



# Assessing the economic impact of coronavirus in NIGEM

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# Outline

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- What is NiGEM
- Economic impact from Covid19, so far
- What do we and do not know
- Channels of impact and modelling approach
- Some illustrative examples
- Summary



# NiGEM dynamic properties

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- NiGEM is a large model of the world economy
- In the long term, GDP is determined by potential output reflecting factor inputs.
- In the short to medium term, GDP is driven mainly by the demand side.
- Deviations of actual output from potential output set in motion adjustment processes that bring the economy back to potential in the long run.
- Further details are in:

**Hantzsche, A., Lopresto, M., and Young, G. (2018), 'Using NiGEM in Uncertain Times: Introduction and Overview of NiGEM', National Institute Economic Review, No 244, May 2018.**



# Global economy being hit by an ongoing health shock

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What do we know about economic effects

- Equity markets down
  - CDS and corporate bond spreads up
  - Oil price down
  - PMIs down to record lows
  - Unemployment is up
  - Impact on GDP from the first quarter national accounts releases
  - Monetary policy stimulus
  - Fiscal support measures in many countries
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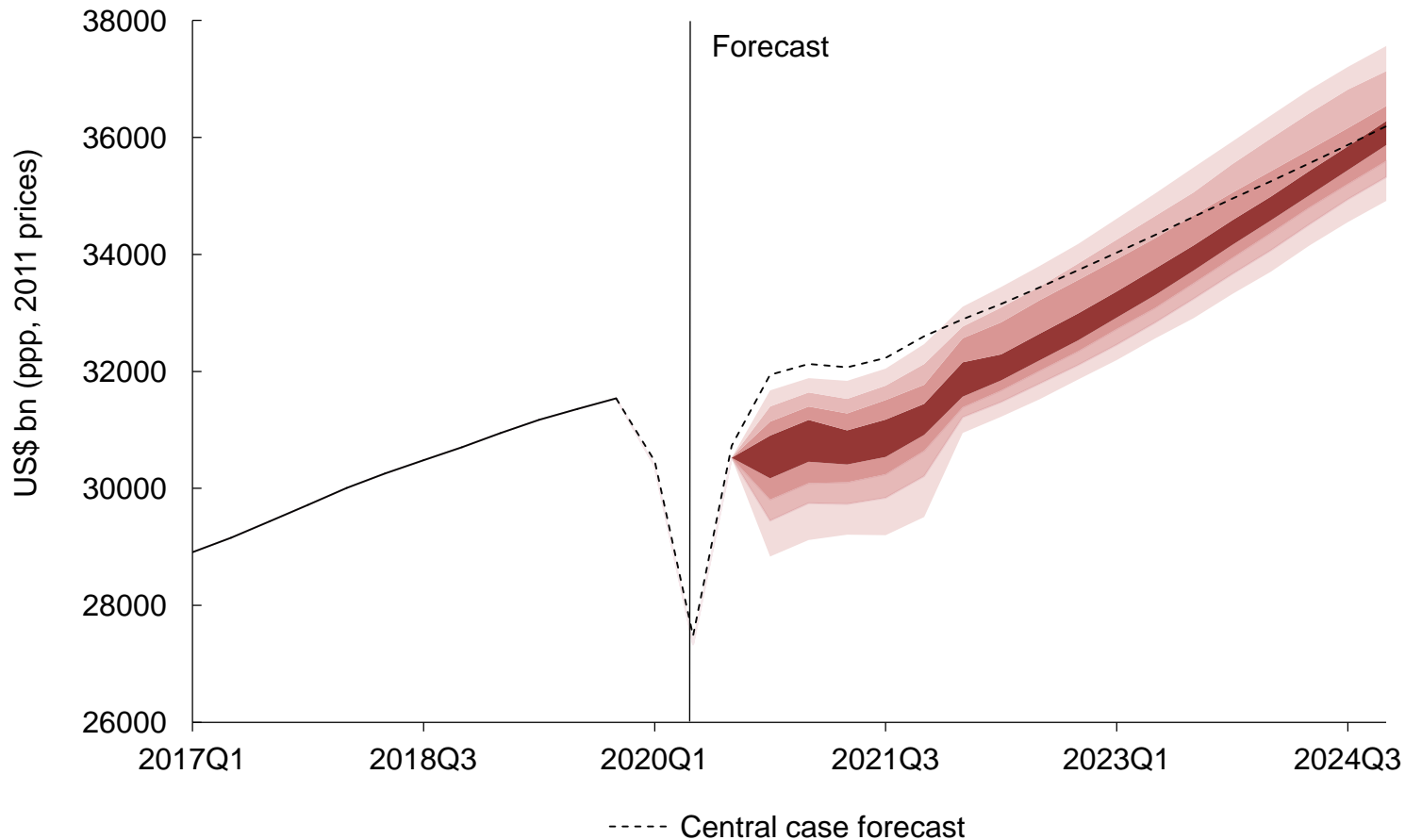
# Massive uncertainty remains about economic effects

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- Don't know the course of the virus
- Don't know how long lock-downs will last
- Don't know how long governments will provide support
- Don't know whether businesses will survive
- Don't know whether job matches will last



# Global GDP projection and estimation of uncertainty if the pandemic recurs in 2021Q1



Source: NiGEM database, NIESR forecast, and NiGEM stochastic simulations



## Hence, focus on channels of impact

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1. Lower productivity and employment as people become ill [supply shock]
2. Lower desired consumer spending and investment [demand shock]
3. Lower confidence and risk appetite affect asset prices and corporate bond yields [demand shock]
4. Deliberate reduction in economic activity due to lockdowns [supply and demand shock]
5. Policy measures to mitigate effect of shock



# Specific modelling assumptions

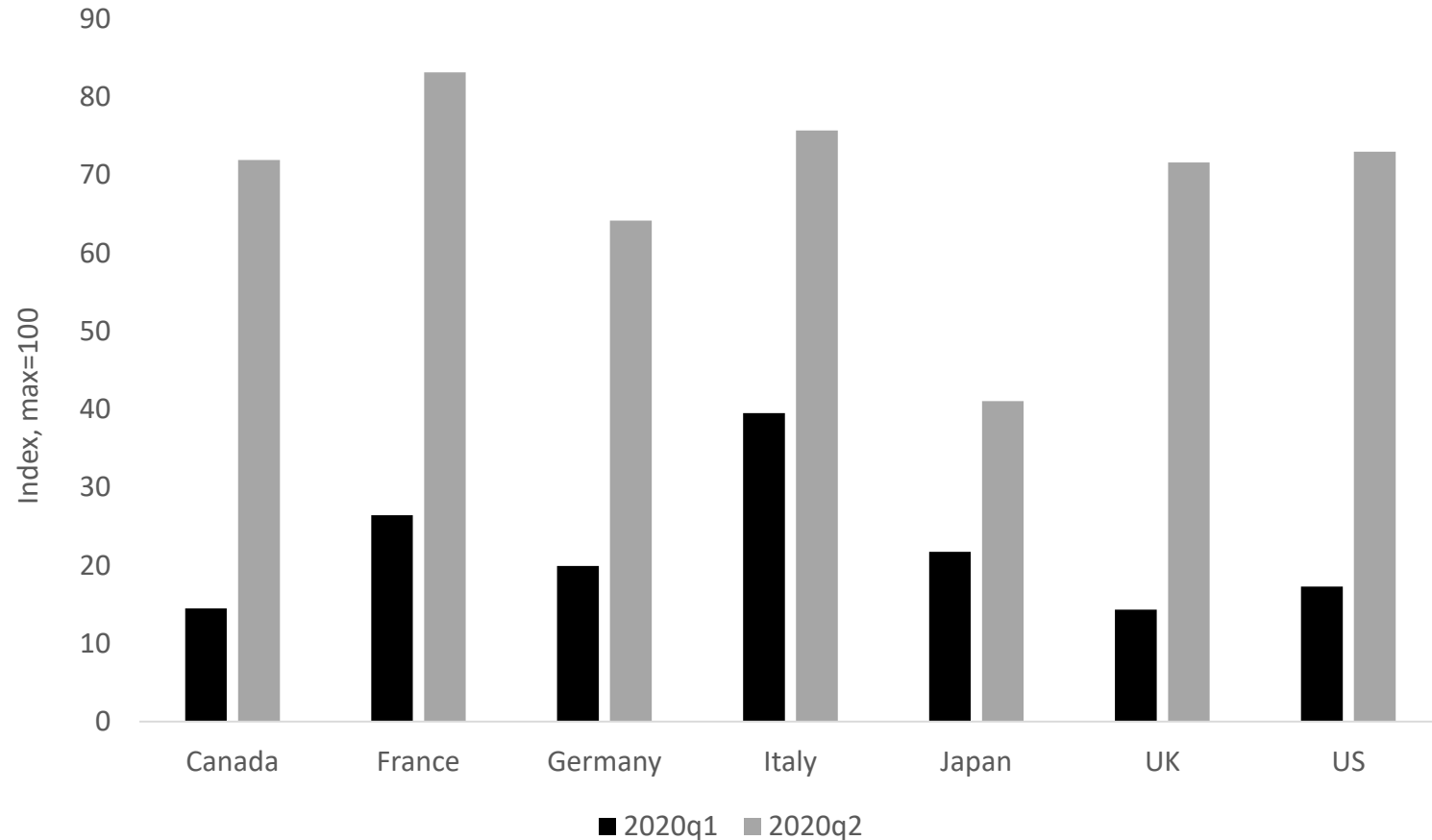
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1. Lockdown decreases desired consumer spending by 40% for one quarter (adjusted by stringency index) and then gradually returns to base.
2. Fall in employment in the second quarter, calibrated from Q1 data (adjustment factor - lockdown days in the first and second quarter)
3. Investment premium raised by 500bps for one quarter and then gradually returns to base.
4. Monetary policy responds according to GDP and inflation effects.
5. Mitigating fiscal policy measures





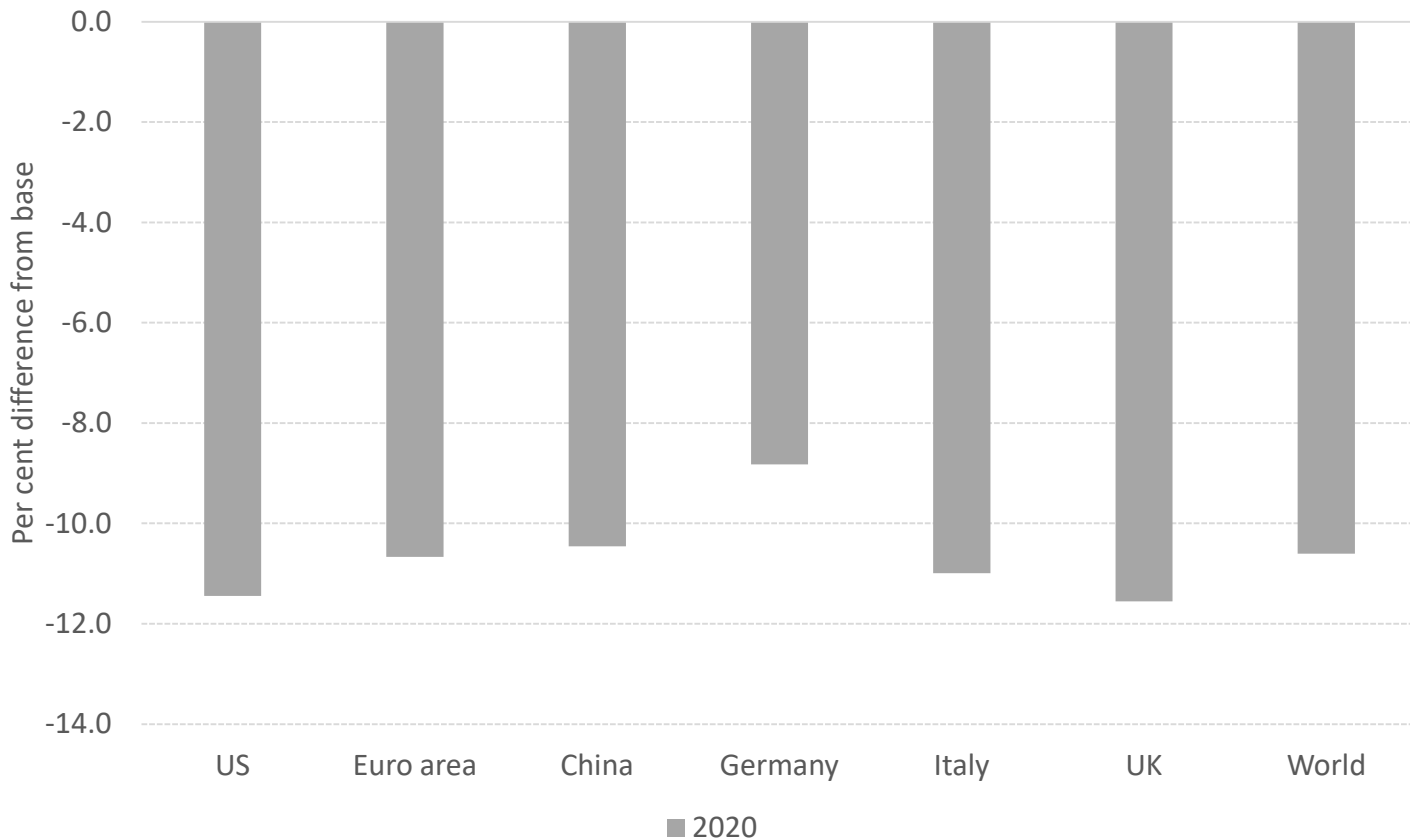
# Stringency index



Source: Blavatnik School of Government, University of Oxford, Radcliffe Observatory Quarter



# Impact on GDP (% difference from baseline)



Source: NIGEM simulations, July update, preliminary



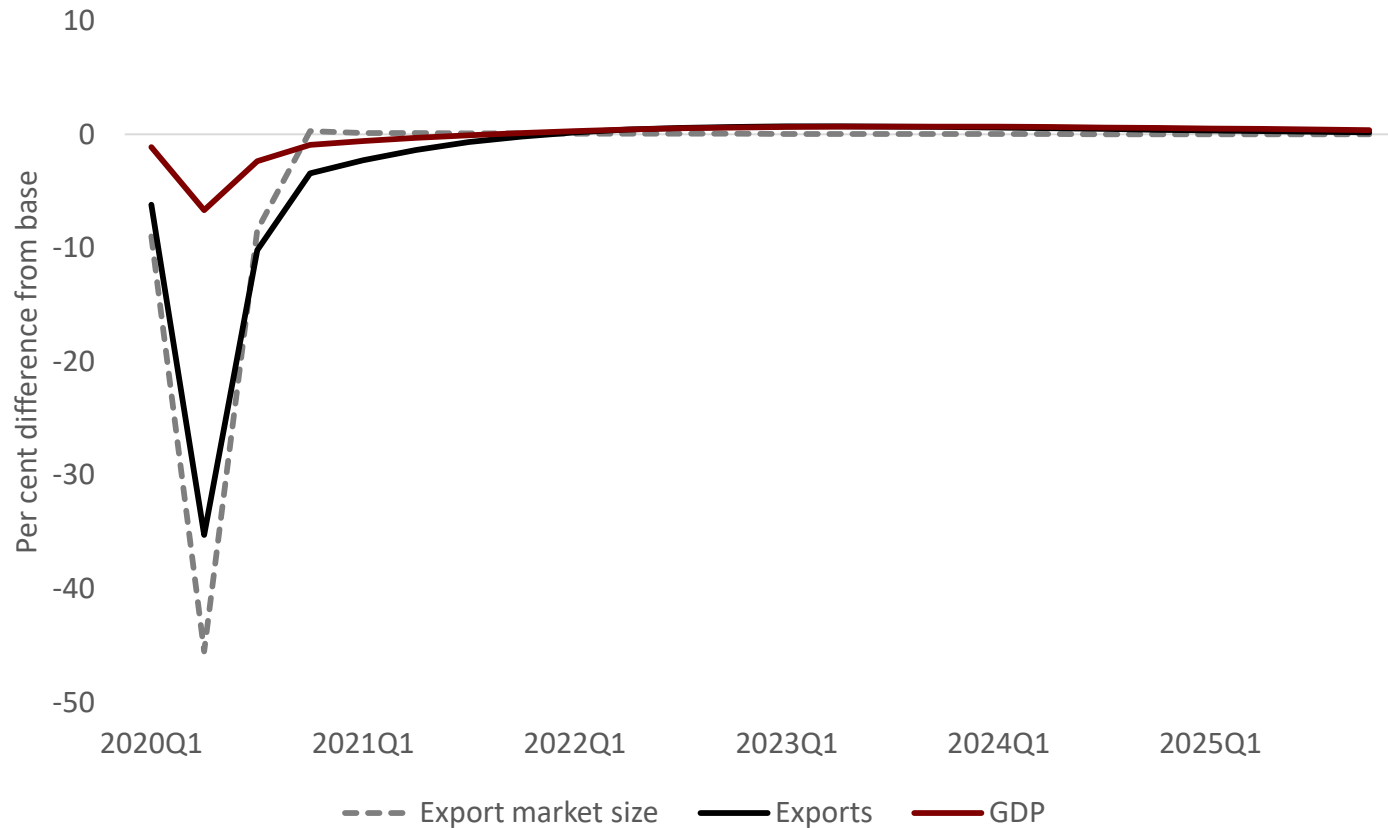
# Global spillovers trade channels

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- At the global level, spillovers amplify the magnitude of domestic shocks by roughly 60 per cent.
- In other words, if all countries around the world suffered a 1 per cent domestic shock, the global economy would be expected to contract by 1.6 per cent after accounting for spillovers
- Helps to answer policy questions: for example - how much is UK activity being depressed by the lack of global demand



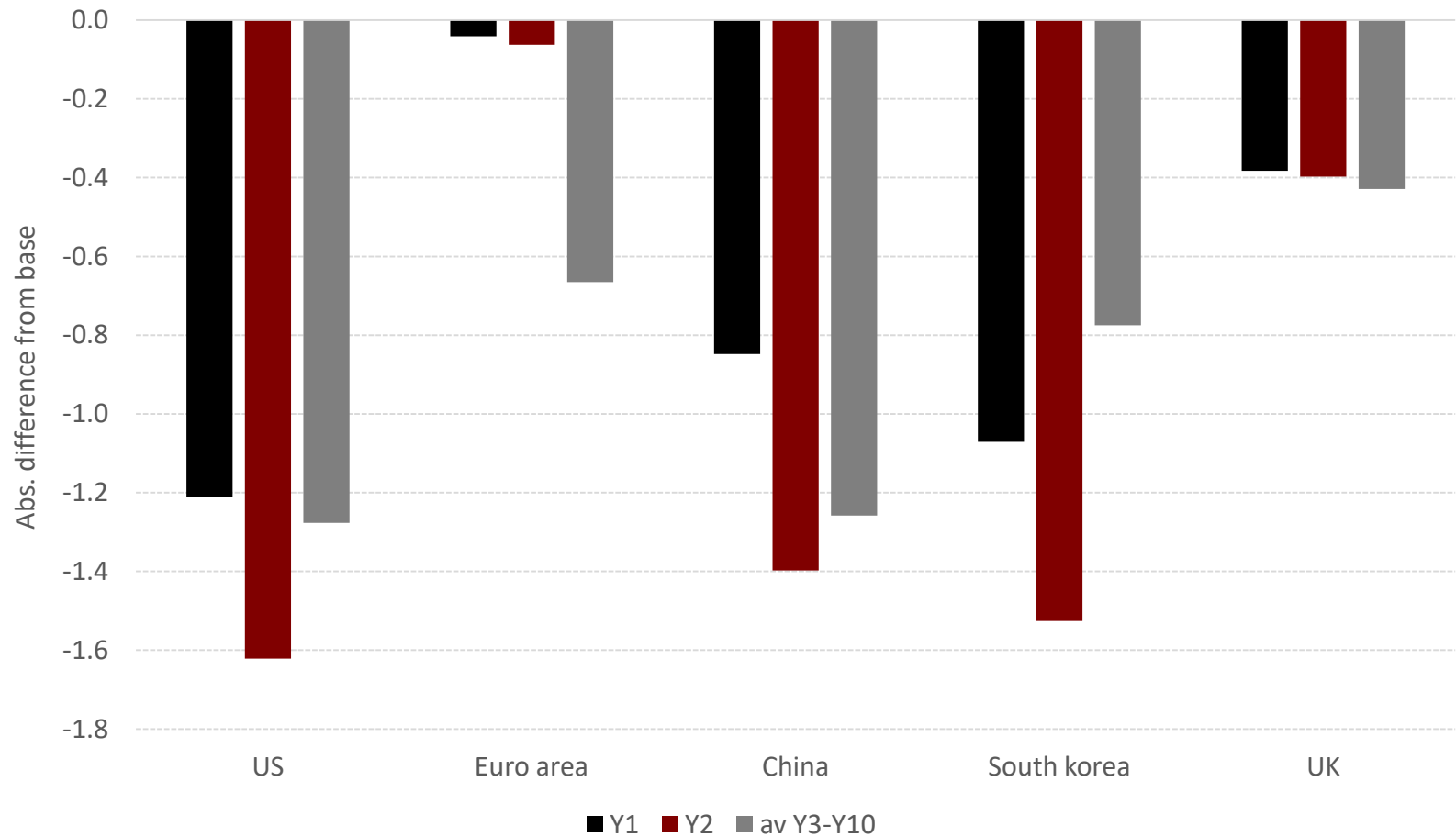
# Impact amplification through trade channels



Source: NiGEM simulation



# Interest rate response (difference from baseline)

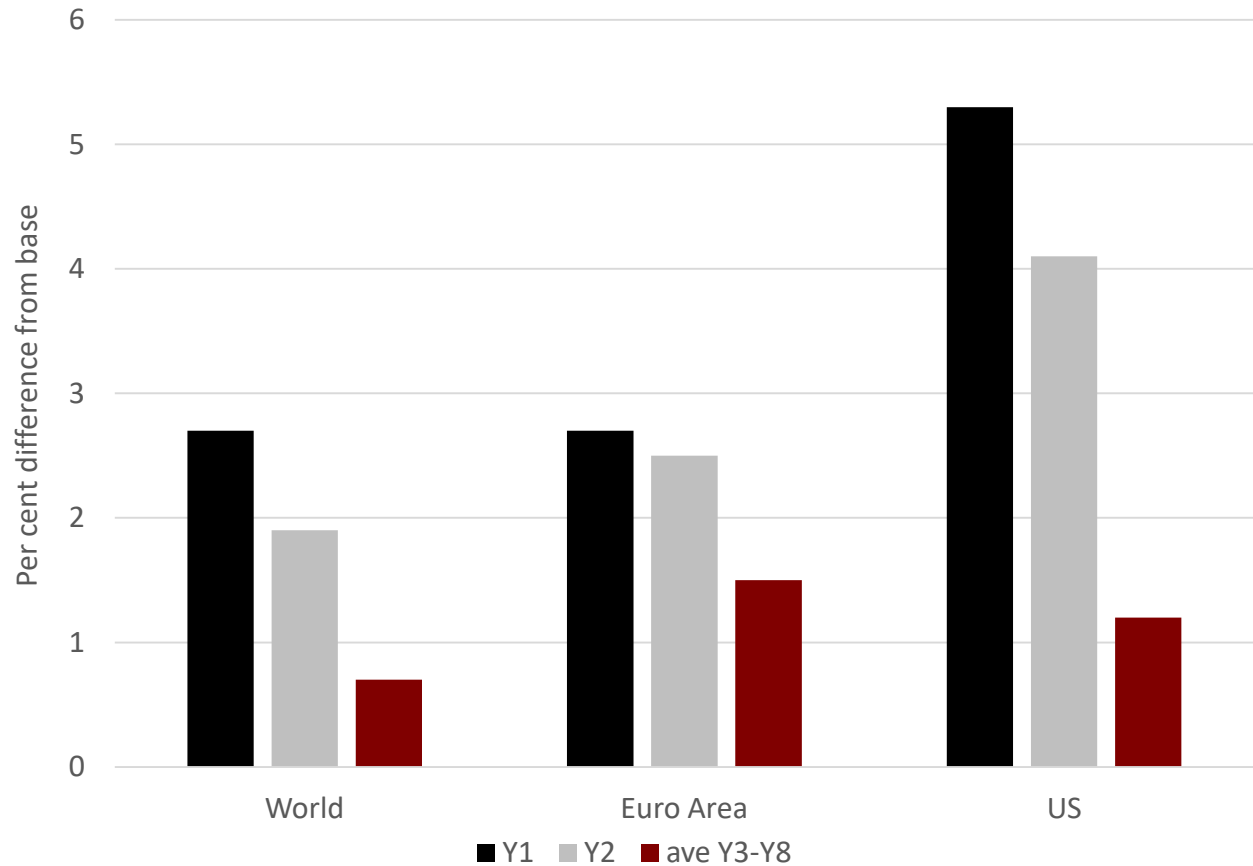


Source: NIGEM simulations, July update, preliminary



# Fiscal policy response (% difference from baseline)

**Key results:**  
Roughly 2.6% of the global loss of GDP is offset in 2020 by the policy stimulus measures that have been introduced to 2nd of April



Source: NIGEM simulations



# Summary

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1. Models are useful tools that help us focus on different channels of shock transmission in the economy
2. Allow us to evaluate impact from different policy instruments
  - Separately for each country
  - As a coordinated action
3. Next steps can involve assessing role of hysteresis effects and exit strategy

