



MEASUREMENT OF NON-MARKET OUTPUT DURING THE PANDEMIC

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Prepared by James Lewis (ONS) and John Mitchell (OECD)
Presented by Jorrit Zwijnenburg (OECD)



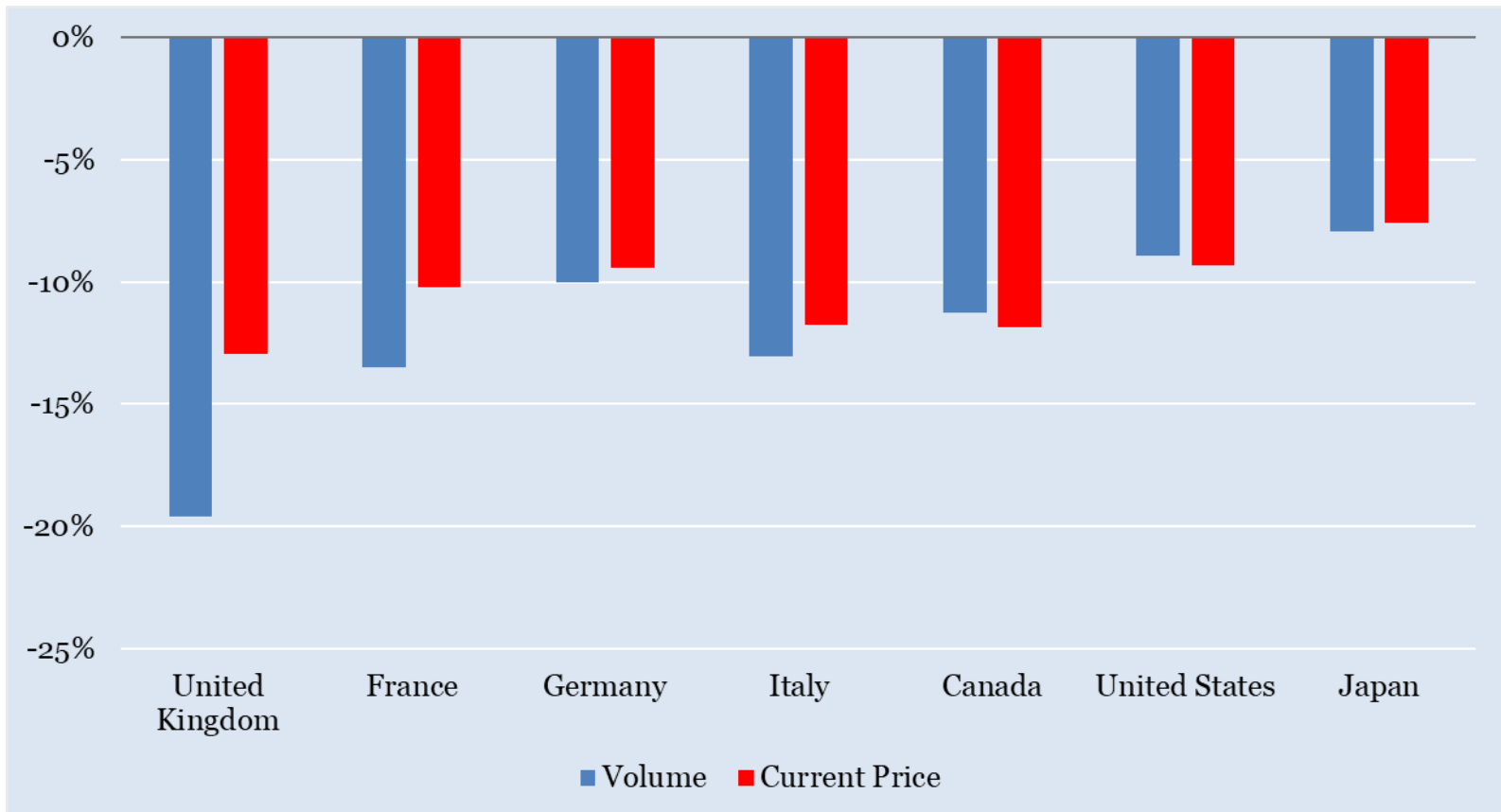
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- **ONS-OECD research** on country methods for measuring non-market output
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Background

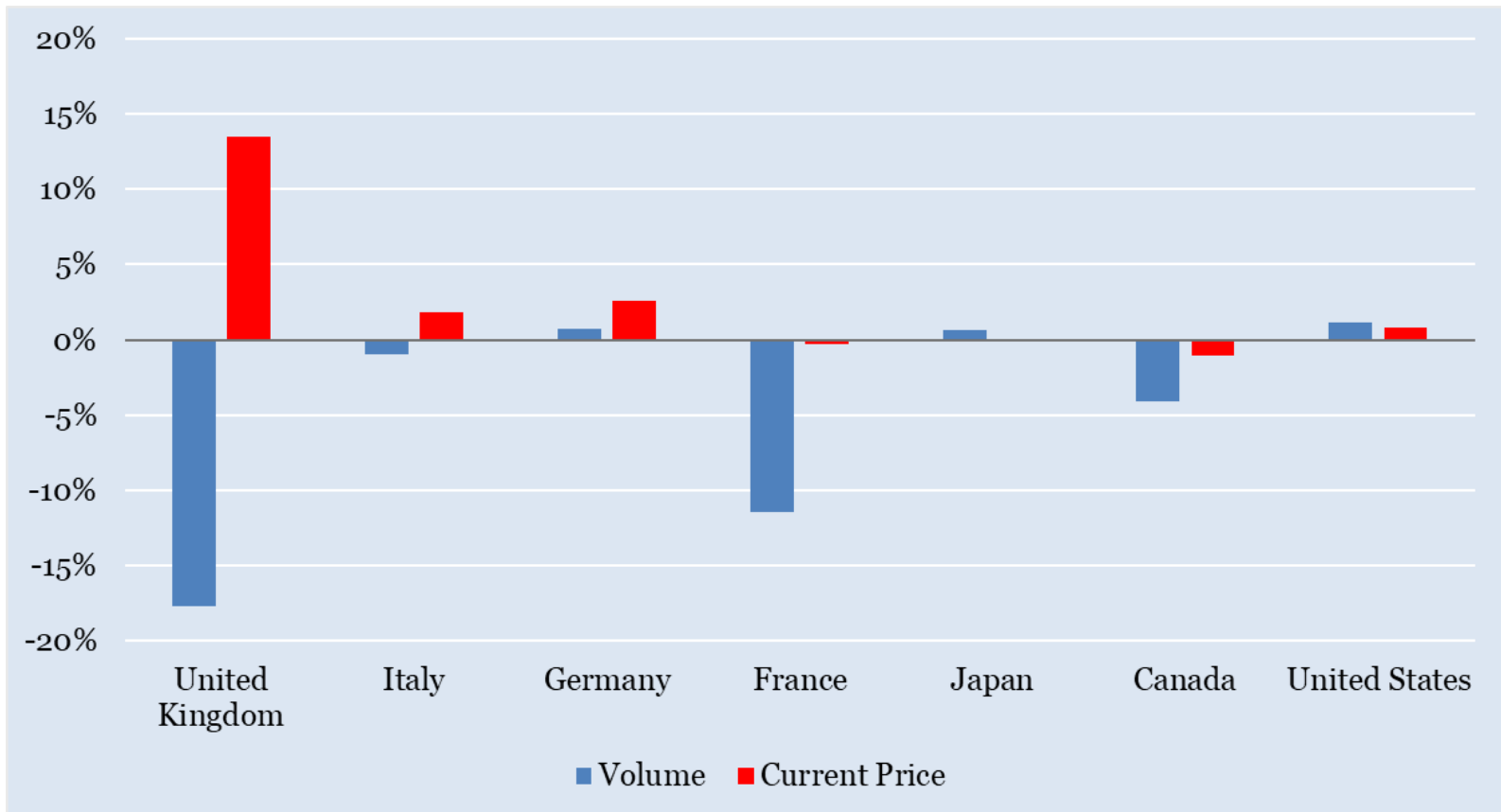
Change in GDP, quarter-on-quarter, Quarter 2 2020





Background

Change in government final consumption expenditure, quarter-on-quarter, Quarter 2 2020





What's so special about non-market output?

- Non-market is defined by prices which are **not economically significant**: free at the point-of-use/substantially subsidised
- Measured volume of non-market services **should be the same as for market services** and vice-versa, as long as the services are the same
- Current price estimates: **sum of costs** (for majority of countries)
- **Volume estimates**: various methods available



Methodologies for non-market output volume

- Deflation using output prices: deflating output using **output price** indices, assuming non-market changes in value mirror market price changes
- Deflation using input prices: deflating output using **input cost** indices; assumes no productivity change
- Direct output indicators: measures change in **volume of services** provided (often cost-weighted)
- Direct input indicators: measures change in **volume of inputs** used, e.g. staff or staff-hours (may be cost-weighted or not); assumes no productivity change



ONS-OECD research

- The ONS set up a joint project with the OECD to:
 - **Explore differences** between countries in non-market output methodology
 - **Analyse implications** of these differences for international comparability during the COVID-19 pandemic
 - Interviews with **9 National Statistical Institutes**: Australia, Canada, France, Germany, Ireland, Italy, Norway, UK, US
 - Focus on **three main industries** feeding into GFCE:
 - ISIC division O: Public Administration and Defense (collective non-market services)
 - ISIC division P: Education
 - ISIC division Q: Health care
 - (Not all output feeds into GFCE; this depends on country specific situation)
 - Report to be published by the ONS and the OECD **early 2022**



Findings



Primary method for compiling public administration output

	Input-based measures	Output-based measures
Indirect methods	Input price deflation Canada, Norway (ANA)	Output price deflation
Direct methods	Direct input indicators Australia, Austria*, Belgium*, Chile*, Colombia*, Czech Republic*, Denmark*, Finland*, France, Germany*, Hungary*, Ireland, Italy, Japan*, South Korea*, Latvia*, Luxembourg*, Mexico*, Netherlands*, New Zealand*, Norway (QNA), Poland*, Portugal*, Slovak Republic*, Slovenia*, Spain*, Sweden*, South Africa*, United Kingdom, United States	Direct output indicators



Primary method for compiling education output

	Input-based measures	Output-based measures
Indirect methods	Input price deflation Canada, Japan, South Korea, Colombia	Output price deflation United States
Direct methods	Direct input indicators Canada, Ireland, Norway (QNA), Spain	Direct output indicators Australia, Austria, Belgium, Chile, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway (ANA) Poland, Portugal, Slovak Republic, Slovenia, Sweden, South Africa, United Kingdom



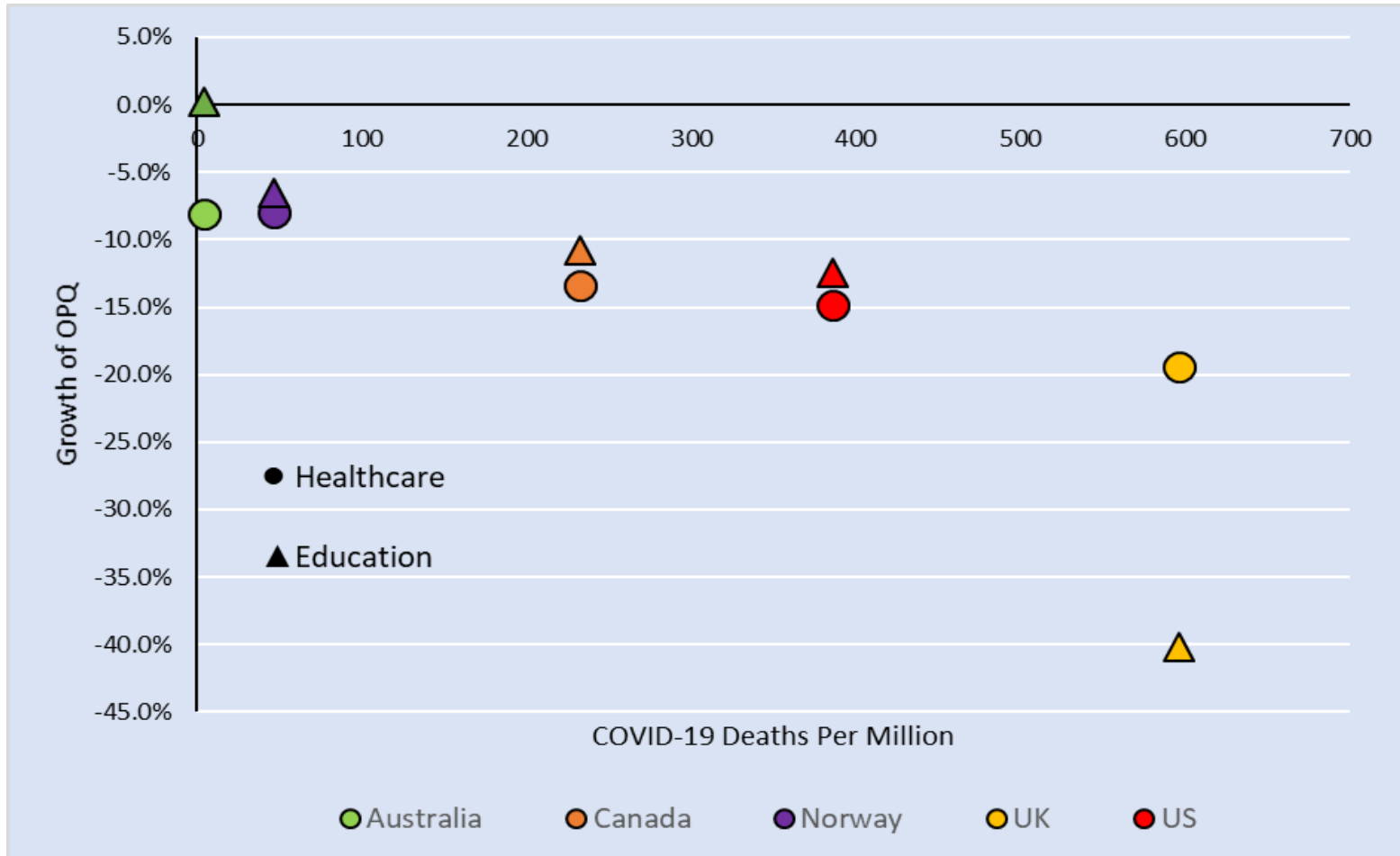
Primary method for compiling health output

	Input-based measures	Output-based measures
Indirect methods	Input price deflation Austria, Canada, Chile, Colombia, Czech Republic, Denmark (QNA), South Korea, Latvia, Poland	Output price deflation Germany, Japan, Luxembourg, South Africa, United States
Direct methods	Direct input indicators Canada, Ireland, Denmark (QNA), Mexico, New Zealand (QNA), Norway (QNA), Slovak Republic, Spain	Direct output indicators Australia, Belgium, Denmark (ANA), Finland, France, Hungary, Italy, Netherlands, New Zealand (ANA), Norway (ANA), Portugal, Slovenia, Sweden, United Kingdom



Health and Education vs COVID deaths

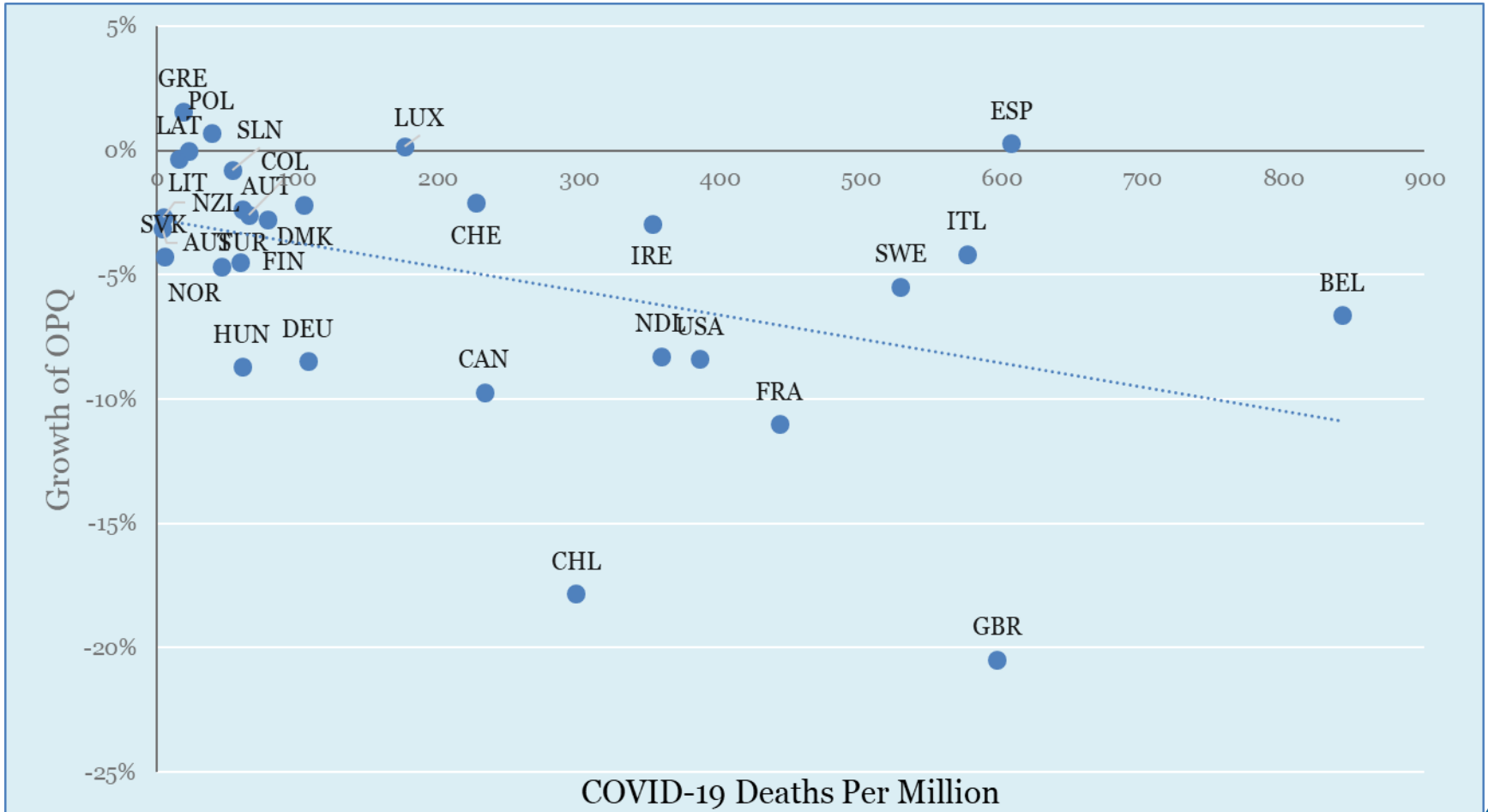
(not a perfect metric)



Some correlation, but additional adjustments have a significant impact...



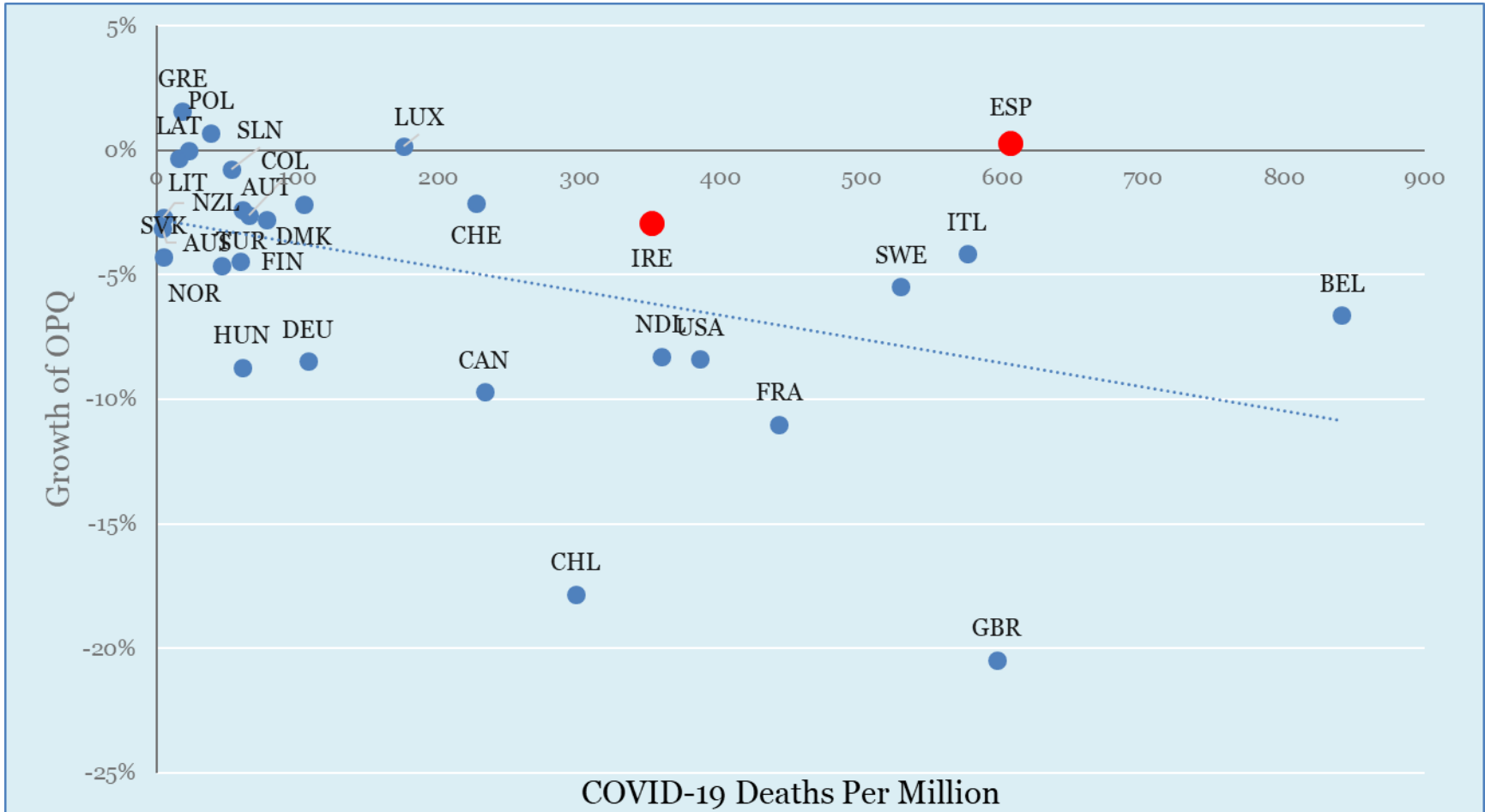
OPQ vs COVID



Some correlation but not definitive!



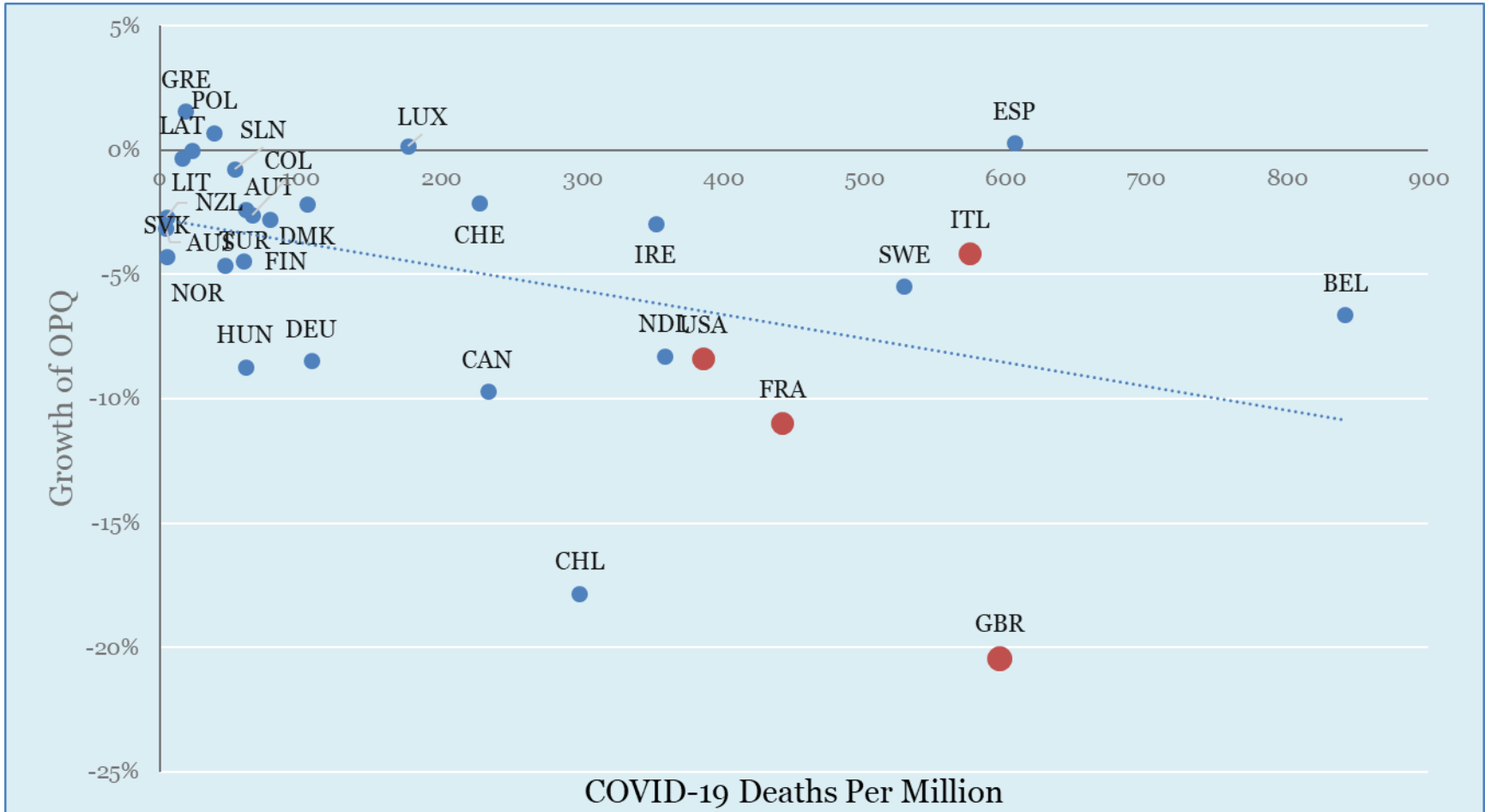
OPQ vs COVID



Ireland and Spain use employment numbers for Health and Education. These were unlikely to have changed during the pandemic.



OPQ vs COVID

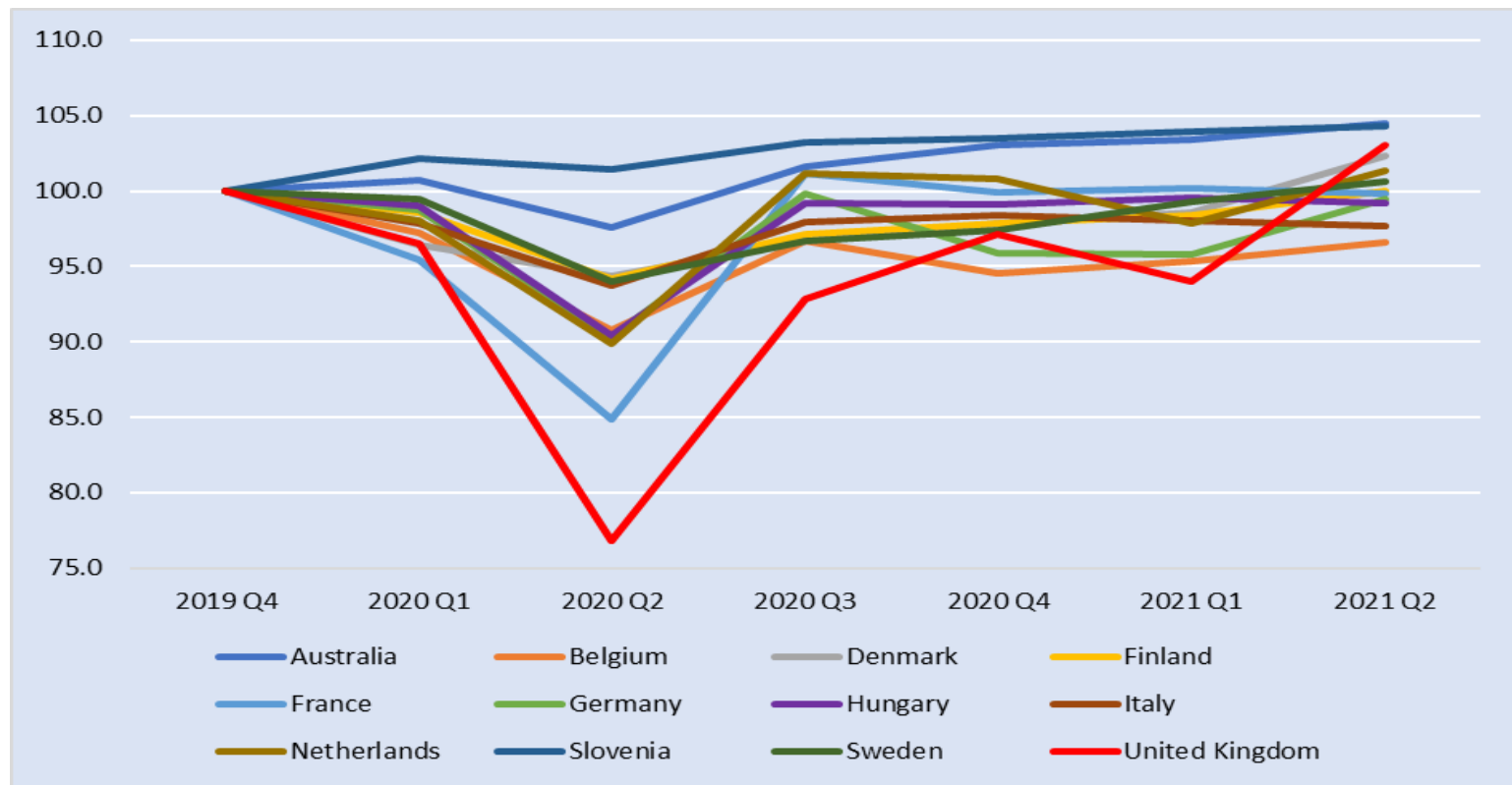


France, Italy, UK and USA applied temporary adjustments to education



Trends on basis of direct output method

Volume change in OPQ, countries using **direct output** methods
Q4 2019 – Q1 2021, (Q4 2019 =100)



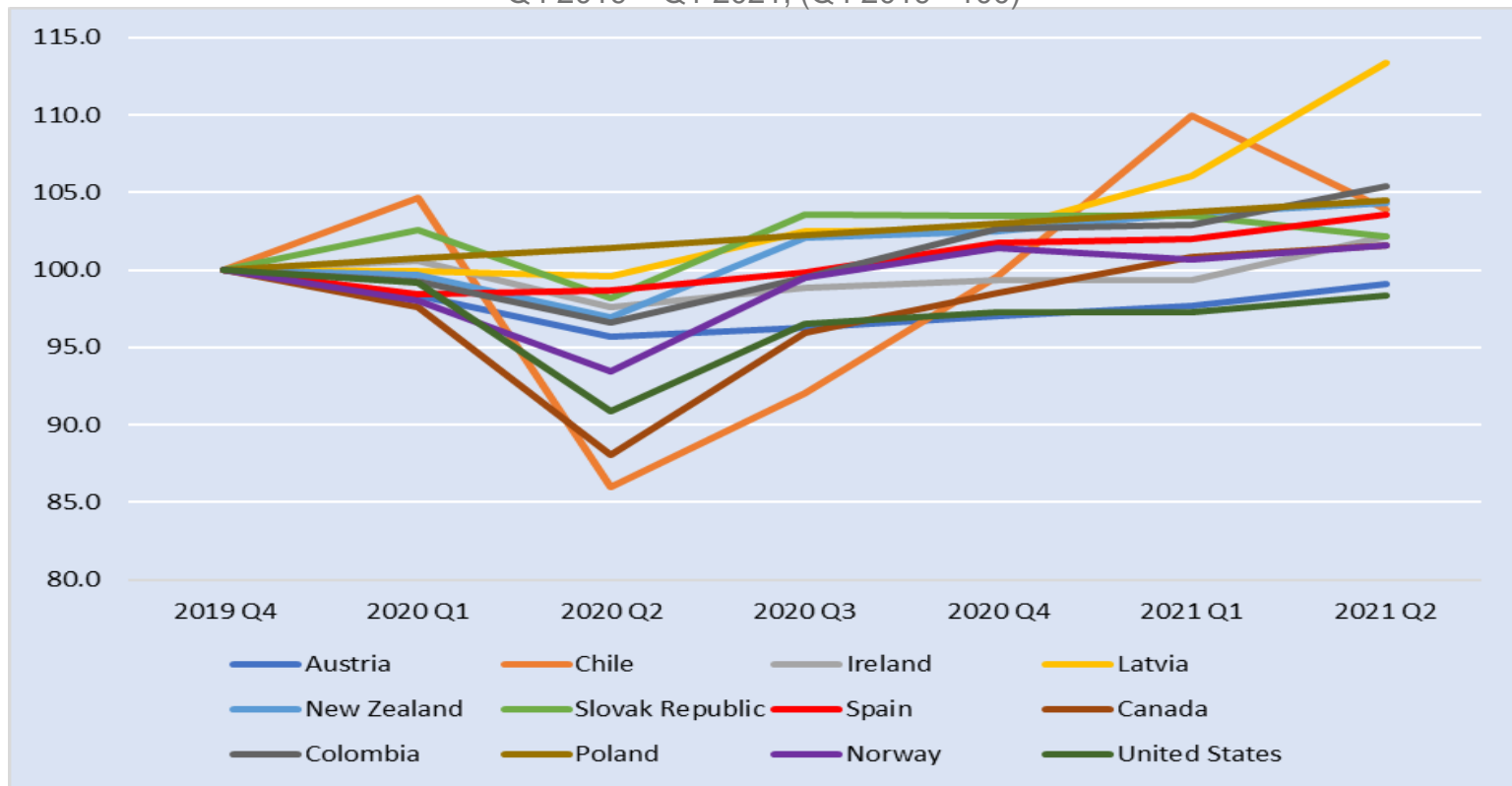
Relatively consistent pattern, although size of the impact varies...



Trends on basis of other methods

Volume change in OPQ, countries **not using direct output** methods for both P and Q

Q4 2019 – Q1 2021, (Q4 2019 =100)



Increased variability in movements during Q2 2020...



Conclusions

- **Methodological differences**, including those applied temporarily, are clearly important in understanding differences between countries in non-market output...during a pandemic a lot more so!
- However, there is also (relatively) clear relationship between the scale of the **impact of the pandemic** measured through mortality and the fall in non-market output
- Differences between countries in education output growth over 2020 was heavily influenced by if **adjustments** were applied to account for perceived changes in education provision
- Countries that primarily used **direct output indicators** for education and health care consistently showed a fall in output of these industries during Q2 2020, although the scale varied widely
- Countries that used **deflated output** or **direct input indicators** as their basic method for non-market output showed greater variations in output over the pandemic



Considerations for the near future

- Important to **publish detailed metadata** explaining regular methods and any adjustments to account for crisis-induced changes
- Relevant to achieve **closer alignment** for standard compilation methodologies, e.g. towards the use of direct output indicators for individually consumed services
- Important to **continue discussions** and refine concepts around production of non-market services, particularly around issues that arose during the crisis (e.g. the treatment of remote learning)
- While indicators such as GFCE and GDP need to reflect the **actual economy**, it becomes worrisome if methodological differences rather than actual economic changes are driving cross-country differences



Thank you for your attention!

Jorrit.Zwijnenburg@oecd.org