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## Calculating Solidarity and Agency scores

### Questions

1. Does changing the codes for refused/DK change the result?

I tried three different codes. The result of correlations between solidarity/Agency and GDP was not significant or was  $< 0.001$  across countries and for each country along the way with different methods.

2. Are samples per country across countries comparable with each other?

**Observation:** Standard deviation for some countries are too high which might be suspicious.

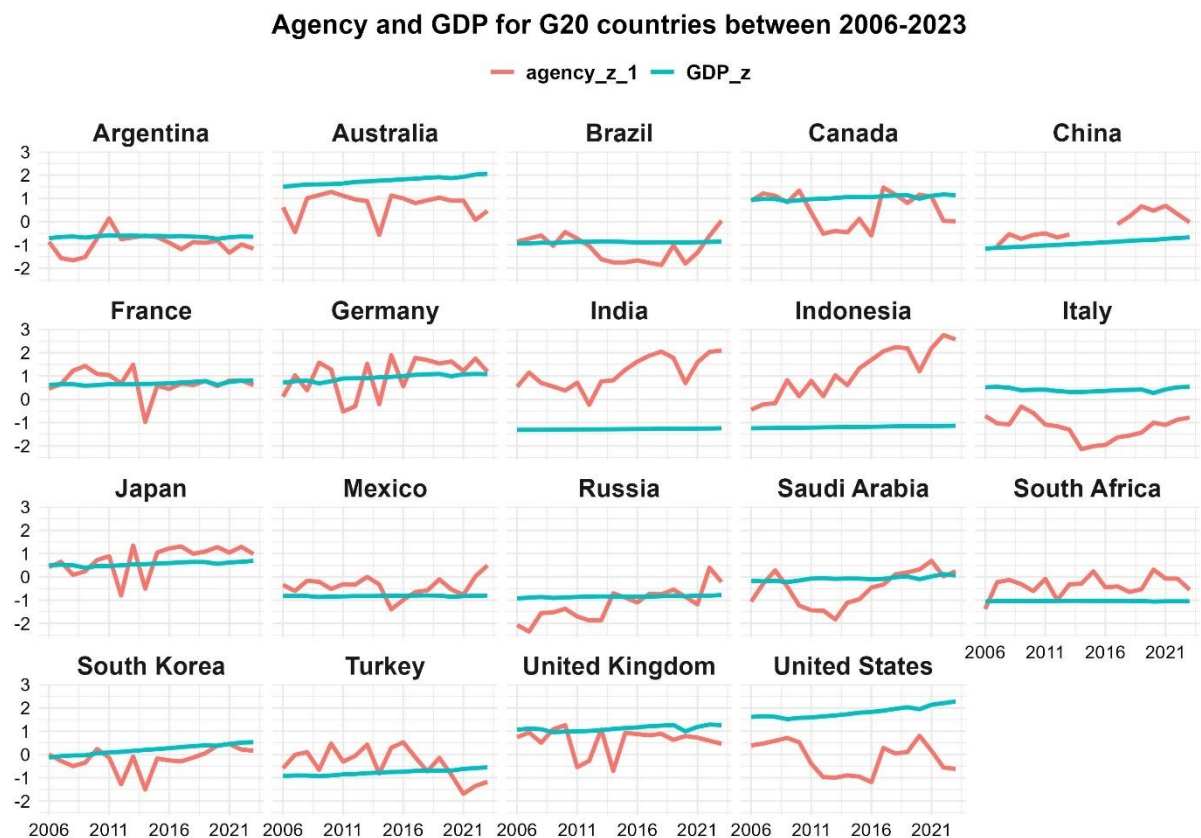
<b>Method1</b>	("Yes", "Good place", "Satisfied") ~ 1 ("No", "Not a good place", "Dissatisfied") ~ -1 ("DK", "Refused") ~ 0 or NA	<b>Solidarity/Agency per participant:</b> sum_acorss_9_questions: [-9,9]
<b>Method2</b>	("Yes", "Good place", "Satisfied") ~ 2 ("No", "Not a good place", "Dissatisfied") ~ -2 ("DK") ~ 0 ("Refused") ~ -1	<b>Solidarity/Agency per year country:</b> weighted average of all participants in that country during that year
<b>Method3</b>	("Yes", "Good place", "Satisfied") ~ 1 ("No", "Not a good place", "Dissatisfied") ~ -1 ("DK") ~ 0 ("Refused") ~ -1	<b>GDP per capita</b> in constant 2015 dollars for each year and cunty

Average and Standard deviation for each of G20 countries for 2006-2023.				
Country	mean solidarity	Sd solidarity	mean agency	Sd agency
Argentina	1.66	0.55	1.71	0.59
Australia	4.69	0.72	4.02	0.75
Brazil	1.69	0.50	1.44	0.80
Canada	4.46	0.71	3.78	0.99
China	0.30	1.01	2.74	0.80
France	2.75	0.24	4.04	0.73
Germany	2.81	0.84	4.44	1.11
India	0.61	1.06	4.61	0.95
Indonesia	1.61	1.30	4.66	1.43
Italy	2.28	0.43	1.34	0.70

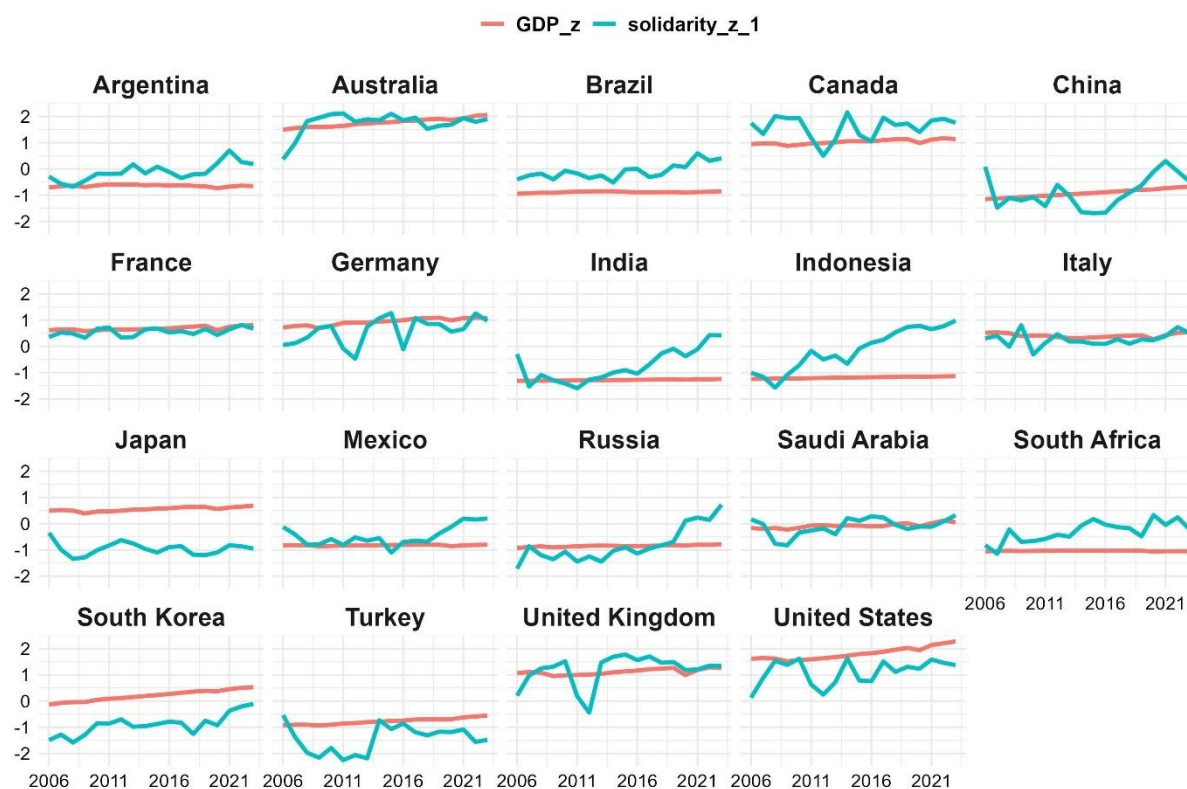
Japan	0.27	0.40	4.07	0.87
Mexico	1.08	0.63	2.46	0.59
Russia	0.49	1.11	1.41	0.97
Saudi Arabia	1.67	0.54	2.36	1.04
South Africa	1.34	0.64	2.52	0.57
South Korea	0.36	0.66	2.76	0.71
Turkey	-0.54	0.87	2.51	0.91
United Kingdom	3.79	0.99	3.87	0.77
United States	3.66	0.78	2.84	0.95

## Agency, Solidarity and GDP for each of G20 countries: 2006-2023

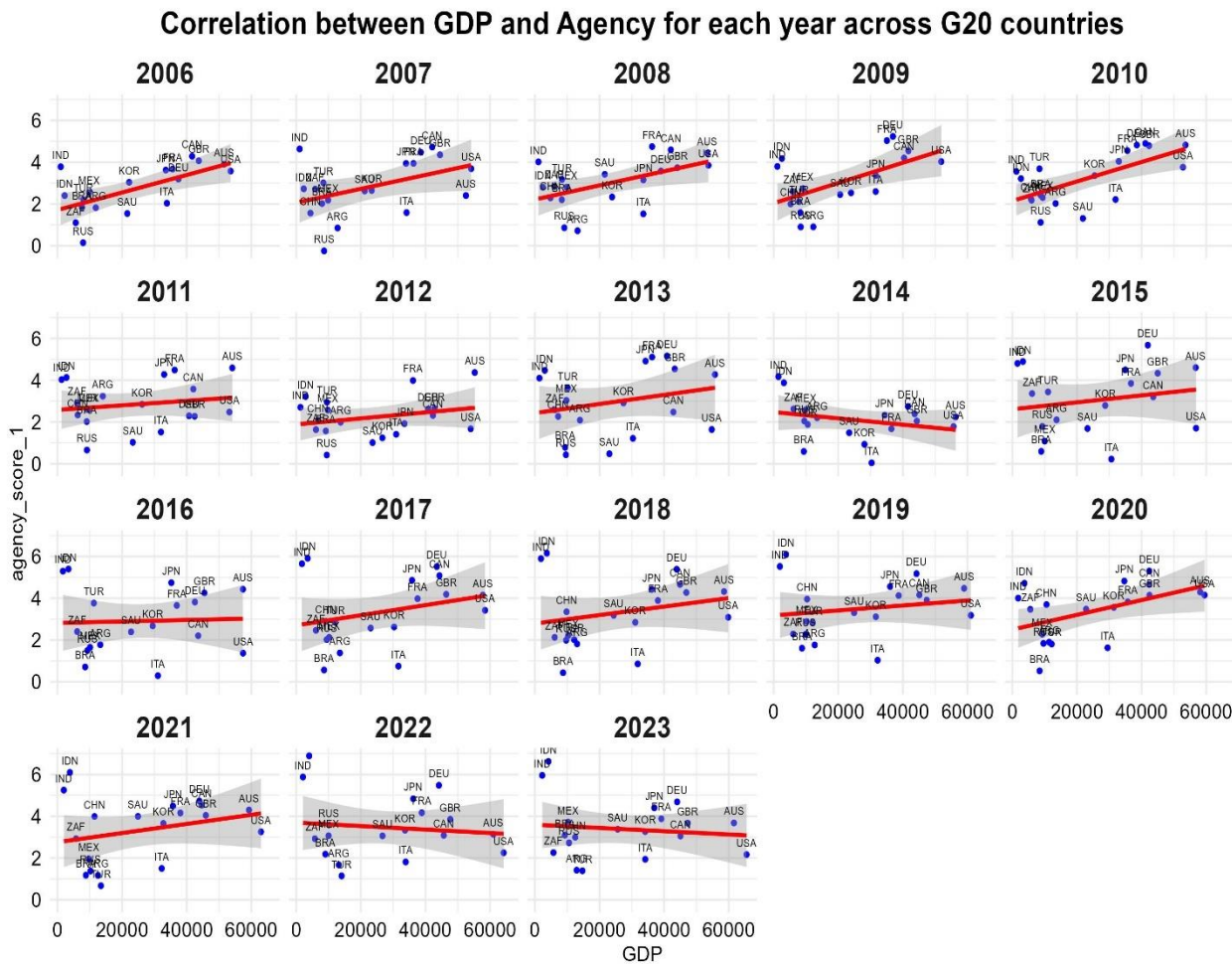
\*The scores are normalised to show the graphics.



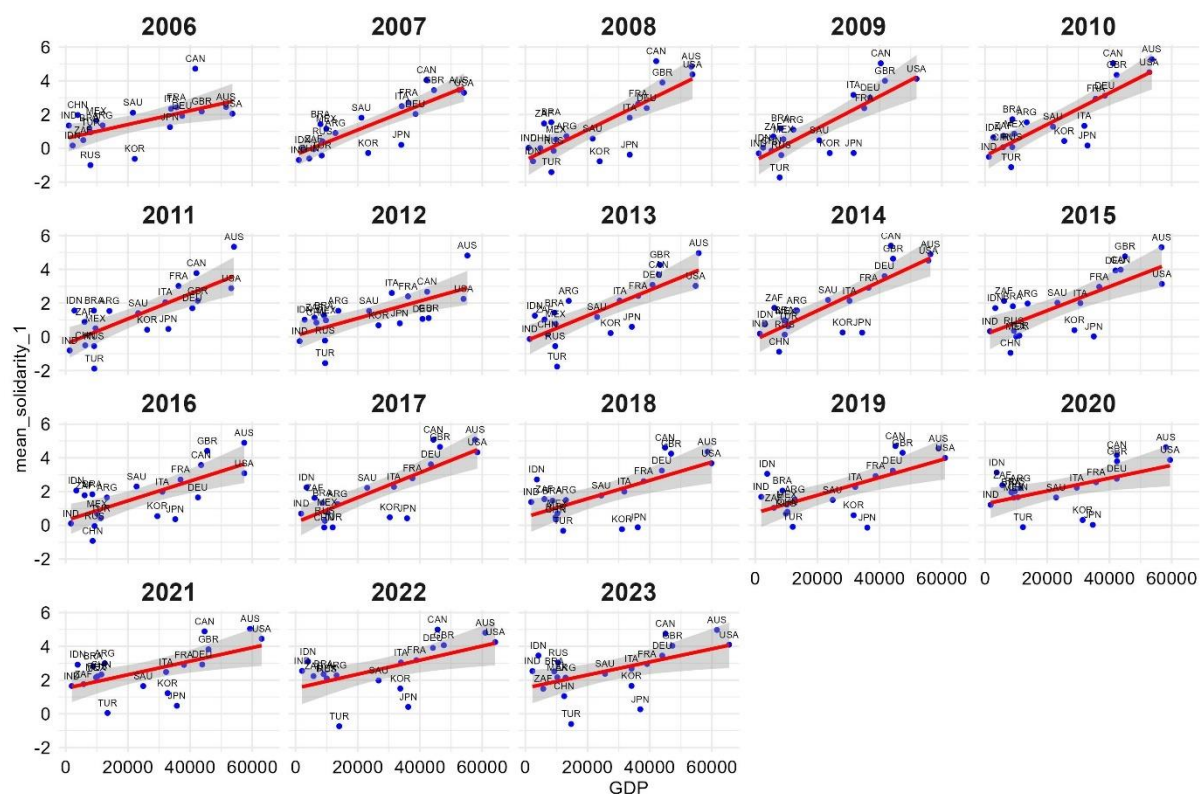
## Solidarity and GDP for G20 countries between 2006-2023



Correlation between GDP and Solidarity/Agency across countries :  
2006-2023



Correlation between GDP and Solidarity for each year across G20 countries

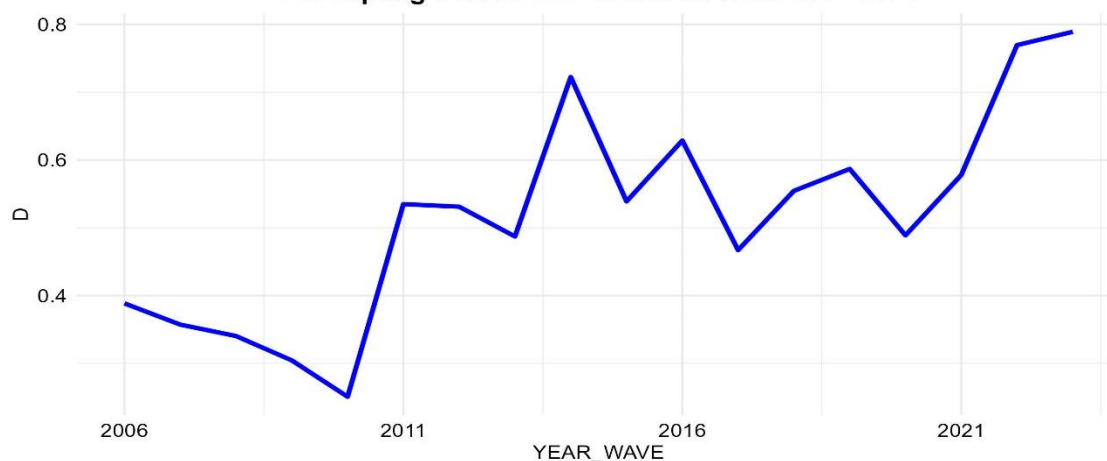


## Decoupling Index

$$D = 1 - (r(S,G) + r(A,G))/2$$

**Observation:** Decoupling across G20 countries is increasing from 2006 to 2023

Decoupling across G20 countries from 2006-2023



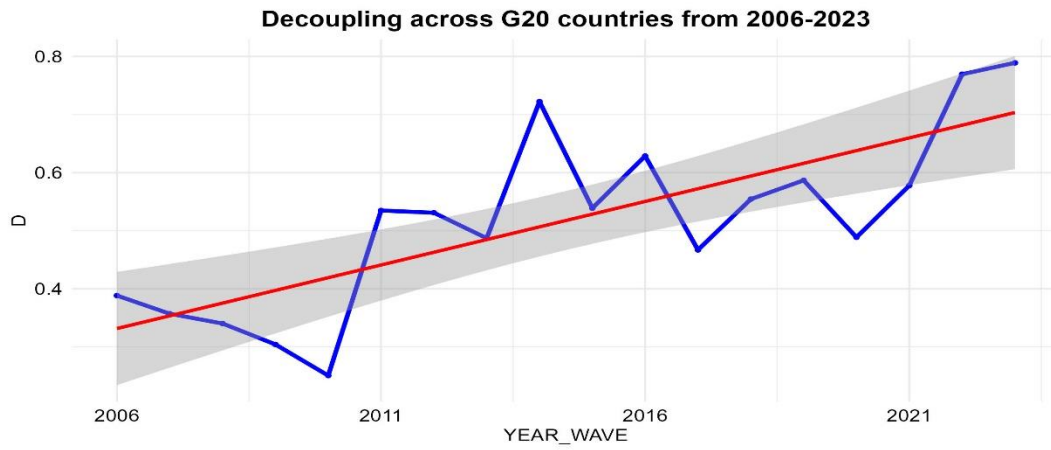


Table 1, *Cor\_sol\_1* : correlation between solidarity and GDP across G20 countries based on method1 and so on...

YEAR_WAVE	cor_sol_1	cor_sol_2	cor_sol_3	cor_agency_1	cor_agency_2	cor_agency_3	D
2006	0.58	0.58	0.58	0.64	0.63	0.64	0.39
2007	0.85	0.85	0.85	0.44	0.42	0.44	0.36
2008	0.80	0.80	0.80	0.52	0.47	0.52	0.34
2009	0.80	0.80	0.80	0.59	0.55	0.59	0.30
2010	0.84	0.84	0.84	0.66	0.65	0.65	0.25
2011	0.76	0.76	0.76	0.17	0.18	0.16	0.53
2012	0.68	0.68	0.68	0.26	0.25	0.26	0.53
2013	0.78	0.78	0.78	0.24	0.25	0.24	0.49
2014	0.83	0.83	0.83	-0.27	-0.17	-0.27	0.72
2015	0.73	0.73	0.74	0.19	0.20	0.19	0.54
2016	0.70	0.70	0.70	0.04	0.05	0.04	0.63
2017	0.79	0.79	0.79	0.28	0.24	0.28	0.47
2018	0.65	0.65	0.65	0.24	0.19	0.24	0.55
2019	0.66	0.66	0.66	0.17	0.12	0.17	0.59
2020	0.53	0.53	0.53	0.49	0.44	0.49	0.49
2021	0.58	0.58	0.58	0.27	0.22	0.26	0.58
2022	0.57	0.57	0.57	-0.11	-0.13	-0.11	0.77
2023	0.53	0.54	0.54	-0.11	-0.15	-0.11	0.79