured Sectors	102,387 (\$121.55mil)	6,701 (\$6.43mil)	
Vulnerable Sectors	232,950 (\$119.67mil)	18,971 (\$5.91mil)	
Total	360,109 (\$267.24mil)	26,927 (\$13.16mil)	

Table 5. Unemployment Claims by Industry

Industry	% Claims
Accommodation and Food Services	40%
Arts, Entertainment, and Recreation	20%
Manufacturing	13%
Healthcare and Social Assistance	6%
Transportation and Warehousing	5%
Educational Services	3%
Retail Trade	3%
Other	10%
Total, N = 655 (WARN), 498 (DOL)	100%

^{*} Estimates based on WARN (Worker Adjustment and Retraining Notification) and DOL (Department of Labor) data, March 2020 and April 2020 data.

The IIRA report also provides a geographical dimension to identify rural and urban counties according to their likelihood to struggle or recover economically from the pandemic. The table below illustrates how mathematical modeling can help outreach specialists to identify which businesses and places should receive help first (**Table 6**).

Table 6. Economic Recovery Predictions for Selected Illinois Counties

Counties that are likely to achieve sharp economic recovery		
Metro County	Non-metro County	
Alexander, Calhoun, Ford, Menard, Piatt,	Douglas, Fulton, Gallatin, Logan, Massac,	
Williamson.	Schuyler, White	
Counties that may suffer protracted recession		
Metro County	Non-metro County	
Champaign, Rock Island.	Adams, Christian, Knox, McDonough	
	Morgan, Randolph, Union.	

This report bases its county recovery projections on several factors, including the type of business sectors represented locally. Economic projections also rely on a population mobility index, which measures the extent to which the local population is sheltering in place during the pandemic or moving about, ignoring safety protocols.

This kind of modeling will be especially important if the COVID-19 Delta variant disrupts the Illinois economy in late summer and autumn 2021. The IIRA report shows that there is a direct link between higher rates of social mobility, increased COVID-19 infection rates, and economic disruption. Rural Illinois counties have had higher rates of mobility and lower vaccination rates. Rural Illinois counties will therefore be at serious risk of economic disruption during a flare up of the COVID-19 Delta variant.

Actions

The Economic Development and Infrastructure Committee identified four policy recommendations. These include expanding access to broadband, providing incentives to stimulate public and private investments in rural places, helping small businesses owners with business succession planning, and helping rural communities and businesses respond to the COVID-19 pandemic. Here are examples of specific actions taken by the Office of the Lt. Governor and GRAC members to implement these policy goals.

• Business Succession Planning in Rural Illinois. During the lead up to the FY2022 Congressional Spending Bill, elected officials invited constituents to submit congressionally directed spending requests for projects that would help local communities and businesses. The IIRA submitted a \$400,000 congressionally directed spending request to Rep. Cheri Bustos and Sen. Tammy Duckworth. The IIRA proposal requests \$400,000 for the WIU-Quad Cities Campus to promote new minority business startups, business expansion through government procurement, and business sustainability through succession planning.

The IIRA submitted this proposal to Rep. Bustos because it had been a long-standing priority of the GRAC Economic Development and Infrastructure Committee. Both Rep. Bustos and Sen. Duckworth pledged support for this initiative. Rep. Bustos has included this project on the list of congressionally directed spending requests she supports on her website. This project targets businesses in a 20-county, predominately rural region in northwestern Illinois.

• Small Business Recovery from COVID-19 / Community Navigator Program. National news reports document that business owners from underserved and underrepresented communities did not have ready access to federal recovery funds.*

Business owners that struggled to secure federal funds included visible minorities, women, and businesses in smaller towns and rural areas.*

This pattern documented in national news stories occurs in Illinois, too. A Chicago Tribune story reported that many larger companies received PPP dollars that should have gone to smaller businesses.*

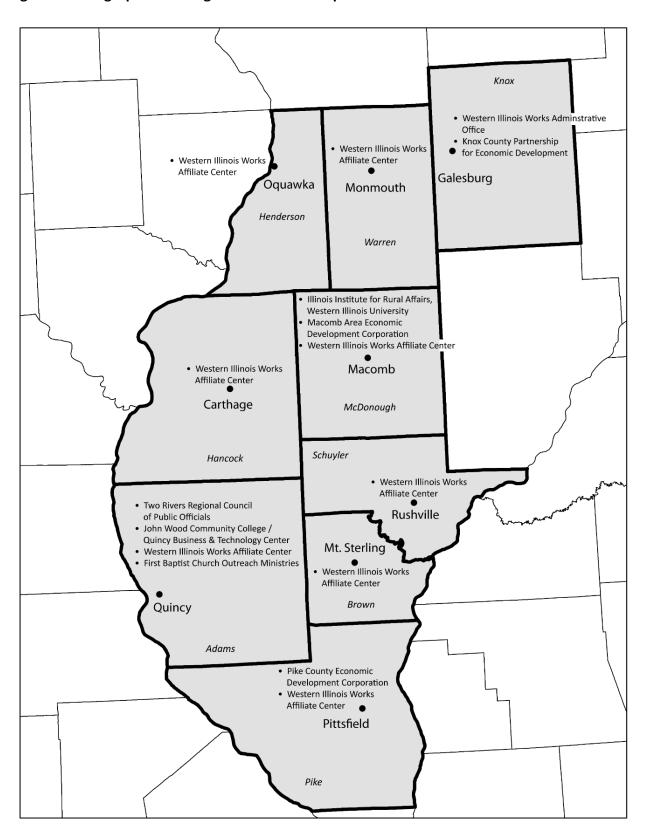
In response to criticism that the federal government could distribute recovery funds more equitably, Congress passed the 2021 American Rescue Plan Act (ARPA). The ARPA included funding for an SBA program called the Community Navigator Pilot Program (CNPP). The CNPP invited nonprofit organizations to apply for a pool of \$100 million grant funds.

The CNPP grant guidelines stipulate that applicants had to create a "hub-and-spoke" system to increase outreach to underserved communities. The hub administered the grant, while the community partners served as "spokes," which were trusted organizations in a community that could reach minority, women, LGBTQ+, disabled, veteran, rural, and other business owners from underserved communities.

The state of Illinois also offered a CNPP. DCEO invited community organizations from across Illinois to apply for over \$9.0 million in grant funds. The IIRA applied for and secured a \$186,000 DCEO CNPP grant to serve as a hub, in partnership with six spokes to reach out to underserved businesses in a nine-county region in west central Illinois.xlix Out of 13 DCEO CNPP awards, the IIRA is the only proposal to serve an entirely non-metropolitan region (**Figure 12**).

The IIRA is working with: John Wood Community College (JWCC), Two Rivers Regional Council (TRRC), Pike County Economic Development Corporation (PCEDC), Macomb Area Economic Development Corporation (MAEDCO), the Knox County Area Partnership, and the Workforce Development Board of Western Illinois. This award is significant for many reasons, not the least of which is that it represents collaboration between the IIRA and DCEO, two members of the GRAC.

Figure 12. Geographic Coverage of the Hub and Spokes in West Central Illinois



The DCEO CNPP runs from July 1, 2021 to December 31, 2021. In order to extend the Illinois CNPP beyond 2022, the IIRA submitted a \$2.5 million grant to the SBA-funded Community Navigator Pilot Program. If funded, this grant will run from fall 2021 to fall 2023. The IIRA proposes to serve as a hub with 11 spokes and community partners. GRAC members serving as spokes and community partners in this proposal include the University of Illinois, Urbana-Champaign, University of Illinois-Extension, Southern Illinois University-Carbondale, and the ICCB. The ICCB is represented by John Wood Community College, Spoon River College, Shawnee Community College and Southeastern Illinois College (**Fig. 13**). The IIN also serves as a partner in this SBA-funded grant.

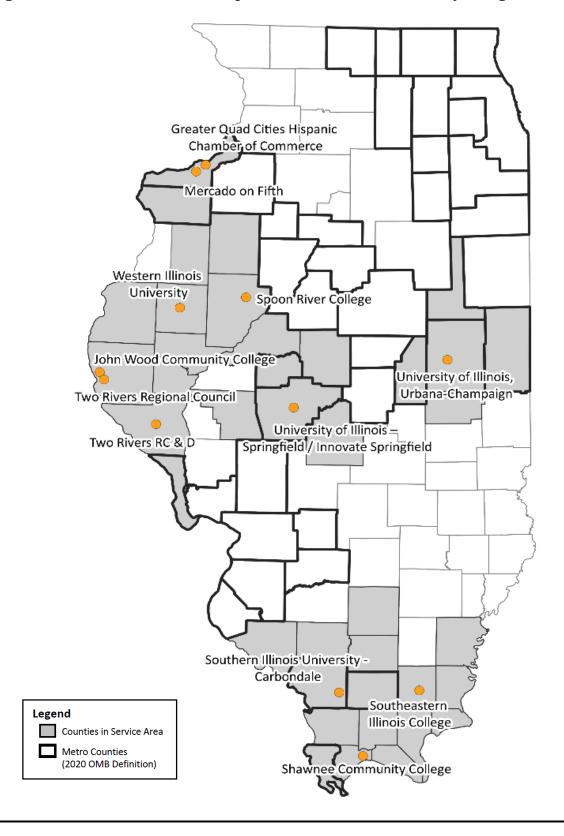
Infrastructure / Broadband. This report mentions broadband above in the
healthcare section. However, experts from diverse fields including economic
development, education, and health care all contend that people should no longer
view broadband "as something nice to have." These experts assert that the
American public should view broadband in the same way they think about roads,
public utilities, and water lines. Broadband and associated technologies are an
essential part of our daily lives.

Norman Walzer, IIRA Director Emeritus and chairperson of the GRAC Economic Development and Infrastructure Committee, has authored a proposal in partnership with the Center on Rural Innovation (CORI). CORI offers a broadband-centered economic development strategy for rural communities and small towns. In Dr. Walzer proposes that the GRAC could take the lead on implementing the CORI model in rural Illinois. The CORI model encourages rural communities to create "actionable plans to implement broadband networks that ensure rural communities can participate in and benefit from digital economies. In International Int

• Infrastructure / Broadband. The Lt. Governor and the GRAC served as a catalyst for \$200,000 in broadband investments in downstate Illinois, including many rural communities. This process started when the Lt. Governor invited Matt Schmit, director of the DCEO Office of Broadband, to speak at the November 2019 GRAC meeting. Mr. Schmit discussed the importance of broadband to the rural Illinois economy and described Governor Pritzker's \$420 million initiative to build better broadband infrastructure across Illinois.

These comments inspired Dr. Walzer to prompt Kyle Harfst, Executive Director of the IIN, to invite Mr. Schmit to speak at the next regularly scheduled IIN meeting in 2020. Recognizing their shared interests, Mr. Schmit worked with Mr. Harfst and Jay Walsh, University of Illinois System Vice President for Economic Development and Innovation, to formalize their relationship through the DCEO READY (Regional Engagement for Adoption + Digital Equity) program.

Figure 13. Service Area of the Proposed SBA-Funded Community Navigator Grant



The Benton Institute for Broadband and Society, a DCEO Office of Broadband partner, describes the READY program as: "a collaborative effort between the Illinois Office of Broadband and the Illinois Innovation Network. The READY program provides grant funding to galvanize collaboration among key broadband stakeholders across all 10 of Illinois' economic development regions. Each regional 'Broadband READY team' identifies current digital inequities, as well as next steps in creating a digital inclusion ecosystem among community and economic development organizations, higher education, libraries, and other regional stakeholders."

The READY program provides funds to entities willing to create broadband deployment and utilization plans in communities with substandard broadband access. In July 2021, DCEO distributed \$200,000 in READY funds to expand broadband deployment in four DCEO economic development regions. Four IIN members each received \$50,000 in READY grant funds to do this work. This funding partnership between the IIN and DCEO Office of Broadband would not have occurred if the Lt. Governor and the GRAC had not served as a forum for sharing rural development initiatives. Four IIN members receiving READY funds include:

- o Eastern Illinois University on behalf of the Southeastern DCEO Region.
- Region 1 Planning Council, in partnership with Northern Illinois University, on behalf of the Northern Stateline DCEO Region.
- o Southern Illinois University on behalf of the Southern DCEO Region.
- University of Illinois Urbana-Champaign on behalf of the East Central DCEO Region.
- Research and Publications. The IIRA has completed numerous publications in the past two years focused on rural economic development and infrastructure. Examples include:
 - O Marijuana Tax Revenues: Estimates for Illinois Counties, 2020 to 2021.

 This paper estimates marijuana tax revenues at the county level. Illinois allowed counties to collect taxes on recreational marijuana sales starting July 2020. In rural counties, the median tax receipts for recreational marijuana is slightly more than \$34,000, three times more than the average medical marijuana taxes. Gallatin County benefitted the least from marijuana tax revenues; taxes averaged less than \$1,000 per month.
 - Marijuana Use: Differences between Metro and Non-metro Regions. Ivi This report examines the drivers of demand for cannabis products in Illinois. It further explores how marijuana use and users differ between metro and non-metro regions.
 - Covid-19 Pandemic: Effects on Minority-Owned Businesses in Illinois. Viii This research explores minority economic development in Illinois, using self-employment numbers for minorities during the Covid-19 pandemic. During Covid-19 mitigation in 2020 and 2021, African-American self-employment rates worsened. Overall, Hispanic residents have fared well; the growth in self-employment for Hispanic residents during the pandemic was 11%. This report also explores the demographics of minority entrepreneurs.

- O Some Empirical Aspects of Manufacturing Sector during the Covid-19 Pandemic. This report is a collaboration between the IIRA and the Illinois Manufacturing Excellence Center (IMEC). This report investigates small business and manufacturer closure rates, and further explores how rural manufacturers in Illinois managed the threats posed by COVID-19.
- **Rural Development Conference Topics**. For 32 years, the IIRA, in partnership with the Office of the Lt. Governor, the GRAC, and Rural Partners, has hosted a rural development conference. Each year the conference program includes speakers and topics that reflect policy discussions in the GRAC and rural Illinois. The 2021 conference included the following topics—which connect directly to the three GRAC Committees, but with an emphasis on economic development and infrastructure.

o Workforce Development and Education

- "Creating a Skilled Workforce Innovation in the Cornfields" by Kathy Lively, of the Man-Tra-Con Corporation.
- "Dual Enrollment and Community Health: University Partnerships for Community Development" by James Mikolowsky, of The Hunt Institute; Michael Villarreal, of the University of Texas-San Antonio; and Lazara Lopez, of the Illinois Community College Board.

Health and Health Care

- "Telehealth Today and Tomorrow" by Kari Wolf, of Southern Illinois University.
- "Challenges and Opportunities for Illinois Rural Hospitals" by Abby Radcliffe, of Illinois Health and Hospital Association; Ada Bair, of Memorial Hospital; David Schreiner and Katherine Shaw, of Bethea Hospital; and Dolan Dalpoas, of Abraham Lincoln Memorial Hospital.

Economic Development and Infrastructure

- "The Mettle of Mom and Pops: Small Business Adaptation, Innovation, and Resilience in the COVID-19 Crisis" by Michael Powe, of National Main Street Center / Brookings Institution.
- "A Rural Renaissance: How Small Towns Across the Country Are Developing Thriving Digital Economy Ecosystems" by Matt Dunne, of the Center on Rural Innovation (CORI).
- "Reimagining Rural Policy: Organizing Federal Assistance to Maximize Rural Prosperity" by Tony Pipa, of the Brookings Institution.
- "A Regional Approach to Rural Economic Development: How DCEO Is Driving Rural Economic Opportunity Statewide" by Jonathon McGee, of the Illinois Department of Commerce and Economic Opportunity.
- "Market on the Hill: A Community Owned Market Sourcing Local Food" by Sean Park, of the Illinois Institute for Rural Affairs and Western Illinois University; Shaun Tyson, of Tyson Farms; and Kyle Reed, of Fox Path Farm.
- "Building Rural Resilience through Small Business Development" by Kimber Lanning, of Local Arizona First & Partners for Rural America.

 "COVID-19 & Post-Pandemic Roles for TIF/Business Development District Incentives" by Steve Kline, of The Economic Development Group.

Next Steps

The GRAC has identified key issues affecting rural Illinois, including: declining and aging rural population; a digital divide affecting education, health care, and economic development; and the impact of COVID-19 on rural places. The GRAC created three committees to tackle these interrelated issues. This report documents that the GRAC has moved beyond simply identifying issues and mapping out solutions. The GRAC and its constituent members have taken direct action to improve the quality of life in rural places.

Moving forward, the GRAC will work to implement its rural telehealth pilot project. The IIRA will continue working on its DCEO-funded Community Navigator Pilot Program. The IIRA plans to report on its progress at future GRAC meetings. In addition, the IIRA will report on the status of its SBA-funded Community Navigator Grant. In FY2022, the GRAC can discuss the CORI proposal developed by Norman Walzer. Additional actions include tracking the impact of COVID-19 on rural businesses and planning for the 33^{rd} Annual Rural Development Conference, scheduled for February 2022.

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Endnotes

¹ State of Illinois, Executive Office of the Governor, Governor Pat Quinn. (2011). *Executive Order 11-04:* Executive Order Regarding the Governor's Rural Affairs Council. Retrieved from https://www2.illinois.gov/Pages/government/execorders/2011_4.aspx.

- ² State of Illinois, Executive Office of the Governor, Governor Pat Quinn. (2011). *Executive Order 11-04: Executive Order Regarding the Governor's Rural Affairs Council.* Retrieved from https://www2.illinois.gov/Pages/government/execorders/2011/4.aspx.
- ³ State of Illinois, Executive Office of the Governor, Governor Jim Edgar. (1991). *Executive Order 91-13: An Executive Order Creating an Annual Report on the State of the Rural Illinois Economy.* Retrieved from Record Series 103.062, Illinois State Archives.
- iv State of Illinois, Executive Office of the Governor, Governor Pat Quinn. (2011). Executive Order 11-04: Executive Order Regarding the Governor's Rural Affairs Council. Retrieved from https://www2.illinois.gov/Pages/government/execorders/2011_4.aspx.
- v State of Illinois, Executive Office of the Governor, Governor Jim Edgar. (1991). *Executive Order 91-13: An Executive Order Creating an Annual Report on the State of the Rural Illinois Economy.* Retrieved from Record Series 103.062, Illinois State Archives.
- vi State of Illinois, Executive Office of the Governor, Governor Pat Quinn. (2011). Executive Order 11-04: Executive Order Regarding the Governor's Rural Affairs Council. Retrieved from https://www2.illinois.gov/Pages/government/execorders/2011/4.aspx.
- vii US Census. (2020). *How does the US Census Define "Rural."* Washington DC: Bureau of the Census. Retrieved from https://gis-portal.data.census.gov/arcgis/apps/MapSeries/index.html?appid=7a41374f6b03456e9d138cb014711e01.
- viii Office of Management and Budget (OMB). (2010). 2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas. Retrieved from https://www.federalregister.gov/documents/2010/06/28/2010-15605/2010-standards-for-delineating-metropolitan-and-micropolitan-statistical-areas.
- ix Reinhold, Rich. (2015). Changes to Illinois Metropolitan Statistical Area Delineations Following the 2010 Census. Springfield, IL: Illinois Department of Employment Security. Retrieved from http://www.ides.illinois.gov/LMI/ILMR/Changes_to_MSA.pdf.
- * US Census. (2020). *How does the US Census Define "Rural."* Washington DC: Bureau of the Census. Retrieved from https://gis-portal.data.census.gov/arcgis/apps/MapSeries/index.html?appid=7a41374f6b03456e9d138cb014711e01.
- xi Economic Research Service (ERS). (2021). State Fact Sheets: Illinois. Washington, DC: USDA. Retrieved from https://www.ers.usda.gov/data-products/state-fact-sheets/.
- xii Carr, Patrick and Maria Kefalas. (2010). *Hollowing Out the Middle: The Rural Brain Drain and What It Means for America*. Boston, MA: Beacon Press.

- xiii Berger, Noah and Peter Fisher. (2013). A Well-Educated Workforce Is Key to State Prosperity. Economic Analysis and Research Network. Economic Policy Institute. Retrieved from https://www.epi.org/publication/states-education-productivity-growth-foundations/.
- xiv Tamborini, Christopher, Chang Hwan Kim, and Arthur Sakamoto. (2015). Education and Lifetime Earnings in the United States. *Demography*. 52 (4): 1383–1407. Retrieved from https://pubmed.ncbi.nlm.nih.gov/26100983/.
- xv Economic Research Service (ERS). (2020). State Fact Sheets: Illinois. Washington, DC: USDA. Retrieved from https://www.ers.usda.gov/data-products/state-fact-sheets/.
- xvi Bureau of Economic Analysis (BEA). (2020). Table CA30 Economic Profile. Retrieved from https://www.bea.gov/.
- xvii Picchi, Aimee. (2019). Rural America's "brain drain": How student debt is emptying small towns. CBS News / Money Watch. January 21. Retrieved from https://www.cbsnews.com/news/rural-americas-brain-drain-how-student-debt-is-emptying-small-towns/.
- xviii Harris, Adam. (2019). The Education Deserts of Rural America. The college-completion gap between rural and urban residents is widening. *The Atlantic*. July 1. Retrieved from https://www.theatlantic.com/education/archive/2019/07/education-deserts-across-rural-america/593071/.
- xix Sponsler, Brian, Jeff Wyatt, Meredith Welch, Sharmila Mann. (2017). *Advanced Placement Access and Success: How do rural schools stack up?* Joint report from the College Board and Education Commission of the States. Retrieved from https://www.ecs.org/advanced-placement-access-and-success-how-do-rural-schools-stack-up/.
- xx Schulte, Sarah. (2021). 2020 census results: Illinois loses population, but not from where you'd think. ABC Eyewitness News Chicago. April 27. Retrieved from https://abc7chicago.com/census-2020-results-illinois-population/10554392/.
- xxi Bureau of Labor Statistics (BLS). (2021). LAUS. Index of Illinois Workforce Growth, 2000 to 2020. Downloaded July 26, 2021. Retrieved from https://www.bls.gov/lau/.
- wxii Department of Commerce and Economic Opportunity (DCEO). (2021). Pritzker Administration Releases WI-FI Hotspot Map to Support Illinois Students during COVID-19 Pandemic. Retrieved from https://www2.illinois.gov/dceo/Media/PressReleases/Pages/PR20200417.aspx.
- xxiii Illinois Department of Public Health (IDPH), Opioid Data and Reporting. (2020). Opioid Data Dashboard. Retrieved from https://idph.illinois.gov/OpioidDataDashboard/.
- xxiv Erwin, Paul. (2017). Despair in the American Heartland? A Focus on Rural Health. *American Journal of Public Health*. 107 (10): 1533-1534. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5607702/.
- xxv Illinois Office of Broadband, Department of Commerce and Economic Opportunity (DCEO). (2019). Connect Illinois Grant Program. Retrieved from https://www2.illinois.gov/dceo/ConnectIllinois/Pages/ConnectIL.aspx.
- xxvi Heather, Kade. (2020). State to release \$50M in grants to expand broadband. *State Journal-Register*. February 5. Retrieved from https://www.sj-r.com/news/20200205/state-to-release-50m-in-grants-to-expand-broadband.

- xxvii Illinois Office of Broadband, Department of Commerce and Economic Opportunity (DCEO). (2020). Connect Illinois Grant Program. Illinois 2020 Broadband Maps. Retrieved from http://illinois.maps.arcgis.com/apps/webappviewer/index.html?id=f9101de0f4564384836f4905bd 0b3e2e.
- xxviii Illinois Department of Public Health (IDPH). 2021. Illinois Vaccination Rates by County, July 26, 2021. Retrieved from https://www.dph.illinois.gov/covid19/vaccinedata?county=Illinois.
- xxix University of Illinois Extension. (2021). Illinois Extension contributes to vaccination awareness effort in the state. Retrieved from https://www.dailyherald.com/submitted/20210716/illinois-extension-contributes-to-vaccination-awareness-effort-in-state.
- xxx Athiyaman, Adee. (2021). Telemedicine in Illinois: Ecological Explanations. *Rural Research Report*. 3 (4): 1-8. Retrieved from http://www.iira.org/wp-content/uploads/2021/02/telemedicine-ecological-explanation2.pdf.
- xxxi Athiyaman, Adee. (2021). The Value of Telemedicine. *Rural Research Report*. 3 (3): 1-8. Retrieved from http://www.iira.org/wp-content/uploads/2021/02/Telemedicine ResBrief3 Feb3 2021.pdf
- xxxii Athiyaman, Adee. (2021). Who Uses Telemedicine, Believers or Disbelievers of COVID-19? *Rural Research Report.* 3 (2): 1-8. Retrieved from http://www.iira.org/wp-content/uploads/2021/01/who uses telemedicine v3 2 2021.pdf.
- xxxiii Athiyaman, Adee. (2021). Consumer Awareness of Telemedicine During the COVID-19 Pandemic:

 Demographic Influences. *Rural Research Report*. 3 (1): 1-8. Retrieved from http://www.iira.org/wp-content/uploads/2021/01/telemedicine_awareness_v3_1.pdf.
- xxxiv Bieneman, Dave. (2019). *Illinois Department of Employment Security: 2019 Illinois Economic Report.*Springfield, IL: IDES. Retrieved from https://www2.illinois.gov/ides/lmi/Pages/Labor_Market_and_Career_Information_Publications.aspx.
- Example 2021. Retrieved from https://www.bea.gov/sites/default/files/2021-06/qgdpstate0621.pdf.
- xxxvi Gregory, Michael. (2021). Illinois: Economic Recovery to Spring Back. BMO Economics. Retrieved from https://economics.bmo.com/en/publications/detail/e5442ab5-8abb-4dea-adf9-25c748e7c49b/.
- xxxvii Bureau of Labor Statistics (BLS). (2021). LAUS. Index of Illinois Workforce Growth, 2000 to 2020. Downloaded July 26, 2021. Retrieved from https://www.bls.gov/lau/.
- xxxviii Small Business Administration (SBA). (2020). 2020 Small Business Profiles for the States and Territories. Retrieved from https://cdn.advocacy.sba.gov/wp-content/uploads/2020/06/04143032/2020-Small-Business-Economic-Profile-IL.pdf.
- xxxix Rummler, Orion. (2020). Rural and minority-owned small businesses likely left out of PPP loans, watchdog finds. *Axios*. May 8. Retrieved from https://www.axios.com/coronavirus-ppp-small-business-loans-3f2854bb-7f75-4e4c-877f-1244a8652f6f.html.
- xl Economic Research Service (ERS). (2020). State Fact Sheets: Illinois. Retrieved from https://www.ers.usda.gov/data-products/state-fact-sheets/.
- xli Parilla, Joseph, Sifun Liu, and Brad Whitehead. (2020). How local leaders can stave off a small business collapse from COVID-19. Brookings Institution. April 3. Retrieved from https://www.brookings.edu/research/how-local-leaders-can-stave-off-a-small-business-collapse-from-covid-19/.

- xlii Athiyaman, Adee. (2020). Economic Impact of COVID-19 on Illinois Counties. *Research Brief, Short Paper*. ISSN 2687-8844. Vol. 2, No. 9 (2020, May 4). Retrieved from http://www.iira.org/wp-content/uploads/2020/05/Economic-Impact-of-Covid-19-on-Illinois-Counties-ResBrief9_May-4-2020.pdf.
- xiiii Simpson, April. (2020). Small Rural Businesses Fight for Bailout Aid. Stateline. June 30. Pew Charitable Trusts. Retrieved from https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2020/06/01/small-rural-businesses-fight-for-bailout-aid.
- xliv Bustos, Cheri. (2021). Website for Representative Cheri Bustos. Member Designated Projects & Community Project Funding. Retrieved from https://bustos.house.gov/helping-you/member-designated-projects-community-project-funding/.
- xlv Cowley, Stacy. (2021). Minority Entrepreneurs Struggled to Get Small-Business Relief Loans. *New York Times*. April 4. Retrieved from https://www.nytimes.com/2021/04/04/business/ppp-loans-minority-businesses.html.
- xlvi Picchi, Aimee. (2021). Locked out of a PPP loan, one woman sold her wedding ring to keep her business afloat. CBS News / Money Watch. March 31. Retrieved from https://www.cbsnews.com/news/women-minorities-new-businesses-pandemic-ppp-loans/.
- xlvii Love, Hanna and Mike Powe. (2020). Rural small businesses need local solutions to survive. Brookings Institution. December 1. Retrieved from https://www.brookings.edu/research/rural-small-businesses-need-local-solutions-to-survive/.
- xlviii Channick, Robert. (2020). In Illinois, more than one-third of PPP funds, meant for small businesses, went to larger companies that got loans of \$1M or more. Search the SBA list. *Chicago Tribune*. December 2. Retrieved from https://www.chicagotribune.com/business/ct-biz-paycheck-protection-sba-releases-borrowers-names-20201202-sf5ikppafzarzj6hb7ah2fcara-story.html.
- xlix Department of Commerce and Economic Opportunity (DCEO). (2021). Press Release: Pritzker Administration Announces \$9 Million Investment in Community Navigator Program to Accelerate Small Business Economic Recovery. July 2. Retrieved from https://www2.illinois.gov/dceo/Media/PressReleases/Pages/PR20210702.aspx.
- ¹Wheeler, Tom. (2020). 5 steps to get the internet to all Americans: COVID-19 and the importance of universal broadband. The Brookings Institution. May 27. Retrieved from https://www.brookings.edu/research/5-steps-to-get-the-internet-to-all-americans/.
- ^{li} Center on Rural Innovation (CORI). (2021). Center on Rural Innovation Homepage. Retrieved from https://ruralinnovation.us/.
- lii Center on Rural Innovation (CORI). (2021). Center on Rural Innovation Homepage. Retrieved from https://ruralinnovation.us/
- liii McBeath, Robbie. (2021). Illinois Connected Communities: Leveraging the Power of Local Communities. Weekly *Newsletter of Benton Institute for Broadband & Society*. June 4. Retrieved from https://www.benton.org/blog/illinois-connected-communities-round-1-leveraging-power-local-communities.
- liv Department of Commerce and Economic Opportunity (DCEO). (2021). Press Release: Pritzker Administration Awards \$200,000 in Broadband READY Grants to Strengthen Regional Broadband Engagement, Announces \$250,000 in New Funding. Retrieved from https://www2.illinois.gov/dceo/Media/PressReleases/Pages/PR20210714.aspx.

- ^{lv} Athiyaman, Adee. (2021). Marijuana Tax Revenues: Estimates for Illinois Counties, July 1, 2020 to April 30, 2021. *Research Brief, Short Paper*. Vol. 3, No. 8. Retrieved from http://www.iira.org/wp-content/uploads/2021/05/marijuana-tax-revenue-May-18-2021.pdf.
- lvi Athiyaman, Adee. (2021). Marijuana Use: Differences between Metro and Nonmetro Regions. *Research Brief, Short Paper*. Vol. 3, No. 7. Retrieved from http://www.iira.org/wp-content/uploads/2021/05/Market-Demand-for-Marijuana_May7.pdf.
- Athiyaman, Adee. (2021). Covid-19 Pandemic: Effects on Minority-Owned Businesses in Illinois. *Research Brief, Short Paper*. Vol. 3, No. 6. Retrieved from http://www.iira.org/wp-content/uploads/2021/04/ResBrief6 Minority Apr2021.pdf.
- Athiyaman, Adee and David Boulay. (2021). Some Empirical Aspects of Manufacturing Sector during the Covid-19 Pandemic. *Rural Research Report*. 31 (1): 1-8. Retrieved from http://www.iira.org/wp-content/uploads/2021/02/RRR Jan2021 Feb12.pdf.
- lix Illinois Institute for Rural Affairs. (2021). Speaker Program. Thirty-Second Annual Rural Development Conference. Retrieved from: http://www.wiu.edu/users/miiira/IIRA Conference/
 2021 IIRA Conference.pdf.