The Long-Term Impacts of COVID-19

Structural Economic and Demographic Changes

June 9, 2020 and June 11, 2020

FTI Consulting

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4,600+ Professionals	**460+** SMDs	**$4.2B** Market Cap.(1)	**77** Cities
28 Countries	**FCN** Publicly traded – NYSE	**1982** Year founded	**2** Nobel Laureates
Advisor to 8 of the world's top 10 bank holding companies	**Advisor to 96 of the world's top 100 law firms**	**53 of Fortune Global 100 corporations are clients**	

(1) Total shares outstanding as of most recent 10-G, times the closing share price as of December 30, 2019.

Disclaimer

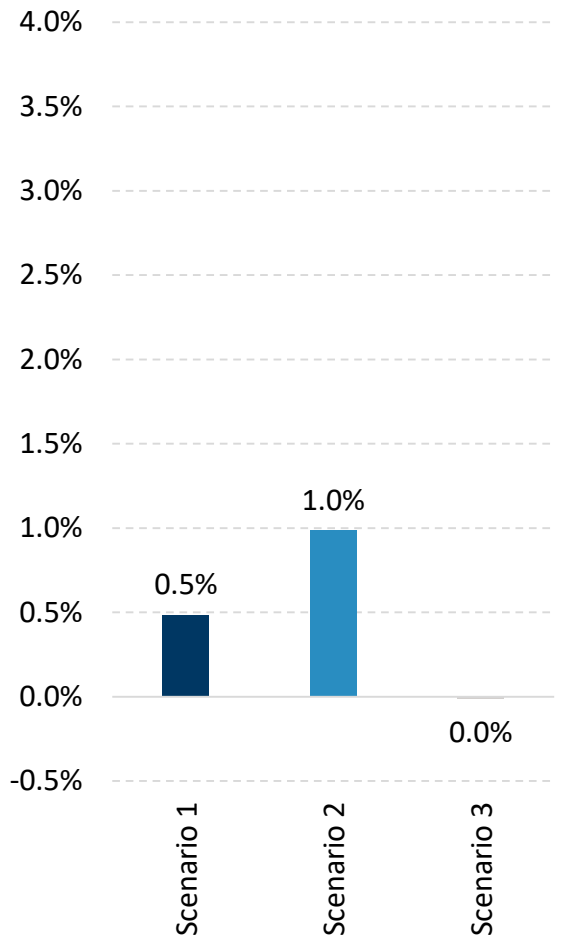
The views in this presentation do not reflect the views of FTI Consulting.

Long-term economic effects

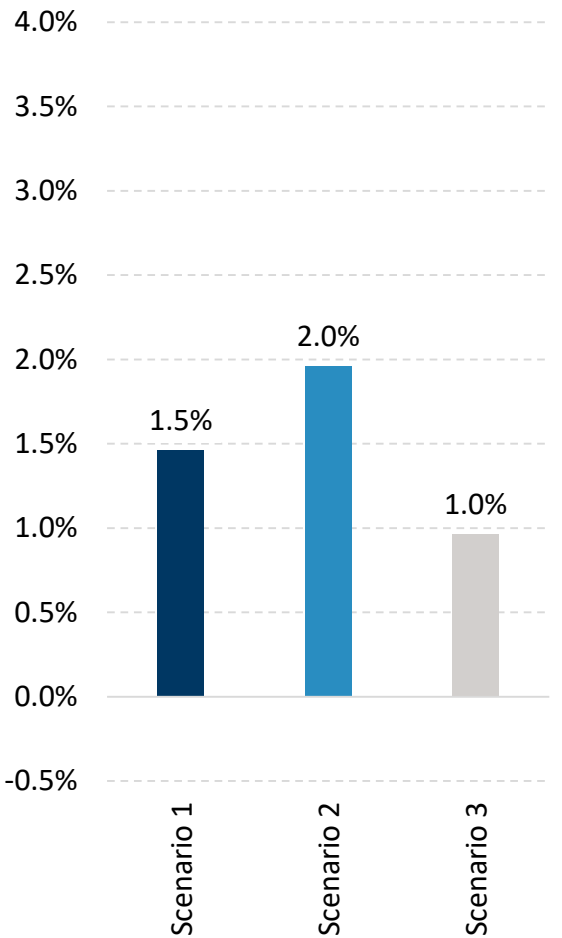
Two-factor growth model (inputs)

"A beginning is a very delicate time."

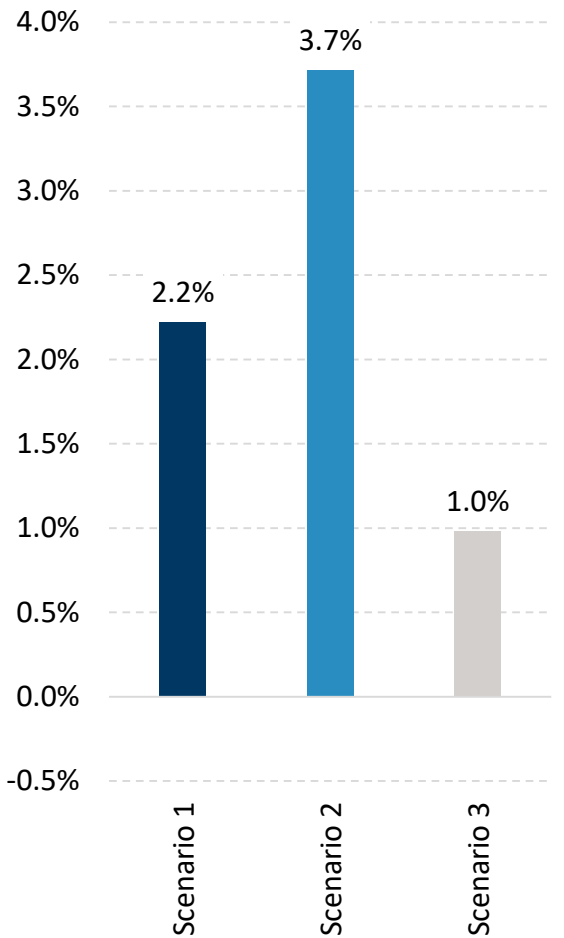
Labor Force Growth Rate (2021-2050)



Productivity Growth Rate (2021-2050)



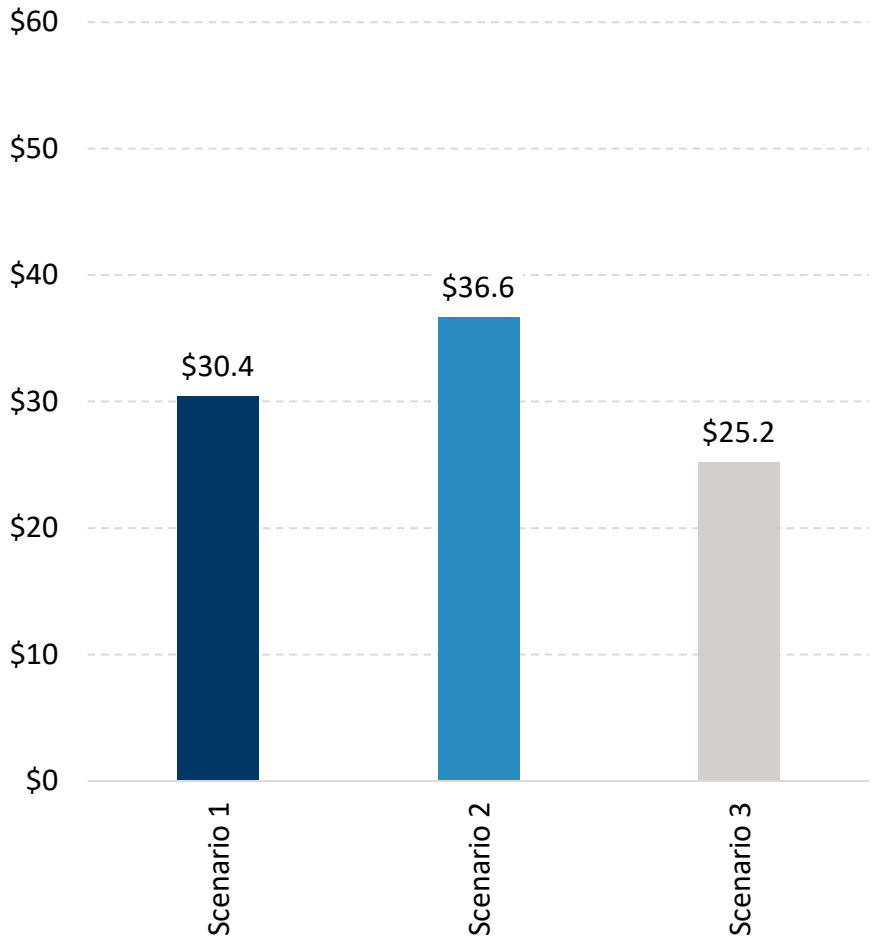
Economic Growth Rate (2021-2050)



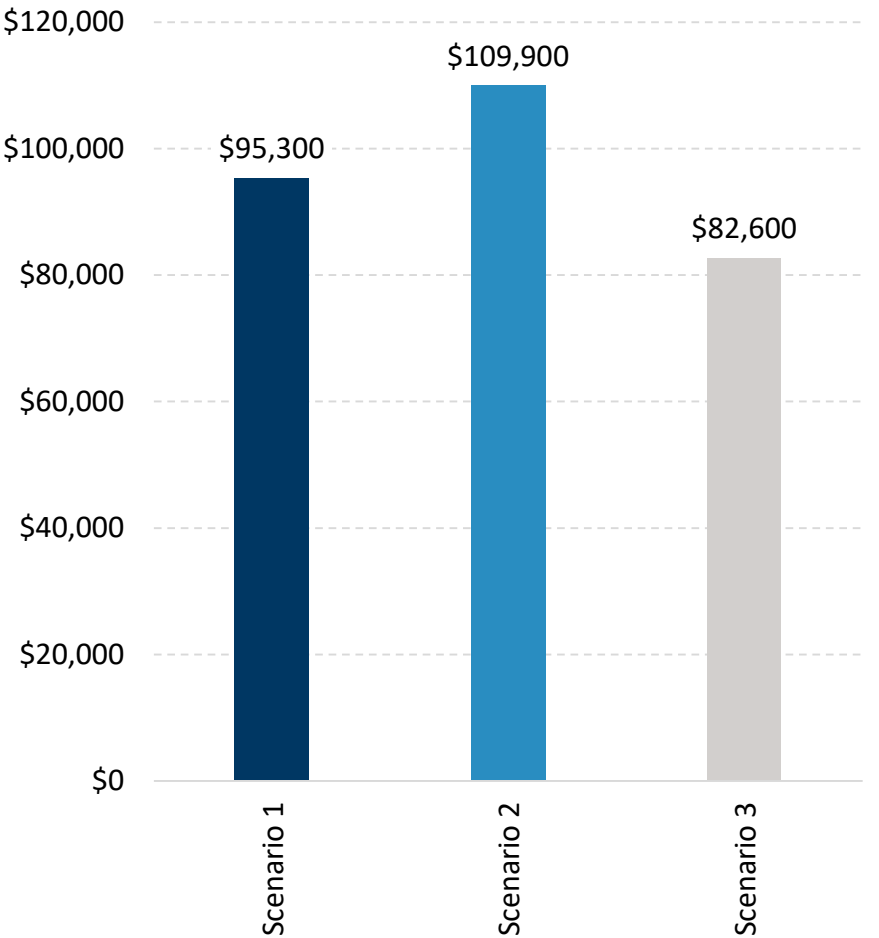
Two-factor growth model (results)

"Compound interest is the eighth wonder of the world."

U.S. GDP in 2050 (2020 $ trillions)
(assumes $21.0 trillion starting point)



U.S. GDP per capita in 2050 (2020 $)
(assumes $63,500 starting point)



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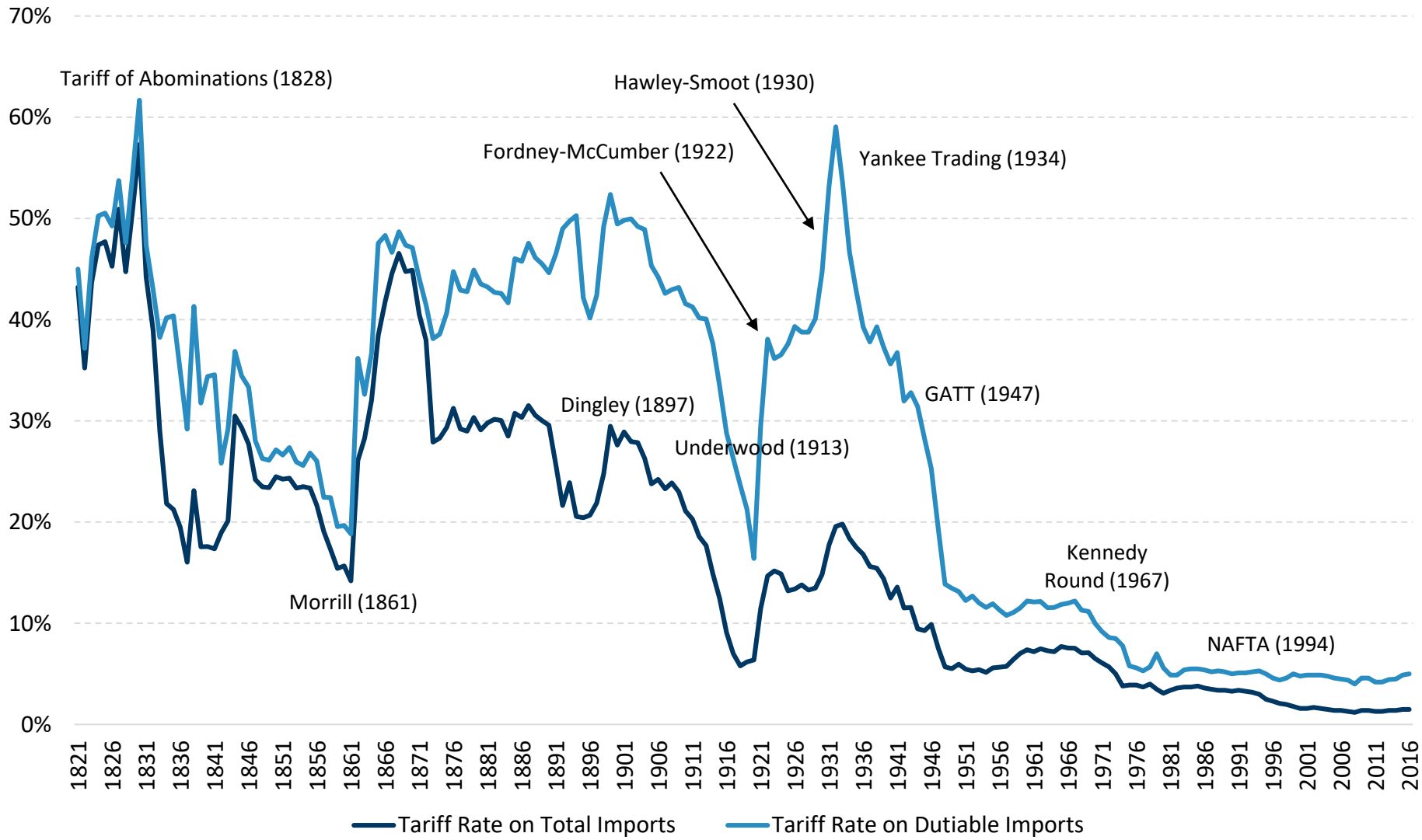
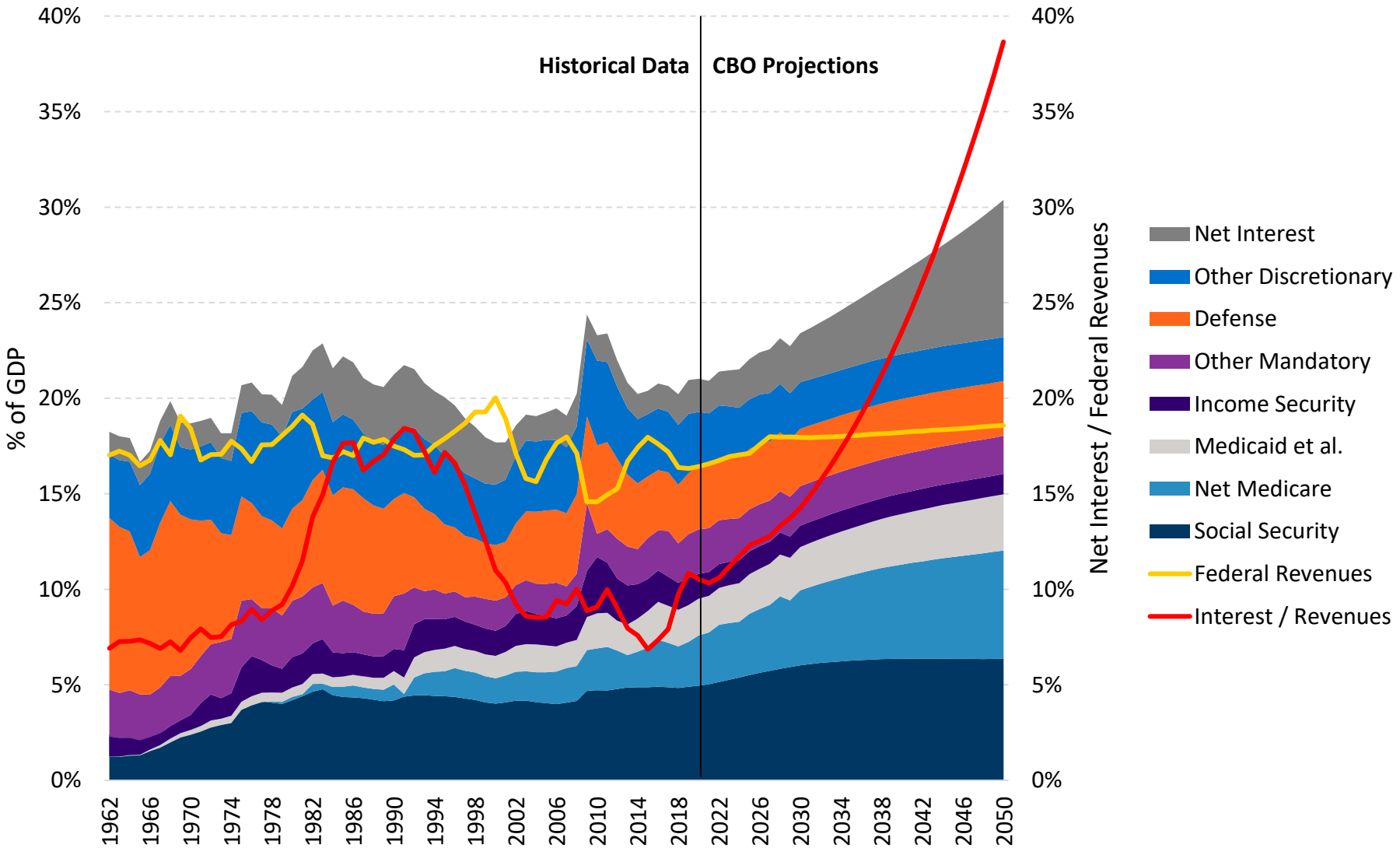
U.S. average tariff rates (1821-2016)

"The chief business of the American people is business."



Developing fiscal pressures on the federal government

"Flaws in the system will now become severe."



Long-term demographic effects

1 Long-term economic effects

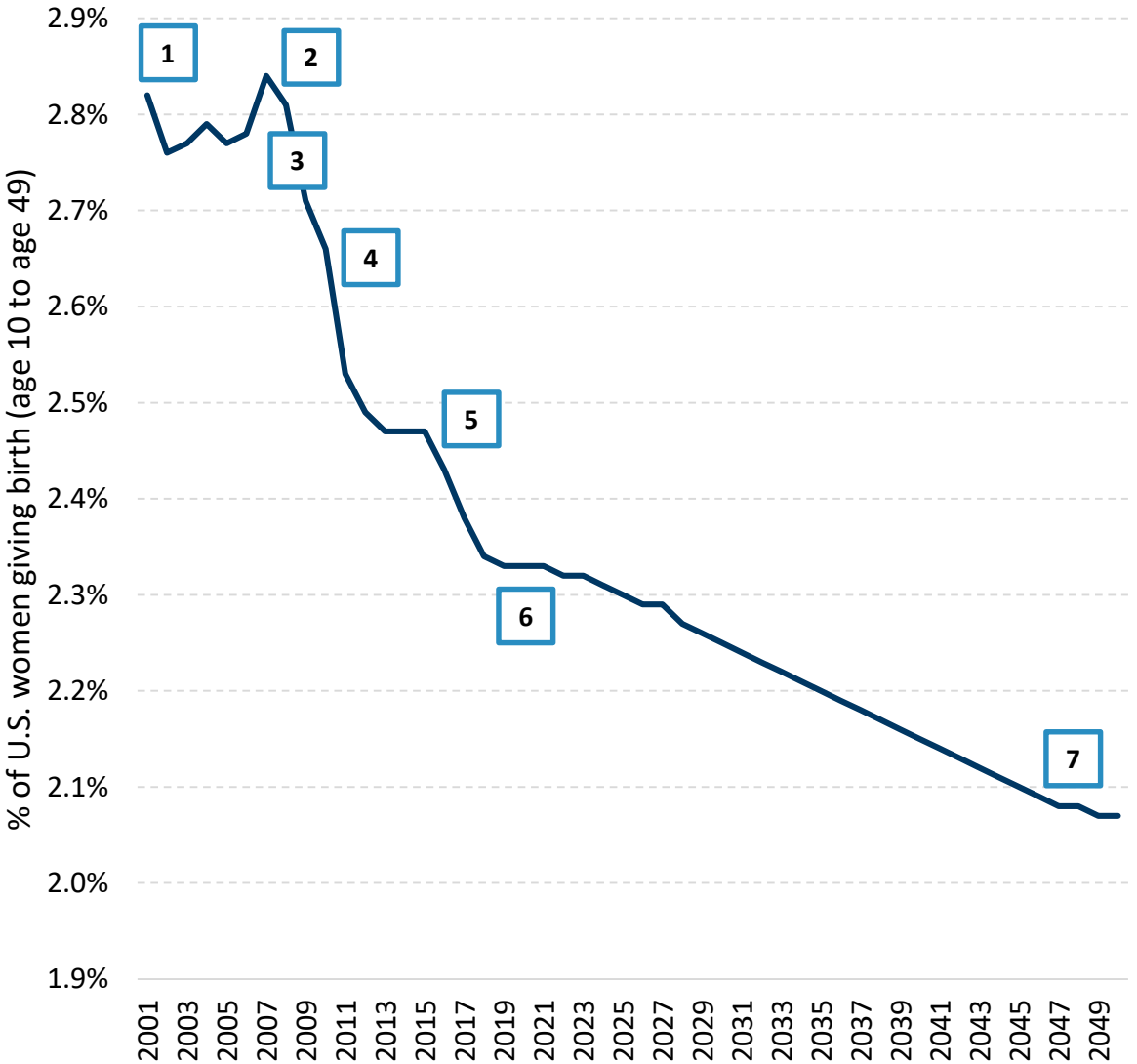
2 Long-term demographic effects

3 Methodology and approach

4 Economic and demographic impacts

Baseline birth rates projected to decline only slowly

"Sweet child in time, you'll see the line."



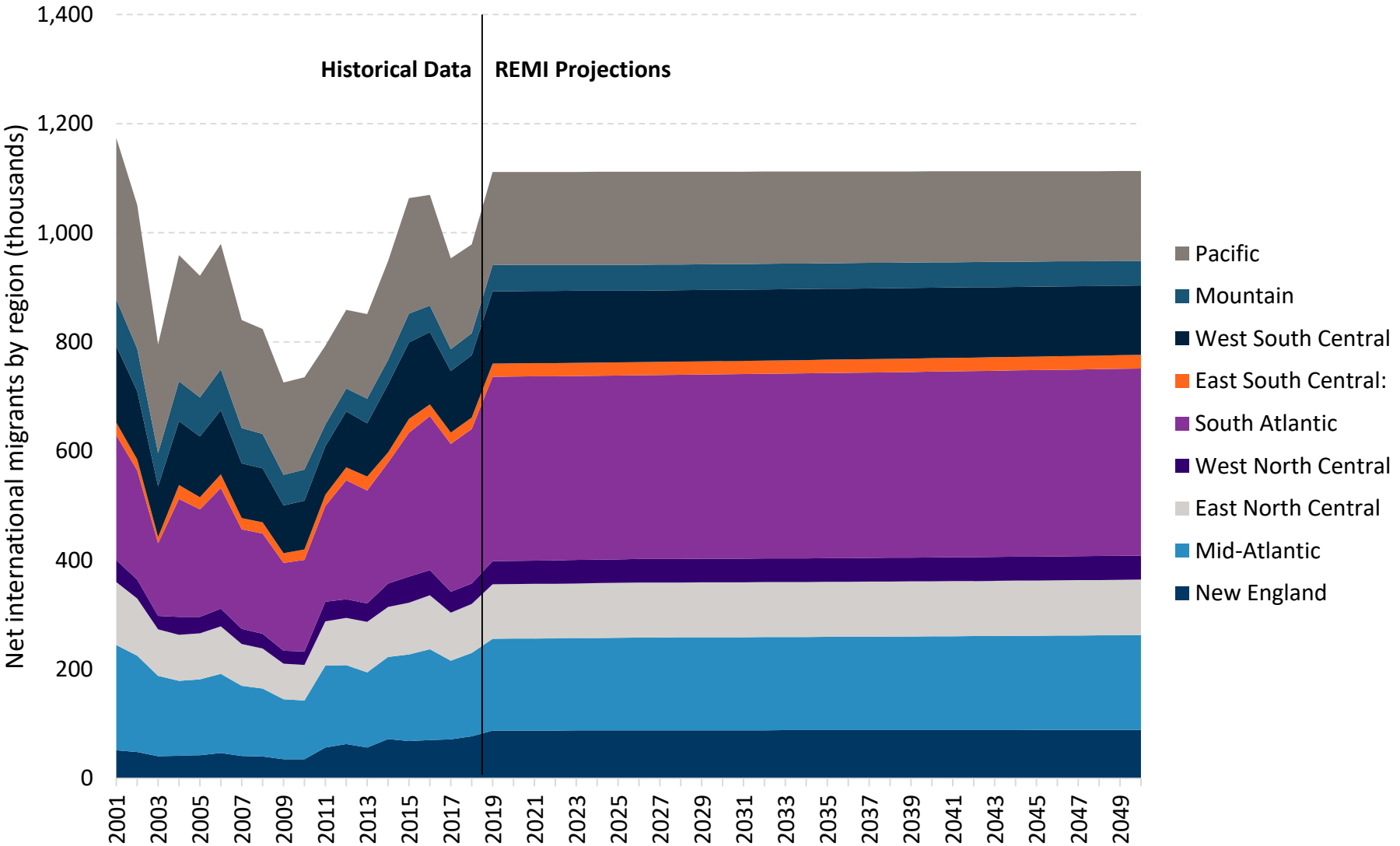
1. Slight drop in U.S. fertility rate associated with the "dot com" recession of the early 2000s
2. Peak prior to the Great Recession in 2007 at 2.84%
3. Roughly 2.75% would be the rate of population replacement
4. Rapid decline during the depths of the Great Recession
5. Continued rapid decline through the second half of the 2010s
6. No effect from the present recession and pandemic
7. Slow long-term decline in U.S. fertility rates projected

U.S. Census Regions

"No, it ain't, but you gotta know the territory."

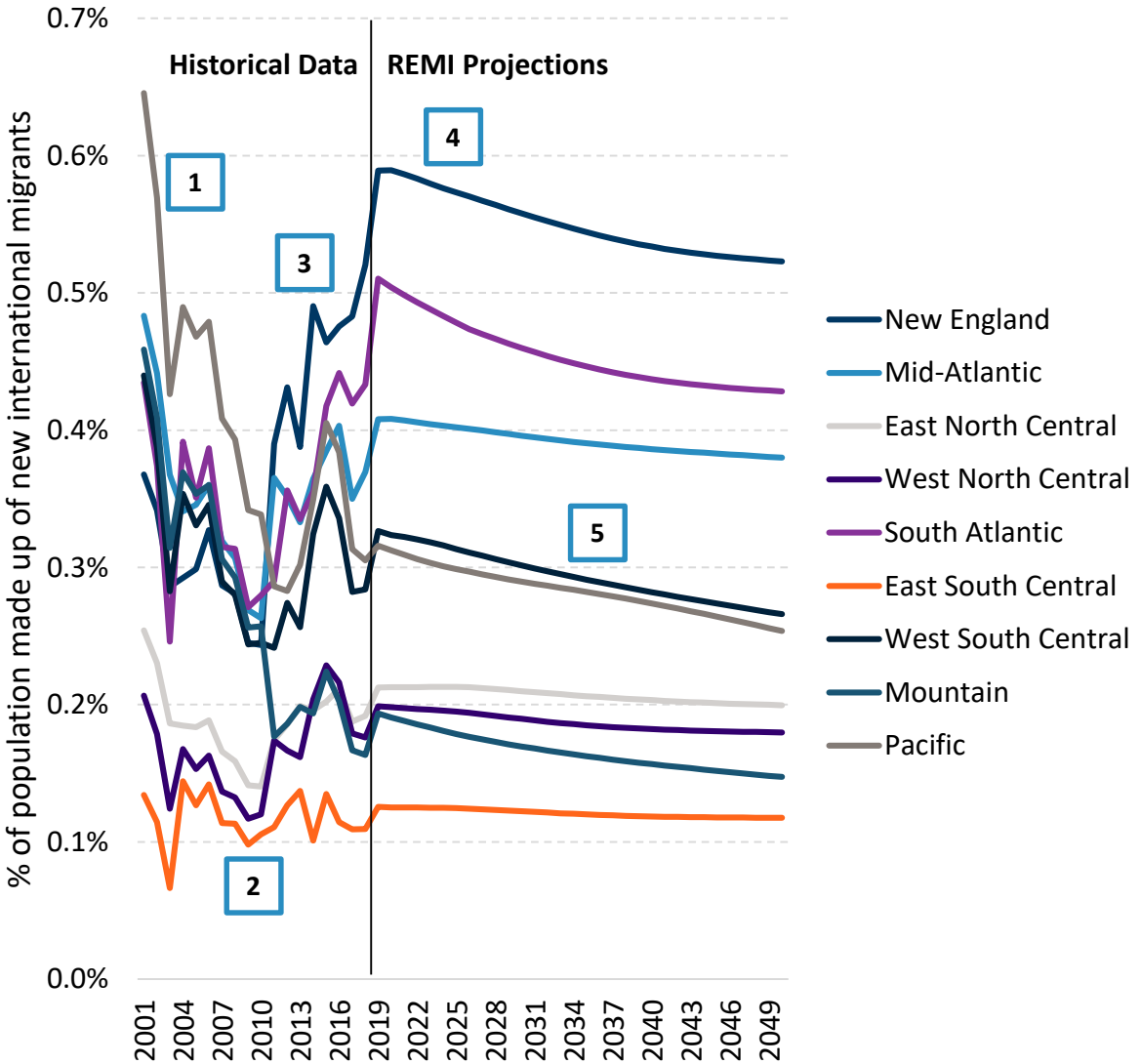
Projected international migration by U.S. Census region

"Our forefathers were kicked out of every decent country."



Some regions rely more on international migrants

"See your future. Be your future."



1. In the 2000s decade, the Pacific region (e.g., California) was the most dependent on migrants
2. The Midwest (ENC and WNC) along with the ESC (AL, KY, MS, and TN) were the least reliant in the historical data series
3. New England and the South Atlantic (stretching from MD south to Florida) take over the top spots in the late 2010s
4. These regions have the highest reliance in the forecast
5. West South Central (e.g., Texas) and the Pacific region are now projected in the middle, and the lowest regions are unchanged

Methodology and approach

1 Long-term economic effects

2 Long-term demographic effects

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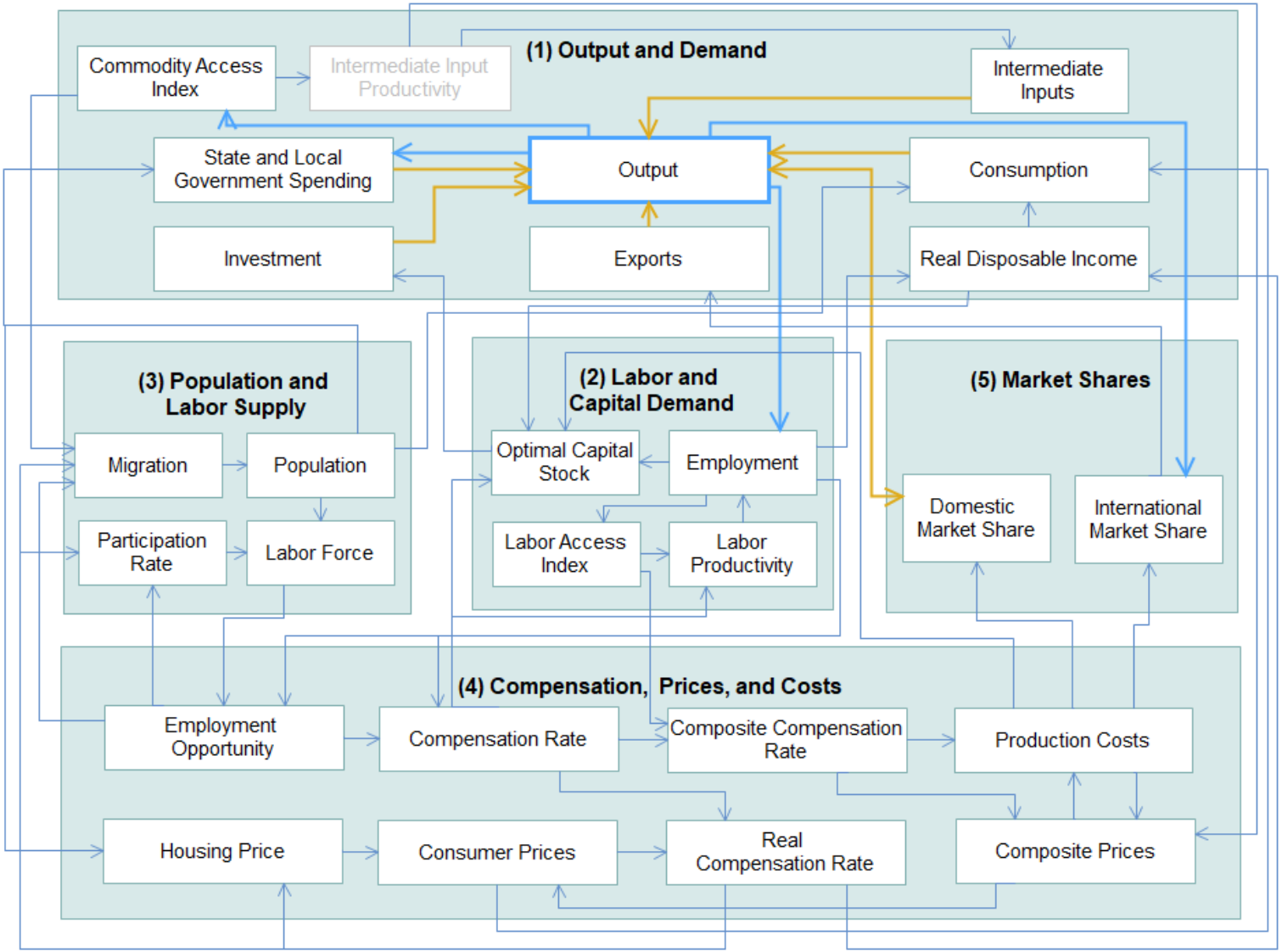
REMI model structure

"Theory is judged by its predictive power."



REMI model inputs

"I think I'm turning Japanese, I really think so."

International Trade

- Foreign export costs and foreign import costs increase by 10%
- Only applies to goods – e.g., manufacturing – but not to services
- Roughly symbolic of a partial return to the more protectionist, autarkic world of the 1920s with Fordney-McCumber, though not as extreme as Hawley-Smoot in the 1930s

Fertility Rates

- Normally, a slow economy can depress the fertility rate, but it recovers
- The fertility rate for women of child-bearing age declined from 2.8% to 2.3% in the aftermath of the Great Recession – it never "recovered" after that economic upset
- Assume another permanent impact to the fertility rate (20%) because of COVID-19 and the economic, social, and political disruptions that are coming along with it

International Migration

- Assume the long-term reduction in international migration of 20% compared to baseline
- Roughly the size of the effect during the Great Recession carried forward
- There was some recovery in the rate of international migration after the Great Recession, though the REMI project is for a return to the historic highs of the 1990s

Potential model inputs not included in this simulation

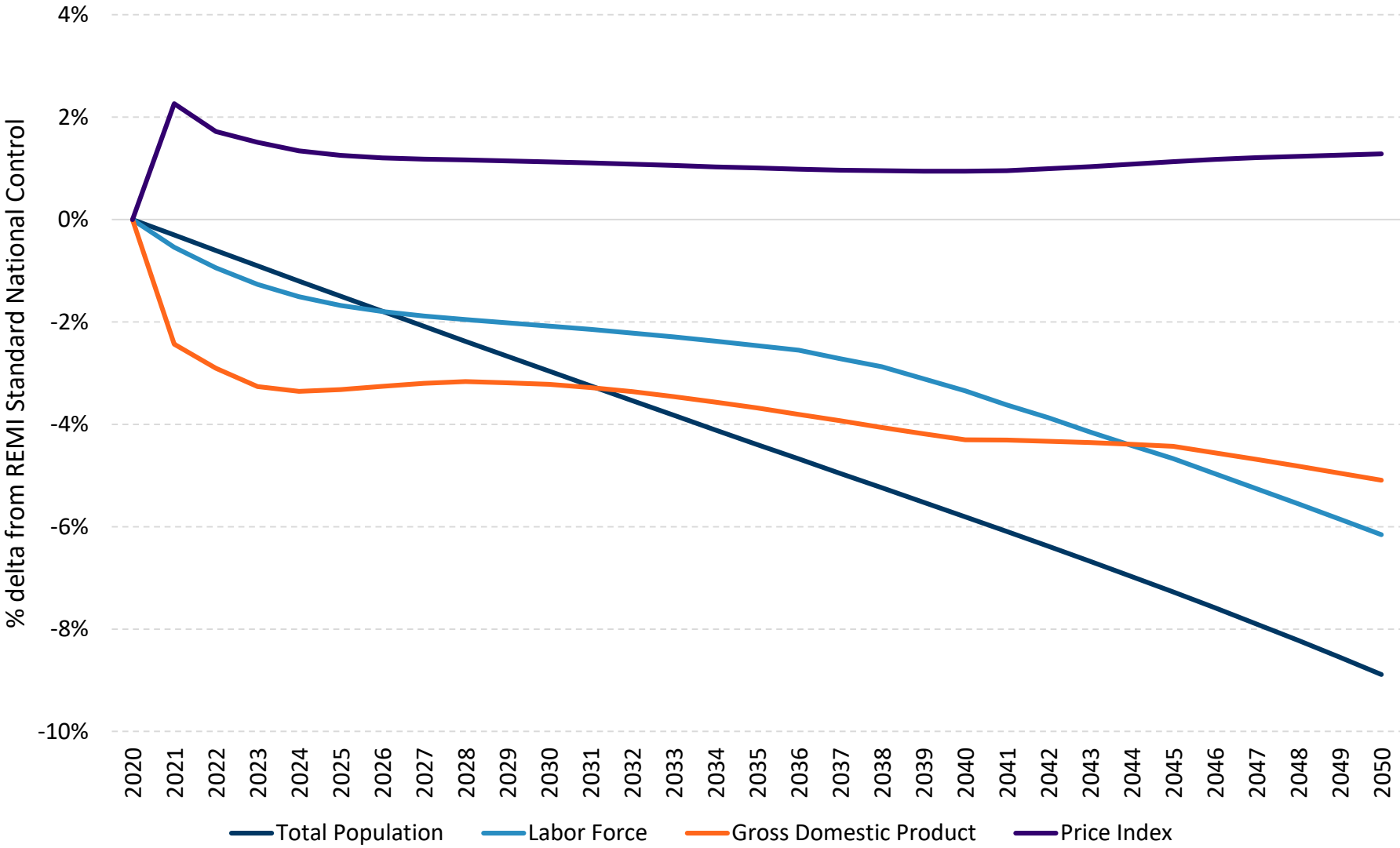
"We also know there are known unknowns."

- Fears of pandemic could reduced urbanization in the U.S., reducing the productivity benefits of agglomeration (alternatively, more widespread telecommuting and allowing firms to access talent from a wider pool nationally could offset this effect)
- Low interest rates and exhausted federal resources is the justification for using the Keynesian closure in the simulation, but this analysis does not model any specific pullbacks with federal fiscal policy (e.g., defense cuts or entitlement reform) or problems provoked by a debt crisis (e.g., higher capital costs from higher interest rates/inflation)
- The simulation does not try to account for the fiscal pressures on states and localities, which are beset by declining revenues due to decreased economic activities, higher costs to deal with COVID-19, and difficult imbalances in their pension systems
- Did not attempt to model the medium-term or long-term effects of COVID-19 on special or particularly exposed economic sectors, such as commercial air travel, foodservice, hotels and accommodations, and the "live" arts, entertainment, and media sectors
- Did not attempt to integrate the deaths from COVID-19, which peak in the "85 years and over" cohort according to the CDC, into the analysis or results

Economic and demographic impacts

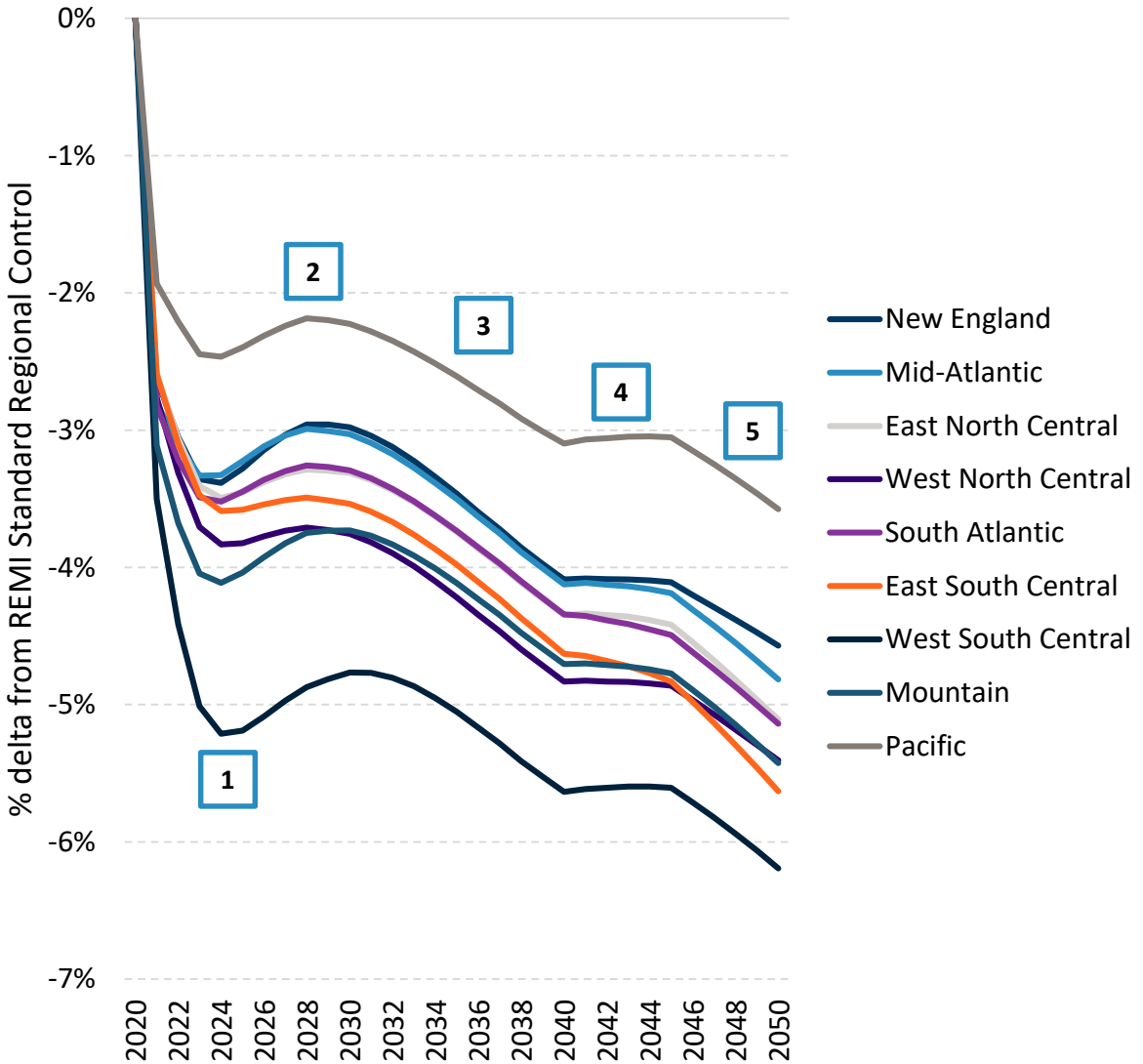
Economic and demographic summary

"He's King Midas with a curse, he's King Midas in reverse."



Regional impacts to GDP vary slightly over time

"You just stare, you're such a cold fish."



1. A region's relative exposure to exporting goods (not services) is the determining factor for the regional results, and the West South Central region would have the highest risks here

2. The Pacific Region, which includes California, would have the lowest risk because more of its exports are in the service sector

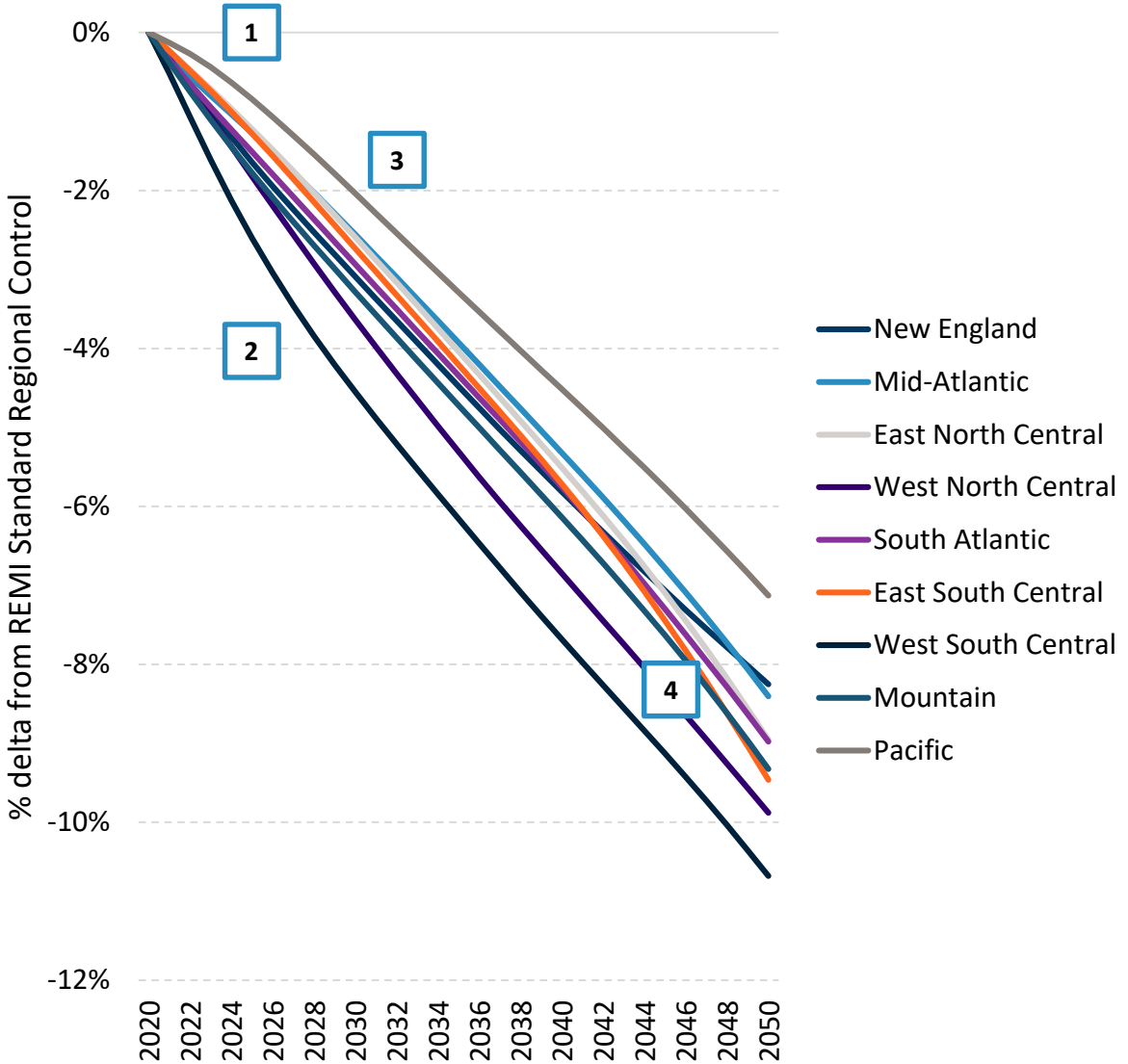
3. Gradual decrease in all regions

4. "Pause" in the long-term impact because of the trade shock would be fully absorbed and before the reduced birth rate "hits" the labor market in the 2040s

5. The reduced birth rate would finally being to affect the labor market in the 2040s

Regional impacts to demographics also vary slightly

"Children growing up, old friends growing older."



1. Shock to immigration rates would affect all regions immediately

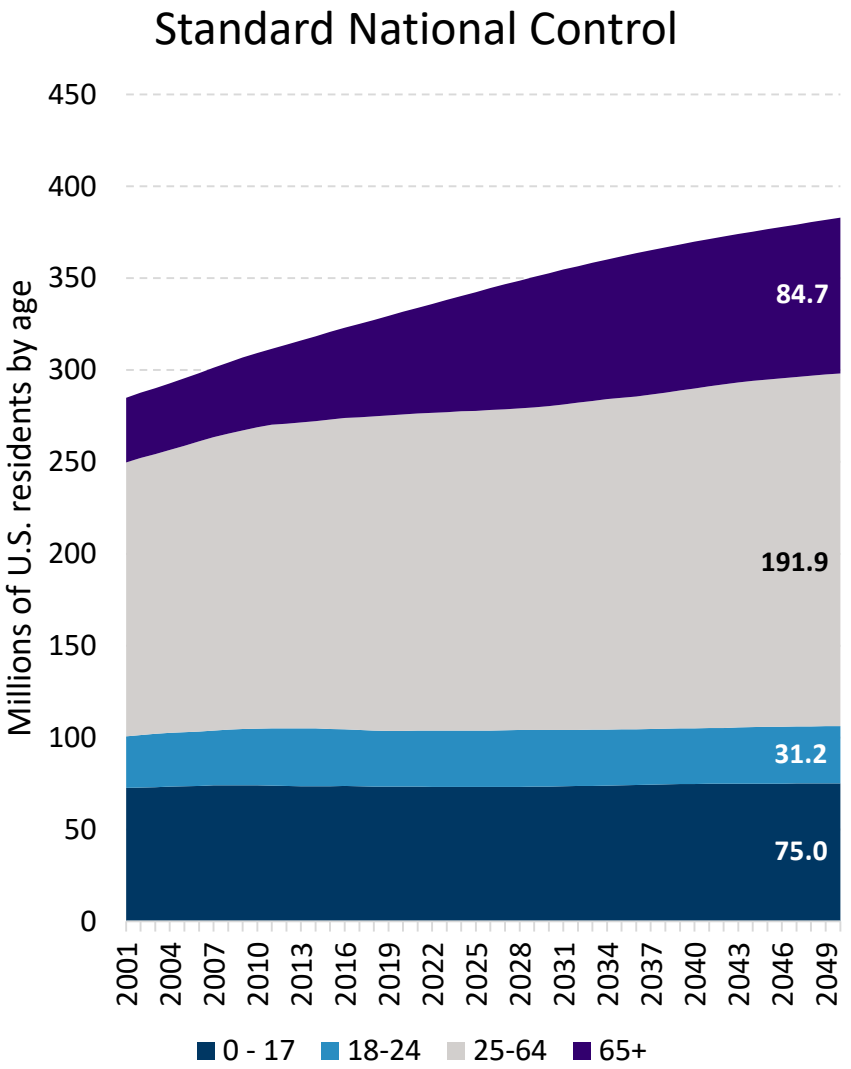
2. New England would have the largest impact to its population because it relies the most on immigrants for replenishment

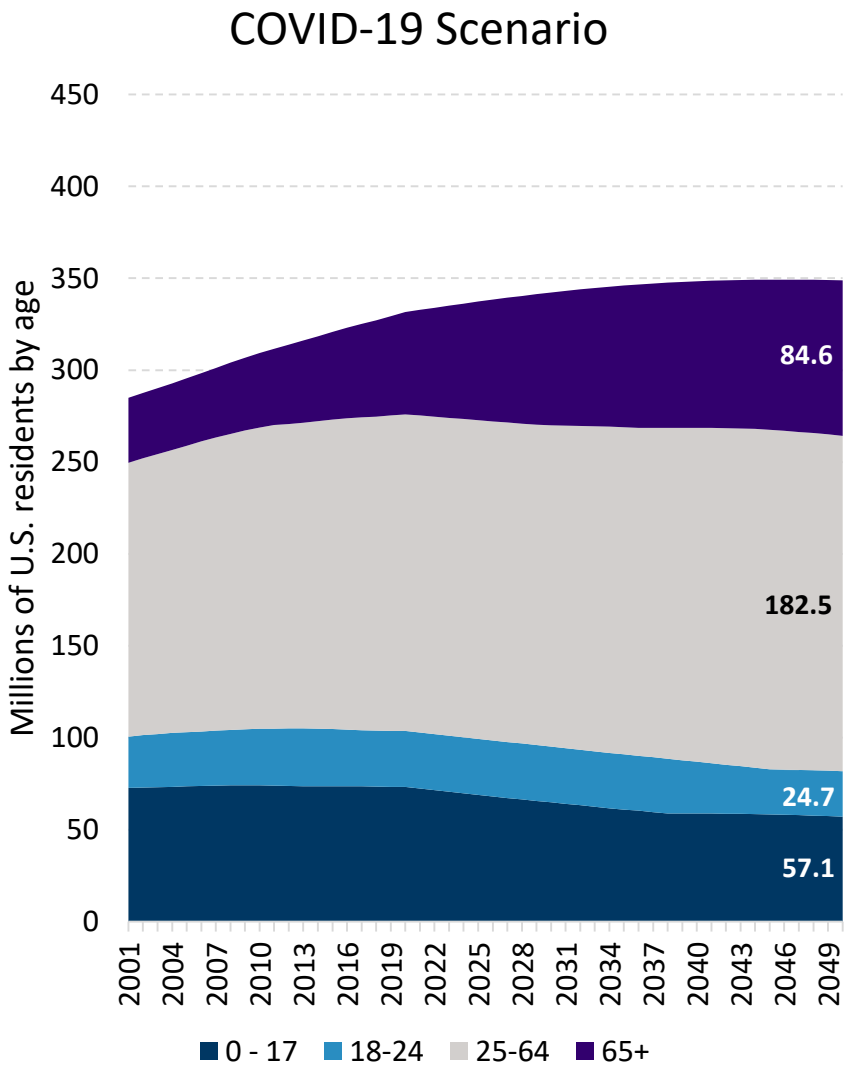
3. The Pacific region would have the smallest impact to its population

4. By 2050, the regions that rely the most on native births to replace their population in the Midwest and the East South Central would start to "bend" downwards relative to the states that rely more on international migrants

Four-major age cohorts in the two simulations

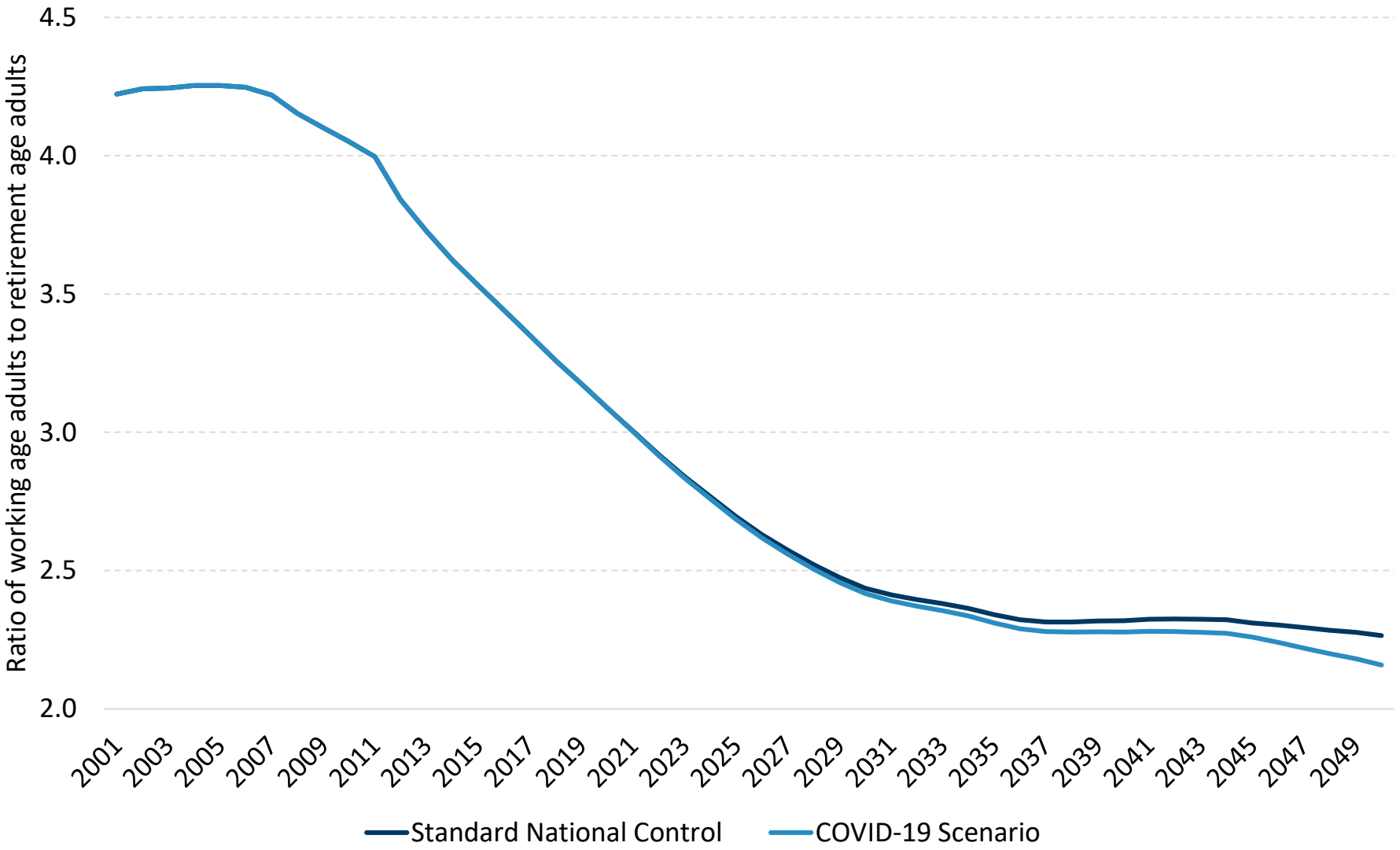
"Wondering how much I can take, should have tried to do some more."





of adults (26-64) to support each retiree (65+)

"I'm waiting for my royalty check to come, and it still hasn't come yet."



Main takeaways

"We are all interested in the future for that is where we are going to spend the rest of our lives."

Economic

- Countries are likely to be less welcoming to international trade and the free flow of capital as they were from 1990 to 2019
- Security of medical supply chains added to previous concerns about security of defense, food, and infrastructure supply chains
- Smaller economy and higher cost-of-living in the U.S.

Demographic

- U.S. birth rates experienced a sharp decline below the rate of replacement during the Great Recession – and never came back
- A similar drop (modeled here) would lead to a birth rate similar to Japan, and Japan is likely the best case study of these results
- Immigration rates are also unlikely to repeat past highs

Fiscal

- The federal government, states, localities, and institutions (e.g., pension funds) faced stark difficulties even before COVID-19
- The virus and economic crisis have exacerbated this situation
- Reduced immigration and population growth implies a smaller tax base and worsening ratio of workers to retirees to support

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