Lives and Livelihood, Not Quite a Trade-Off

A Cross-Country Analysis of the Short-Term Macro Effects of COVID-19 Mortality on Real GDP

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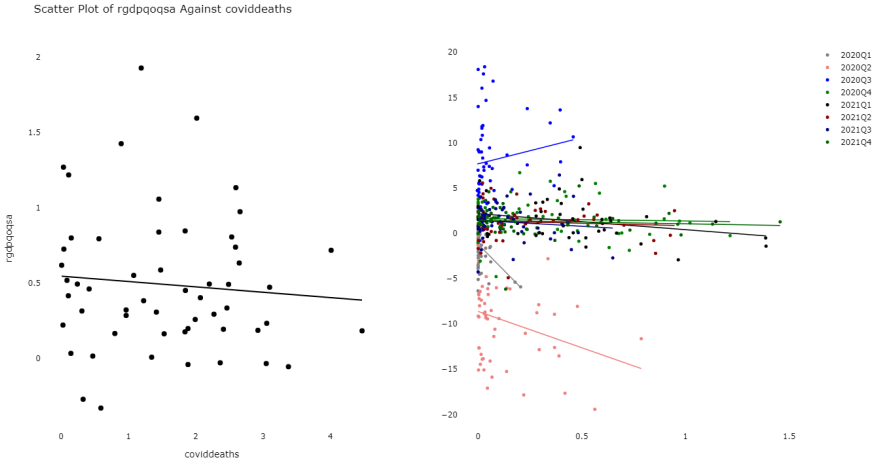
September 14, 2022

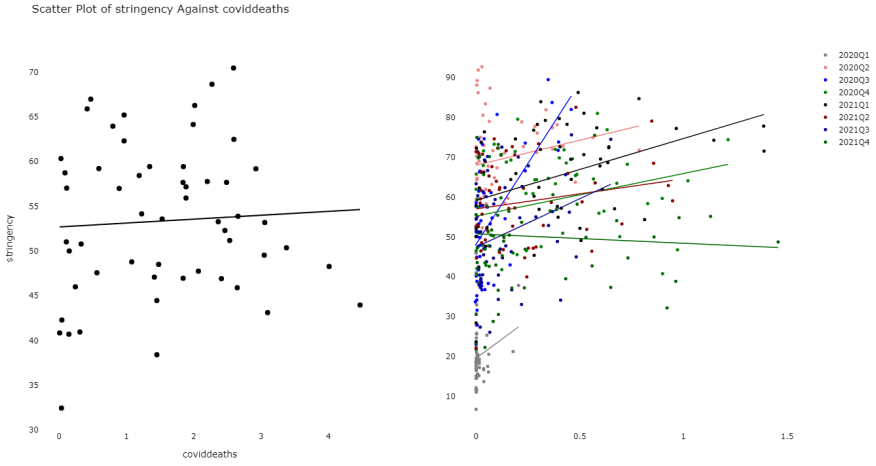
COVID-19 was a global health AND severe economic crisis, and at its core is the lives-livelihoods trade-off (LLTO), but does it hold water?

- Guerrieri et al (2020/2022) characterised NPIs as supply-side shocks in some sectors, which then generated larger demand-side reactions across the economy.
- Quah (2021) hypothesised that NPIs mitigate the negative economic effects of deaths, but weighs on economic activity, hence generating opposing effects.
- Guimbeau et al (2020) concurred using Brazilian data from 1917-20.
- Aum et al (2021) documents that even without lockdowns, outbreaks reduced hiring using South Korean data, but depends on sectors, skill, age, and pay.
- Suah (2020) argued economic policy is to ensure effective containment, and to support income, but without compromising public health priorities.
- Casado et al (2020) assessed that US fiscal stimulus was crucial in boosting private consumption expenditure during the lockdowns.

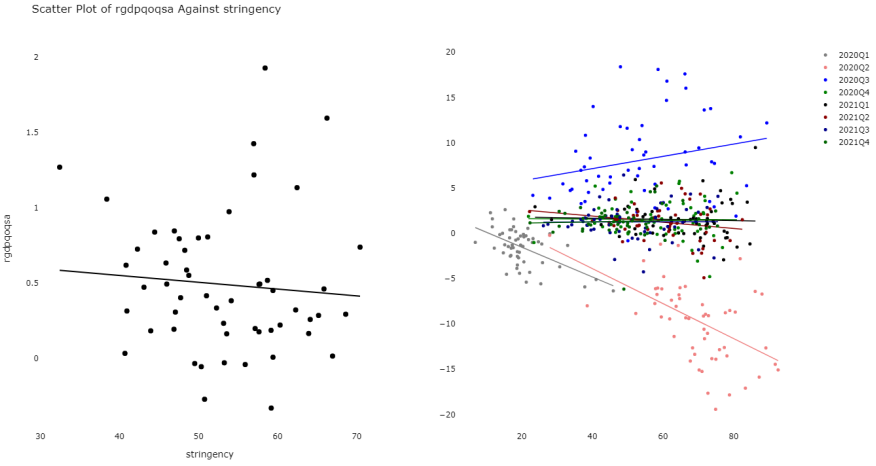
Cross-country data on real GDP growth and COVID-19 deaths are, in general, negatively correlated, **but this likely reflects endogeneity**



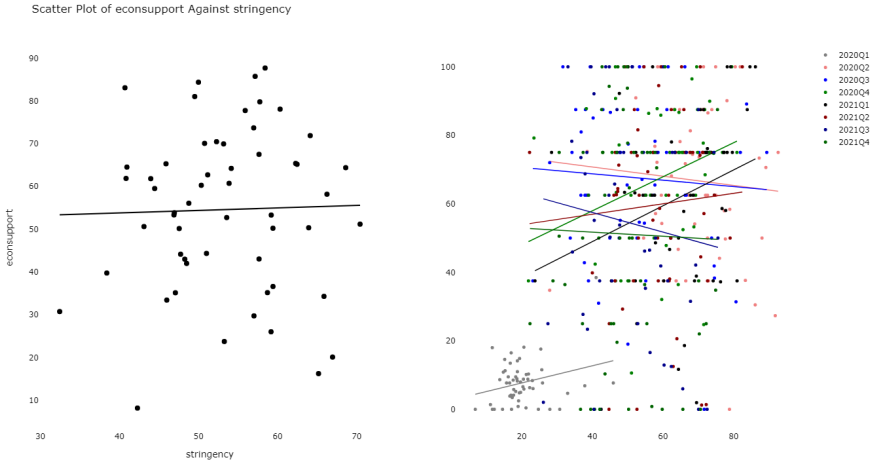
Countries with higher COVID-19 deaths tend to have implemented stricter lockdowns



Unsurprisingly, countries with stricter lockdowns experienced weaker economic growth during most parts of the pandemic



But not all countries with strict(er) lockdowns implemented large(r) economic stimulus packages



Inference needs to account for endogeneity in the lives-livelihood nexus

Cross-Sectional Analysis (2020-21 Averages / Sums)

IV 2SLS: Instrument economic support in 2020-21 with pre-COVID-19 institutional quality (the 2019 institutions subindex from the global competitiveness index)

- Deals with endogeneity from economic support being a possible response variable to lockdowns, expected contemporaneous GDP growth, and deaths

Panel Data Analysis (Quarterly Averages / Sums)

Two-Way Fixed Effects (TWFE): Estimates within-country associations while adjusting for country-specific, and time-specific unobservable characteristics

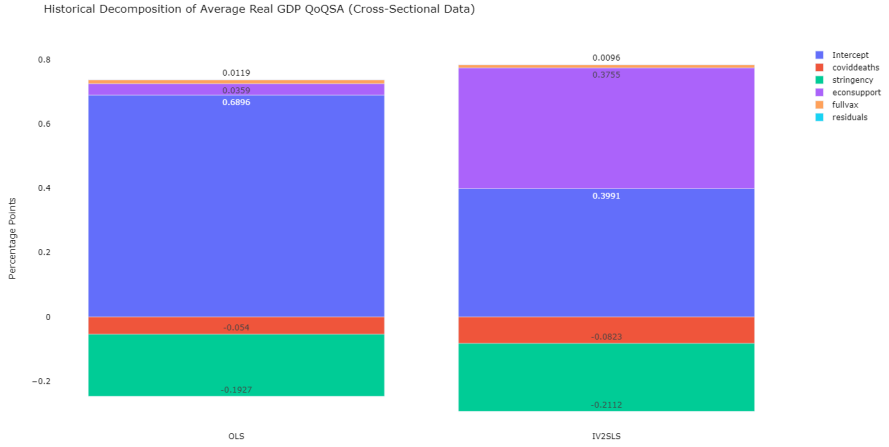
- Deals with 'long-term' (e.g., healthcare readiness, fiscal space, government responsiveness), and time-varying confounders (e.g., arrival of VOCs)

Cross-sectional (IV 2SLS): Imprecise negative association between GDP and deaths + NPIs, but partly offset by stimulus + vaccination

	OLS				IV2SLS			
	Coefficients	Lower	Upper	P-Values	Coefficients	Lower	Upper	P-Values
Intercept	0.689581	-0.226836	1.605997	0.140260	0.399098	-0.686106	1.484302	0.471031
coviddeaths	-0.034511	-0.131611	0.062590	0.486057	-0.052612	-0.170833	0.065609	0.383075
stringency	-0.003612	-0.018425	0.011201	0.632743	-0.003959	-0.018687	0.010769	0.598302
econsupport	0.000657	-0.006662	0.007975	0.860410	0.006876	-0.008565	0.022317	0.382779
fullvax	0.006872	-0.006659	0.020403	0.319526	0.005550	-0.018400	0.029501	0.649685

Stat	OLS	IV2SLS
Adjusted R-Squared	-0.057268	-0.127213
Bayesian Information Criterion	87.144286	NaN
Number of Observations	55.0	55
Sum of Squared Residuals	10.909071	11.630781
First Stage F-Stat	NaN	12.287275

Cross-sectional (IV 2SLS): Substantial GDP impact from deaths, independent of NPIs, but more than offset by economic stimulus

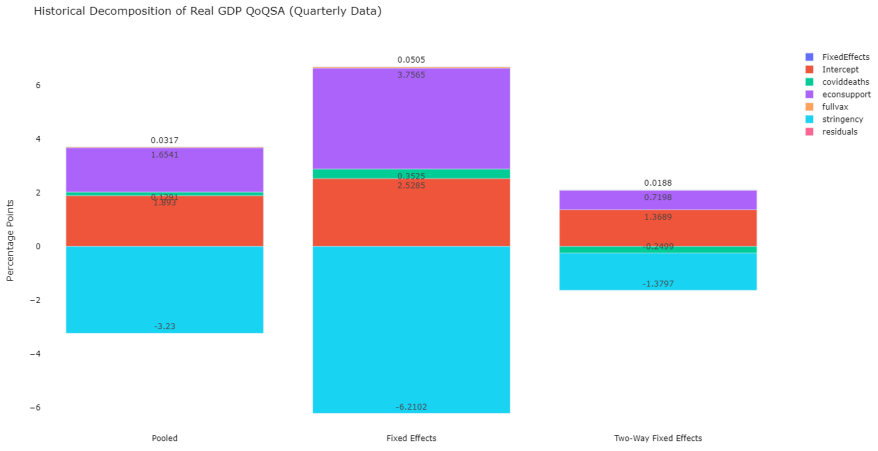


Panel (TWFE): Similarly imprecise estimates in the same direction as cross-sectional analysis, but larger in magnitude

	Pooled				Fixed Effects				Two-Way Fixed Effects			
	Coefficients	Lower	Upper	P-Values	Coefficients	Lower	Upper	P-Values	Coefficients	Lower	Upper	P-Values
Intercept	1.893017	0.350250	3.435784	0.016294	2.528538	0.760996	4.296079	5.166449e-03	1.368912	-0.557878	3.295702	0.163241
coviddeaths	0.660338	-1.299949	2.620625	0.508276	1.803140	-0.660149	4.266429	1.508934e-01	-1.278257	-2.807340	0.250825	0.101062
econsupport	0.030303	0.012278	0.048327	0.001031	0.068818	0.042009	0.095627	6.959028e-07	0.013186	-0.004223	0.030596	0.137249
fullvax	0.146619	-0.288055	0.581292	0.507711	0.233826	-0.314924	0.782575	4.026597e-01	0.087191	-0.225923	0.400304	0.584328
stringency	-0.060516	-0.091453	-0.029578	0.000139	-0.116352	-0.158484	-0.074220	1.006171e-07	-0.025849	-0.059207	0.007508	0.128422

Stat	Pooled	Fixed Effects	Two-Way Fixed Effects
Overall R-Squared	0.042469	-0.00809	0.022547
Within R-Squared	0.062498	0.085753	0.026026
Between R-Squared	-2.745866	-13.072575	-0.461785
Inclusive R-Squared	0.042469	0.092274	0.739988
Number of Observations	440	440	440
Sum of Squared Residuals	12125.040787	11494.374267	3292.489855

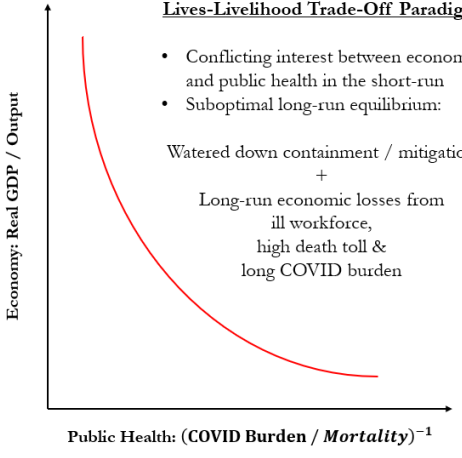
Panel (TWFE): Even larger GDP impact from deaths and NPIs, and is not fully offset by economic stimulus

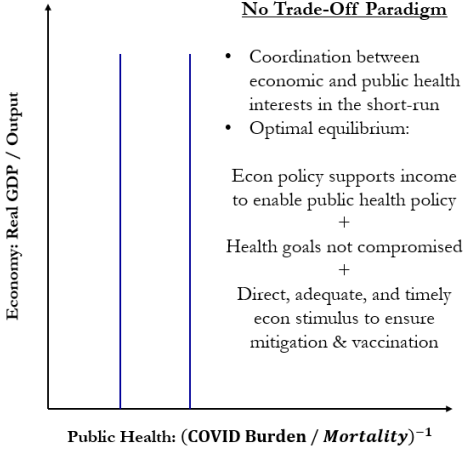


Discussion

- There is no direct trade-off. A worse pandemic and more stringent NPIs both hurt economic growth independently.
- Policy should prevent escalating transmission and deaths **ex ante**.
- Vaccination weakens the infection-mortality link + contributes directly to GDP growth through government spending, and indirectly through consumer confidence
- **Some important caveats.**
  - Macro data is noisy (different definitions of COVID-19 deaths, and accuracy of vax records) + GDP may not best measure 'economic' conditions.
  - Analysis is only for the **short-term**. Long-term trade-off might be different, factoring in long COVID, lifetime all-cause mortality, and other productivity spillovers due to COVID-19.
- Economic policy during public health crises should be adequate, timely, and direct, so that public health goals can be achieved in full (Suah (2020)).

These distil into a paradigm shift for public health and economic policy (*dismally, more relevant for the monkeypox pandemic & subsequent ones*)





Materials to replicate study

GitHub Repository: python scripts, data, output, slides

https://github.com/suahjl/llto-macro

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