Future-focused economic development in rural America

How technology is changing rural economies, and how local leaders are responding
Introductions

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Agenda

1. **Introduction and context**
2. Major trends of research
   2.1. Automation
   2.2. Remote work
   2.3. Geography of innovation
3. Panel discussion
4. Q & A
5. Closing remarks
Disclaimer

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“But still for some of our fellow Americans, the gates are still closed. . . . For them the laws of economic change have been rather harsh and unyielding. Industry has moved away, the mines and the timber that once provided the livelihood are gone, they have been depleted. The farm costs have risen faster than farmers could meet them. . . . [But our] course is the course of opportunity. If we choose that, we say that empty fatalism has no part in the American dream. . . . We say that we are not helpless before the iron laws of economics, that a wise public policy uses economics to create hope . . . .”
Center on Rural Innovation and Rural Innovation Strategies, Inc.

A social enterprise focused on closing the rural opportunity gap and advancing inclusive rural prosperity through digital economy ecosystems that support scalable entrepreneurship and tech job creation.
CORI’s digital economy ecosystem model

A model for community progress:
- Clear outcomes
- Deep understanding of required elements
- Awareness of interdependence of all elements

Foundational Elements
- Housing
- Public Health and Safety
- Public-Sector Leadership and Support
- Postsecondary Education Partnerships
- Culture and Entertainment Options
- Private- and Nonprofit-Sector Engagement
- Quality Pre-K-12 Education and Accessible Childcare
- Attractive "Live-Work" Downtown

Necessary Infrastructure
- Broadband Infrastructure
- Local Leadership Capacity
- Coworking and Entrepreneurship Spaces

Direct Drivers
- Scalable Tech Entrepreneurship Support and Incubation
- Access to Capital
- Inclusive Tech Culture-Building
- Access to Digital Jobs
- Digital Workforce Development and Support
- Local Wealth Creation by Startups
- Quality Digital Employment

Outcomes
We are facing the largest rural opportunity gap in history.

What drives our research: Equity for rural places

Urban vs. rural job growth (2008-2021)
Employment relative to 2008 levels

Rural America faces challenges and opportunities

**Challenges**

*3.5x*

While the digital economy grew 3.5 times faster than the overall economy from 2005-2019 ...¹

*96%*

... 96% of tech jobs created in the last five years have been in metro areas.²

**Opportunities**

*3rd*

Tech jobs were the third fastest growing occupation in rural counties between 2014 and 2019 ...³

*18,000*

... and in 2019, more than 18,000 people graduated from a rural postsecondary institution with a degree or certificate in a tech-related field.⁴

Sources: (1) Bureau of Economic Analysis; (2) & (3) American Community Survey; (4) IPEDS
Exploring future-focused rural development

Five research and policy briefs

- The Future of Work in Rural America
- The Rise of Remote Work in Rural America
- The Growing Gig Economy in Rural America
- Automation in Rural America
- The Geography of Innovation in Rural America

Methods: Deep dive into literature and policy; comprehensive quantitative data analysis.

Five case studies

- Ada, Oklahoma
- Portsmouth, Ohio
- Platteville, Wisconsin
- Red Wing, Minnesota
- Comparative: Ruston, Louisiana, and Newport, Arkansas

Methods: Qualitative interviews with over 40 local leaders and practitioners across six communities.
Technology is creating new challenges and opportunities for rural America

**Trend 1:** Automation is changing the nature of work, creating challenges for rural areas dependent on industries vulnerable to automation.

**Trend 2:** Technology is expanding the scope of where work occurs and how people earn income.

**Trend 3:** Technology is expanding where innovation occurs.
Trend 1

Automation is changing the nature of work, creating challenges for rural areas dependent on industries vulnerable to automation, while also creating new opportunities for diversifying rural employment and spurring innovation.
Automation is changing the way we think about work

Technology is forcing us to change the way we think about work, shifting from a job-based perspective to a task- and skill-based perspective.

When we talk about tasks, we talk about...

- **Content**: The purpose of the task — physical, intellectual, social
- **Method**: The way in which the task is completed — alone, with a team, codified
- **Tools required**: How the task is completed — by hand, by digital machine, by non-digital tools
Technology is automating routine tasks

Source: Jaimovich & Siu (2018)
Workers who do more specialized tasks earn significantly higher wages

Percent difference in wage between workers with a college degree and workers with just a high school diploma (1979-2019)

<table>
<thead>
<tr>
<th>Year</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>42.3%</td>
</tr>
<tr>
<td>2019</td>
<td>74.8%</td>
</tr>
</tbody>
</table>

Note: Wages are adjusted for inflation.
Source: Donovan & Bradley (2020)
One-third of U.S. jobs are primarily made up of tasks that could be automated by 2030.

Regional patterns challenge dominant narratives about the people and places impacted by automation.

Source: CORI analysis of Frey and Osborne (2017), Devaraj et al. (2017), BLS, ACS 5-year estimates, and Rural Urban Continuum Code (RUCC) data.
Rural counties are most likely to be impacted by automation.

Of the 100 counties most likely to be impacted by automation, **83 are rural**.

**Rural automation risk to employment**
Percent of workers whose jobs are at risk of automation in county

Source: CORI analysis of Frey and Osborne (2017), Devaraj et. al. (2017), BLS, ACS 5-year estimates, and RUCC data
Common occupations in rural places are at risk

Over 50% of tasks in six occupational categories are likely to be impacted by automation:

- Food preparation
- Production
- Farming
- Transportation
- Office and administrative support
- Construction

These occupations account for 43% of total employment in rural areas, compared to just 34% in metropolitan areas.
Educational attainment levels make a difference

**Automation risk vs. educational attainment in rural counties**

% workers whose jobs are at risk of automation vs. % population with bachelor’s degree or higher

Workers with a high school diploma or less are over **50% more likely** to be displaced from a job due to automation, as compared to **29%** of those with college degrees or higher.

Race factors into automation risk

70% of the national workforce in automation-safe industries, like healthcare, personal services, and education, is female.

Source: CORI analysis of Frey and Osborne (2017), BLS, ACS 5-year estimate, and RUCC data
Automation also creates opportunities for rural economic development

**Workers**

Workers that leverage technology and digital skills in their work **earn more** and have more **career options**.

**Businesses**

Businesses that invest in technology and automation are more **competitive** and **productive**.

**Startups**

Startups that build and sell new automation technologies **create jobs** and **generate wealth**.
Automation has implications for rural America

Between 2011 and 2019, employment in computer and math occupations grew by 17% in rural America, the third-fastest growing rural occupation.

This means that rural leaders need to:

- Incorporate automation trends into regional economic planning
- Adopt a task/skill-based perspective when scrutinizing economic development incentive deals
- Take a more aggressive approach to helping workers make career transitions
- Work with local employers and postsecondary institutions like community colleges to connect workers with programs that build specialized skills
- Build tech startup ecosystems to make sure that future automation technologies are developed and built in rural America
Trend 2

Technology is changing how people work, where work occurs, and how people earn income. By expanding where and how work gets done, technology is creating new opportunities for rural workers to expand employment options.
Technology is changing where and how people work

**Remote work**

Wage & salary employment that can be done from anywhere

- Offers flexibility in work location
- Working from home, a coworking space, or even a van as a digital nomad

**Gig work**

Self-employment or freelance contract work that is facilitated by technology platforms

- Offers flexibility in work structure such as hours, type of work, etc.
- Can serve local customers or customers at a distance
Remote work has historic roots in the 20th century

1973:
Initial theory for remote work born by NASA engineer

1980s/1990s:
Growing trend towards distributed work trend begins

1997:
Over 10,000 government employees working remotely and/or from home

2017/2018:
More than 25% of workers work remotely at least “some of the time”

2020:
COVID-19 pandemic spurs global shift towards remote work
The pandemic created an unprecedented remote work experiment

Overall, 42% of the U.S. population worked from home due to the pandemic in May 2020.
There are costs and benefits to remote work

**For workers**

**Benefits**
- Family care
- Ability to live outside of population centers
- Lower commuting costs
- Increased job opportunities

**Costs**
- Higher housing costs
- Increased home value and property taxes
- Higher home electricity usage
- More competition for jobs

**For firms**

**Benefits**
- Lower costs on office space
- Fewer energy costs
- Can recruit from larger talent pool
- Lower recruitment costs
- Less turnover

**Costs**
- Cloud usage/online storage
- Cyber security
- Hardware and home office accommodations
There are educational and racial disparities in who works remotely

Change in remote worker share due to COVID-19 by race/ethnicity
Share of workers working from home, 2017-18 vs. May 2020

- Asian: 2017-18 share 31.7% → May 2020 share 51.9%
- White: 2017-18 share 25.6% → May 2020 share 35.3%
- Black or African American: 2017-18 share 17.6% → May 2020 share 29.3%
- Hispanic or Latino: 2017-18 share 13.1% → May 2020 share 23.0%

Change in remote worker share due to COVID-19 by education
Share of workers working from home, 2017-18 vs. May 2020

- Bachelor's degree and higher: 2017-18 share 19.5% → May 2020 share 46.5%
- Some college or associate degree: 2017-18 share 12.4% → May 2020 share 25.1%
- High school or less: 2017-18 share 20.5% → May 2020 share 59.6%

Source: Bureau of Labor Statistics
Rural residents are highly engaged in flexible work options

By 2020, there were more than 626,000 rural sellers, accounting for 24% of all sellers — exceeding the share of the population living in rural areas.

Case example: Etsy

Source: Bureau of Economic Analysis and RUCC data
Gig work also comes with costs and benefits

**Benefits for workers**
- Ability earn extra income
- Ability to work flexible hours
- Location flexibility
- Leverage personal assets to make an income

**Costs for workers**
- Not covered by many labor law protections
- Strict guidelines set by platforms
- No employer subsidized health insurance or retirement
- Less predictable working hours
- No paid time off
What it means for rural America

We know that **remote work** and the **gig economy** are expanding in rural places.

**This means that rural leaders need to:**

- Build broadband infrastructure
- Focus workforce development efforts on skills aligned with remote work professions
- Incorporate housing and quality of life assets into economic development strategy
- Incorporate remote work and gig economy work into economic development planning
- Create spaces, places, and programs for remote workers and gig workers to meet and network
- Build ecosystems to support digital skills training
Trend 3

Technology is expanding where innovation occurs, with growing examples of high tech startups finding success in unconventional areas like rural communities. This creates new opportunities for rural America to create jobs and prosperity through innovation.
Rural America has been slower to recover innovation jobs

Innovation sector job creation in **urban** counties outpaces **rural** counties

Innovation sector employment index (2005 = 100), 2005-2021

Source: Moody’s Analytics, County Detailed Employment Forecast (2005-2021) and RUCC data
Innovation jobs are clustered in a few large cities

From 2005-2020, five metro areas accounted for 90% of the nation’s innovation sector growth.

Source: Bureau of Economic Analysis and RUCC data
Historically, agglomeration is what created opportunity for innovation

Four major factors led to agglomeration in a few major cities:

- **Knowledge spillovers:**
  - Physical closeness and unexpected interactions
- **Talent**
  - Proximity to large talent pools
- **Access to capital**
  - Large pools of capital and investors
- **Access to customers**
  - Proximity to profit

**Agglomeration:** The benefits that workers and firms experience when located in close proximity to each other.
Technology is enabling innovation to take place in new areas

Knowledge spillovers: Physical closeness and unexpected interactions

Talent: Proximity to large talent pools

Access to capital: Large pools of capital and investors

Access to customers: Proximity to profit

Internet expanding access to knowledge

Remote work

Growing fully remote investment

Networking and customer relations platforms

Knowledge spillovers: Physical closeness and unexpected interactions

Talent: Proximity to large talent pools

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Internet expanding access to knowledge

Remote work

Growing fully remote investment

Networking and customer relations platforms
Many rural places have a high potential for innovation.

In 2017, 16 million U.S. household innovators invested more than $47 billion in household R-and-D activities.

Source: CORI analysis of Goetz & Han (2019)
Venture capital is growing in rural places

Between 2017 and 2021, venture capital in rural areas grew from $3.2 billion to $42.5 billion — an increase from 0.5% to 2.5% of total venture capital across the U.S.¹

Source: Robb (2021)
The geography of innovation has implications for rural America

We know that where innovation occurs matters, and rural leaders can use an array of steps to promote innovation in their communities:

- Identify and build off of local innovation assets
- Build entrepreneurship ecosystems through strong regional partnerships
- Develop an innovation hub to serve as a focal point for an entrepreneurship ecosystem
- Leverage federal funding for rural innovation
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Understanding rural America
Thank you

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