Center on Rural Innovation

# Rural America's tech employment landscape

How to increase tech talent and tech employment

# Introductions

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# Ascendium®

*Elevating opportunity*

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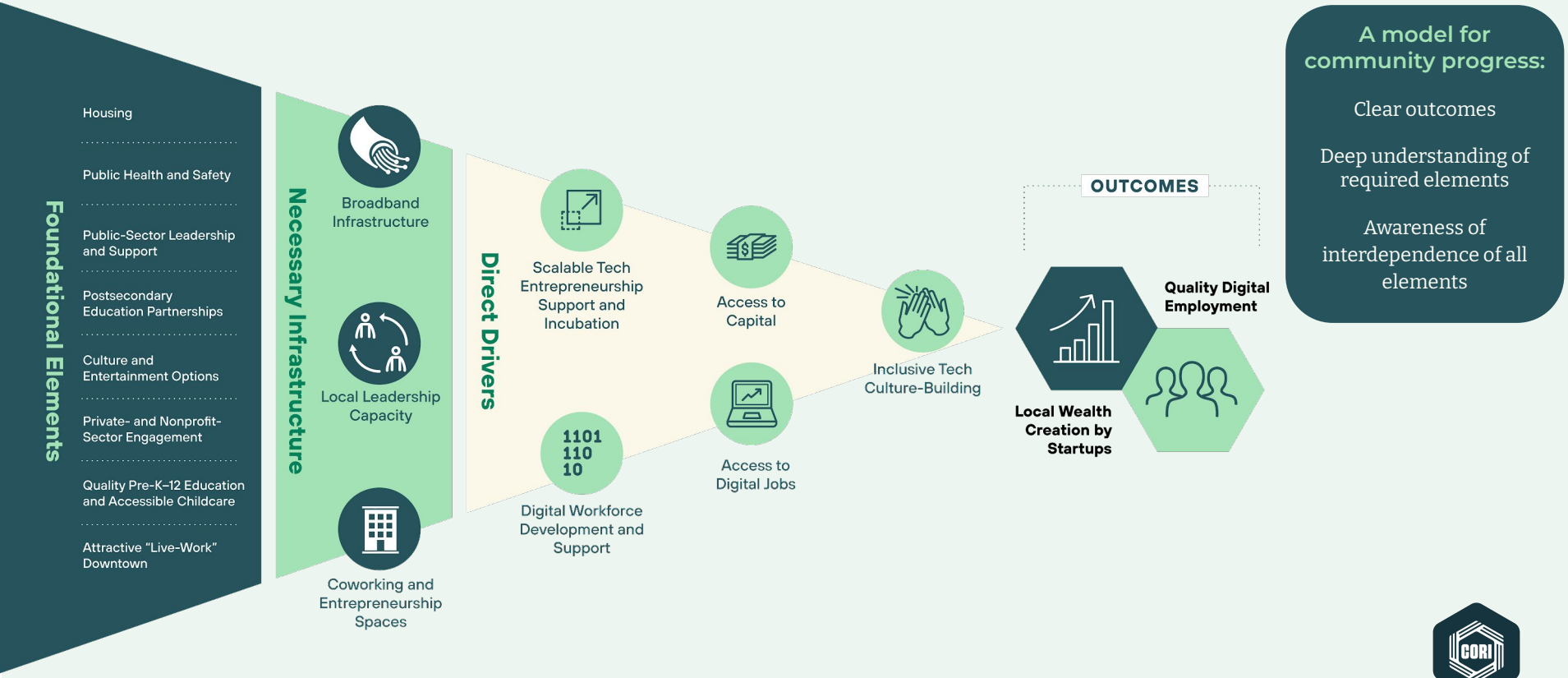
## Center on Rural Innovation

Advancing economic prosperity in rural America through the creation of inclusive digital economy ecosystems that support scalable entrepreneurship and tech job creation.

# CORI's digital economy ecosystem model



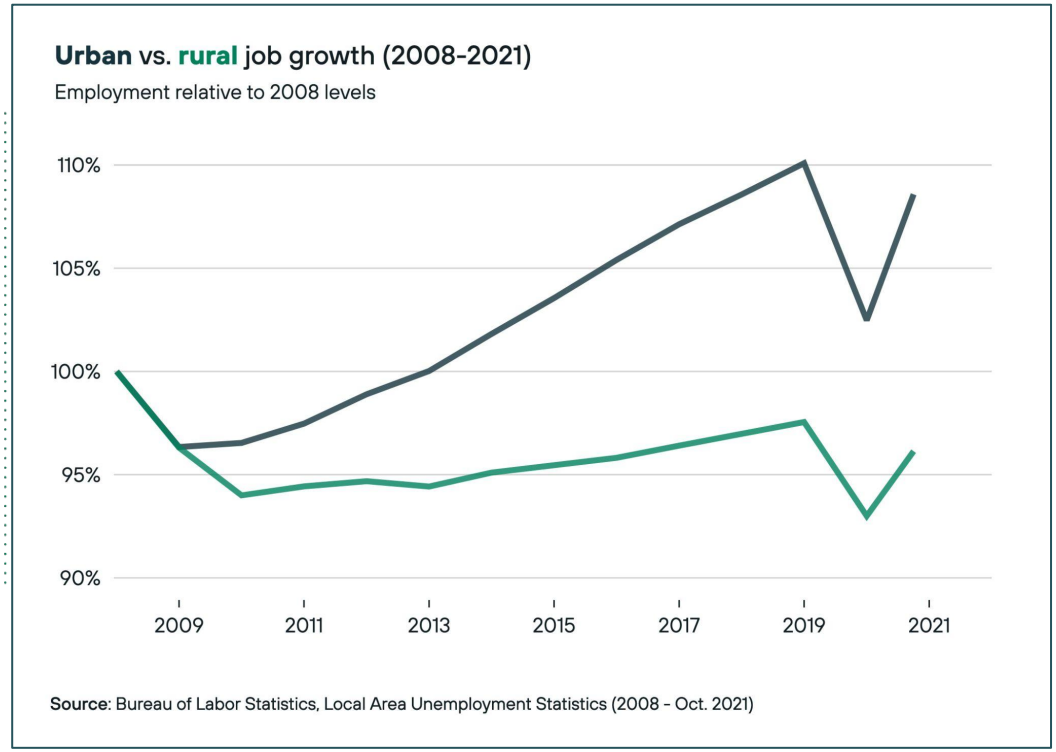

**A model for community progress:**

Clear outcomes

Deep understanding of required elements

Awareness of interdependence of all elements

# What drives our research: Equity for rural places




**96% of new tech jobs** were created in a small number of metropolitan areas between 2014 and 2019.

While **12.5% of the American workforce lives in rural areas**, these areas only account for **5% of tech workers.**

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

# Tech innovation is a driver of regional economies

## 3x

Computer occupations are expected grow three times as fast as the national average...[1]

## 3 to 5 new jobs

... and for every one high-tech job created, three to five additional jobs are created by other firms locally.[2 3]

## 3rd

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

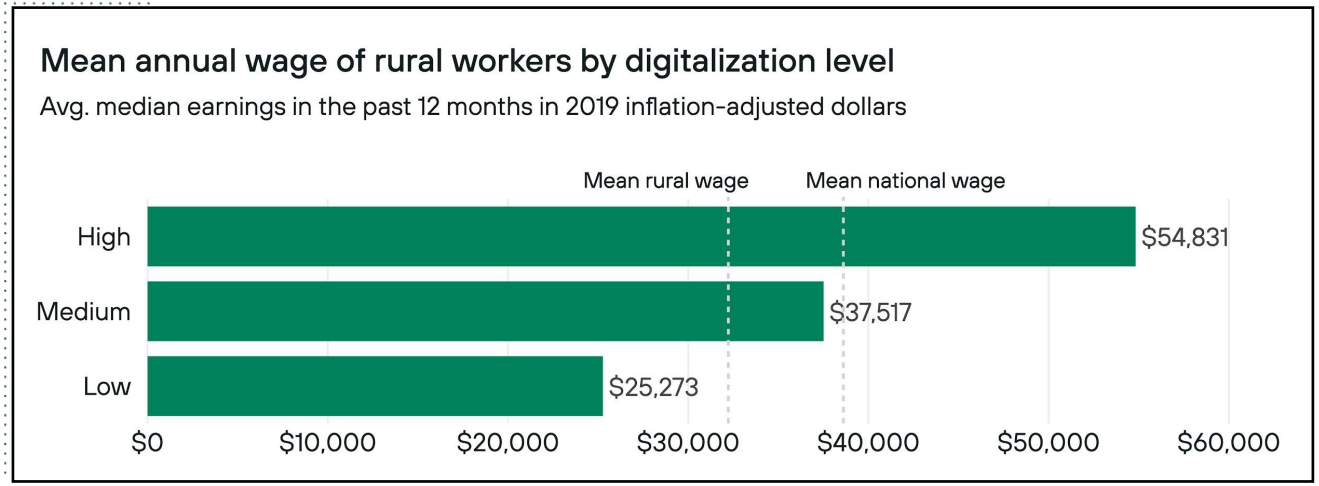
## 18,000

... and in 2019, more than 18,000 people graduated from a rural postsecondary institution with a degree or certificate in a tech-related field.[5]



Sources: (1) Zilberman & Ice (2021); (2) Moretti (2012) ; (3) Bartik & Sutherland (2019); (4) American Communtiy Survey; (5) IPEDS

# Workers in highly digital jobs earn more than those in jobs that use less technology




**Digitalization:**
*The expansion and use of digital technologies in all different types of* ***jobs, industries, and facets of life.***

(Source: CORI analysis using Muro et. al. (2017) classifications, ACS 2019 data)

# There are foundational questions to answer about rural tech talent and employment

1. What is the **current state of tech employment** in rural places?

2. How can rural communities **increase participation in tech training and careers** to grow the local tech talent pool?

# How we went about our research

## Surveys

**Two surveys fielded:**

- Nationally representative survey of rural adults
- Rural employer survey (*across nine rural communities*)

## Labor market data analysis

**Using data from EMSI Burning Glass (EMSI BG)**

## Interviews

**56 interviews across three primary communities:**

- Stevens Point, Wisconsin *(Portage County)*
- Statesboro, Georgia *(Bulloch County)*
- Cape Girardeau, Missouri *(Cape Girardeau and Scott counties)*

# Our research revealed trends about tech employers, workers, learners, and training providers

**Rural employers** are understaffing tech roles

**Rural Americans** are interested in tech careers

**Rural tech workers and learners** who choose to enter the field take a variety of training paths to get there

**Training providers** are working to lower barriers for rural learners

## #1:
## Rural employers are understaffing tech roles

Rural employers in non-tech industries employ a significant portion of rural residents — **yet they could be employing more** because they are understaffing people in tech roles.

# What is a tech job?

## Tech jobs

Jobs in which people help to **design, build, and maintain computer hardware and software systems**, such as web developers, cybersecurity specialists, and database administrators.

# In rural areas, 30% of tech workers are employed by “non-tech” industries

## Missing tech employment by core non-tech rural industry

Comparison of the rate of tech employment within core non-tech rural industries to the national rate of tech employment for the same industries

| Industry | Current rural tech employment | Missing rural tech employment |
|---|---|---|
| Manufacturing | 14,634 | 42,836 |
| Government | 23,971 | 17,654 |
| Banks | 7,547 | 5,741 |
| All other finance and insurance | 3,822 | 5,172 |
| Mining | 2,296 | 2,336 |
| Colleges, universities, and professional schools | 15,940 | 2,307 |
| Hospitals | 3,733 | 2,185 |
| Insurance carriers | 2,496 | 1,930 |
| Utilities | 2,124 | 1,482 |
| Elementary and secondary schools | 579 | 228 |
| **Total** | **77,143** | **81,871** |

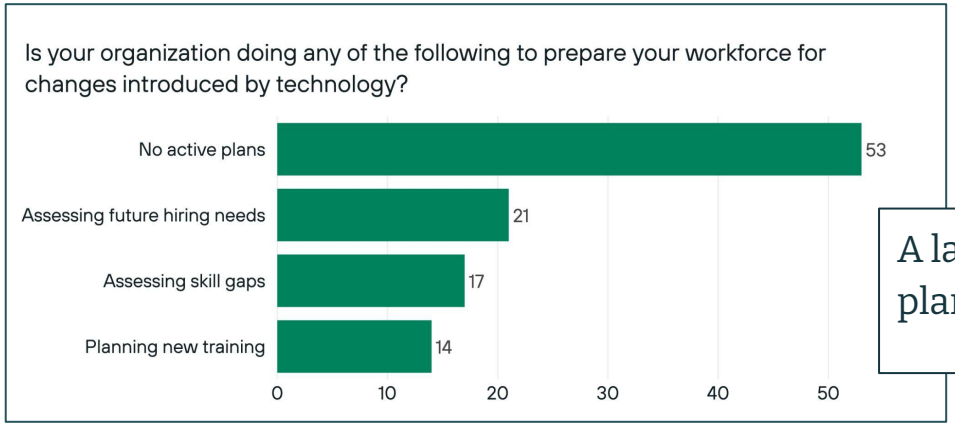
Rural employers in non-tech industries could be hiring over **81,000 more tech workers**, if they were hiring at the same rates as the national average for those industries.

(Source: CORI analysis of EMSI BG data)

# There are likely several explanations for what is driving these “missing” tech jobs

A lack of investment in advanced technologies

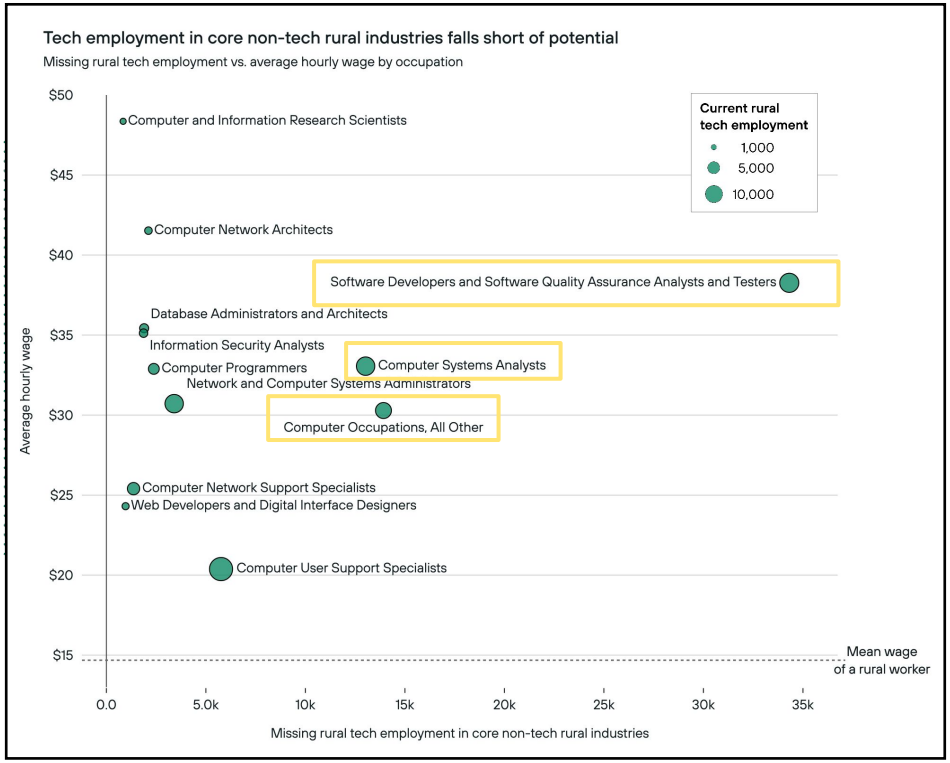
Outsourcing tech needs




A lack of planning

(Source: Rural Employers Survey)

# Rural employers in non-tech industries are hiring fewer highly specialized, high-paid tech workers




**75%** of those "missing tech jobs" include just a small subset of roles in three occupational categories that include jobs like **software developers**, **computer systems analysts**, and **cybersecurity and computer systems engineers**.

(Source: CORI analysis of ACS)

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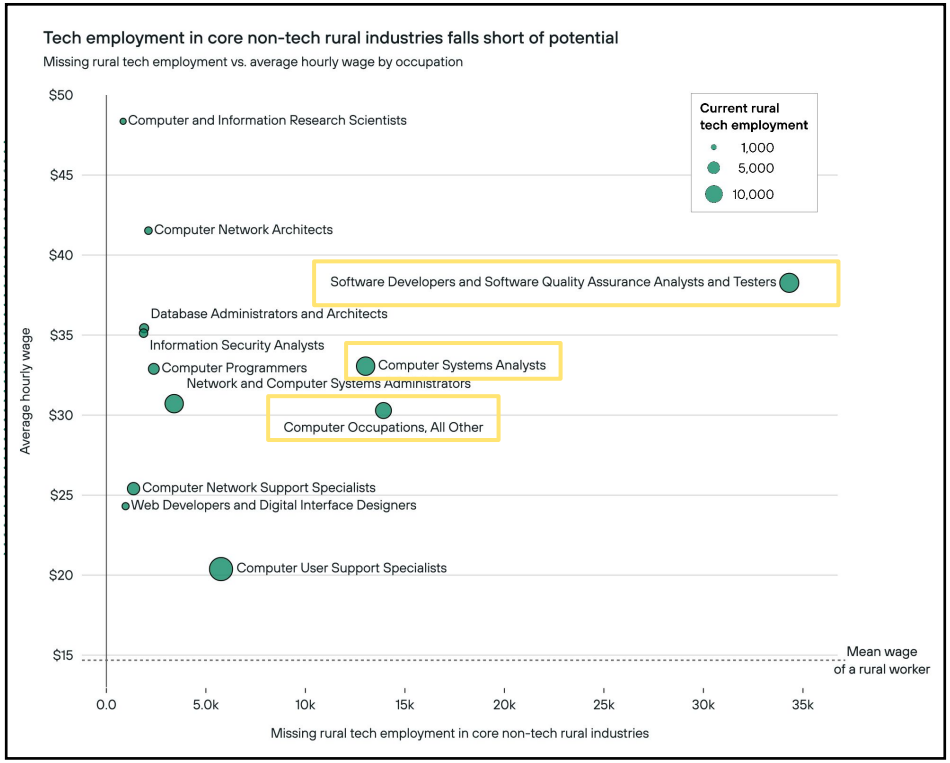


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(Source: CORI analysis of ACS)

# Rural workers and employers would both benefit from increased hiring in roles that create new technologies

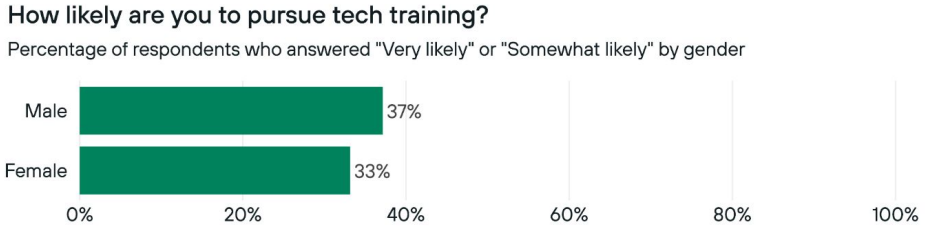
As a student in Bulloch County, Georgia, shared, most of the tech roles available locally were **limited to "maintenance and small things"** as opposed to **the more "rewarding" or exciting tech work**, which allows for **creativity**, **problem-solving, collaboration, and learning on the job.**

## #2:
## Rural Americans on the whole are interested in tech

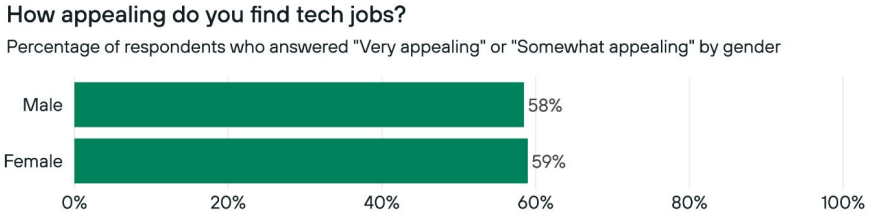
Rural residents express a high level of interest in tech jobs and careers, but **people who have more awareness of and exposure to tech work** are more likely to act on this interest.

# Nearly 60% of rural adults find tech work appealing

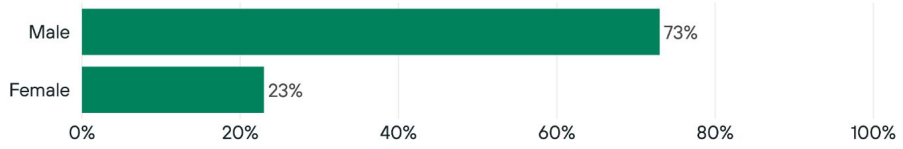
**More than ⅓** of rural tech workers plan on pursuing digital skills training in the next two years




Men and women are **equally interested in tech**, and are just as likely to pursue tech training.




...but **73%** of rural tech workers are men...




(Source: Rural Adult Survey)

# Good pay, enjoyment of the work, and creativity draw rural workers to tech

## Good Pay

**One-third** of rural tech workers earn **over $100,000 annually**, whereas just 10% of rural adults employed outside of tech earn an equal amount.[1]

"I was looking for something that I **enjoy**, but also that can be a more **stable source of income** and kind of career path."

- *Wallace Norman, tech worker in Bulloch County, Georgia*

(Source: (1) Rural Adult Survey)

# Social capital and personal connections play role in how rural residents first become aware of tech

"**I remember my grandpa wanting to build a computer**, and and then watching him do it and it just being very fun — and while I've loved technology from a very young age, **I don't think I started programming until I was 19 or 20**"

- *Josh Vaughn, tech student at SALT in Bulloch County*

**46%** of working-age adults in rural communities have a **family members or friends** with a tech job...

...and **42%** know of ***someone in the community*** with a tech job.[1]

(Source: (1) Rural Adult Survey)

# Having more awareness of local opportunities builds confidence that a tech career is feasible

Of those who were aware of a tech job in their community, **44%** felt optimistic about getting a job locally...

...whereas among those who were unaware of local opportunities, only **15%** believed they could be hired into a local tech job.[1]

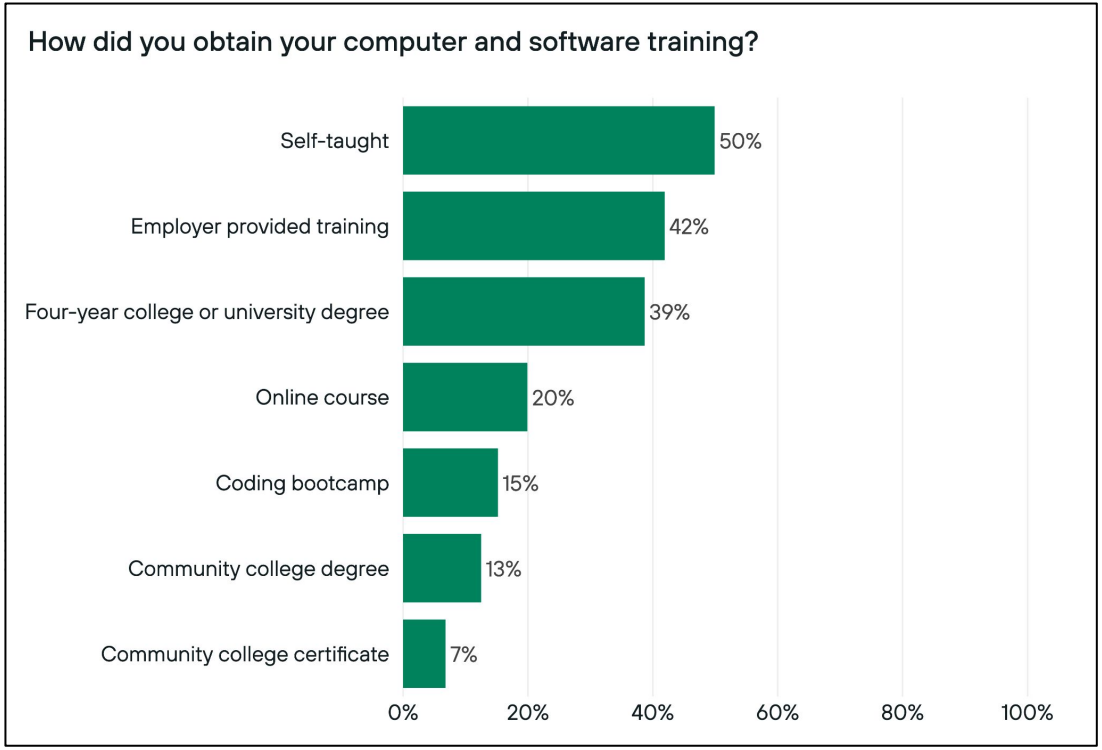


(Source: (1) Rural Adult Survey)

## #3:
## Rural tech workers and learners took a variety of paths into the field

Rural learners and employers **benefit from having a combination of different training methods and programs** to develop tech skills that meet industry needs.

# Workers leverage a combination of resources to get tech training




**50%** of tech workers report being **self-taught,** compared to **39%** gaining tech skills through a four-year college degree, and **12%** through a community college degree.

(Source: Rural Adult Survey)

# Traditional training programs are anchored in a classroom instructional model

**Typically, traditional training programs provide...**

- Foundations of computer science
- Theoretical grounding

**...but tend to be more limited when it comes to:**

- Practical, work-based skills
- Specific concepts necessary to land an entry-level job
- Connections with local employers

Many higher ed students only see "**snippets of software,**" and often lack the experience of seeing **"software development at scale"** including the full lifecycle from design to production.

# Non-traditional training programs incorporate work-based learning and “real-world” experiences into coursework

Rural, non-traditional training programs seek to provide practical experiences in tech:

- Skills-focused instruction
- Applied learning through work-based opportunities
- Aligning skills with the needs of local employers

“We have this philosophy that we’re not just teaching someone a computer programming language, but **we’re teaching them how to learn.”**

- *Chris Carnell, co-founder of Code Labs in Cape Girardeau*

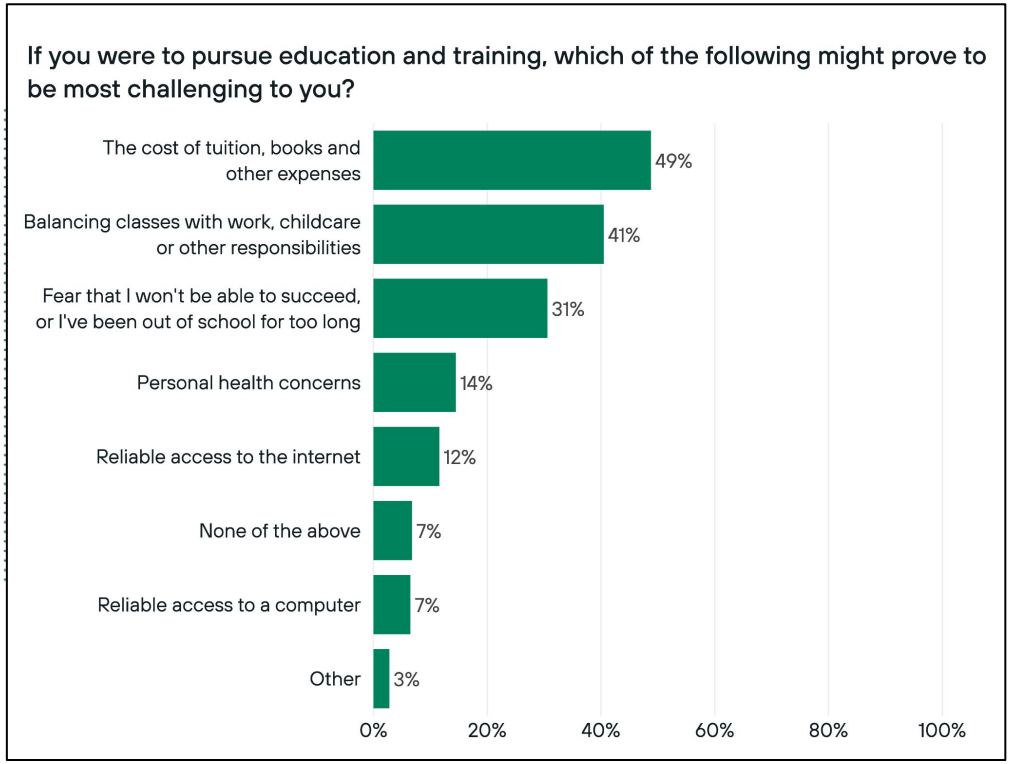
“Our instructor pointed out, ‘You’re not going to be memorizing codes. You’re not going to be just writing lines and lines of code. **A lot of it is collaboration and figuring out together**.”

- *Jacquelyn Kiefner, a current software consultant in Missouri who went through the Code Labs training*

## #4:
## Training providers need to work to lower barriers for rural learners

Rural learners find that **the two largest barriers to tech training are cost and time commitment** — lowering these barriers helps to grow and diversify the tech talent pool.

# Cost and time commitment are the two largest barriers to entering training programs




Online bootcamps can cost upwards of **$15,000**, and college and university enrollment can be just as expensive — if not more.

(Source: Rural Adult Survey)

# Rural non-traditional training programs are seeking to make offerings more accessible

Part-time options so learners can continue to work while learning

Subsidized programming to make the cost cheaper, or free, to participants

Building connections between students and employers through the training experience to establish a clear path from training to employment

Our report includes case studies of the programs at **Southern Automated Logistics and Technology (SALT) in Statesboro, Georgia** and **Code Labs at Codefi in Cape Girardeau, Missouri**

# A quick review of the findings

**Rural employers** are understaffing tech roles

**Rural Americans** on the whole are interested in tech work

**Rural tech workers and learners** who choose to enter the field take a variety of paths to get there

**Training providers** are working to lowering barriers for rural learners

# Implications:
# Four actions local leaders can take

- Identify where there is untapped potential for grow demand for tech talent in the region
- Identify industry leaders and employers who are willing to partner with tech training programs
- Identify barriers to accessibility in your current workforce development programs
- Increase the visibility of the local tech community through both virtual and physical spaces

# 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

# Q & A

# Rural America’s tech employment landscape

# Thank you

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