

# Accelerating the Economic Recovery

Discussion document

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# Speakers today

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# Context and priorities



## Context at hand

COVID-19 is a humanitarian challenge that has affected communities across multiple continents, with significant loss of life around the world. Solving the humanitarian challenge is the top priority, and much remains to be done globally to prepare, respond, and recover, from protecting populations at risk, to supporting affected communities, to developing a vaccine

In addition to the humanitarian and public health crisis, the COVID-19 pandemic is devastating to economic activity nationally and in individual states. While the U.S. entered 2020 with key economic strengths, it has been deeply impacted by the crisis.

- Our initial estimates<sup>1</sup> of the potential economic impact of COVID-19 project a material decline in economic growth (GDP declines of up to 8.8% in 2020)
- The U.S. is experiencing ~11x the weekly unemployment claims as its average since 2000
- The intensity and coverage of impacts on sectors, regions, occupations and vulnerable populations is emerging and should inform the focus and magnitude of response

1. Range is driven by scenarios of disease spread and effectiveness of public health interventions; estimated by MGI in partnership with Oxford Economics



## Questions to address

- 1 What is the recovery path to pre-crisis levels of economic activity?
- 2 What is the long-term plan for economic reimagination?

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# Content

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**The United States economy before COVID-19**

The economic impacts of COVID-19 on the United States

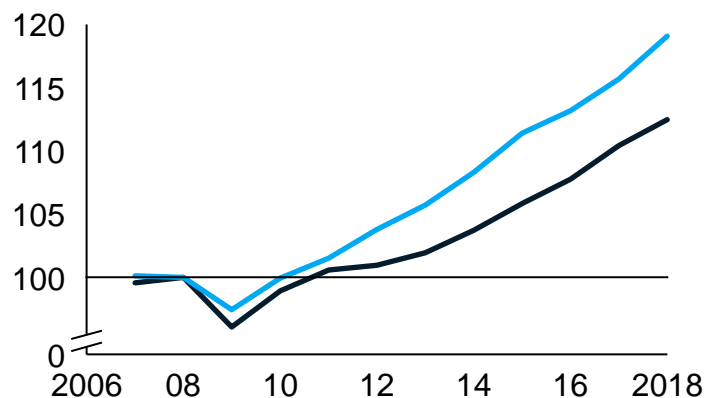
Reimagining the future economy

# After the 2008 financial crisis, the United States consistently surpassed peer countries in GDP and unemployment recovery

Preliminary, proprietary, pre-decisional

Peer countries United States

**GDP, PPP, constant 2017 int'l \$, indexed to 2008**

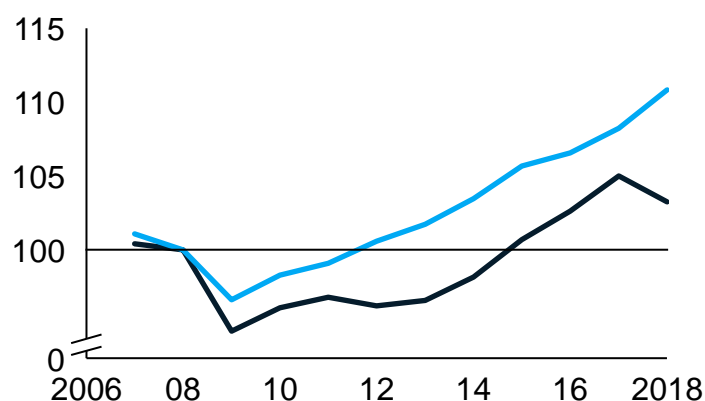


**CAGR, 08-18, %**

**1.76**

**1.18**

**GDP per capita, PPP, constant 2017 int'l \$, indexed to 2008**

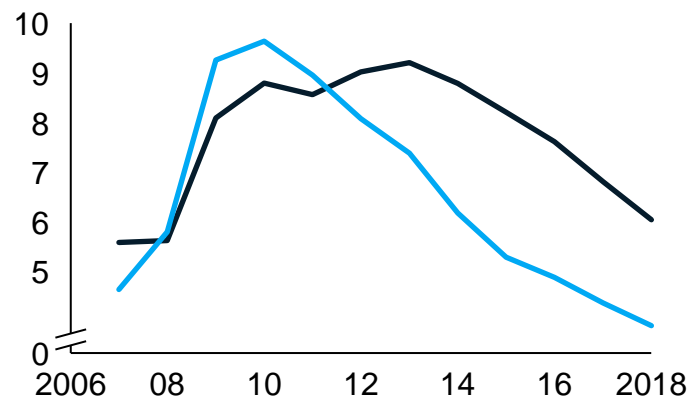


**CAGR, 08-18, %**

**1.03**

**0.32**

**Unemployment rate, %**

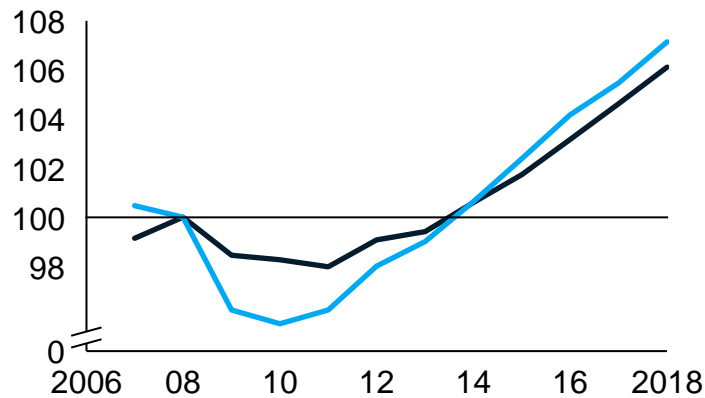


**CAGR, 08-18, %**

**-3.87**

**0.72**

**Employment, Indexed to 2008**



**CAGR, 08-18, %**

**0.69**

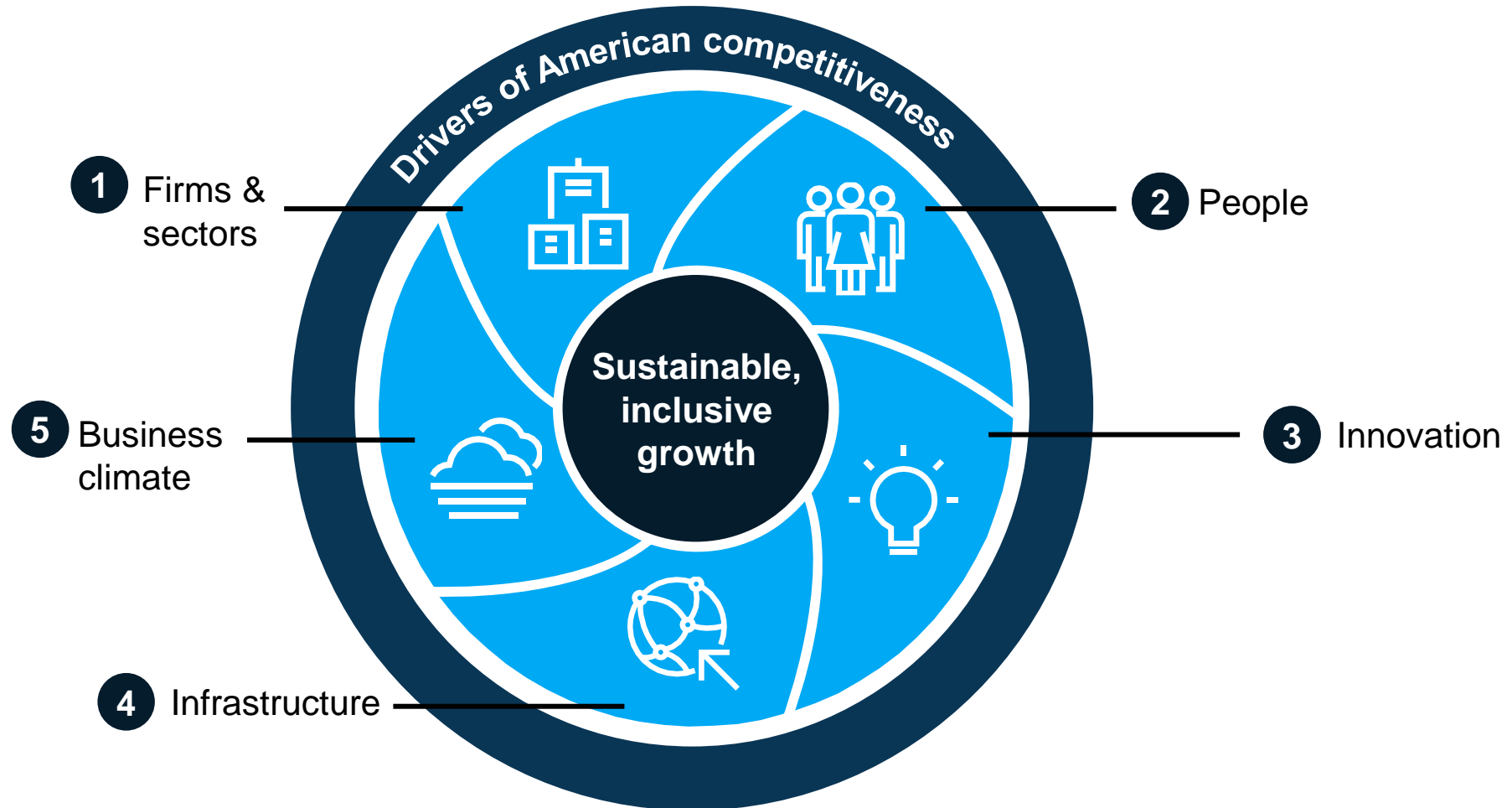
**0.60**

Note: The United States is here compared against 35 IMF "advanced economies." A full breakdown can be found in the appendix.

Source: World Bank, Moody's Analytics, ILO

# U.S. economic trajectory is based on competitiveness across five main drivers of the economy

Preliminary, proprietary, pre-decisional



# The U.S. entered 2020 with clear strengths across its economy

Preliminary, proprietary, pre-decisional

|  |  |
|--|--|
| <b>1</b>   <br><b>Firms &amp; sectors</b> | <b>Largest sectors leading national economic growth</b> <ul style="list-style-type: none"> <li>Major sectors driving GDP include tradable industries such as manufacturing, finance, professional services, all of which had been expected to experience positive growth over the next decade</li> <li>Biggest employers, e.g., healthcare &amp; retail, had also forecasted GDP growth. Healthcare is key sector that will grow post-COVID-19</li> </ul>  |
| <b>2</b>   <br><b>People</b>              | <b>Low unemployment, and high rates of education attainment with particular strength in reading</b> <ul style="list-style-type: none"> <li>Pre-COVID-19 unemployment in the U.S. was better than many peer countries and had recovered faster from the 2008 financial crisis</li> <li>U.S. adult educational attainment is one of the highest in its peer group, and gender parity in educational access is ranked highest</li> <li>American students rank in the top 15 of countries in reading, their strongest subject</li> </ul> |
| <b>3</b>   <br><b>Innovation</b>          | <b>Innovation ecosystem built by best-in-class commercialization and start-up environment</b> <ul style="list-style-type: none"> <li>One of the best environments for commercialization of innovation in the world, with the 2<sup>nd</sup> highest patent filing rate of peer countries</li> <li>Global leader in start-up creation and success, with high rates of entrepreneurs supported by the highest VC funding among peers</li> </ul>  |
| <b>4</b>   <br><b>Infrastructure</b>     | <b>Strong digital infrastructure and solid infrastructure for transit and logistics</b> <ul style="list-style-type: none"> <li>U.S. digital infrastructure is in-line with peers, and the nation leads in hosting internet servers</li> <li>Relatively high quality of trade- and transport-related infrastructure such as ports and roads</li> </ul>  |
| <b>5</b>   <br><b>Business climate</b>  | <b>Relatively few barriers to doing business supports an already-strong business climate</b> <ul style="list-style-type: none"> <li>The U.S. ranks the highest of peer countries for the ease of doing business</li> <li>Strong business climate driven by low costs and high accessibility of credit, paying taxes, and resolving insolvency, particularly for small and medium businesses</li> </ul>   |

# The U.S. also had opportunities for improvement

Preliminary, proprietary, pre-decisional

1



**Firms & sectors**

## Low asset tradability and largest sectors have been most negatively impacted by COVID-19

- Many of the United States' leading industry sectors are non- or semi-tradable, e.g., real estate and local government, leading to higher susceptibility to domestic economic shocks
- Some of the largest employers, such as retail, accommodation, and food services, have been most impacted in the current crisis

2



**People**

## Population growth slowing, smaller labor force than peers, and obstacles in the education pipeline

- U.S. population growth has slowed every year since 2015, driven by both drops in net births and net international immigration
- Overall labor force participation is in the lower half of peer countries
- Serious obstacles in the education pipeline include bottom-five pre-K enrollment and the highest university tuition of all peer countries

3



**Innovation**

## Opportunity to improve R&D

- The U.S. ranks near the bottom of all peer nations on researchers per capita in R&D and has average research and development expenditure as a percentage of total GDP, indicating room to improve

4



**Infrastructure**

## Poor energy infrastructure reliability and dangerous traffic patterns

- Americans have some of the highest rates of electricity outages and most expensive electricity prices of all peer countries
- Traffic fatalities are the highest of all peer countries, killing 12 people of every 100,000
- The United States could substantially increase its renewable energy usage compared to peer countries

5



**Business climate**

## Relatively little room for improvement

- While the United States' ease of doing business is better than peer countries, the country still has room to improve against the rest of the world, including on metrics such as ease in cross-border trade and contract enforcement



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# Content

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The United States economy before COVID-19

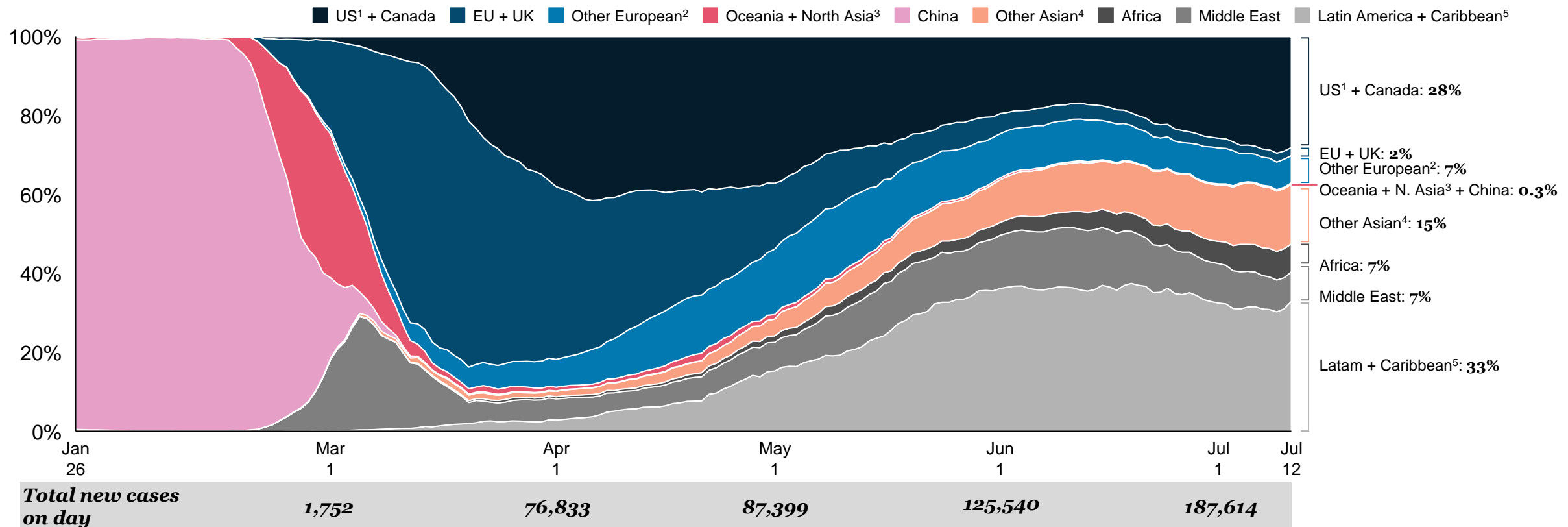
**The economic impacts of COVID-19 on the United States**

Reimagining the future economy

# The global distribution of new COVID-19 cases has shifted dramatically over the last 3 months

The proportion of new cases is shifting from countries in Europe, to North America, Latin America, and Asian countries

Fraction of daily new cases<sup>6</sup> as a % of global daily new cases, by country/region

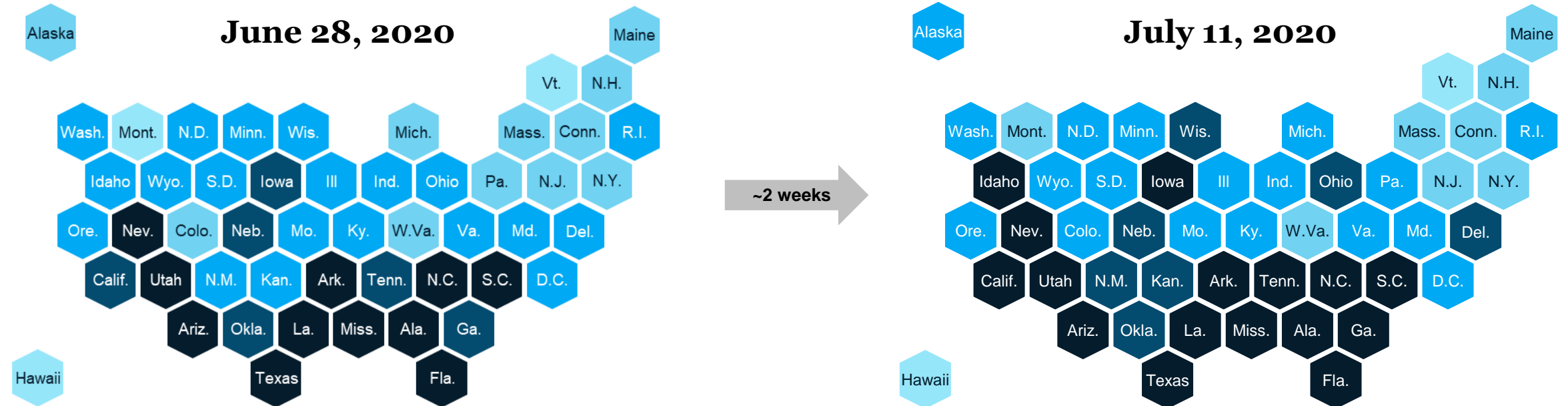
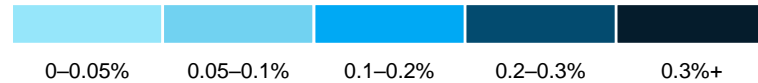


1. Includes Puerto Rico and US Virgin Islands; 2. All remaining European countries, including Russia; 3. Includes Japan, Singapore, and South Korea; 4. All remaining Asian countries, not including Russia; 5. Includes European territories in the Caribbean; 6. Data points shown as 7 days moving average to account for reporting differences (e.g., reporting only once per week), July 3 data not shown since UK adjusted case numbers.

# COVID-19 prevalence keeps experiencing significant increases in many US states in the past two weeks

Data shows prevalence of COVID-19 cases from June 28<sup>th</sup> to July 11<sup>th</sup>

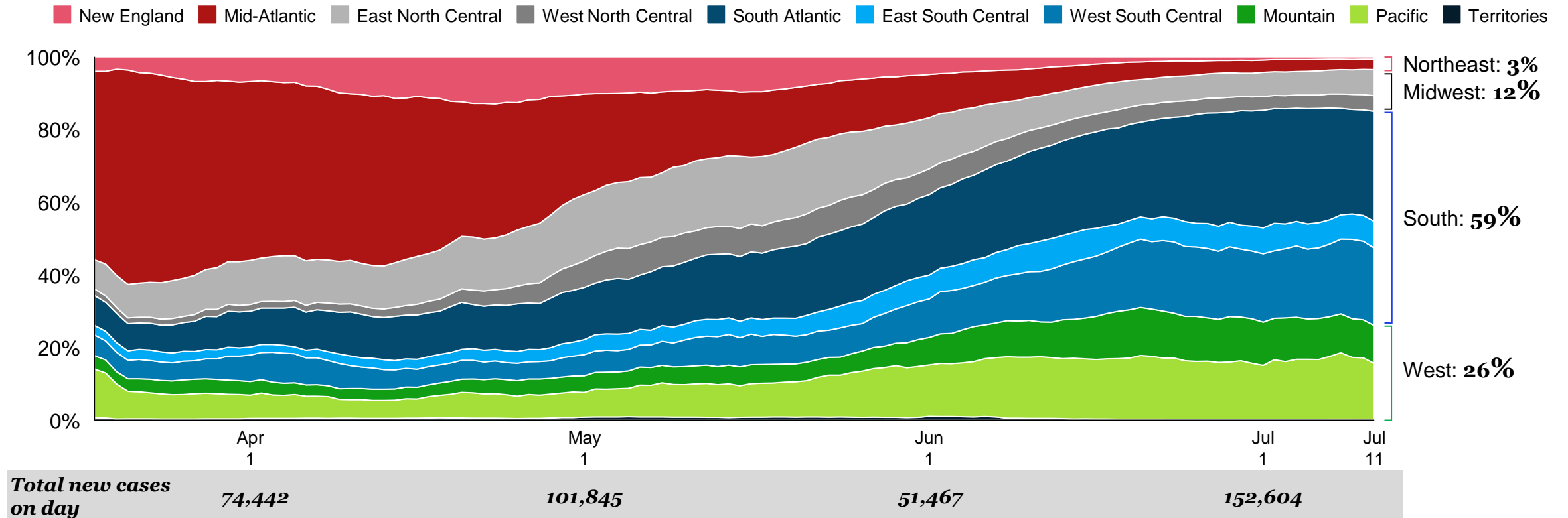
Estimated prevalence:



1. Defined as number of new cases over past 14 days / total population
2. Defined as difference between latest estimated prevalence and estimated prevalence as of 1 week prior: < -0.01% marked as decreasing, between -0.01% and 0.01% marked as flat, > 0.01% marked as increasing

# The distribution of new cases in the US has shifted from the Northeast to the Southern and Western states

Daily new cases as a % of total<sup>1</sup> US daily new cases, by US regional divisions



The Northeast includes New England (MA, CT, RI, VT, NH, ME) and the Mid-Atlantic states (NY, NJ, PA)

The Midwest includes the East North Central states (MI, OH, IN, IL, WI) and the West North Central states (MN, IA, MO, ND, SD, NE, KS)

The South includes the South Atlantic states (WV, MD, DE, VA, NC, SC, GA, FL), the East South Central states (KY, TN, MS, AL) and the West South Central states (TX, OK, AR, LA)

The West includes the Mountain states (MT, ID, WY, NV, UT, CO, NM, AZ) and the Pacific states (CA, OR, WA)

1. Data points shown as 7 days moving average to account for reporting differences (e.g., reporting only once per week).

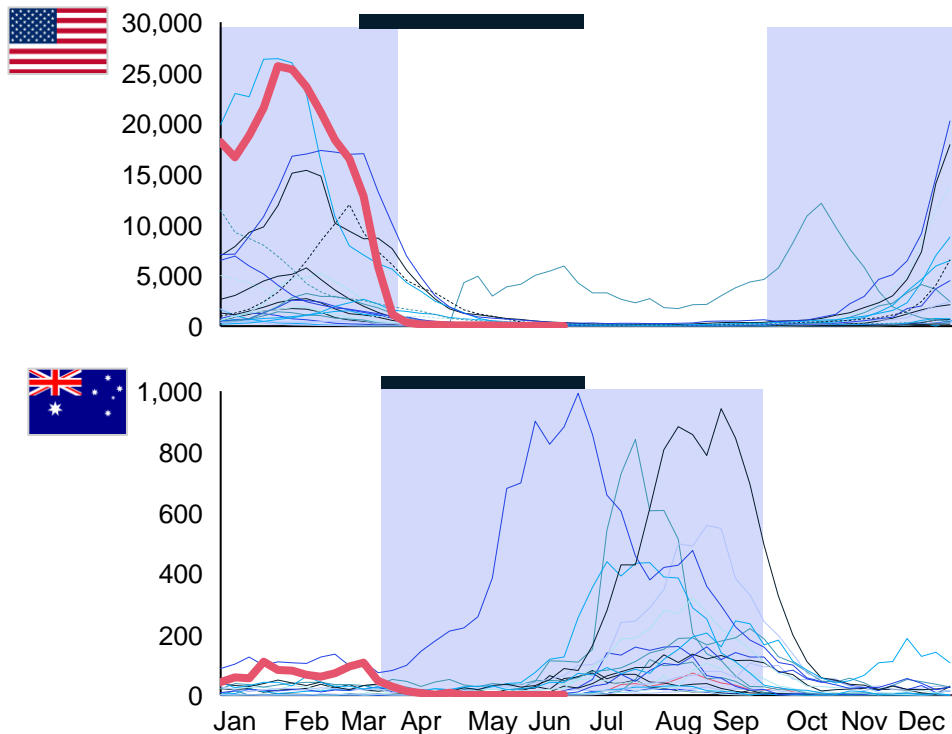
Source: [US Census](#), Johns Hopkins University

# COVID-19 control measures may provide collateral benefits in reducing influenza cases

## The 2020-2021 flu season shows decreased severity compared to other years

— 2020 flu    — 1999-2019    ■ Flu season    ■ Shelter-in-place measures<sup>1,2</sup>

Number of specimens positive for influenza



In the US, the 2019-2020 flu season seems to have **ended more abruptly than past years**



In Australia, the initial 2020 flu season numbers are **lower than previous years**

## Implications

The **mitigation strategies for COVID-19 transmission** (e.g., shelter-in-place, canceling mass gatherings) and increased awareness of individuals about public health measures to decrease transmission rates (e.g., hand washing protocols, isolating when sick) **may have an impact on the 2020-2021 flu season**

1. The US had a varying number of shelter-in-place orders across states, with peak numbers observed during the first two weeks of April, 2. Australia approached the pandemic by limiting travel and issuing shelter-in-place recommendations for high-risk individuals.

# SARS-CoV-2 transmission is not significantly impacted by climate, but changes in human behavior may lead to a “Fall wave”

## Locations that are currently...

### Low prevalence



## Could experience a Fall wave if

- Compliance with **physical distancing/ face covering falls** over time
- Patterns of interaction remain the same but shift **indoors**

## May not see a Fall wave if

- **Compliance is maintained** and indoor exposure is avoided
- **Test, track and isolate** capabilities continues to **improve**

### High prevalence



- Case loads are controlled over the next few months but compliance with **physical distancing/ face covering requirements decline**
- **Indoor interactions** worsen the situation by increasing the case load still further

- Any effect of indoor interactions is **overcome by improvements** in programs and compliance
- Cooler weather leads to more **outdoor** rather than indoor socialization (for example in US Southern states)

# The current crisis has been an immediate shock to system

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COVID-19 has already resulted in the **steepest decline of U.S. economic activity** since World War II



United States GDP could **decline by up to 8.8% in 2020**, and could take **two years to fully recover** to pre-COVID-19 levels



**56 million jobs in the U.S. are vulnerable to job loss, reduced hours, or furlough** – and these jobs are concentrated in sectors with the lowest wages



**40% of jobs-at-risk affect SMBs** with fewer than 100 full-time employees



**Unemployment claims have reached historic levels**, consistently recorded at a sustained weekly average of ~6x the claims filed at the peak of the Great Recession

# Scenarios for the economic impact of the COVID-19 crisis

## GDP Impact of COVID-19 Spread, Public Health Response, and Economic Policies

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### Virus Spread & Public Health Response

Effectiveness of the public health response in controlling the spread and human impact of COVID-19

#### Rapid and effective control of virus spread

Strong public health response succeeds in controlling spread in each country within 2-3 months

#### Effective response, but (regional) virus recurrence

Initial response succeeds but is insufficient to prevent localized recurrences; local social distancing restrictions are periodically reintroduced

#### Broad failure of public health interventions

Public health response fails to control the spread of the virus for an extended period of time (e.g., until vaccines are available)

**B1**



Virus contained, but sector damage; lower long-term trend growth

**A3**



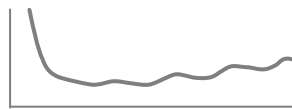
Virus contained; growth returns

**A4**



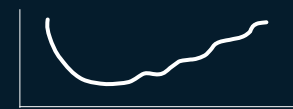
Virus contained; strong growth rebound

**B2**



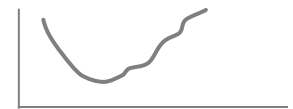
Virus recurrence; slow long-term growth insufficient to deliver full recovery

**A1**



Virus recurrence; slow long-term growth with muted world recovery

**A2**



Virus recurrence; return to trend growth with strong world rebound

**B3**



Pandemic escalation; prolonged downturn without economic recovery

**B4**



Pandemic escalation; slow progression towards economic recovery

**B5**



Pandemic escalation; delayed but full economic recovery

#### Ineffective interventions

Self-reinforcing recession dynamics kick-in; widespread bankruptcies and credit defaults; potential banking crisis

#### Partially effective interventions

Policy responses partially offset economic damage; banking crisis is avoided; recovery levels muted

#### Highly effective interventions

Strong policy responses prevent structural damage; recovery to pre-crisis fundamentals and momentum

### Knock-on Effects & Economic Policy Response

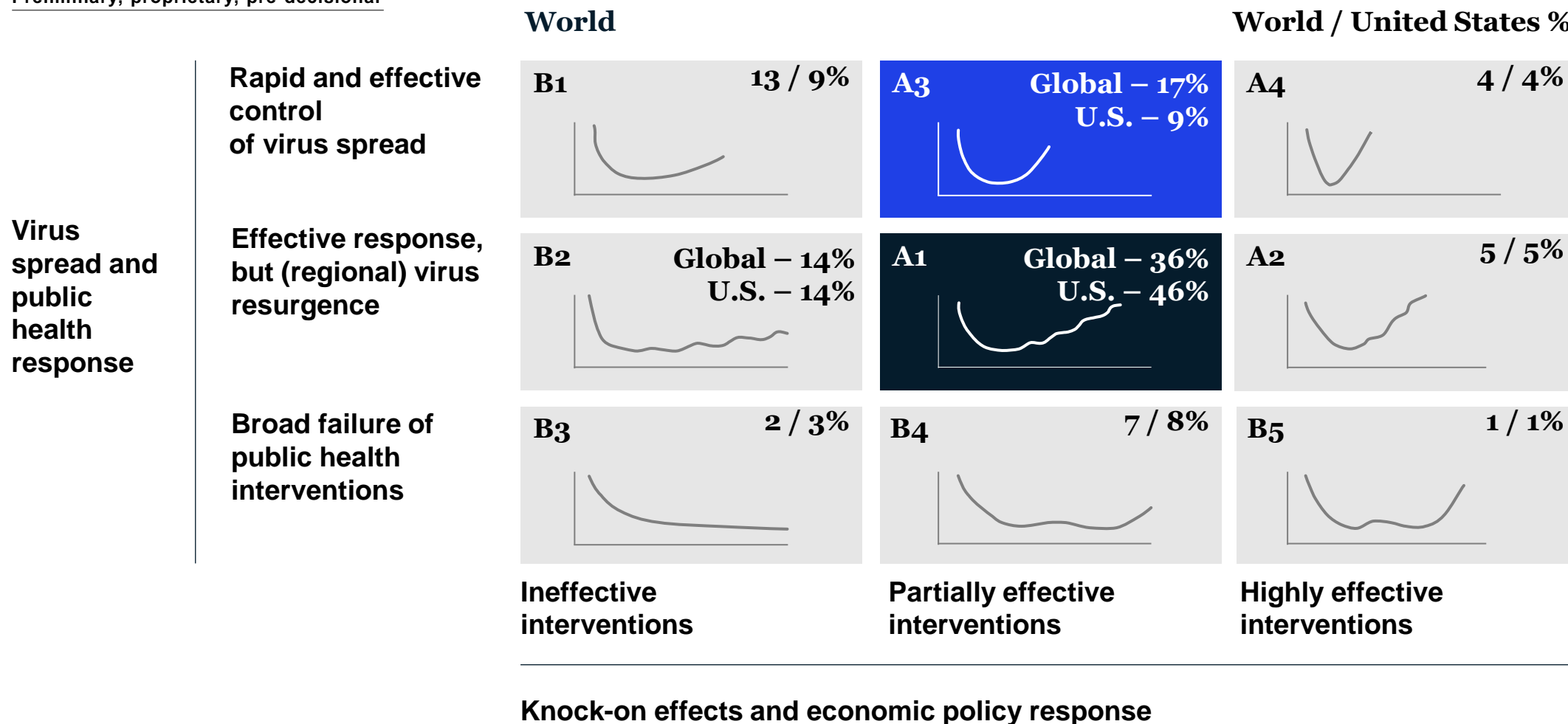
Speed and strength of recovery depends on whether policy moves can mitigate self-reinforcing recessionary dynamics (e.g., corporate defaults, credit crunch)



# Shape of the COVID-19 impact: view from global and U.S. executives

“Thinking globally, please rank the following scenarios in order of how likely you think they are to occur over the course of the next year”; % of total respondents ranking each as the “most likely”

Preliminary, proprietary, pre-decisional

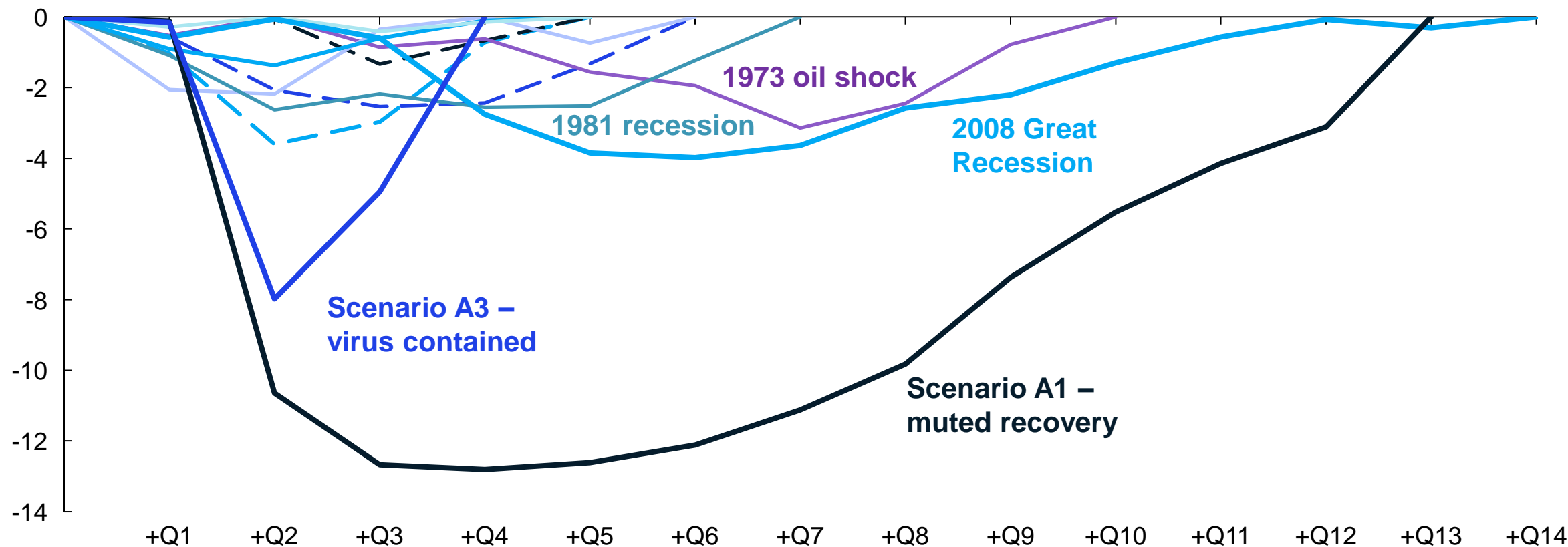


# The drop in U.S. economic activity in Q2 2020 is likely to be the steepest since World War II

High frequency indicators show the drop had started in Q1

Preliminary, proprietary, pre-decisional

**Comparison of U.S. COVID-19 economic impact with post-World War II recessions, % real GDP change indexed to 2019**



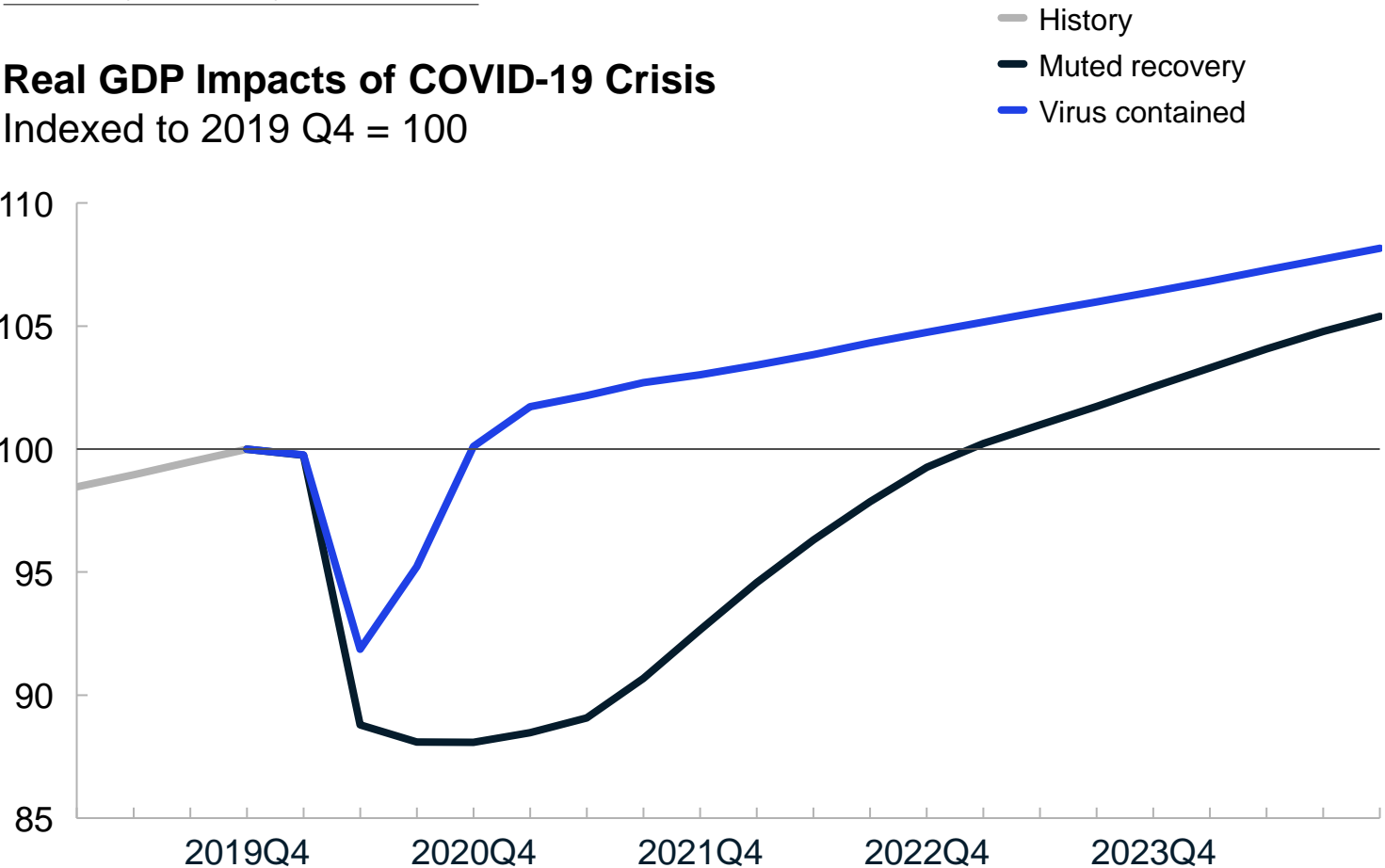
# United States GDP can be expected to decline by 3.3% to 8.8% in 2020

Real GDP, indexed to 2019 Q4

Preliminary, proprietary, pre-decisional

## Real GDP Impacts of COVID-19 Crisis

Indexed to 2019 Q4 = 100



1. The optimistic scenario (A3) assumes a rapid and effective control of the virus globally. The pessimistic scenario (A1) assumes there is a virus resurgence and a muted recovery through 2022 globally

2. Average annual percent change

2020 GDP  
change<sup>2</sup>  
% Change

-3.3%

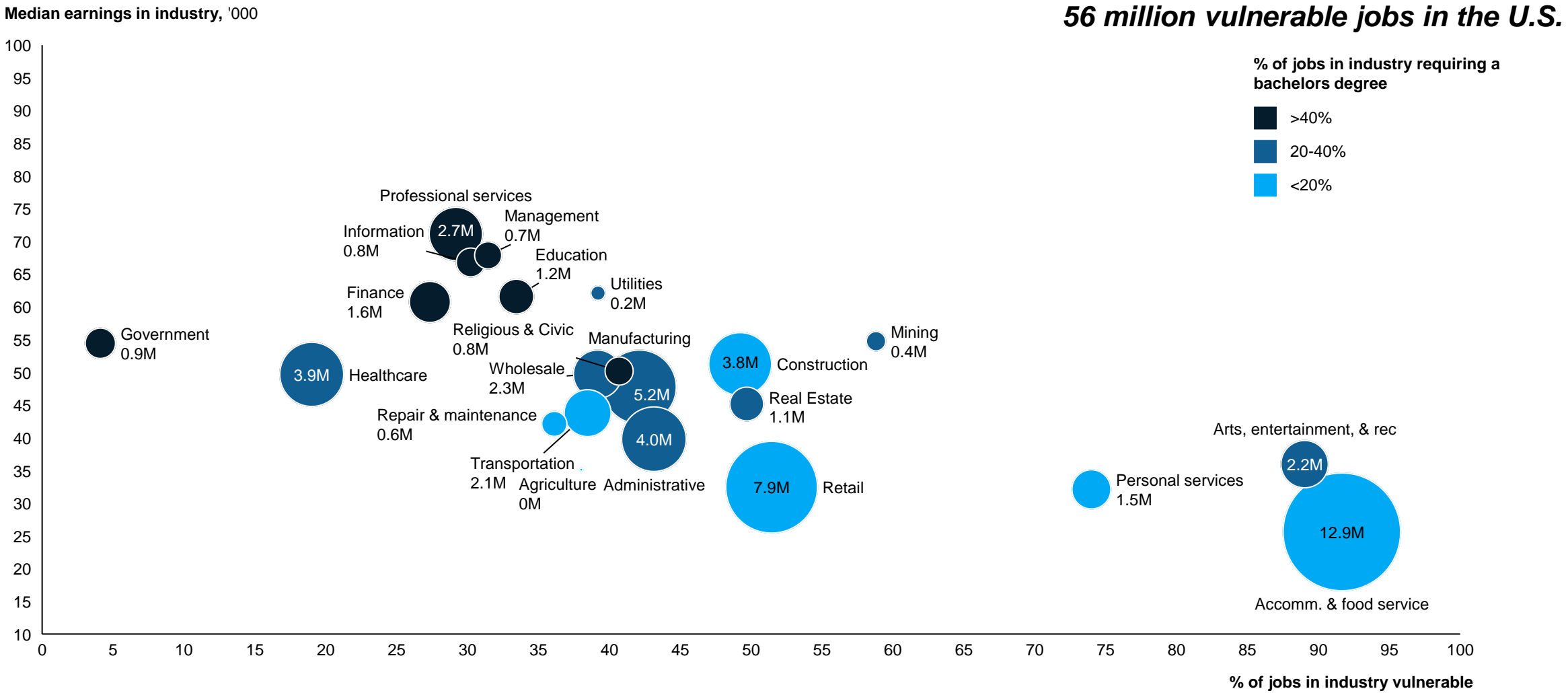
-8.8%

GDP return  
to pre-crisis  
Quarter

2020 Q4

2022 Q2

# The most vulnerable jobs in the U.S. are concentrated in industries with the lowest wages and the lowest educational attainment



Note: Vulnerable jobs are those predicted to be furloughed, laid-off, or otherwise unproductive (e.g., kept on payroll but not working) during periods of high social distancing

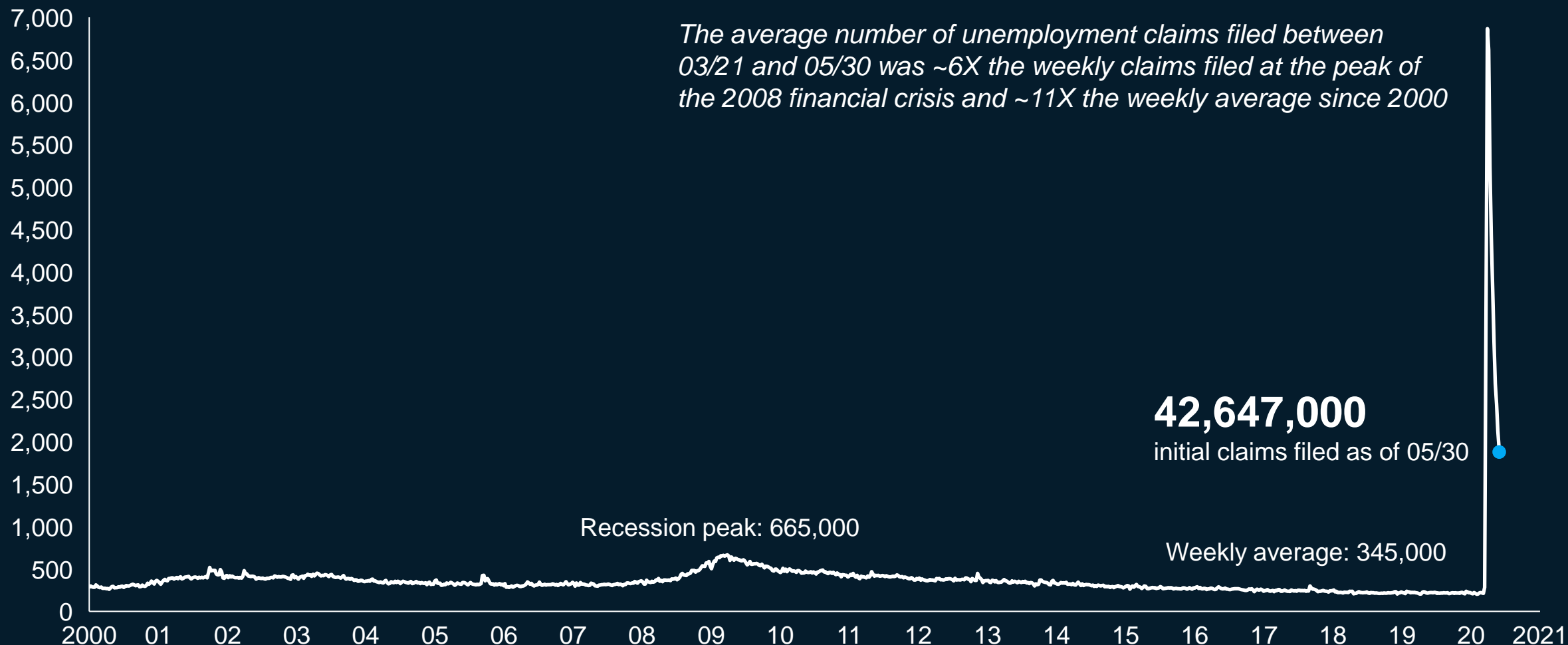
Source: MGI Economics analysis based on scenarios generated by McKinsey in partnership with Oxford Economics, input from Moody's Analytics data

McKinsey & Company 20

# National initial jobless claims have been 11x the weekly average since 2000

Weekly unemployment claims in the United States, thousands

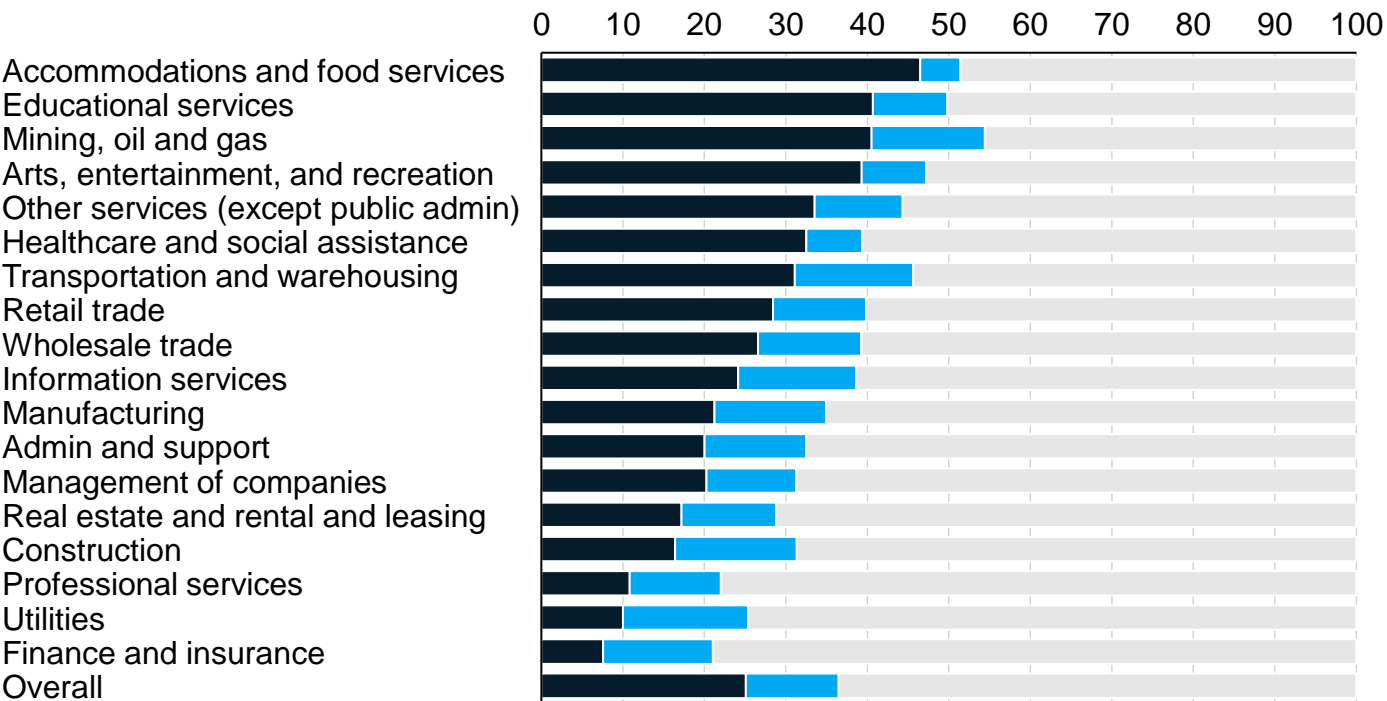
Preliminary, proprietary, pre-decisional



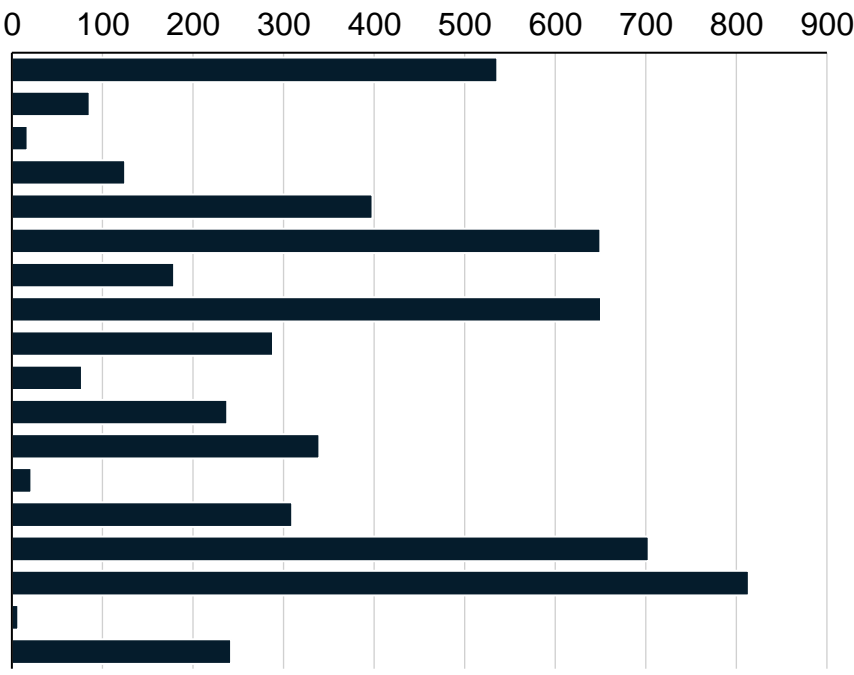
# In some sectors, more than a quarter of small businesses may close permanently

## Small businesses vulnerable to permanent closure

Small businesses reporting negative, effect from crisis, % of firms in sector



Small businesses in sector, thousands

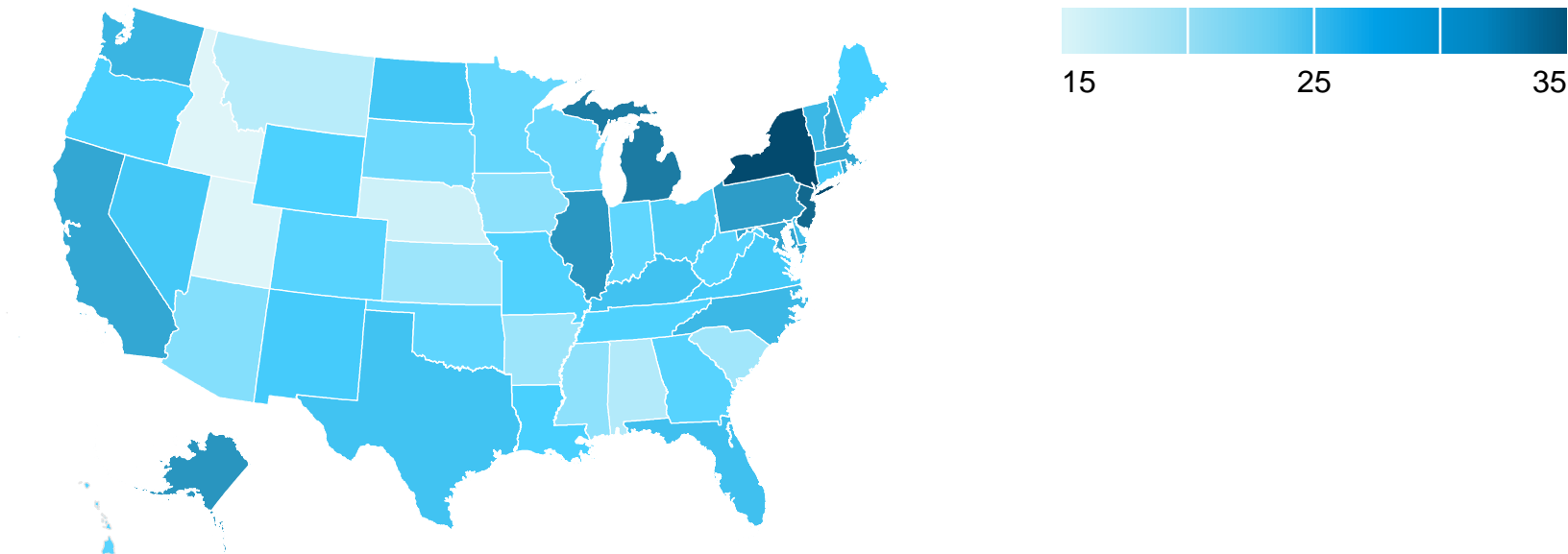


**5.7 million** small businesses

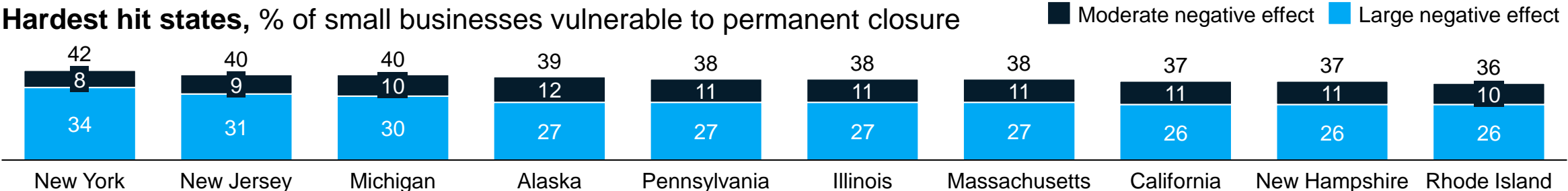
Note: Small and medium-sized businesses in the agriculture, forestry, fishery, and hunting sector were excluded because of inconsistent data reporting. Small and medium-sized businesses in the religious, grant-making, civic, professional, and similar organizations (NAICS 813), funds, trusts, and other financial vehicles (NAICS 525), and rail-transportation (NAICS 482) subsectors also excluded because of inconsistent data reporting.  
Statistics of US Businesses, 2017

# The closure risk for small businesses varies by state

Small and medium-size businesses vulnerable to permanent closure, % of small businesses



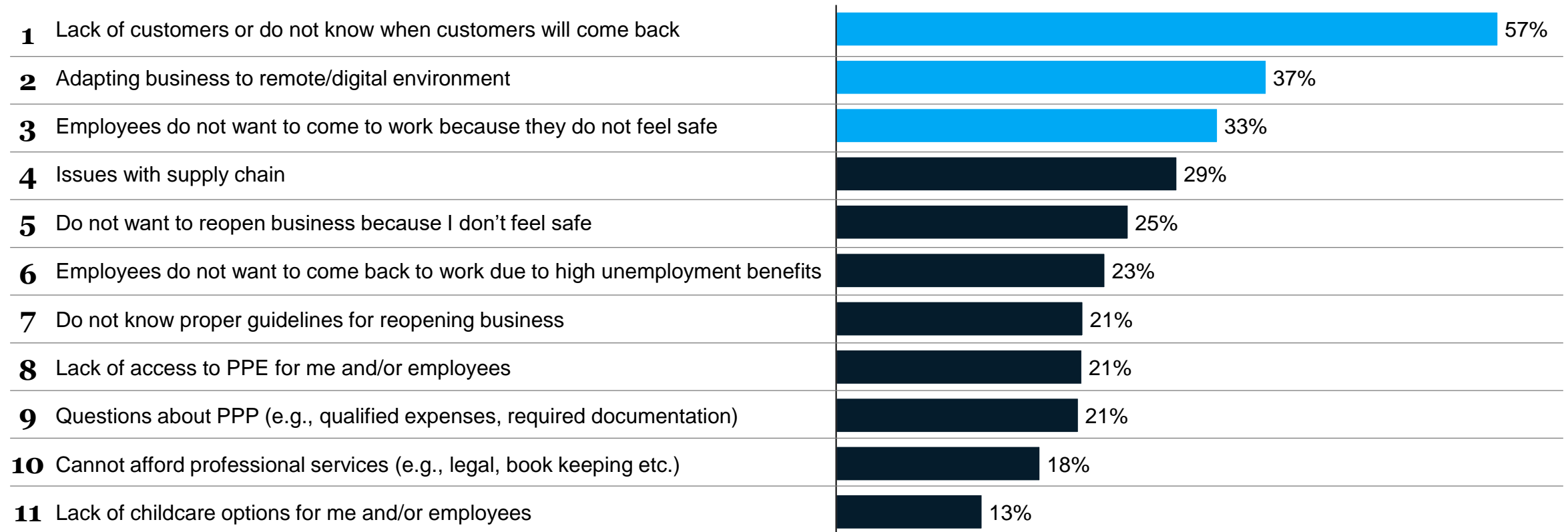
Hardest hit states, % of small businesses vulnerable to permanent closure



# Uncertainty around when customers will return and adapting to digital environments are primary challenges SMBs are facing

## Challenge SMBs are currently facing

Percent of times response was in top 3



1. Q: Which of the following challenges do you currently face?



# Implications for business and government leaders

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- The ultimate path of the crisis will depend on public-health and economic-policy responses, but ongoing interventions may be needed not just to give small businesses immediate relief but also to sustain recovery by building longer-term resilience
- **For business leaders, actions can include:**
  - Prioritizing small businesses in procurement, particularly by locking in demand for several years
  - Paying receivables to small businesses ahead of schedule
  - Crafting special kinds of support for small businesses particularly those that have lower resilience e.g., platform aggregators can offer additional digitization support, large manufacturing firms may assist in technology and productivity diffusion and financial institutions may provide additional capital financing
  - Offering lower cost or subsidized services e.g., large tech companies can offer free online-advertising credit or aggregator
- **Everyone can take action, including:**
  - Shopping at small businesses whenever possible
  - When buying from larger companies, choosing those that are supporting small businesses

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# Content

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The United States economy before COVID-19

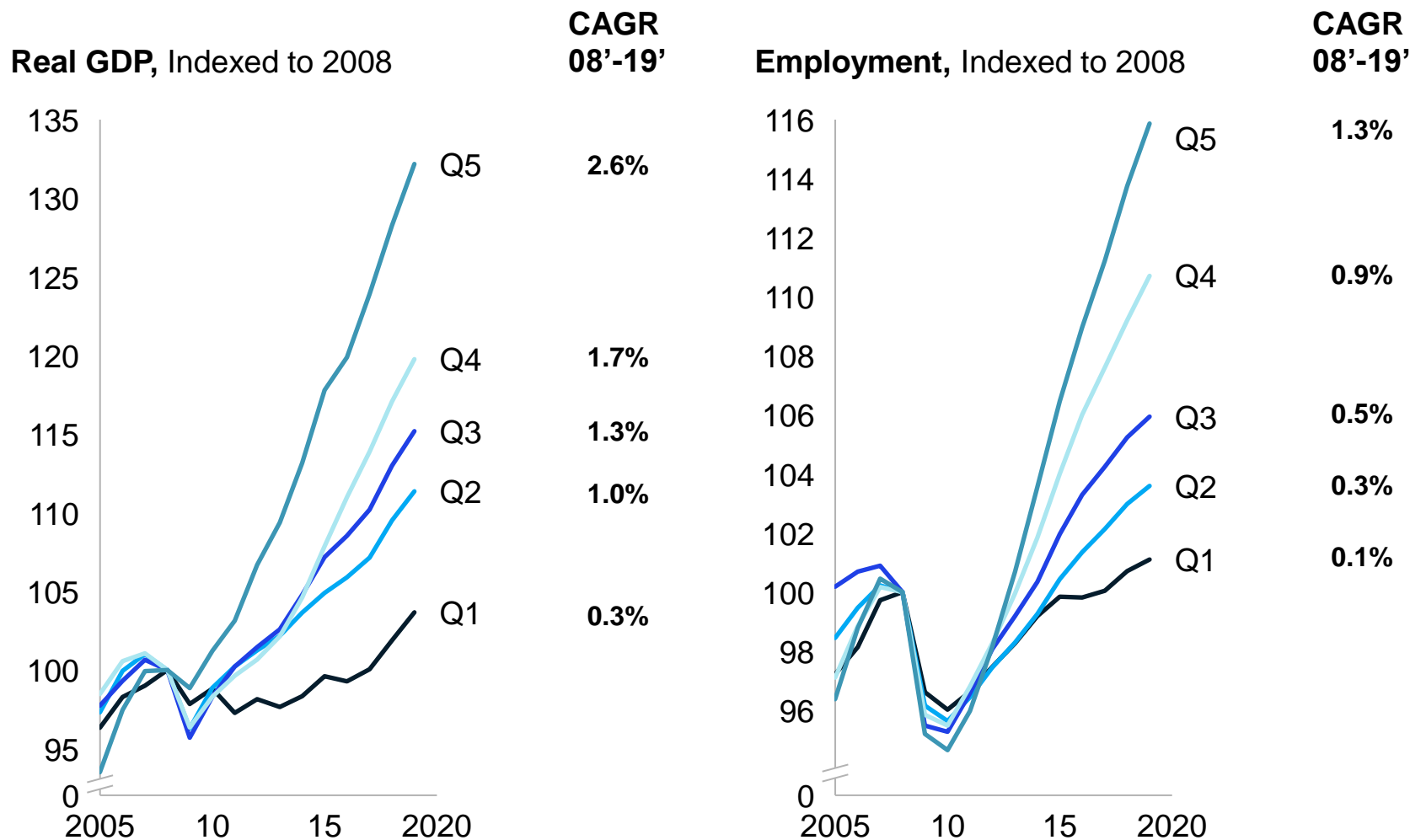
The economic impacts of COVID-19 on the United States

**Reimagining the future economy**

# After 2008, top quintile states saw 8x GDP, 14x employment growth compared to lowest quintile

State quintiles of recovery after the 2008 financial crisis

Preliminary, proprietary, pre-decisional



Developing and executing a transformative plan can lead to better outcomes for your state and its people

- **Reimagine:** Take advantage of new opportunities in the post-pandemic economy

1. Quintiles defined by 2008-2019 real GDP CAGR of 2008-2019

# Long-term crisis trends will impact sectors differently, and policymakers need to tailor questions and approaches accordingly

Preliminary, proprietary, pre-decisional

Non-exhaustive



## Retail

### Select industry-wide trends

Consistent customer habits such as online shopping

Bankruptcies of store-based brands and market consolidation



## Healthcare

Innovation such as telemedicine, online pharmacies, etc. will intensify competition in healthcare sectors



## Manufacturing

Shift to prioritizing resilience and flexibility in order to de-risk supply chains

Increased adoption of automation and robotics



## Real estate

Short-term cost-cutting and consolidation as would-be buyers delay or pause searches; long-term struggles in retail and office



## Travel

Customer preferences for comfort and health safeguards (i.e., empty middle seats)

Potential widespread consolidations



## Energy

Sustainability push as government and private investment is more dedicated to innovative, “next-gen” infrastructure

### Key questions

How will specific retail categories (i.e., big box, department, discount) adapt differently?

How will customers interact with both familiar and new brands?

Will there be permanent shifts to higher spending on healthcare R&D from the private and public sectors?

How will nature of work change in healthcare due to digital adoption?

How will companies reassess supply chains (e.g., re-shore operations to the US or diversify within offshored locations)?

What technologies will be accelerated (e.g., 3D printing)

How will real estate in dense, urban spaces recover compared to suburban areas?

Will the nature of commercial office real estate be permanently changed?

How will business and leisure travel change and return at different rates?

What will be the balance between price-sensitivity and the pre-COVID-19 trend of travel premiumization?

How will the oil market collapse influence energy decisions?

Will energy habits change long-term (i.e., decrease in driving and oil demand)?

# Reimagining the future economy will require a plan for the “next normal,” managing the unique uncertainty of the COVID-19 crisis

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Preliminary, proprietary, pre-decisional

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|---------------------|---|
| <b>1 Trajectory</b> | <b>Action now</b> will help situate regions for the challenges and opportunities the economy will face in the years post COVID-19 |
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| <b>2 Trends</b> | <b>Perspective on global, national, and regional trends</b> (e.g., automation), and how the regional economy may be impacted and be made future-ready |
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| <b>3 Aspiration</b> | Ambitious <b>targets can be set for key economic indicators most relevant</b> to each region – e.g., GDP growth, industry diversification, productivity, wage growth |
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| <b>4 Strategies</b> | <b>Identify key sectors and enablers</b> to invest so that the region can become a stronger, more resilient economy |
|---------------------|---|
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| <b>5 Stakeholders</b> | <b>Local stakeholders from all sectors can be key partners in co-developing the answers</b> to ensure buy-in and commitment to the plan |
|-----------------------|---|
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# An economic recovery and reimagination plan can draw insight from lessons learned from past recessions and crises

Preliminary, proprietary, pre-decisional

Non-exhaustive

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|---|--|--|
| <b>Prioritize lives and livelihoods</b>                   | <b>Human capital is a key lever</b>  | Governments can help individuals by ensuring they are quickly reskilled to fill jobs that remain open  |
|   | <b>Vulnerable populations are often most negatively impacted</b>                             | Lower-paid, less-educated workers were hardest hit in the 2008 crisis  |
| <b>Accelerate business recovery</b>                       | <b>Companies that make aggressive strategic moves tend to be most resilient in downturns</b> | Companies that did better through the 2008 financial crisis moved faster and made bigger changes to preserve productivity and capacity for growth                            |
|   | <b>SMBs need special focus</b>   | SMBs collectively employ 85M in the US. One-third of jobs at risk from COVID-19 are in SMBs  |
| <b>Allocate resources well</b>                            | <b>Prioritize scarce resources for investment</b>  | As sectors face different levels of challenges (e.g., tourism, travel), prioritizing investment from a sector, company, and regional need lens is critical                   |
|   | <b>Shovel-ready projects are precious ... but few and far between</b>                        | Rapid mobilization of short term projects (e.g., roadworks) can help recover demand  |
| <b>Understand impacts on existing and emerging trends</b> | <b>Crises tend to accelerate longer term trends and disruptions</b>                          | Digitization and automation will likely accelerate with COVID-19, especially in the workplace and manufacturing settings   |
|   | <b>Long-term and nuanced economic response is critical</b>                                   | As the global pandemic is both a humanitarian and economic challenge, there is a risk that governments may stop relief early or do not provide enough for long-term recovery |
|   | <b>Process is equal to the answer</b>  | Leaders should engage with the private sector while crafting economic response for greater buy-in  |
|   | <b>Dare to reimagine</b>   | Consider what current crisis measures may mean in long-term and how best to prepare for the future   |

Sources: Marketplace by American Public Media; National Conference of State Legislatures; Federal Reserve Bank of Minneapolis; Kaiser Family Foundation; UK Department for Work and Pensions; US Bureau of Labor Statistics; CPAnalytics; Capital IQ; McKinsey analysis; Institutional Investor; "Cash is King: Flows, Balances, and Buffer Days. Evidence from 600,000 Small Businesses." JP Morgan Chase & Co Institute. September 2016; FEMA

# Preliminary post-COVID-19 trends will inform opportunities for economic reimagination

Preliminary, proprietary, pre-decisional



## Table stakes

### Minimum requirements to be competitive in a post-pandemic economy

- **Fiscal flexibility:** Greater needs for residents will put pressure on state budgets
- **Stronger public health infrastructure:** Consumers and workers need confidence they will be safe
- **Widespread, dependable broadband:** Businesses are pursuing greater digitization and households need to enable remote work and education
- **Opportunity for all:** Broad-based opportunity creation will accelerate the recovery



## Likely differentiators

### Areas to distinguish yourself

- **High productivity:** Businesses are likely to look to improve productivity given the recession
- **Effective workforce development:** Labor market disruption will likely put a premium on pipeline and reskilling
- **Greater premium on innovation:** Winning companies will likely be able to adapt to an ever-shifting landscape



## Known unknowns

### Areas of uncertainty where optionality and contingencies will help build resilience

- **The future of cities:** What kind of live/work/play environments will businesses and residents preference?
- **Reshoring:** Will companies bring back supply chains given the economics and risks?
- **Sector disruption:** How will consumption habits change, and what will that mean for hardest-hit sectors?

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# Backup



# Data: People

**Ranking:** % of students meeting college readiness standards

**Source:** College Board and ACT, Inc., via US News

**Metric:** A measure of the approximate percentage of high school graduates from the class of 2018 who have passed the SAT, the ACT, or both

- |                    |                  |                   |
|--------------------|------------------|-------------------|
| 1. New Hampshire   | 21. Georgia      | 41. Iowa          |
| 2. Connecticut     | 22. Ohio         | 42. Louisiana     |
| 3. Illinois        | 23. Rhode Island | 43. Alaska        |
| 4. Massachusetts   | 24. Texas        | 44. West Virginia |
| 5. New Jersey      | 25. Wisconsin    | 45. Alabama       |
| 6. Colorado        | 26. Washington   | 46. Oklahoma      |
| 7. Hawaii          | 27. Montana      | 47. Wyoming       |
| 8. Delaware        | 28. Nebraska     | 48. Arizona       |
| 9. New York        | 29. Kentucky     | 49. Mississippi   |
| 10. Virginia       | 30. Oregon       | 50. New Mexico    |
| 11. Indiana        | 31. California   |                   |
| 12. Michigan       | 32. Minnesota    |                   |
| 13. Vermont        | 33. North Dakota |                   |
| 14. South Carolina | 34. Utah         |                   |
| 15. Florida        | 35. Missouri     |                   |
| 16. Idaho          | 36. Kansas       |                   |
| 17. North Carolina | 37. Tennessee    |                   |
| 18. Maryland       | 38. South Dakota |                   |
| 19. Pennsylvania   | 39. Nevada       |                   |
| 20. Maine          | 40. Arkansas     |                   |

**Ranking:** Educational attainment

**Source:** U.S. Census Bureau's 2017 American Community Survey

**Metric:** A measure of the share of people 25 and older in a state who have an associate degree or higher

- |                  |                    |                   |
|------------------|--------------------|-------------------|
| 1. Massachusetts | 21. California     | 41. New Mexico    |
| 2. Colorado      | 22. Montana        | 42. Tennessee     |
| 3. Minnesota     | 23. Wisconsin      | 43. Alabama       |
| 4. New Hampshire | 24. North Carolina | 44. Oklahoma      |
| 5. Vermont       | 25. Iowa           | 45. Nevada        |
| 6. Connecticut   | 26. Pennsylvania   | 46. Mississippi   |
| 7. Virginia      | 27. Florida        | 47. Kentucky      |
| 8. Maryland      | 28. Delaware       | 48. Arkansas      |
| 9. New Jersey    | 29. South Dakota   | 49. Louisiana     |
| 10. Washington   | 30. Georgia        | 50. West Virginia |
| 11. New York     | 31. Michigan       |                   |
| 12. North Dakota | 32. Wyoming        |                   |
| 13. Utah         | 33. Arizona        |                   |
| 14. Hawaii       | 34. Alaska         |                   |
| 15. Kansas       | 35. South Carolina |                   |
| 16. Oregon       | 36. Missouri       |                   |
| 17. Illinois     | 37. Texas          |                   |
| 18. Maine        | 38. Ohio           |                   |
| 19. Nebraska     | 39. Idaho          |                   |
| 20. Rhode Island | 40. Indiana        |                   |

# Data: Innovation

**Ranking:** Small Business Innovation Research/Technology Transfer, per \$1m GDP

**Source:** SBIR NSF for R&D, Moody's Analytics for GDP

**Metric:** Total amount of money received in NIH small business innovation research (SBIR) grants in 2016, 2017, and 2018, divided by total 2018 GDP

|                   |                          |                   |
|-------------------|--------------------------|-------------------|
| 1. Massachusetts  | 21. South Carolina       | 41. Nebraska      |
| 2. Maryland       | 22. Connecticut          | 42. Oklahoma      |
| 3. New Hampshire  | 23. Arkansas             | 43. West Virginia |
| 4. North Carolina | 24. Iowa                 | 44. South Dakota  |
| 5. Vermont        | 25. Michigan             | 45. Tennessee     |
| 6. Oregon         | 26. Wyoming              | 46. Nevada        |
| 7. Delaware       | 27. New Jersey           | 47. Idaho         |
| 8. Montana        | 28. New York             | 48. Louisiana     |
| 9. California     | 29. Georgia              | 49. Alaska        |
| 10. Utah          | 30. Arizona              | 50. Mississippi   |
| 11. Minnesota     | 31. Maine                | 51. North Dakota  |
| 12. Pennsylvania  | 32. Ohio                 |                   |
| 13. Kentucky      | 33. District of Columbia |                   |
| 14. Washington    | 34. Indiana              |                   |
| 15. New Mexico    | 35. Illinois             |                   |
| 16. Colorado      | 36. Alabama              |                   |
| 17. Wisconsin     | 37. Florida              |                   |
| 18. Rhode Island  | 38. Texas                |                   |
| 19. Virginia      | 39. Kansas               |                   |
| 20. Missouri      | 40. Hawaii               |                   |

**Ranking:** Rate of new entrepreneurs

**Source:** 2019 Kauffman Index

**Metric:** Percent of population that starts a new business

|                  |                          |                   |
|------------------|--------------------------|-------------------|
| 1. Florida       | 21. Maine                | 41. Michigan      |
| 2. California    | 22. Hawaii               | 42. New Hampshire |
| 3. Wyoming       | 23. Nebraska             | 43. Alabama       |
| 4. Texas         | 24. Washington           | 44. Indiana       |
| 5. Georgia       | 25. Arkansas             | 45. West Virginia |
| 6. New Mexico    | 26. New Jersey           | 46. Connecticut   |
| 7. Alaska        | 27. Utah                 | 47. Minnesota     |
| 8. Montana       | 28. Iowa                 | 48. Ohio          |
| 9. Oklahoma      | 29. District of Columbia | 49. Pennsylvania  |
| 10. Idaho        | 30. Kansas               | 50. Virginia      |
| 11. North Dakota | 31. Maryland             | 51. Rhode Island  |
| 12. Vermont      | 32. North Carolina       |                   |
| 13. Arizona      | 33. Oregon               |                   |
| 14. Colorado     | 34. Tennessee            |                   |
| 15. Louisiana    | 35. Kentucky             |                   |
| 16. Nevada       | 36. South Carolina       |                   |
| 17. Mississippi  | 37. Illinois             |                   |
| 18. Missouri     | 38. Wisconsin            |                   |
| 19. New York     | 39. Delaware             |                   |
| 20. South Dakota | 40. Massachusetts        |                   |

# Data: Infrastructure (1/2)

**Ranking:** Power grid reliability (SAIDI)

**Source:** US Energy Information Administration (EIA)

**Metric:** SAIDI is the average outage duration in a state (sum of all customer interruptions divided by total number of customers served), in this case including major event days (MEDs) such as severe weather

- |                         |                  |                    |
|-------------------------|------------------|--------------------|
| 1. District of Columbia | 21. Ohio         | 41. Massachusetts  |
| 2. Arizona              | 22. Alaska       | 42. Michigan       |
| 3. North Dakota         | 23. Idaho        | 43. Rhode Island   |
| 4. Nevada               | 24. Kansas       | 44. New Hampshire  |
| 5. Iowa                 | 25. Oregon       | 45. Georgia        |
| 6. Illinois             | 26. New Jersey   | 46. Vermont        |
| 7. South Dakota         | 27. New York     | 47. West Virginia  |
| 8. New Mexico           | 28. Indiana      | 48. South Carolina |
| 9. Nebraska             | 29. Washington   | 49. North Carolina |
| 10. Delaware            | 30. Alabama      | 50. Florida        |
| 11. Utah                | 31. Oklahoma     | 51. Maine          |
| 12. Wisconsin           | 32. Kentucky     |                    |
| 13. Colorado            | 33. Pennsylvania |                    |
| 14. Montana             | 34. Texas        |                    |
| 15. Wyoming             | 35. Tennessee    |                    |
| 16. California          | 36. Virginia     |                    |
| 17. Minnesota           | 37. Louisiana    |                    |
| 18. Hawaii              | 38. Mississippi  |                    |
| 19. Maryland            | 39. Arkansas     |                    |
| 20. Missouri            | 40. Connecticut  |                    |

**Ranking:** Ultra-fast internet access

**Source:** FCC

**Metric:** Percentage of households in a state that have at least one internet provider that offers some form of broadband internet with speeds of up to 1000 megabits per second, the fastest connection recorded by the FCC

- |                    |                          |                   |
|--------------------|--------------------------|-------------------|
| 1. Hawaii          | 21. Louisiana            | 41. Alaska        |
| 2. Georgia         | 22. Florida              | 42. Connecticut   |
| 3. Mississippi     | 23. Colorado             | 43. Montana       |
| 4. Tennessee       | 24. Oklahoma             | 44. Maine         |
| 5. North Dakota    | 25. Washington           | 45. Virginia      |
| 6. Kentucky        | 26. New York             | 46. Pennsylvania  |
| 7. Kansas          | 27. Ohio                 | 47. West Virginia |
| 8. Utah            | 28. California           | 48. Massachusetts |
| 9. North Carolina  | 29. Iowa                 | 49. Maryland      |
| 10. Texas          | 30. Nevada               | 50. Rhode Island  |
| 11. Nebraska       | 31. Illinois             | 51. Delaware      |
| 12. Missouri       | 32. Wisconsin            |                   |
| 13. Alabama        | 33. Vermont              |                   |
| 14. Indiana        | 34. Arkansas             |                   |
| 15. South Carolina | 35. Idaho                |                   |
| 16. New Hampshire  | 36. South Dakota         |                   |
| 17. Oregon         | 37. Arizona              |                   |
| 18. Minnesota      | 38. District of Columbia |                   |
| 19. Wyoming        | 39. New Jersey           |                   |
| 20. Michigan       | 40. New Mexico           |                   |

# Data: Infrastructure (2/2)

**Ranking:** Bridge quality (% “good”)

**Source:** US Department of Transportation Federal Highway Administration

**Metric:** Bridges and roads are given a ranking of “good,” “fair,” or “poor” – this measurement finds the percentage of total bridge square footage that is rated “good”

- |                  |                    |                          |
|------------------|--------------------|--------------------------|
| 1. Florida       | 21. South Carolina | 41. Idaho                |
| 2. Kansas        | 22. Louisiana      | 42. Montana              |
| 3. Mississippi   | 23. Utah           | 43. New Jersey           |
| 4. North Dakota  | 24. North Carolina | 44. Hawaii               |
| 5. Ohio          | 25. Tennessee      | 45. Massachusetts        |
| 6. Nebraska      | 26. Washington     | 46. Oregon               |
| 7. New Hampshire | 27. Alaska         | 47. Delaware             |
| 8. California    | 28. Missouri       | 48. West Virginia        |
| 9. Arizona       | 29. Alabama        | 49. Connecticut          |
| 10. Texas        | 30. Kentucky       | 50. Rhode Island         |
| 11. Wisconsin    | 31. New Mexico     | 51. District of Columbia |
| 12. Vermont      | 32. Illinois       |                          |
| 13. Georgia      | 33. Maine          |                          |
| 14. Arkansas     | 34. Virginia       |                          |
| 15. Minnesota    | 35. Michigan       |                          |
| 16. Nevada       | 36. Maryland       |                          |
| 17. Oklahoma     | 37. Pennsylvania   |                          |
| 18. Iowa         | 38. South Dakota   |                          |
| 19. Colorado     | 39. New York       |                          |
| 20. Indiana      | 40. Wyoming        |                          |