COMMENTS ON THE "JOHN HOPKINS" META STUDY (HERBY ET AL., 2022) AND CHISADZA ET AL. (2021)

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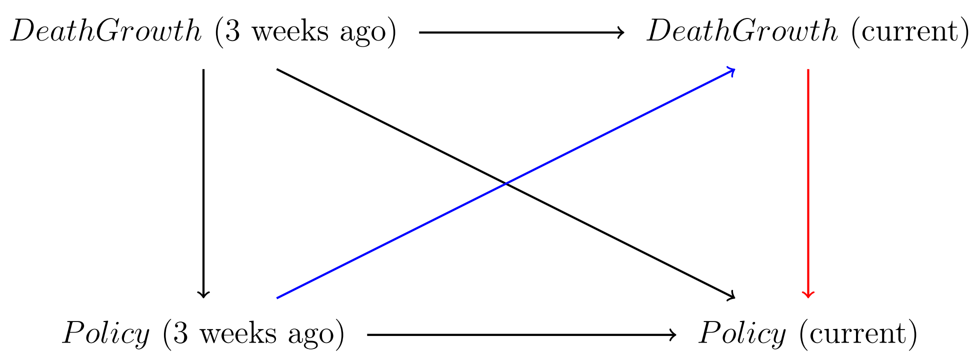
The unpublished "John Hopkins" meta-study [2] places 90% or so weight on Chisadza et al. (2021) study published in Sustainability [1]. In what follows, we provide a peer review of the latter paper and discuss the profound implications for the meta-study.

We can view the Chisadza et al. study [1] through the lenses of the following simplified causal path diagram:



The arrows indicate likely causal channels, reflecting the context of the problem; see the Pearl and Mackienzie's "The Book of Why" for more details on causal path diagrams.

1. Chisadza et al. (2021) characterize the strength of the red arrow: the strength of the effect of the observed death rates on the current stringency of policies. In other words, Chisadza et al. study [1] should be interpreted as saying that the countries currently experiencing high death rates (or death growth rates) are more likely to implement more stringent current policy. That is the only conclusion we can draw from [1] , because the current policy can not possibly influence the current deaths, since there is at least 2-3 weeks of delay between infections and reported deaths (that is, the red arrow can not be pointing up).[1]

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[1] Both Chisadza et al. [1] and the "John Hopkins" meta-study [2] mistakenly assume that the red arrow has the reverse direction, i.e., pointing up.

2. But the red arrow is the wrong effect to look at – the effect we actually want for the purposes the meta-analysis is the blue arrow – the effect of the previous (e.g., 3 week lagged) policy stringency index on the current death growth rates.

3. The "John Hopkins" meta-study [2] therefore places 90% or so weight on the study that estimates the wrong effect. The reason for placing such a high weight is very high precision (low standard error) with which the wrong thing is estimated. But we should not include the incorrectly estimated effect in this meta analysis in the first place. Therefore the whole meta-analysis is logically flawed.[2]

4. A quick reanalysis of similar data to that of Chisadza et al. (2021) reveals the likely negative effect for the blue arrow. More precisely, more stringent policies in the past predict lower death growth rates, controlling for past deaths and other factors; and this statistical association is consistent with the negative causal effect of the (previous) policies on current deaths attributed to Covid. See Appendix A below for details.

Appendix A. Reanalysis of Chisadza et al (2021)

We gathered and analyzed the data similar to that of [1]. Our code is available at `https://github.com/ubcecon/covid-chisadzaetal` and in an html file at `https://ubcecon.github.io/covid-chisadzaetal/oxcgrt.jl.html`. First, we reproduce similar results as [1] in Table 1. As described above, these results show the strength of the red arrow: the strength of the effect of the observed death rates on the current stringency of policies.

We next characterize the sign of the blue arrow. Our preferred specification examined the strength of the relationship between current death growth rates and lagged policy stringency index. (Basic epidemiological models imply that changes in the contact rate between people should linearly affect the growth rate of disease, and hence the growth rates for death, not the level; the level modelling requires much more complicated nonlinear models). The results in Table 2 suggest that more stringent policies in the past predict lower death growth rates.

References

[1] Carolyn Chisadza, Matthew Clance, and Rangan Gupta. "Government Effectiveness and the COVID-19 Pandemic". In: *Sustainability* 13.6 (2021). ISSN: 2071-1050. DOI: 10.3390/su13063042. URL: `https://www.mdpi.com/2071-1050/13/6/3042`.

[2] There are other problems with the meta analysis such as an exclusion of papers that use synthetic control method, but even the current form of the study is deeply flawed because of the issue pointed above alone).

	deathspm	logdeathspm
	(1)	(2)
(Intercept)	-1.15**	-6.89***
	(0.373)	(0.735)
StringencyIndex	0.00903**	0.0359***
	(0.003)	(0.004)
deathspmlag	0.495**	
	(0.162)	
log(GDPpc)	0.121**	0.158
	(0.046)	(0.109)
Diabetes prevalence	-0.0151	0.00236
	(0.011)	(0.027)
Hospital beds per1000	-0.0544*	-0.0287
	(0.025)	(0.074)
Old age dependency ratio	0.00984	0.0471*
	(0.007)	(0.019)
log(deathspmlag + $.1^6$)		0.654***
		(0.021)
Estimator	OLS	OLS
N	30,174	30,174
R^2	0.284	0.539

TABLE 1. Results Similar to Chisadza et al (2021)

[2] Jonas Herby, Lars Jonung, and Steve Hanke. *A Literature Review and Meta-Analysis of the Effects of Lockdowns on COVID-19 Mortality*. Studies in Applied Economics 200. The Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Jan. 2022. URL: `https://ideas.repec.org/p/ris/jhisae/0200.html`.

	deathgrowth		
	(1)	(2)	(3)
(Intercept)	0.0199*	0.0604**	0.0688*
	(0.009)	(0.020)	(0.027)
StringencyIndexlag21	-0.000392***	-0.0006***	-0.000569***
	(0.000)	(0.000)	(0.000)
deathsLag21	0.00359	0.00212	0.00128
	(0.003)	(0.002)	(0.003)
log(GDPpc)	0.00102	0.000401	-0.000369
	(0.001)	(0.001)	(0.003)
Diabetes prevalence	0.000149	0.000126	-3.99e-05
	(0.000)	(0.000)	(0.000)
Hospital beds per1000	-0.000658	-0.000639	-0.00071
	(0.001)	(0.001)	(0.001)
Old age dependency ratio	-5.17e-05	-0.00029	-4.55e-05
	(0.000)	(0.000)	(0.000)
log(deathslag21 + $.1^6$)		0.00221*	0.00246*
		(0.001)	(0.001)
log(casesp100klag21 + 1)			-0.0172
			(0.011)
casesp100klag21			0.00359
			(0.003)
Estimator	OLS	OLS	OLS
N	30,174	30,174	30,174
R^2	0.000	0.001	0.001

Table 2. Preferred Specification