Key takeaways:
Creating & Launching the North Carolina Resilience Index - *June 20, 2024*

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- **The problem your data tool is solving is your north star:** Use cases are the foundation from which all decisions related to your tool's features, data, and design should be made. The Resilience Index was built in direct response to a lack of necessary data for local decision makers to be able to fully understand key social, economic, and environmental issues in their communities.

- **Build data tools with your audience in mind:** NCRPO learned what their key users wanted from their index and prioritized those features to their roadmap to build buy in on the tool and adoption. An example feature in the Resilience Index is allowing users to parse the data in different views that reflect their interests, such as county or council of government..

- **Educate stakeholders about the limitations, considerations, and pros and cons of your data product to create the right expectations and usage:** NCPRO has created multiple versions of documentation to provide to users based on their familiarity with or desire for details on the statistics behind their indices.

- **Build with what you have, with the plan to improve over time:** Sometimes the data that exists at the time of building is less than perfect, but you can always plan to improve sources in the future.

- **Collaborative design can build trust:** The process of developing a useful data product in close collaboration with decision makers and/or funders can build trust and relationships. Even if you are a newer organization, doing this well can help stakeholders see you as a responsible partner capable of becoming a trusted source of information.

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States for the Future is a **learning community** bringing state policy professionals together around **data**, **research**, and **action**.

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Today's Speakers:

NC Pandemic
Recovery Office
NCPRO

Natalie Garrett
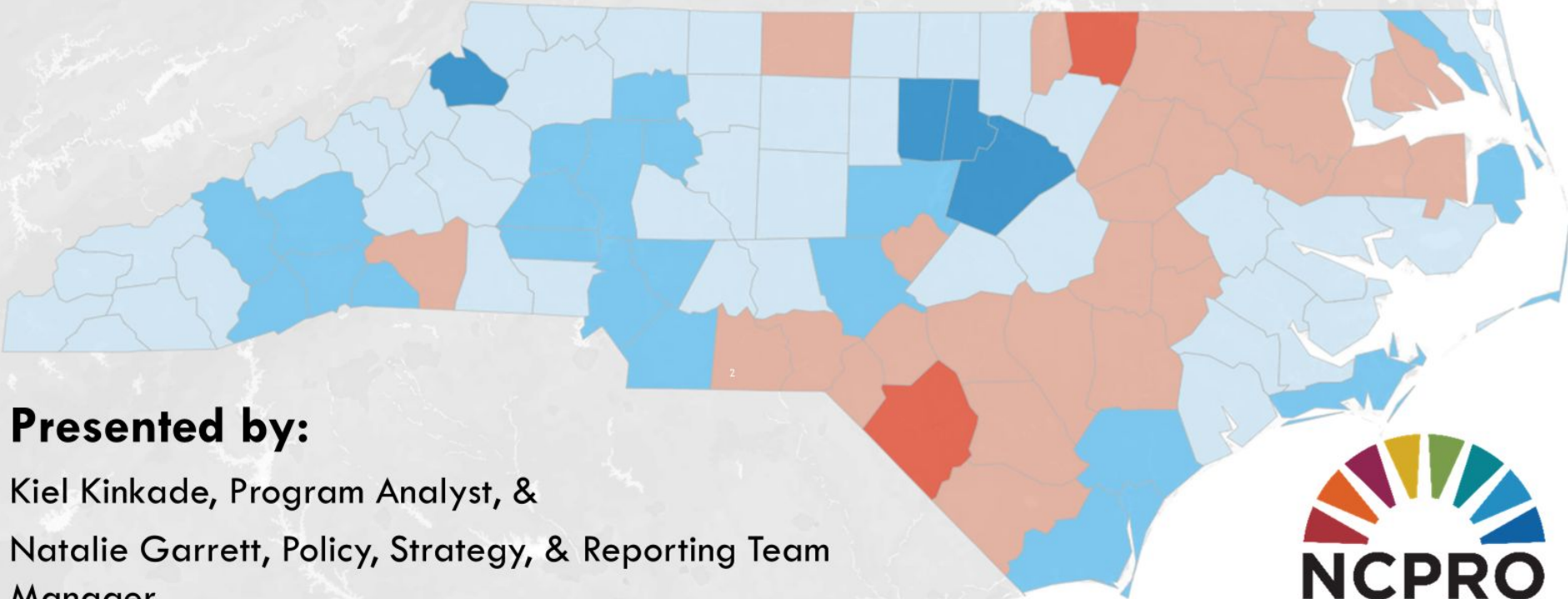Policy, Strategy and Reporting
Team Manager

Kiel Kinkade
Program Analyst

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The NC Economic Resilience Index

June 20, 2024

Presented by:

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Introductions & Background

The North Carolina Pandemic Recovery Office (NC PRO) is a temporary office under the Office of the Governor and Office of State Budget & Management created in May 2020 to:
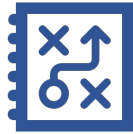
Oversee and coordinate aid from federal COVID-19 recovery legislation **($11 billion)**

Ensure proper **reporting and accounting** of federal Covid-19 relief funds

Provide **guidance & technical assistance**

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Understanding Local Needs

The Challenge

Missing Local Perspective:
Decision makers lacked local data and perspectives needed for targeted support

The Strategy

Listening Sessions:

NCPRO partnered with regional organizations and conducted listening tours across the state to identify local needs and impacts related to Covid-19

Key Takeaways

MORE COMPREHENSIVE, READILY AVAILABLE, REAL-TIME, LOCAL DATA IS NEEDED TO COMPREHEND COVID-19'S EFFECTS ON SPECIFIC COMMUNITIES.

DETAILED COMMUNITY-LEVEL INFORMATION IS CRUCIAL FOR DIRECTING PANDEMIC AID TO AREAS WITH THE GREATEST NEEDS.

Resulting Initiative:
The NC Economic Resilience Index

A comprehensive composite index, database,
and mapping tool designed to measure
regional economic resilience in NC to support
regional planning and more
targeted, equitable, and effective fund
distribution.

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Composite Index

A method employed across sectors and disciplines that aggregates multiple distinct variables/indicators into a single metric to support data-based decision-making

Pro's:
- Data-centric
- Helpful when attempting to analyze complex phenomena
- Helpful for ranking/comparing
- Helpful for snapshots and tracking over time

Con's:
- Scores/rankings can be misinterpreted
- Can oversimplify complex issues
- Creation is highly subjective
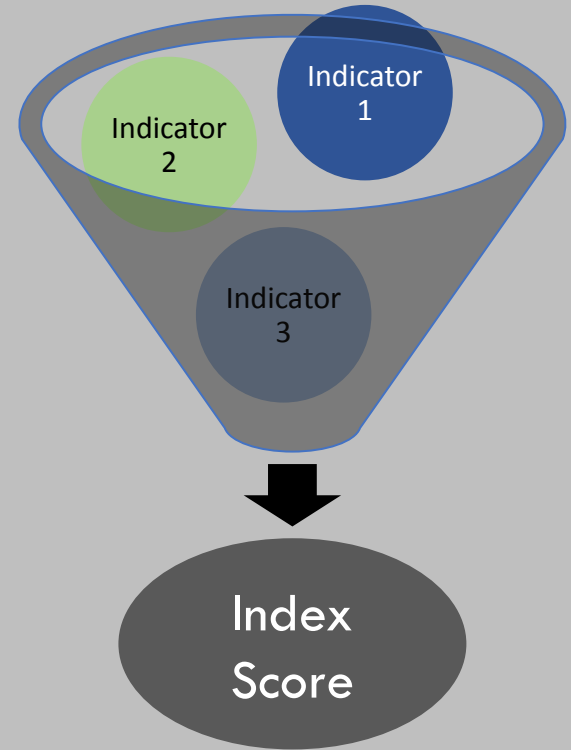
Economic Resilience Index: Advantages

Robust, Data-Driven Tool with metric selection, weighting, and standardization involving:

- Literature reviews by Duke University researchers
- Vetting by subject matter experts
- Statistical analysis by researchers at East Carolina University

Comprehensive, Multidimensional View Incorporating over 50 real-time economic indicators across multiple categories

Timely Snapshot with Tracking Capabilities providing a holistic, up-to-date view of local economic health and regional progress over time

Responsive to Stakeholder Needs - Created to provide synthesized information local and state-level decision-makers need to effectively support communities

Economic Resilience Index: Use Cases

Supplementing County Tiers

- Tier system currently used for state funding decisions across various programs unrelated to its original purpose.
- The Index allows for a more comprehensive and nuanced assessment of need across counties

Grant Writing

- It provides empirical data on a region's economic challenges and strengths, bolstering the credibility of grant proposals.
- Grant writers can leverage the index to highlight specific areas of need and demonstrate the potential impact of proposed projects.

Economic Development Planning

- By understanding the unique challenges and strengths of their region, local government officials can tailor initiatives to stimulate growth and attract investment.

Performance Measurement and Benchmarking

- Helps local governments track economic resilience over time and identify areas for improvement through comparisons with neighboring areas or national averages.

Overall Economic Resilience

Business Health
- Total Employment Level
- Total Avg. Weekly Wages
- GDP
- SET Companies
- SET Employment
- Private Sector Diversity

Local Gov. Fiscal Strength
- Muni Gov't Operations Ratio
- Muni Gov't Dependence Ratio
- Muni Gov't Debt Service Ratio
- Muni Gov't Solvency Ratio
- Unit Assistance List Population

Communication
- Broadband Availability
- Broadband Adoption
- No Smartphone

Housing & Transportation
- No Vehicle
- Owner-Occupied Housing
- Age of Housing Stock
- Drive Alone to Work (%)
- Avg Commute 45+ minutes
- Fair Market Rent Spread
- Crowding

Healthcare
- Nursing Home Beds per Senior
- Opioid Deaths per 100k Residents
- Nurses Per 10k Residents
- Physicians Per 10k Residents
- Mental Health Pros Per 10k Residents

Community Cohesion
- Inactive Voters
- Violent Crime Rate
- Property Crime Rate
- Nonprofits per 10k
- Population Change

Socio-economics
- Unemployment
- Population below 150% poverty
- Housing cost Burden
- No Health Insurance
- No H.S. Diploma
- Income Inequality (Gini)
- Educational Attainment Equality
- Median Household Income
- Households with incomes of $200k+

Education
- Ability to Pay
- Graduation Rates (4-year)
- Dropout Rates
- Student:Teacher Ratio
- 3rd Grade Reading Proficiency
- ACT Scores
- Teacher Attrition Rates

Household Characteristics
- Age 65+
- Age 17 or below
- Civilian w/ Disability
- Single-Parent Household
- Limited English Proficiency

Category Breakdown:

1. Business Health

Role in Economic Resilience:

Diverse, robust local businesses foster economic resilience. Evaluating employment, wages, output, and industry mix highlights opportunities to bolster financial preparedness and ready counties against disruptions.

Developed with the Help of:
- NC Dept. of Commerce
- NC Office of State Budget & Management

Indicators:
- Total Employment Levels
- Average Weekly Wages
- GDP
- Percentage of science technology and engineering Companies/Employment
- Average Childcare Slots Ratio

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Category Breakdown:

2.
Local Gov.
Fiscal
Strength

Role in Economic Resilience:
- Helps gauge government readiness to maintain essential services and fortify financial stability.

Developed with the Help of:
- NC Treasury Office

Indicators:
- Overall fiscal strength
- Operational efficiency
- External funding dependence
- Debt management
- Liquidity
- Adjusted property tax base per capita

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Category Breakdown:

3. Communication

Role in Economic Resilience:

- Enables effective emergency response
- Ensures business continuity during shocks
- Provides access to vital information
- Supports inclusive digital preparedness

Indicators:

- High-Speed Mobile Availability
- Broadband Availability
- Broadband Adoption

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Category Breakdown:

4.
Housing
&
Transportation

Role in Economic Resilience :
- Supports workforce stability, access to services,
- disaster preparedness, and business attraction.

Developed with the Help of
- NC Housing Finance Agency

Indicators:
- Aging Housing Stock
- No Vehicle
- Owner-Occupied Housing
- Owner-Occupied Housing
- Home Value to Income Ratio
- Drive Alone to Work (%)
- Fair Market Rent Spread
- Crowding

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Category Breakdown:

5.
Healthcare

Role in Economic Resilience:
- A robust healthcare system fosters economic resilience through a healthy workforce, reduced healthcare costs, and preparedness for health crises.

Developed in collaboration with:
- North Carolina Department of Health and Human Services

Indicators:
- Nursing Home Bed Availability
- Opioid-Related Death Rate
- Density of Nurses and Physicians per Capita
- Access to Mental Health Professionals

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6. Community Cohesion

Role in Economic Resilience:
- Vital for a community's ability to withstand and recover
- from economic disruptions.

Indicators:
- Voter Participation: Crime Rates
- Non-Profit Presence
- Population Dynamics

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Category Breakdown:

7. Socio-economics

Role in Economic Resilience:
- Identifies vulnerabilities and strengths in a region's underlying economic and social conditions that shape overall community resilience

Indicators:
- Unemployment.
- Population below 150% of poverty level.
- Housing cost Burden
- No Health Insurance
- No high school diploma
- Income Inequality
- Educational Attainment
- Median Household Income
- Households with incomes of $200k

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Category Breakdown:

8. Education

Role in Economic Resilience:
- Education has a vital role in fostering a skilled, adaptable workforce capable of driving economic resilience through innovation, talent retention, upward mobility, and attracting investments during disruptions

Developed in collaboration with:
- North Carolina Department of Public Instruction

Indicators:
- Postsecondary enrollment (ages 18-24)
- Cohort Graduation Rates
- Dropout Rates
- Student: Teacher Ratio
- 3rd Grade Reading Proficiency
- Teacher Attrition Rates
- Ability to Pay

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Category Breakdown:

9. Household Characteristics

Role in Economic Resilience:
Enables targeted interventions, inclusive recovery efforts, and tailored development approaches that leave no segment behind during disruptions

Indicators:
- Age 65+
- Age 17 or below
- Civilian w/ Disability
- Single Parent Households
- Limited English Proficiency

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# Understanding Index Scores and Ranking System

The index incorporates 54 indicators spanning 9 categories

The indicators are standardized using z-scores (based on NC averages) & weighted to reflect their relative importance to resilience based on quantitative analysis and stakeholder input.

Each county in NC is assigned an overall index score (1 to 100, with 100 being most resilient) and ranking (1 to 100, with 100 being least resilient)
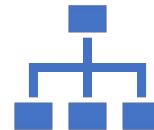
Each county also has an index score and ranking for each of the 9 categories.

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Validation

Statistical analyses were conducted to validate the Community Resilience Index by examining its relationship with other robust data tools over time, including:

- Future Job Growth Rate
- NC Commerce Dept. Economic Distress Rankings
- CDC's Social Vulnerability Index (SVI)
- FEMA's Community Resilience Index (CRI)
- University of South Carolina's BRIC

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Correlation Analysis

Correlation: A statistical measure that describes the strength and direction of a relationship between two variables. Values range from -1 to 1, where 0 indicates no relationship, 1 indicates a perfect positive relationship, and -1 indicates a perfect negative relationship.

Moderate Relationships:

- FEMA's CRI
- USCHVRI BRIC

Strong Relationships:

- CDC's SVI
- NC Commerce Tiers and Economic Distress ratings
- Example: Economic Distress ratings correlation (0.81), indicating that the NC Economic Resilience Index shares 65.6% of variance, with 34.4% being unique.

Regression Analysis

Regression: Examines the relationship between a dependent variable and one or more independent variables to quantify how much the dependent variable changes with changes in the independent variables, typically presented as the R^2 value.

Predictive Power:

Dimensions of the NC Community Resilience Index predict key outcomes including 82% of the variance in Economic Distress rankings ($R^2 = 0.82$), indicating 18% variance is unique to Economic Distress.

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Results Indicate:

The NC Economic Resilience Index effectively predicts key outcomes while capturing unique variance not represented in other indexes.

Limitations

County Level Data Challenges
- Significant variation in economic distress within counties
- Data often inaccurate or unavailable at granular levels

Limitations of existing data sources
- US Census data issues for rural NC counties

High margins of error for some metrics
- Leads to large swings in calculations and rankings
- Potential inaccuracies

Missing data for some years and counties
- Particularly small, rural counties

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In Progress

Engaging Stakeholders:
We've received feedback from state agency partners and now seek input from local governments, businesses, community organizations, and others to enhance the tool'
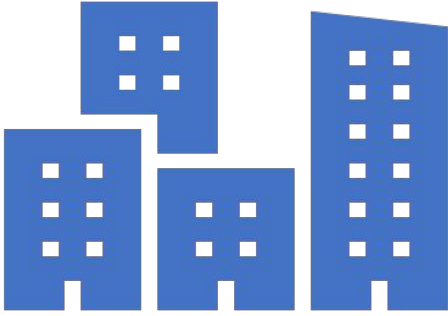
Developing summary tools to define primary factors impacting economic resilience scores over time

Testing and refining the index and dashboard mapping tool

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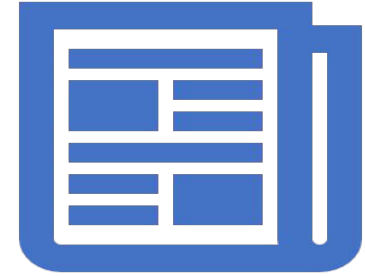NC Pandemic Recovery Office

Next Steps

Expand the Economic Resilience Index to include a metro version, enabling users to see detailed differences within counties.

Training and Support: Provide training sessions and resources to help stakeholders effectively utilize the Economic Resilience Index in their planning and decision-making processes.

Final Public Release:

Scheduled for August 2024.

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Thank you!

Your questions and feedback help us improve our data tools!

Contact us anytime.

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