

The logo for Carnegie Mellon University, featuring the text "Carnegie Mellon University" in a white serif font. The text is positioned on the left side of the slide, overlaid on a dark blue background with a grid of colorful lines (red, green, yellow, and blue) that create a sense of depth and movement.

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Risk-Based Decision Support Tool

May 1, 2020

Recap: Project Goals

Create **data-driven decision support tools** to safely reopen the PA economy and achieve the following policy goals:

- Minimize the diffusion of COVID-19
- Maximize a rapid return to work and revitalize key industries
- Limit long-term economic impact of COVID-19 & the shut down
- Achieve equitable outcomes for vulnerable residents

Recap: Data-driven Decision Support Tools

Inputs: Data & Priorities

Public Data from Census,
BLS, BEA

Data from State Agencies: UI
Claims, Wage Records,
Revenue, SNAP, TANF,
Medicaid, Revenue, DCED,
Health

Health and Human Services
Forecasts/Models from
Partners (Pitt, Penn)

State Priorities & Policy
Goals

Decisions we can support

Which industries can safely
open, in which counties, and
under what conditions?

What will be the health risks
and economic impact
associated with opening an
industry?

Which industries can
re-engineer workflows?

What impact will this have on
vulnerable workers &
businesses?

Outputs

Health and Economic
Monitoring Dashboard

Health Risks

Economic Impact

Impact on Equity

Evaluating the Impact of
policy interventions

Risk-Based Approach

We take a wide variety of risks associated with re-opening a set of industries in a county or region. In addition to what we show in this presentation, we have also explored and developed additional ones including:

- Face-to-face contact risk in workplaces
- Nursing home spread risk
- Customer contact risk
- Supply Chain risk
- Resilience
- Unemployment Risk
- Social Service Benefits Risk
- Equity Risk
- ...

Risk Indices

COVID Case Risk: # of reported COVID-19 cases / population of area

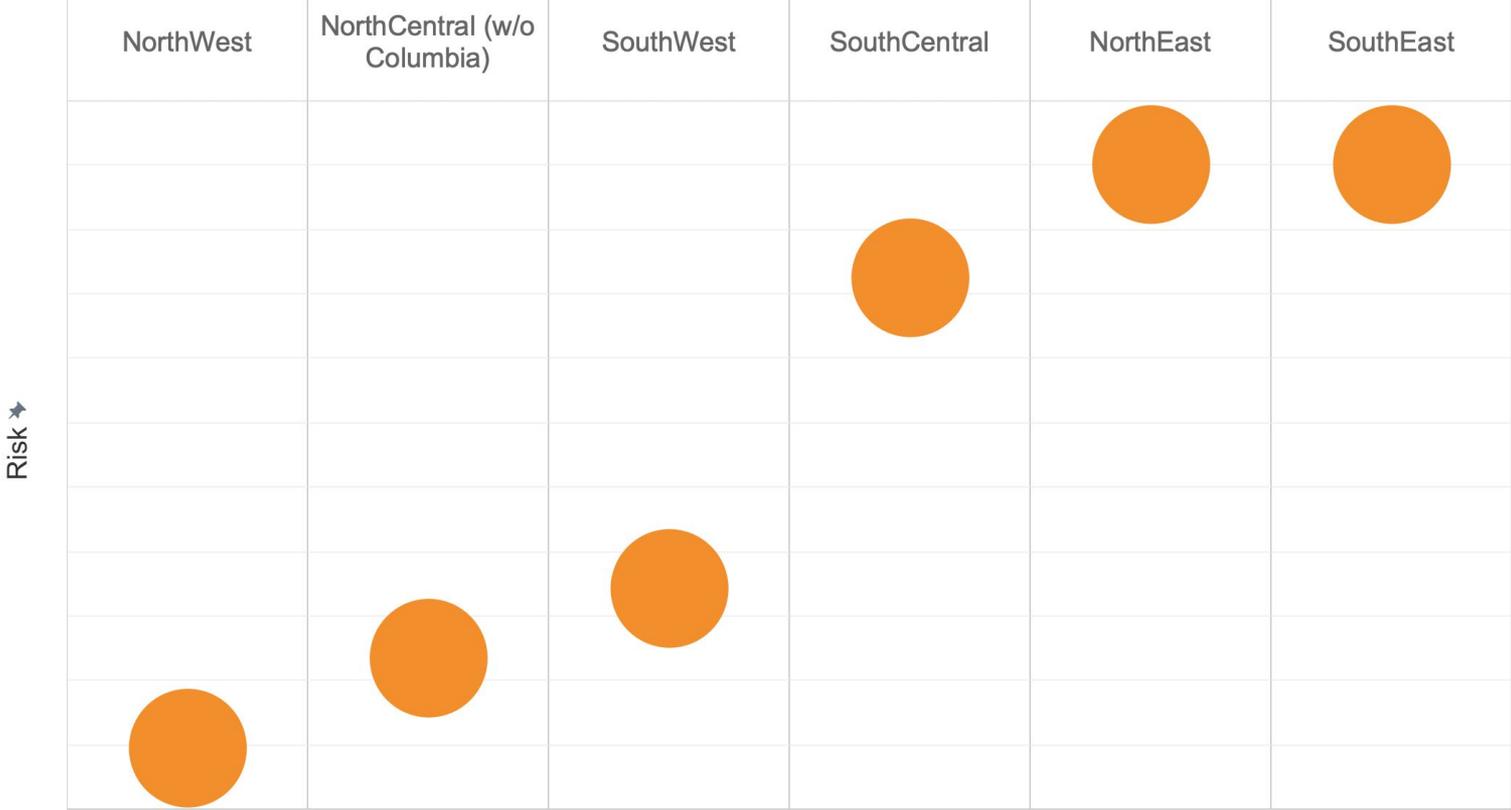
ICU Capacity Risk: # of 60+ year olds in area / # of unoccupied ICU Beds

Population Density Risk: Population of Region / Area of Region

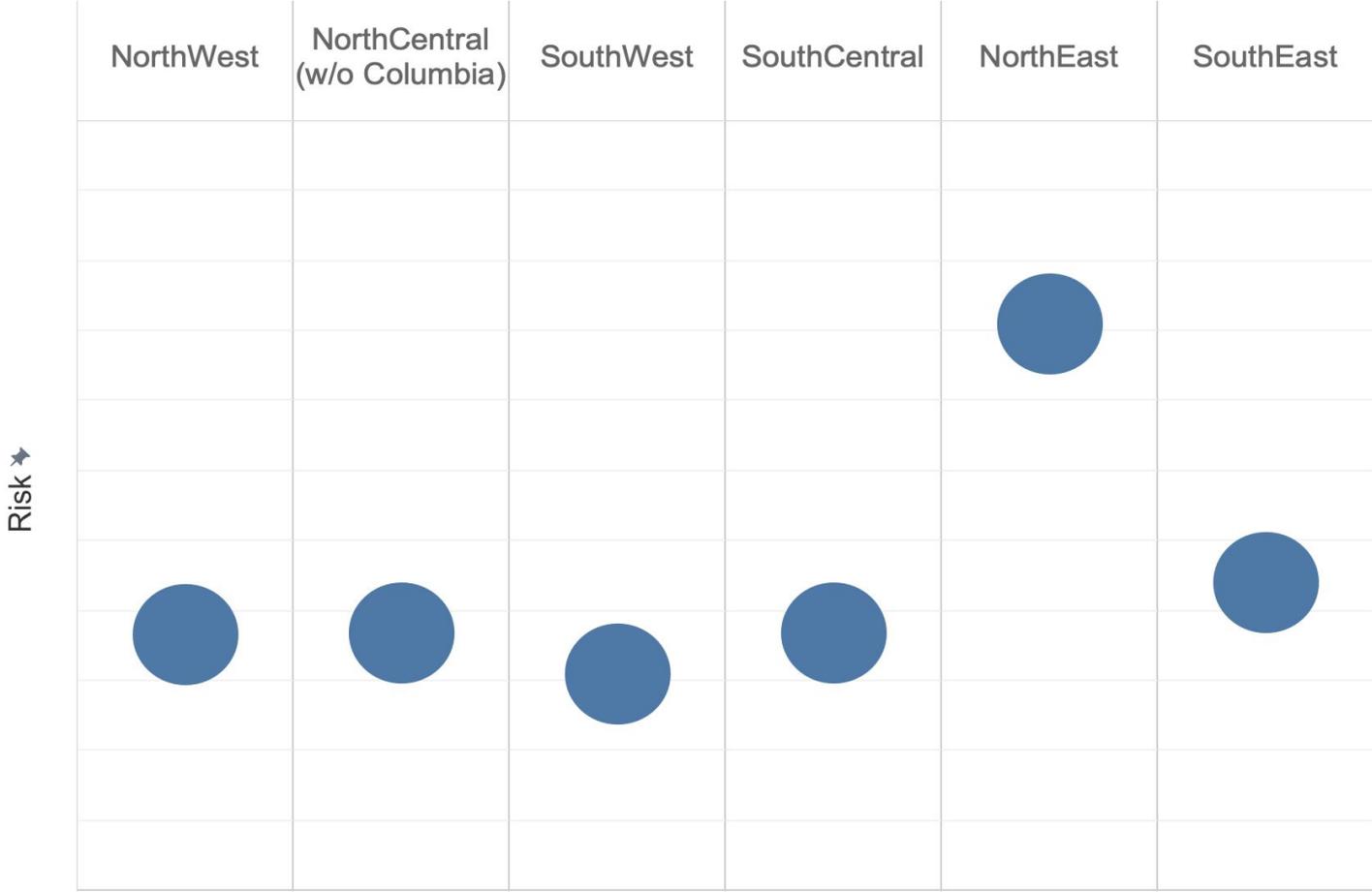
Population Age Risk: % of population in area > 60 yr old

Re-Opening Contact Risk: % of workers in an area employed in currently “physically closed” industry sectors

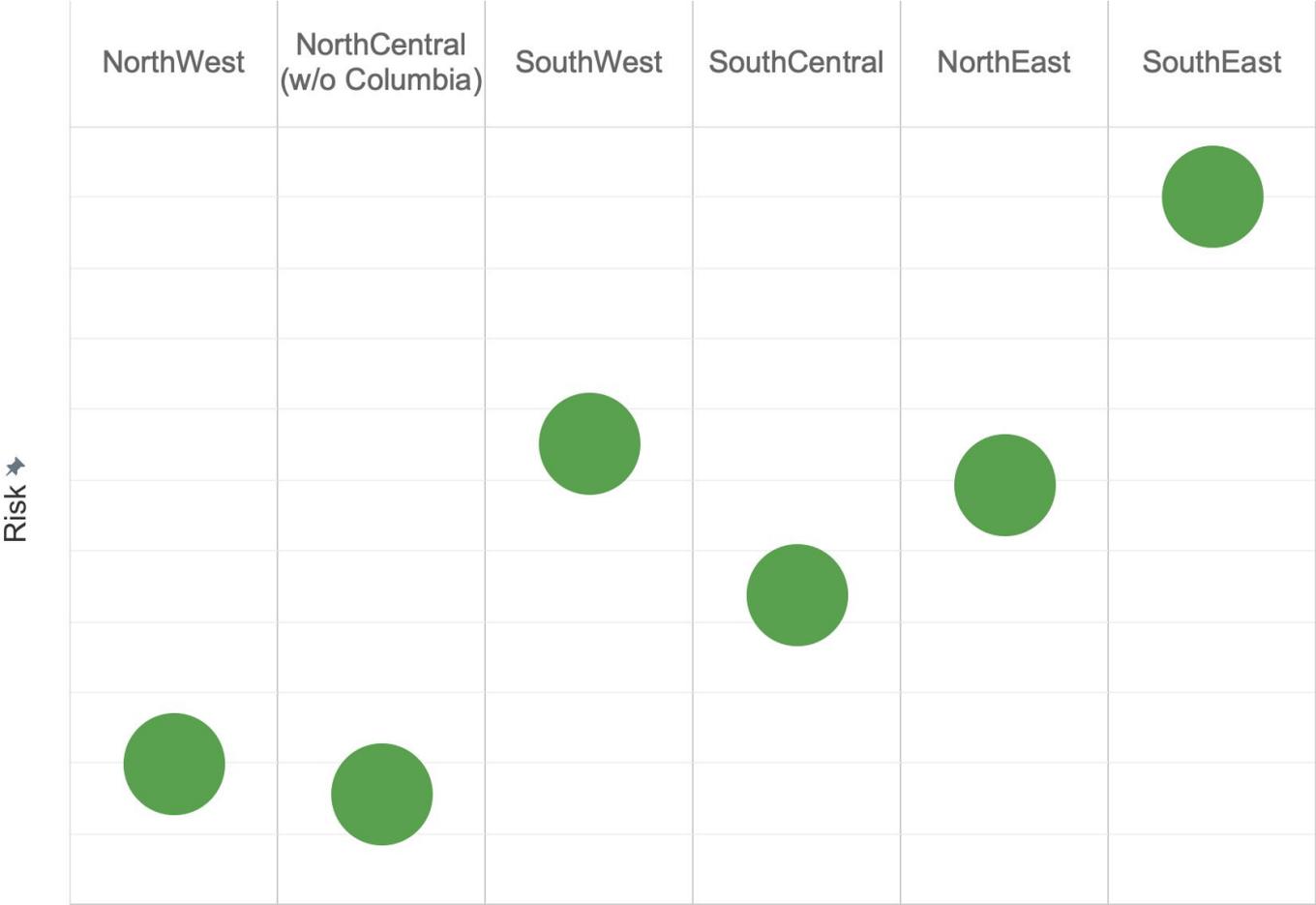
COVID-19 Case Risk



ICU Capacity Risk



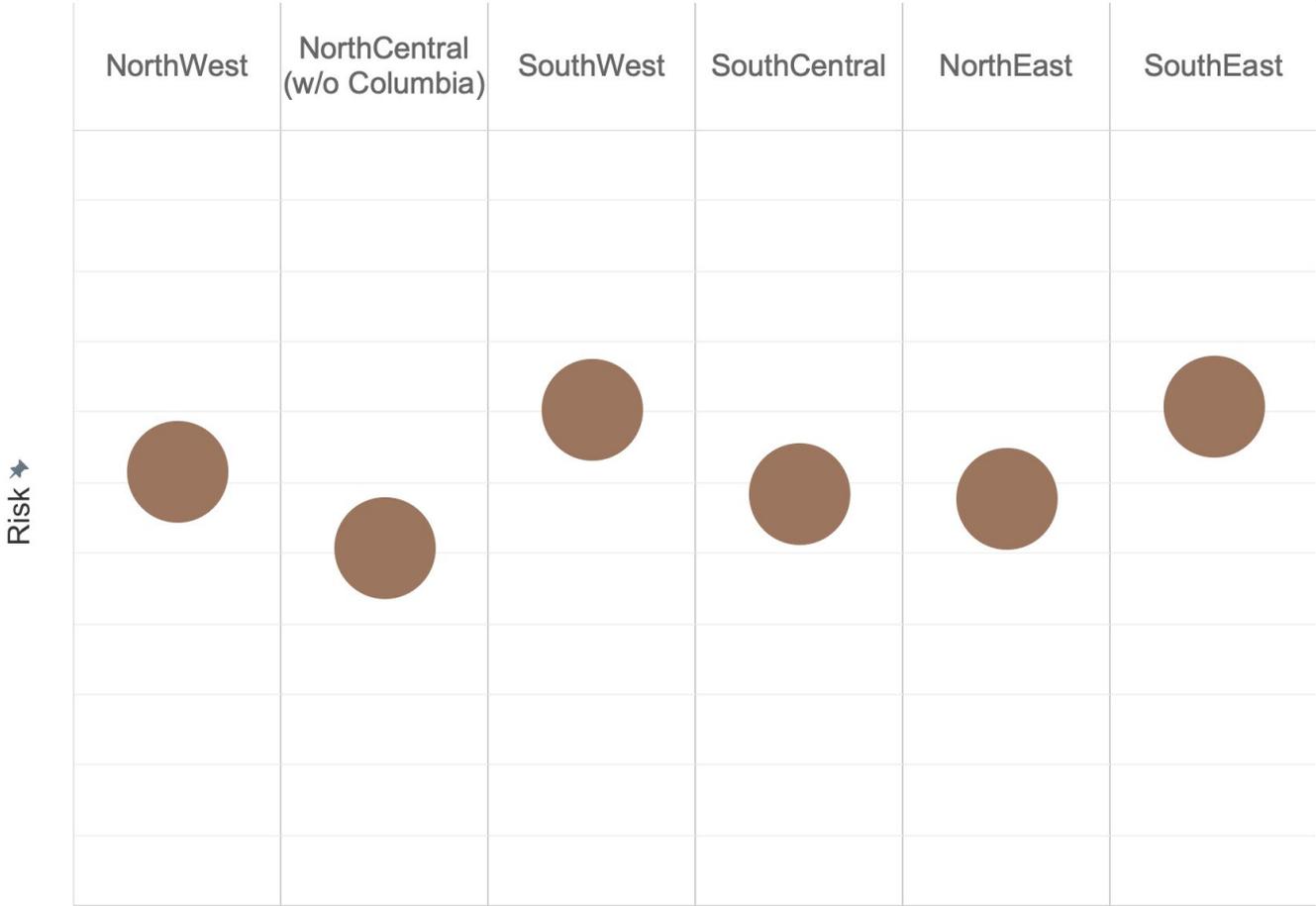
Population Density Risk



Population Age Risk

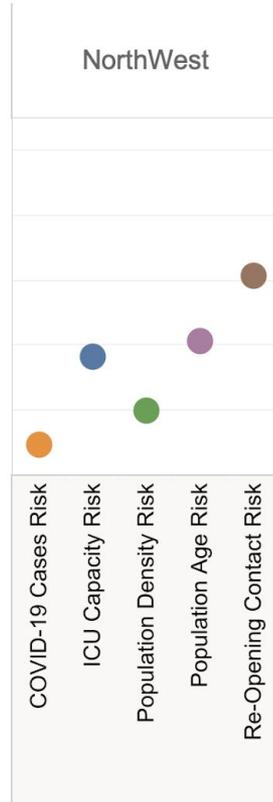


Re-Opening Contact Risk



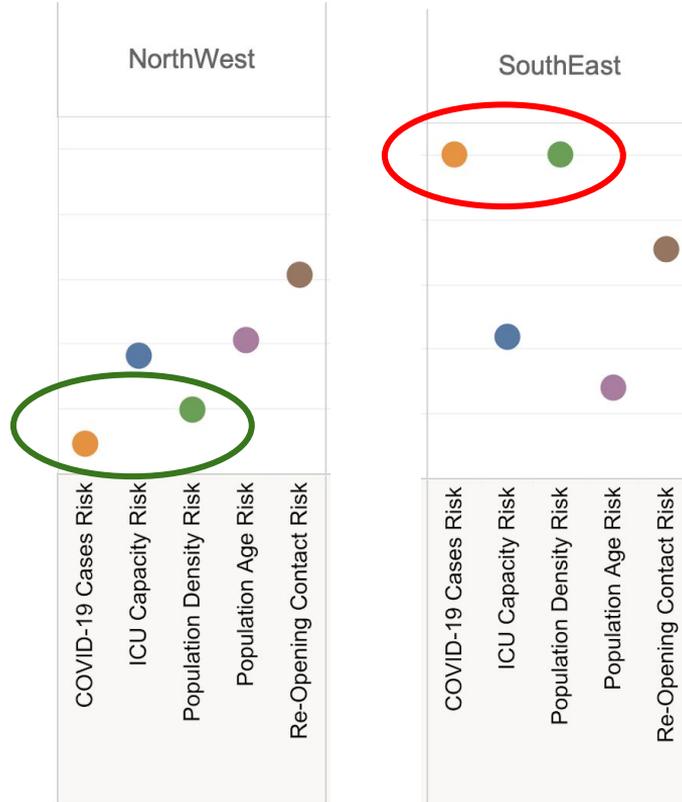


Decision Support Tool to Support Safely Re-Engaging the Economy





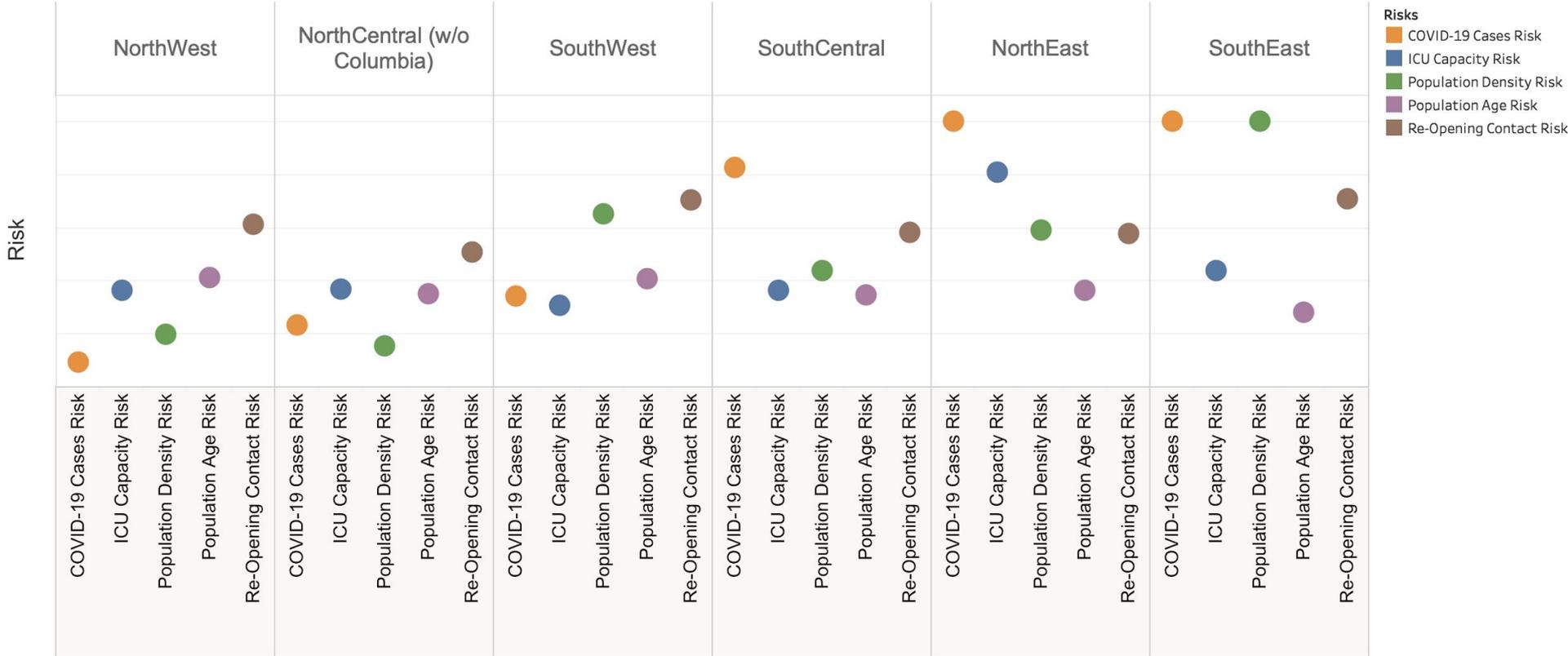
Decision Support Tool to Support Safely Re-Engaging the Economy





Decision Support Tool to Support Safely Re-Engaging the Economy

Regional Risks

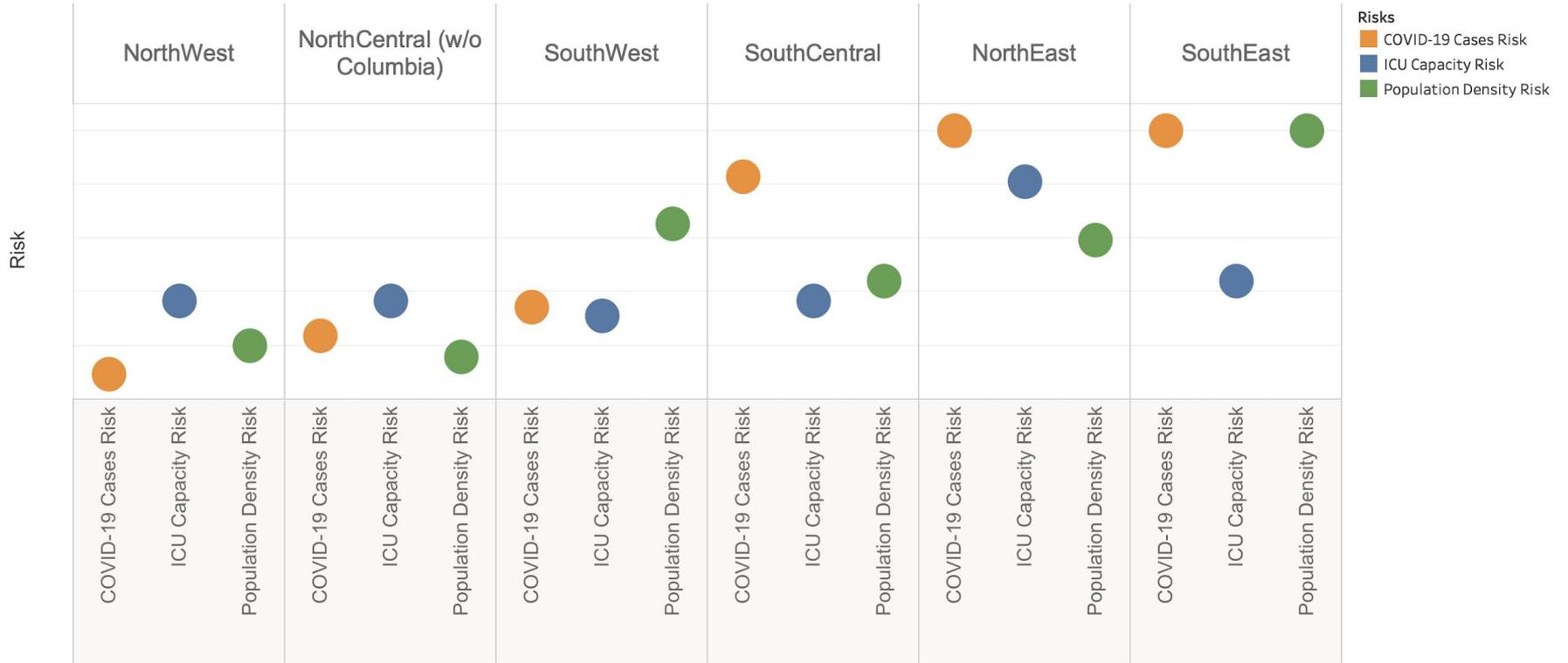


- Risks
- COVID-19 Cases Risk
 - ICU Capacity Risk
 - Population Density Risk
 - Population Age Risk
 - Re-Opening Contact Risk



Decision Support Tool to Support Safely Re-Engaging the Economy

Regional Risks
(includes a subset of risk factors)





Decision Support Tool to Support Safely Re-Engaging the Economy

Region	COVID-19 Cases Risk	ICU Capacity Risk	Re-Opening Contact Risk	Population Density Risk	Population Age Risk
NorthCentral (w/o Columbia)	✓	✓	▲	✓	✓
NorthWest	✓	✓	▲	✓	✓
SouthWest	✓	✓	▲	▲	✓
SouthCentral	✗	✓	▲	✓	✓
NorthEast	✗	✗	▲	▲	✓
SouthEast	✗	✓	▲	✗	✓

Our recommendation is to use these risk indices to monitor and understand trade-offs and make informed policy decisions based on state priorities