THE ECONOMIC AND ENVIRONMENTAL IMPACTS OF THE COVID-19 CRISIS

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Introduction

- COVID-19
- Energy prices
  - *Macro economic impacts*
  - *Impacts across sectors*
  - *Impacts across households*
  - *Impacts on emissions*
  - *Impacts of the initial government stimulus*
- High level of uncertainty

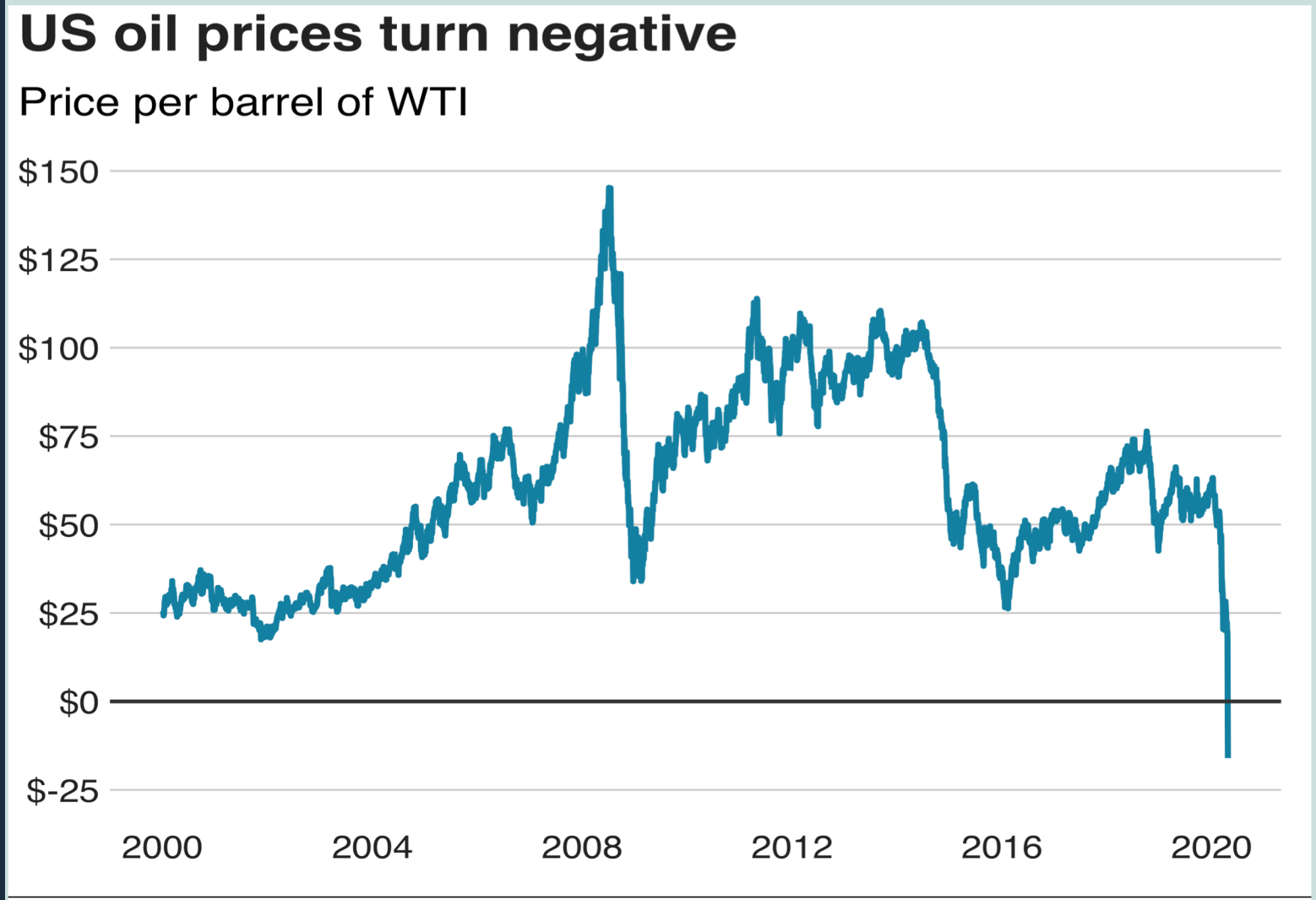
Methodology: I3E model

- https://www.esri.ie/current-research/the-i3e-model
- Computable General Equilibrium model
- Features
  - *Detailed representation of production sectors (32 sectors)*
  - *Detailed representation of consumption goods and services (39 commodities)*
  - *Inclusion of explicit carbon commodities*
  - *Emissions from combustion*
  - *Detailed modelling of government sector*
  - *Households specification with 10 representative household groups (5 urban, 5 rural)*
  - *3 labour types: low, medium and high skilled*

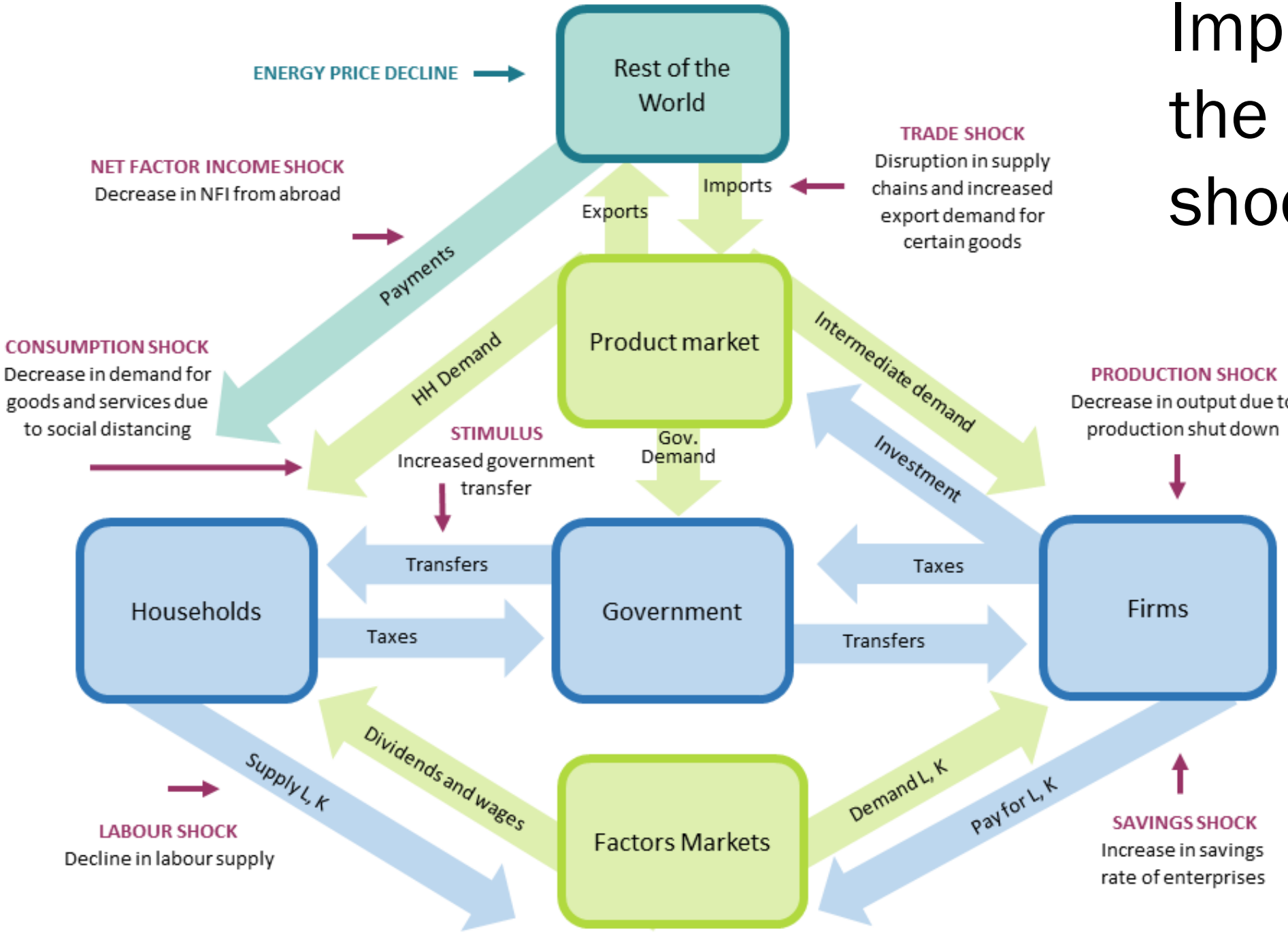
COVID-19 SHOCK

- Energy prices
- Production decreases in certain sectors due to lock down
- Consumption patterns change
- Restrictions on labour
- Trade impacts
- Net Factor Income shock
- Initial government stimulus

Energy prices



Implementing the COVID shock

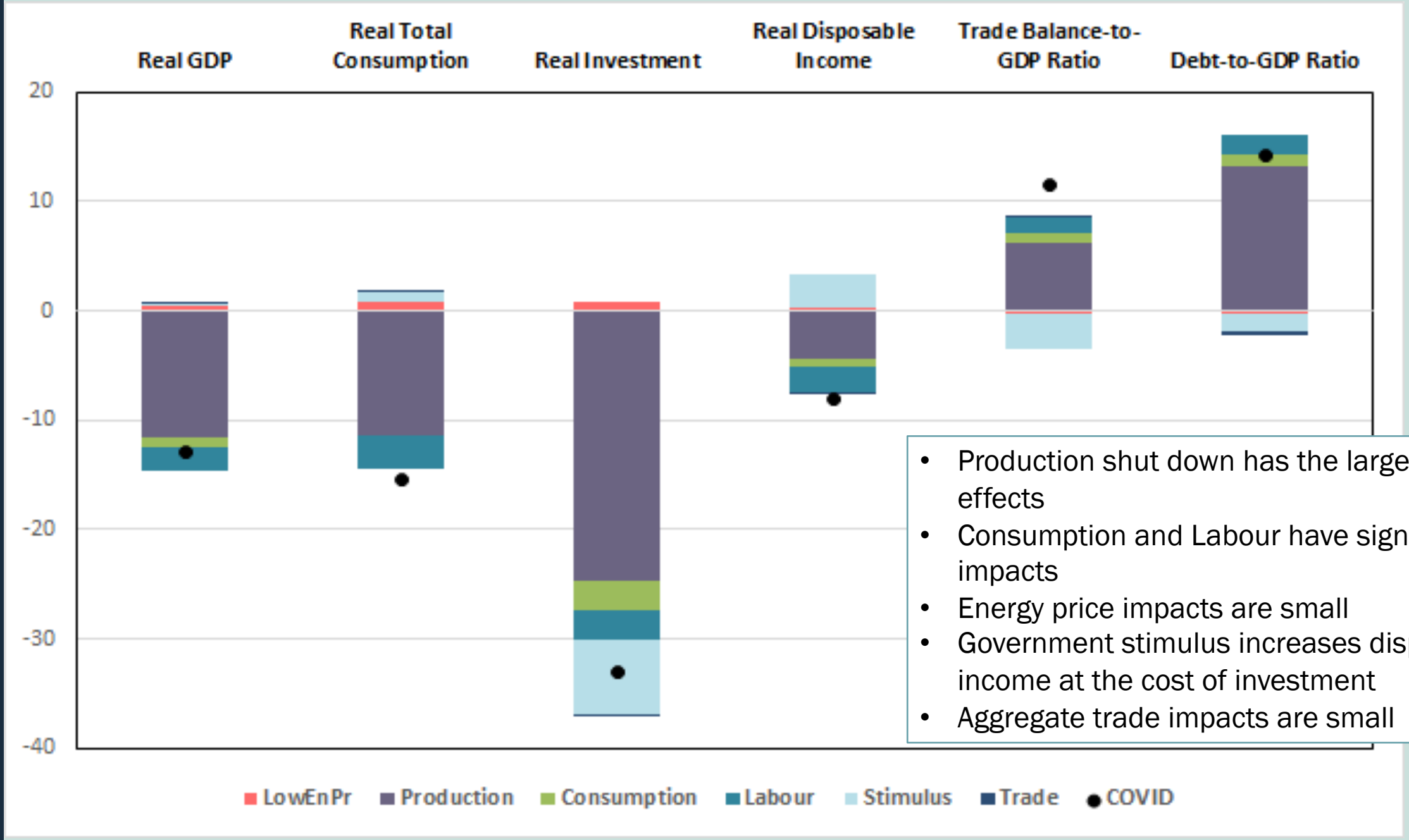


Macro impacts

- Strong impacts in 2020
- Decreased investments lead to long term impacts
- Government balance impacts are long lasting due to decreased tax revenues and increasing expenditures

% change compared to BaU	2020	2030
Real GDP	-13.0	-0.3
Private Consumption	-15.5	-1.0
Investment	-33.0	-0.1
Imports	-20.5	0.0
Exports	-16.4	-0.3
Trade Balance	5.3	1.4
Government Expenditures	10.5	-0.5
General Government Balance	-12.4	-6.6
Debt Stock	14.2	8.1

% change compared to BaU in 2020



- Production shut down has the largest effects
- Consumption and Labour have significant impacts
- Energy price impacts are small
- Government stimulus increases disposable income at the cost of investment
- Aggregate trade impacts are small

Impacts across sectors

% change compared to BaU

Sector	2020	2030
Accommodation and Hotel Services	**-23.6**	**-0.8**
Agriculture	5.3	0.1
Construction	**-19.9**	**-0.2**
Electricity Production	-3.6	-0.5
Financial services	-2.9	-0.2
Manufacturing	-3.9	0.0
Mining	-8.3	-0.5
Other Services	-5.9	-0.3
Public Services	4.7	-0.5
Trade	-9.2	-0.3
Transportation	**-24.5**	**-0.7**

Emissions Impacts

- Low energy prices put upward pressure on emissions
- Economic downturn puts downward pressure
- Both highly uncertain
- Sensitivity Analysis
  - *Extended low energy prices*
  - *Gradual COVID recovery*


55
50
45
40
35
30
Emissions in Mt of CO2
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
BaU
LowEnPr
ExtLowEnPr
COVID
COVID with ExtLowEnPr

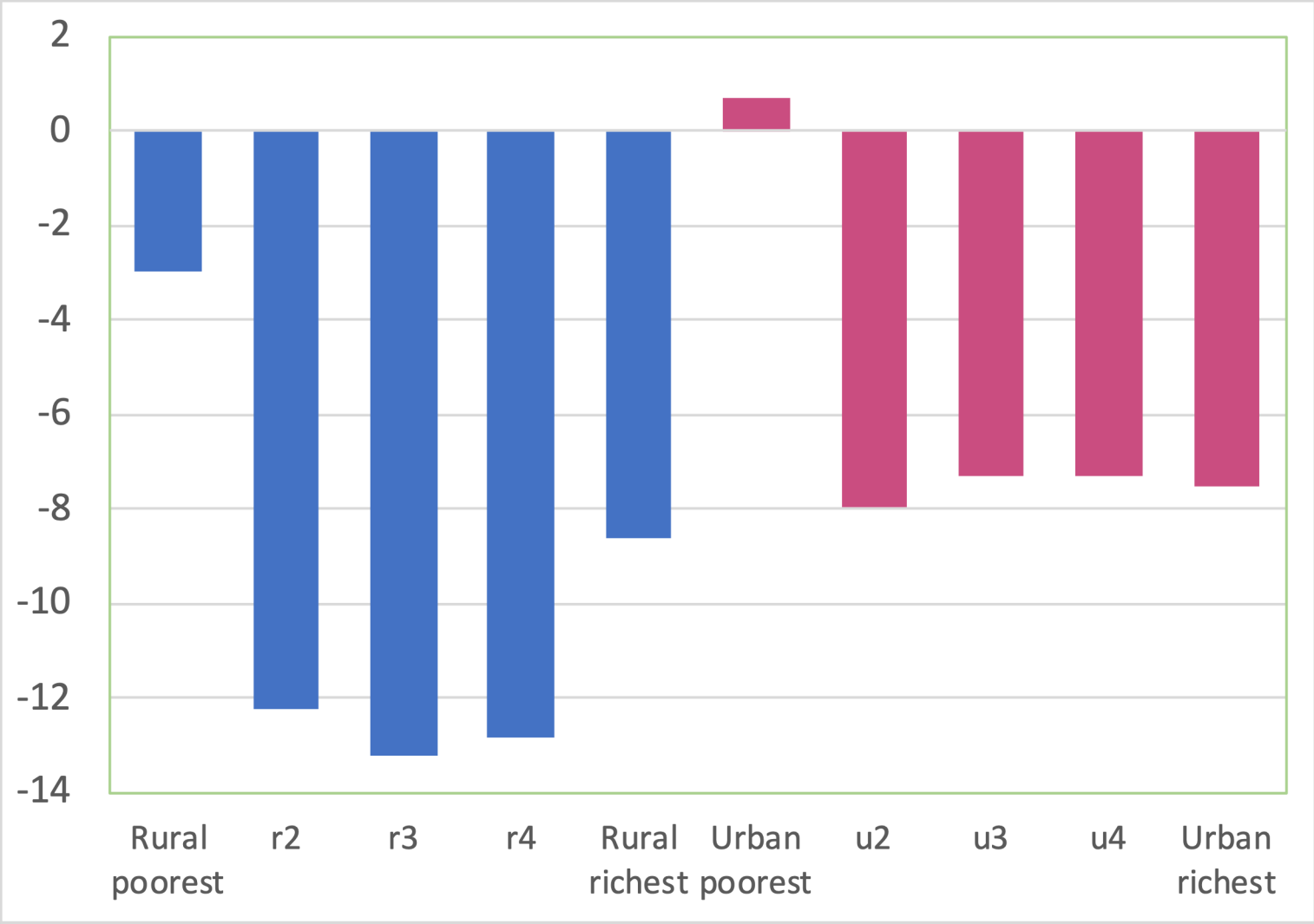

55
50
45
40
35
30
Emisions in Mt of CO2
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
BaU
COVID with Grad_Rec
COVID with ExtLowEnPr & Grad_Rec
COVID
COVID with ExtLowEnPr

Household impacts

- 10 Household groups
  - *5 rural based on income*
  - *5 urban based on income*
- Disposable income
  - *Net of tax wage income*
  - *Net of tax capital income*
  - *Welfare transfers from government*
  - *Pension income*

Household real disposable income

- % change compared to BaU in 2020

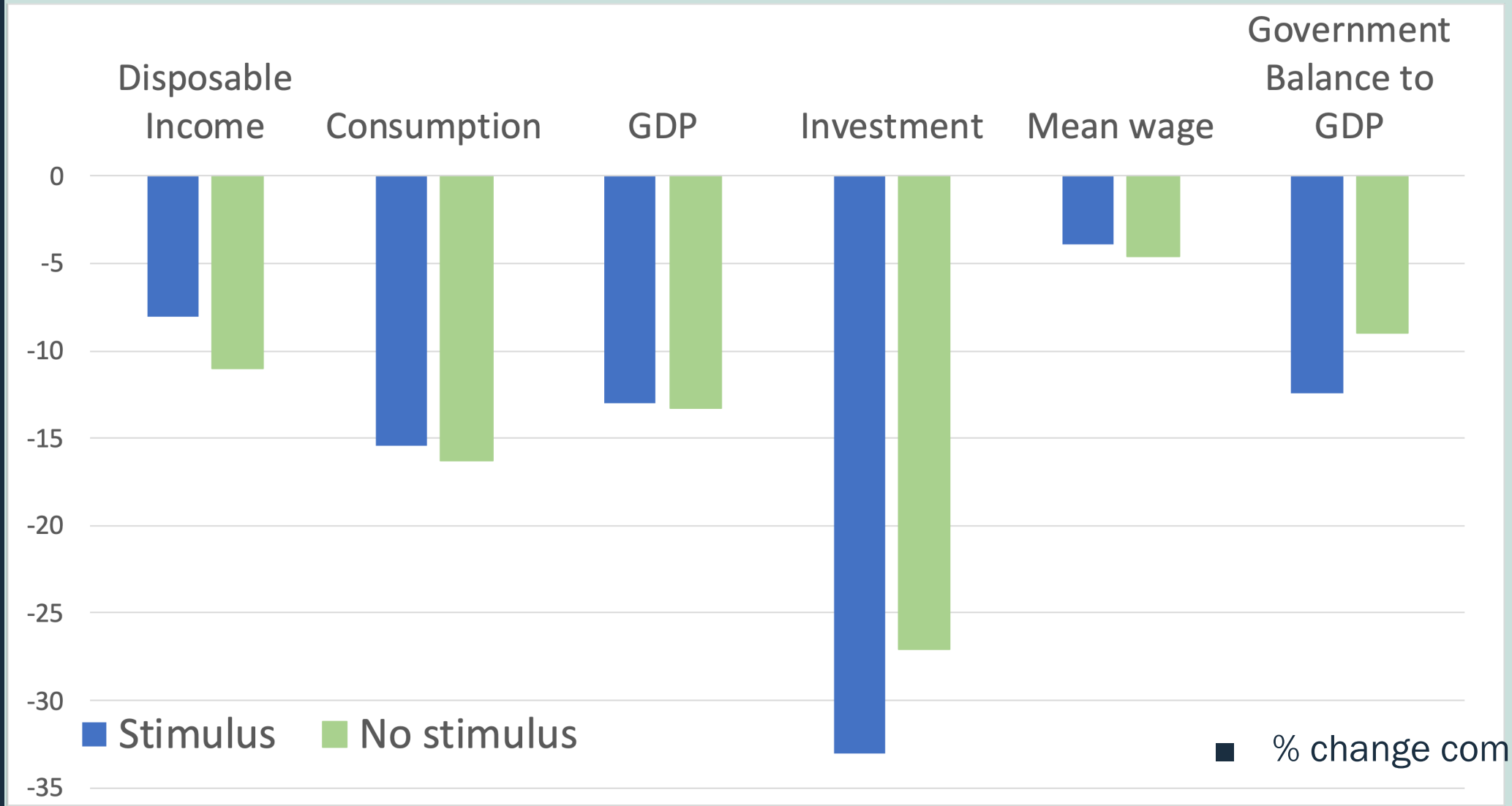


- Rural households are impacted more
- High skilled labour impacted the least

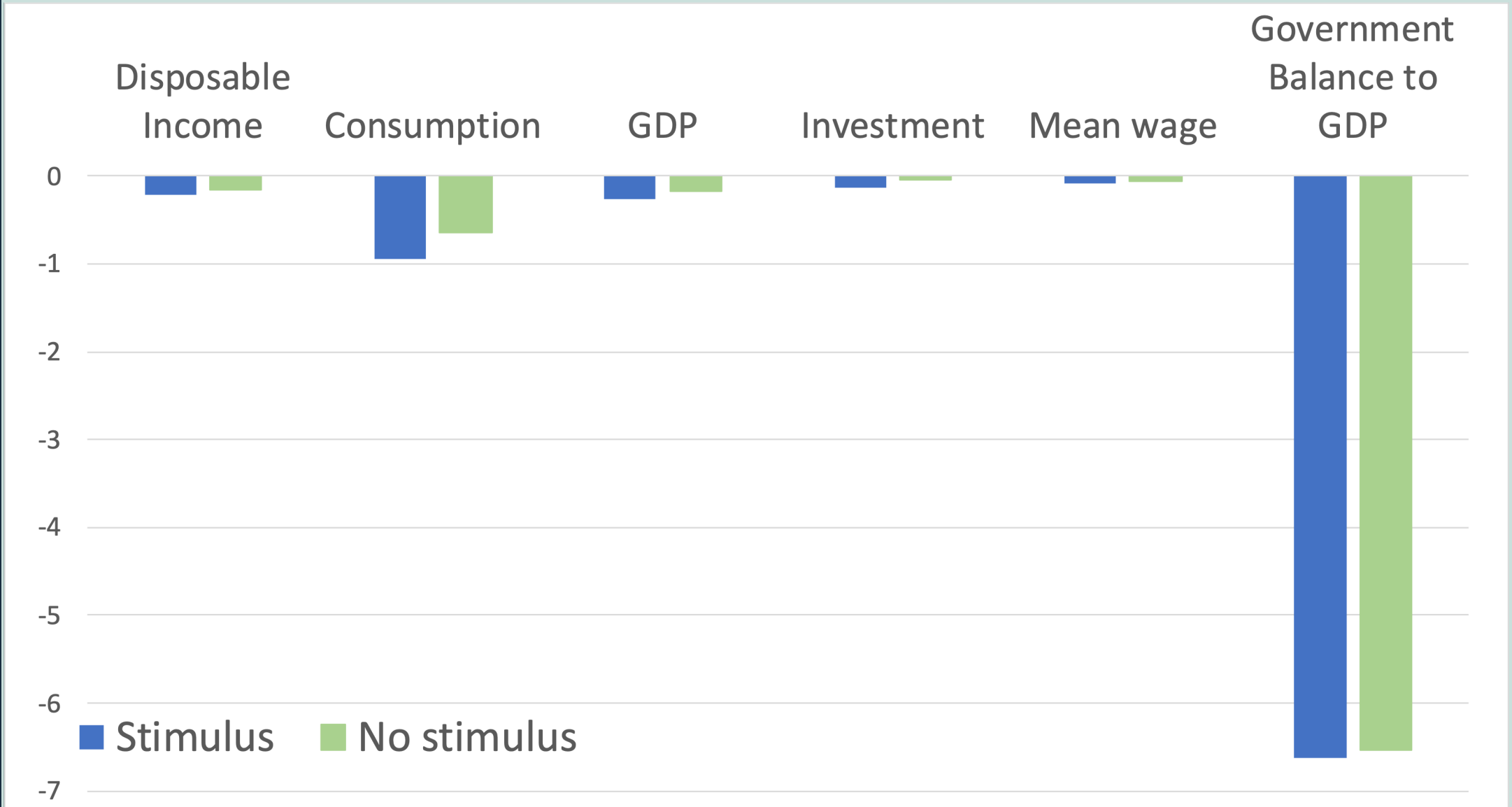
Initial government stimulus

- COVID-19 Pandemic Unemployment Payment (PUP)
- Temporary Wage subsidy scheme (TWSS)
- Increased fuel allowances

Macro Impacts of Stimulus in 2020



Macro Impacts of Stimulus in 2030



Household impacts COVID and stimulus

- % change compared to BaU in 2020

	Stimulus	No Stimulus
Per Capita Consumption	-15.4	-16.3
Per Capita Real GDP	-12.9	-13.2
Income distribution within Rural % change (richest income/poorest income)	-5.8	4.7
Income distribution within Urban % change (richest income/poorest income)	-8.2	7.5
Income distribution between Rural and Urban% change % change (urban income/rural income)	3.9	2.9

Conclusion

- Covid crisis will have strong short term macro economic impacts
- Emissions reductions are limited due to low energy prices
- Households and sectors are affected very differently
- Government stimulus has been effective in compensating households most impacted
- Climate policy and efforts to reach emissions goals should remain on the policy agenda
- Work is needed to formulate a medium term stimulus that would stimulate the economy and assist the most affected sectors while ensuring a transition to a low-carbon economy