

Table of Contents

Calculating Solidarity and Agency scores	1
Agency, Solidarity and GDP for each of G20 countries: 2006-2023.....	2
Correlation between GDP and Solidarity/Agency across countries : 2006-2023.....	4
Decoupling Index across G20 Countries	5
Decoupling Index for each country 2006-2023	6
Developing vs Developed and different income groups in G20	7
Appendix	10

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 is too high which might be suspicious.

3. Are the samples for each country representative enough of that country?

we may need to take into account the demographics of samples as well and see if it is different between countries.

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

Average and Standard deviation for each of G20 countries for 2006-2023.

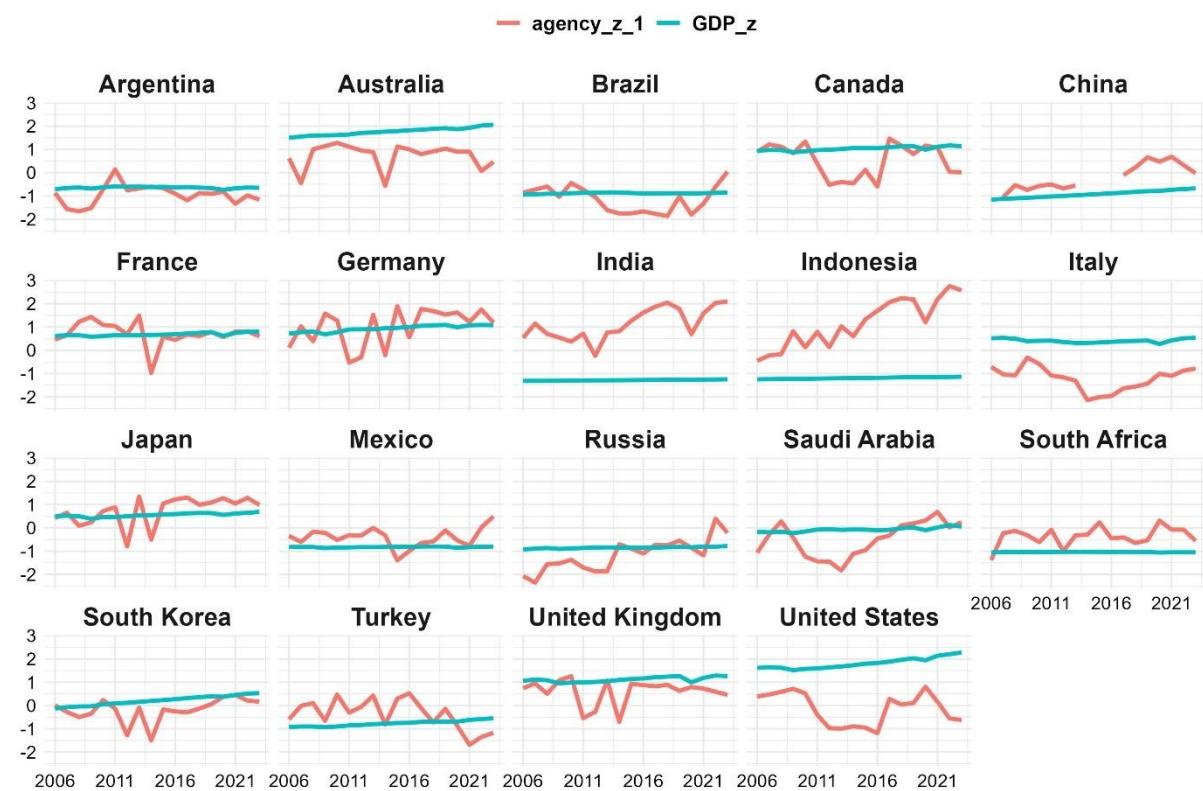
Country	mean solidarity	Sd solidarity	mean agency	Sd agency
Argentina	1.66	0.55	1.71	0.59
Australia	4.69	0.72	4.02	0.75

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

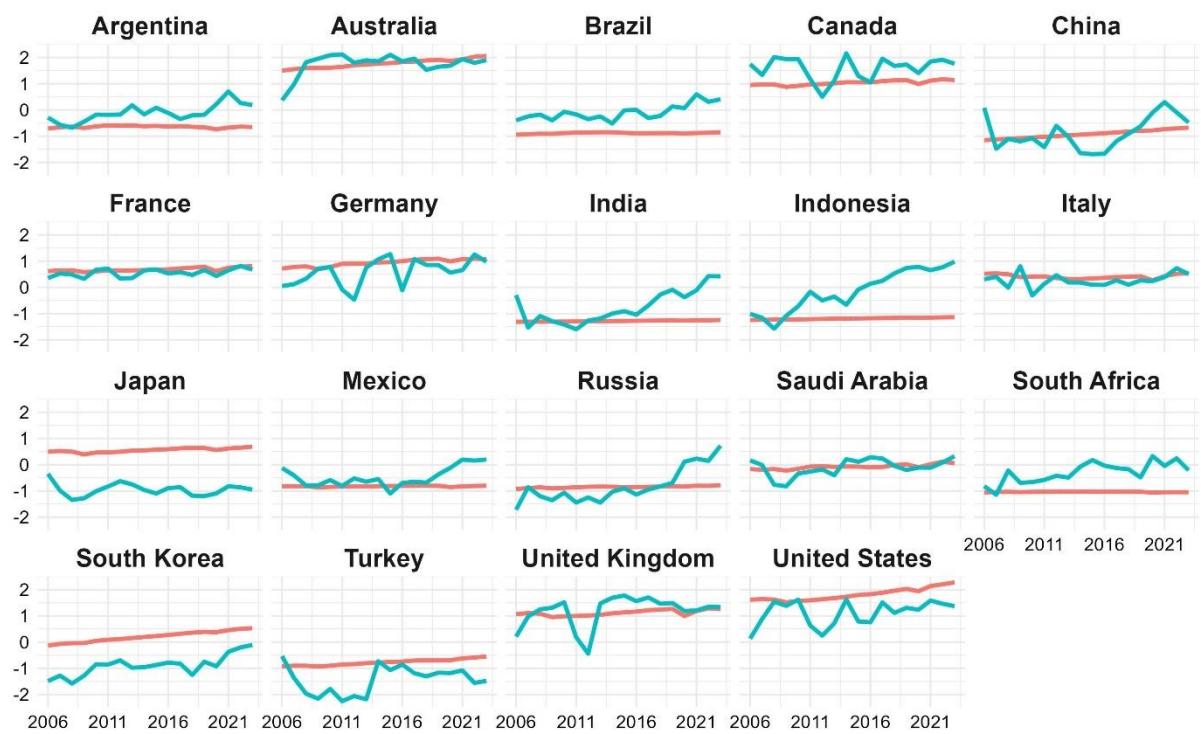
*The scores are normalised to show the graphics.

Agency and GDP for G20 countries between 2006-2023



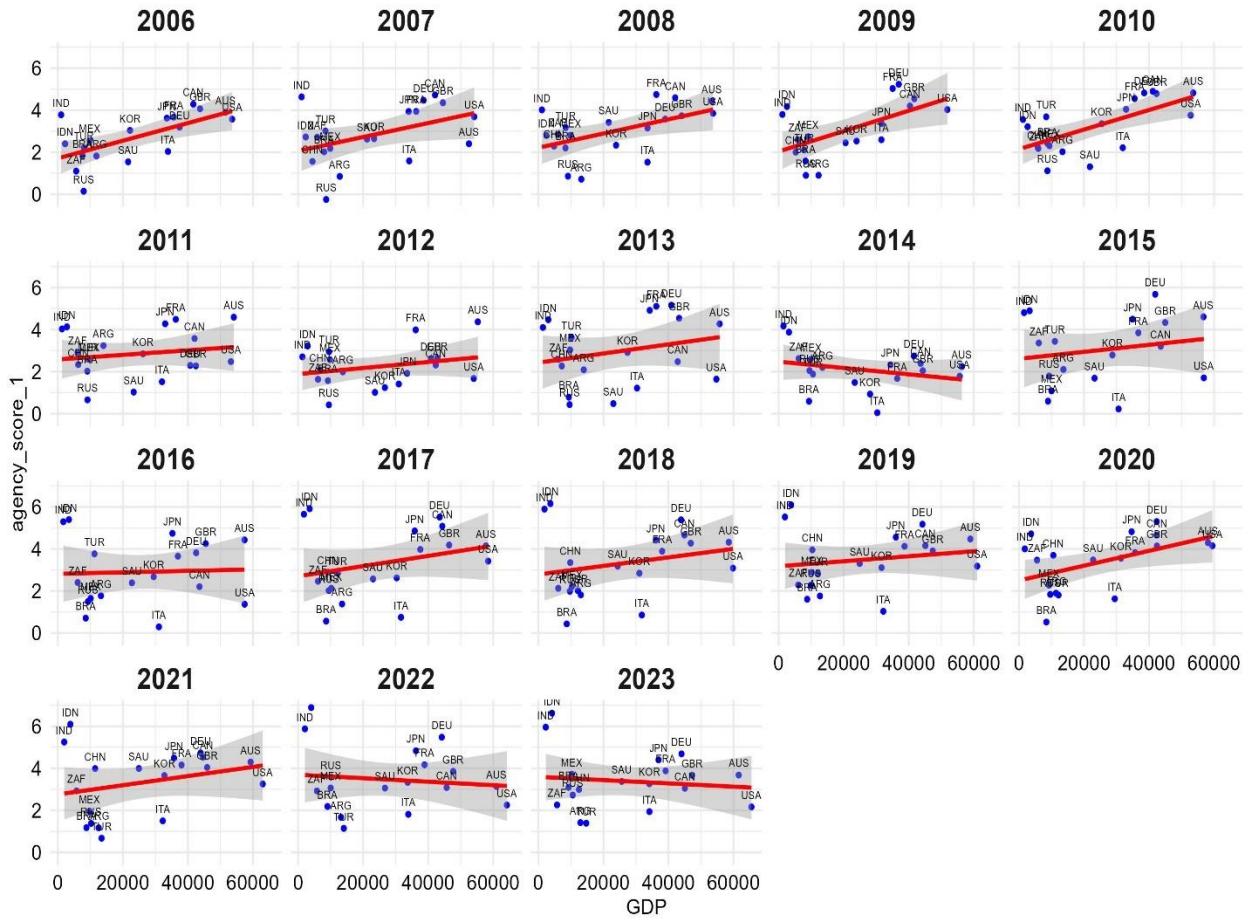
Solidarity and GDP for G20 countries between 2006-2023

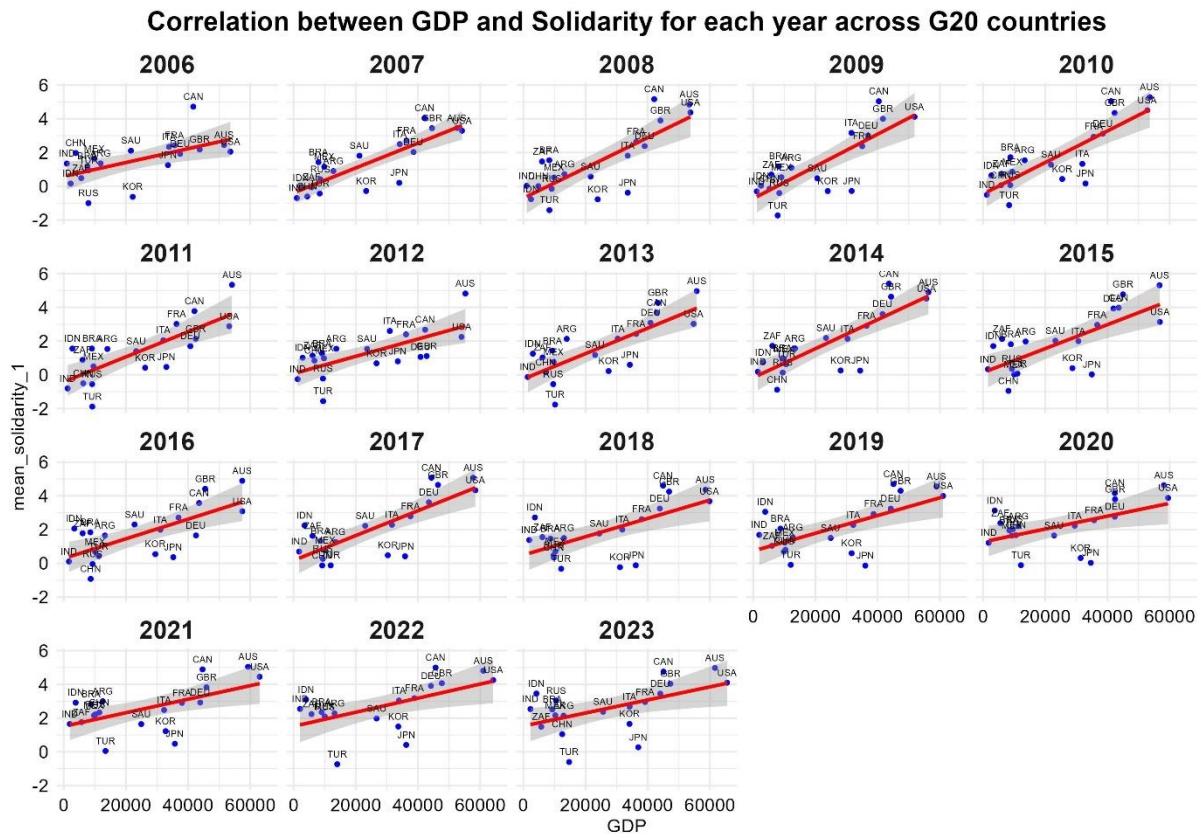
— GDP_z — solidarity_z_1



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

Correlation between GDP and Agency for each year across G20 countries





Decoupling Index across G20 Countries

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

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



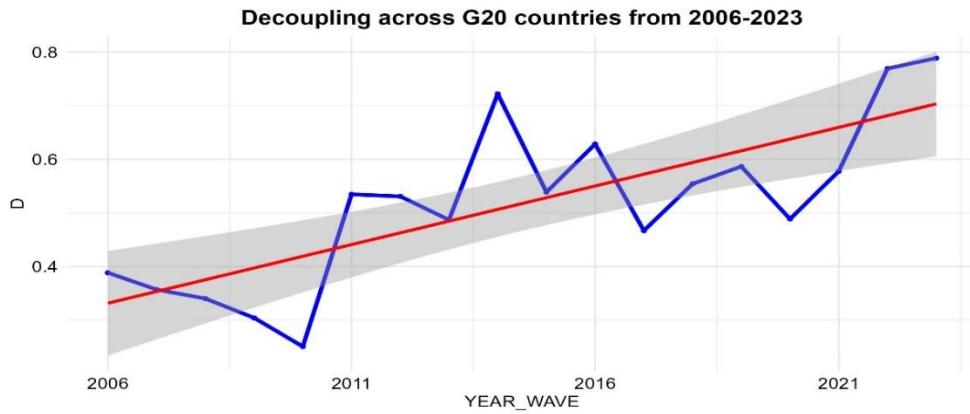


Table 1, Cor_sol_1 : correlation between solidarity and GDP across G20 countries based on method1 and so on...

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

Decoupling Index for each country 2006-2023

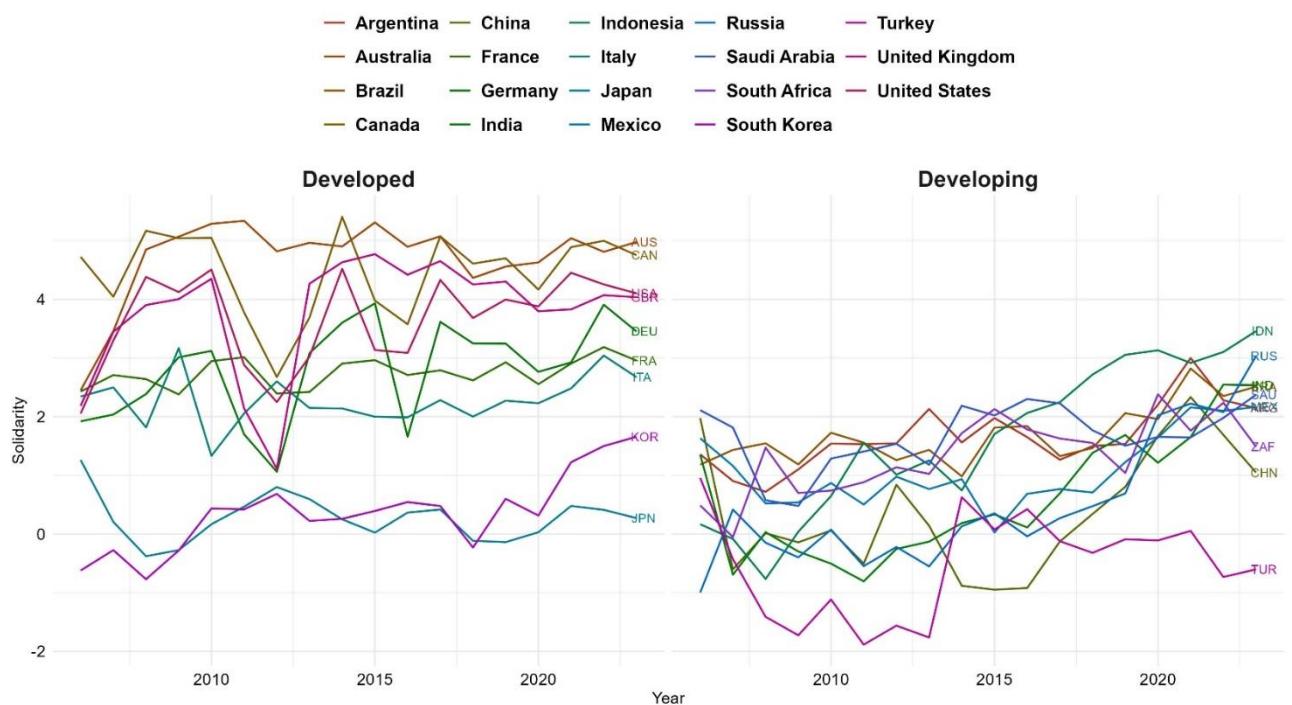
Question: Does solidarity and Agency change that fast from year to year so that the decoupling index for each country along 2006-2023 reliable?

To investigate this, I calculated average solidarity and Agency for each country/year).

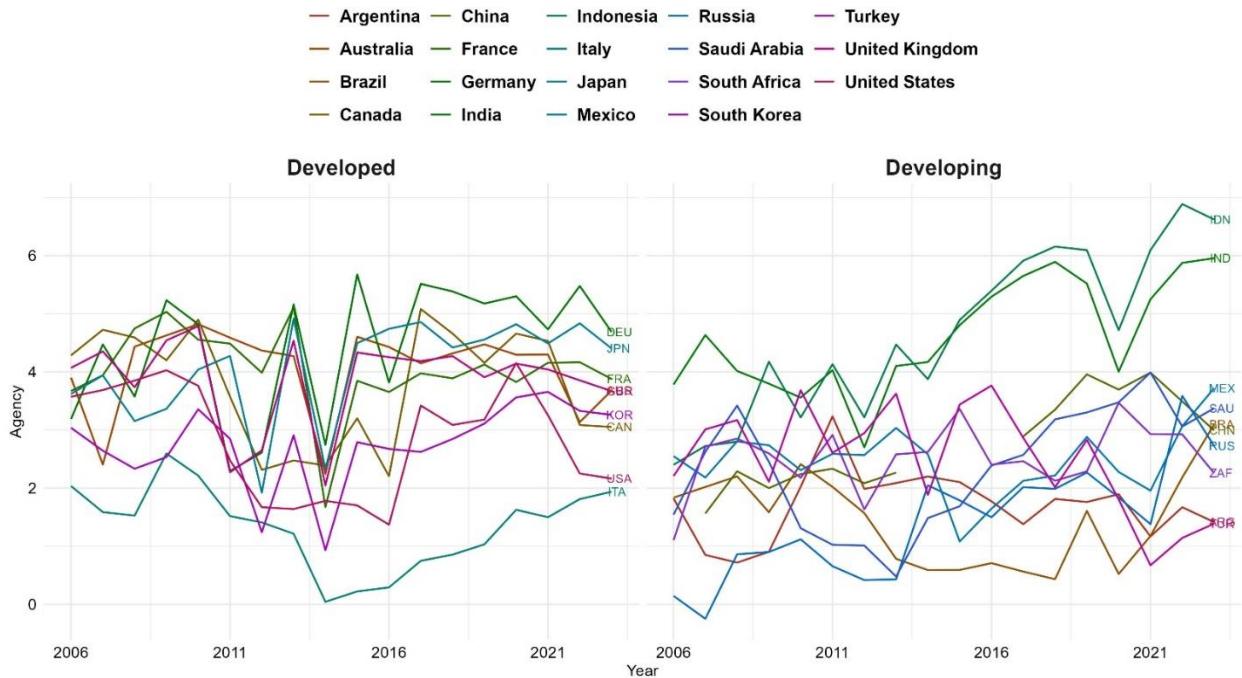
Country	Developed/ Developing	Income group	Country code	Cor(S, G)	Cor (A,G)	D_S = 1 - cor(s,G)	D_A = 1 - cor(A, G)	D = (D_s + D_A)/2
Argentina	Developing	Upper-middle-income	ARG	-0.08	0.42	1.08	0.58	0.83
Australia	Developed	High-income	AUS	0.43	-0.01	0.57	1.01	0.79
Brazil	Developing	Upper-middle-income	BRA	0.24	-0.06	0.76	1.06	0.91
Canada	Developed	High-income	CAN	0.17	-0.18	0.83	1.18	1.01
China	Developing	Upper-middle-income	CHN	0.33	0.87	0.67	0.13	0.40
France	Developed	High-income	FRA	0.60	-0.13	0.40	1.13	0.77
Germany	Developed	High-income	DEU	0.43	0.34	0.57	0.66	0.61
India	Developing	Lower-middle-income	IND	0.80	0.79	0.20	0.21	0.21
Indonesia	Developing	Lower-middle-income	IDN	0.95	0.94	0.05	0.06	0.06
Italy	Developed	High-income	ITA	0.27	0.47	0.73	0.53	0.63
Japan	Developed	High-income	JPN	-0.01	0.53	1.01	0.47	0.74
Mexico	Developing	Upper-middle-income	MEX	0.09	-0.01	0.91	1.01	0.96
Russia	Developing	Upper-middle-income	RUS	0.78	0.71	0.22	0.29	0.26
Saudi Arabia	Developing	High-income	SAU	0.45	0.33	0.55	0.67	0.61
South Africa	Developing	Upper-middle-income	ZAF	-0.04	-0.04	1.04	1.04	1.04
South Korea	Developed	High-income	KOR	0.80	0.36	0.20	0.64	0.42
Turkey	Developing	Upper-middle-income	TUR	0.31	-0.56	0.69	1.56	1.13
UK	Developed	High-income	GBR	0.41	0.09	0.59	0.91	0.75
United States	Developed	High-income	USA	0.38	-0.16	0.62	1.16	0.89

Developing vs Developed and different income groups in G20

Solidarity score from 2006-2023 for G20 countries, Developing vs Developed countries

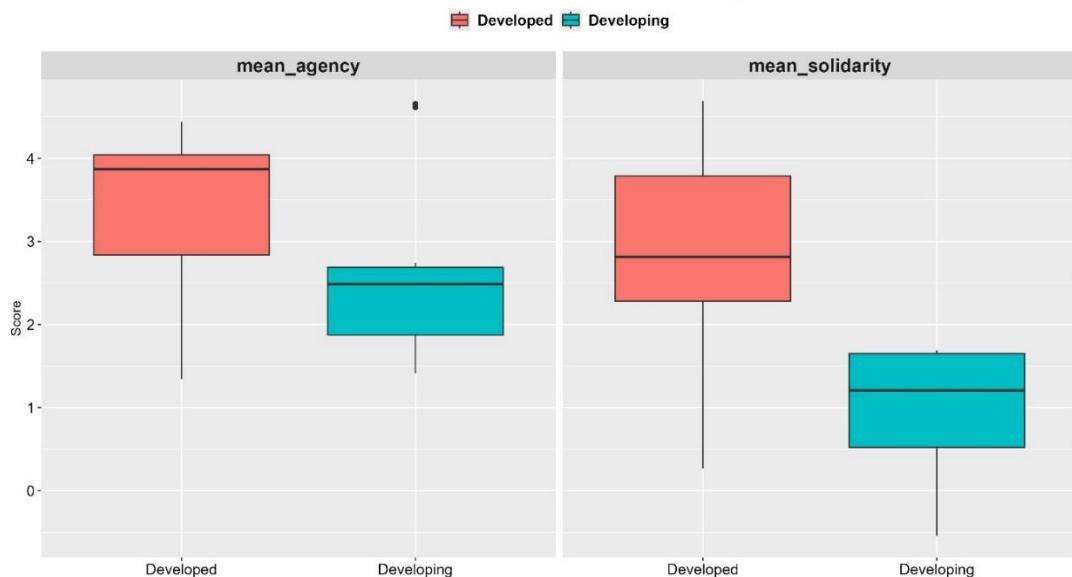


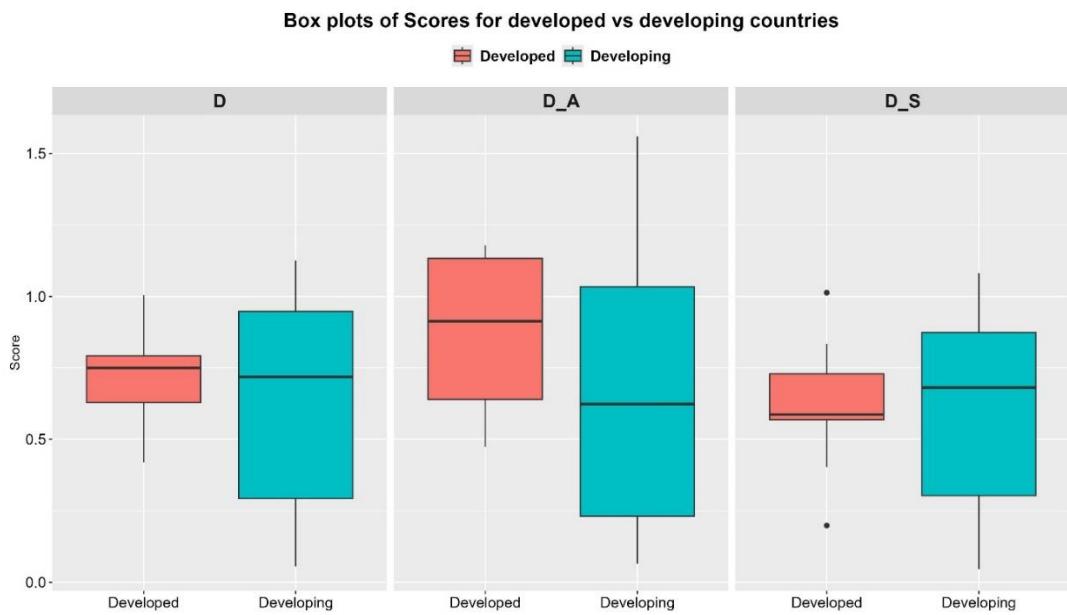
Agency score from 2006-2023 for G20 countries, Developing vs Developed countries



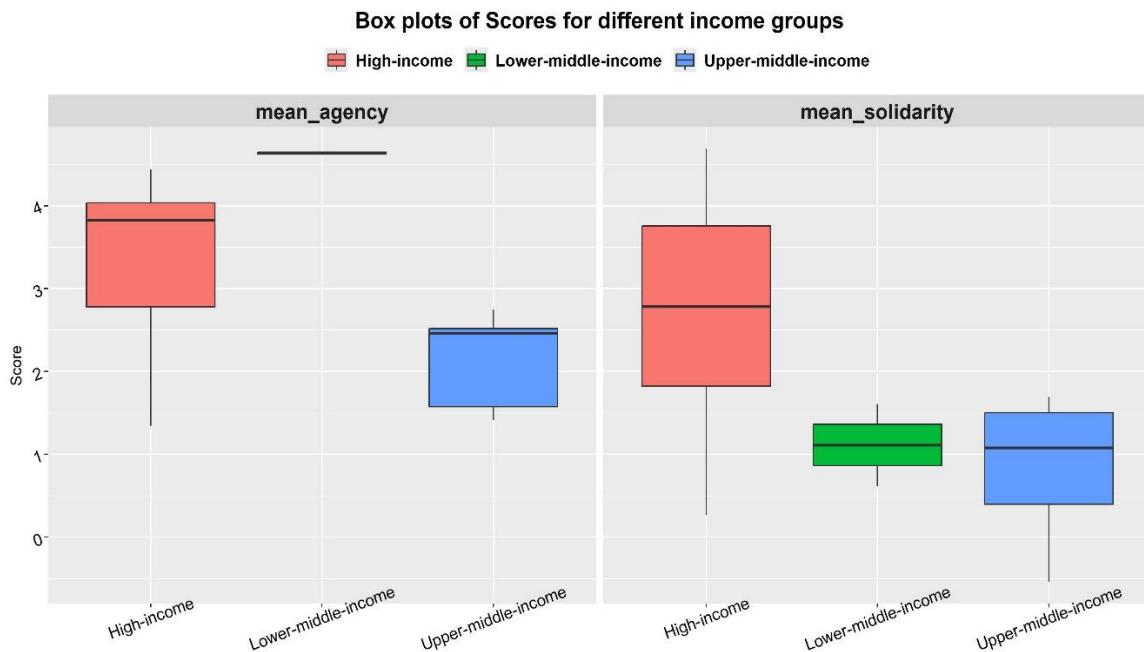
Observation: Developing countries are in general higher in terms of solidarity but not that much agency!

Box plots of Scores for developed vs developing countries

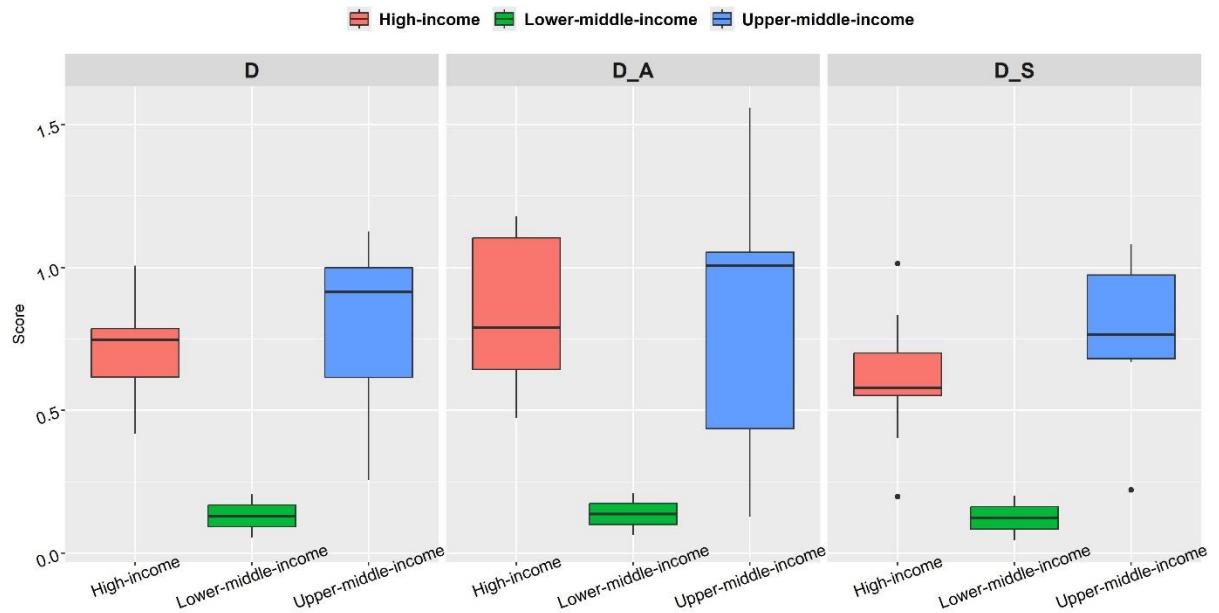




Observation: Developing countries have more scattered Decoupling indices but the average difference is not significant between these two groups.



Box plots of Scores for different income groups



metric	p_value_type	mean_developed	mean_developing	p_value_income	mean_high_income	mean_low_income
Solidarity	0.0074 *	2.79	0.99	0.0074 **	2.67	0.86
Agency	0.0053	3.46	2.64	0.0053 **	3.35	2.11
D_S	0.2417	0.61	0.62	0.2417	0.61	0.77
D_A	0.9046	0.85	0.66	0.9046	0.84	0.81
D	0.6299	0.73	0.64	0.6299	0.72	0.79
GDP	0 **	41506.95	9368.93	0 **	39671.93	9395.56

Question: From the charts, can we say that the choice of questions for solidarity and agency is good? (Japan is very high for agency, but it is the lowest for solidarity among developed countries).

Appendix

WP27	If you were in trouble, do you have relatives or friends you can count on for help? [yes/no]	Solidarity	Inward Solidarity
WP110	In the past month, have you helped a stranger or someone you didn't know who needed help? [yes/no]	Solidarity	Outward Solidarity
WP108	In the past month, have you donated money to a charity? [yes/no]	Solidarity	Outward Solidarity
WP109	In the past month, have you volunteered your time to an organization? [yes/no]	Solidarity	Outward Solidarity

WP103	Is the city or area where you live a good place or not a good place to live for racial and ethnic minorities? [yes/no]	Solidarity	Outward Solidarity
WP105	Is the city or area where you live a good place or not a good place to live for gay or lesbian people? [yes/no]	Solidarity	Outward Solidarity
WP106	Is the city or area where you live a good place or not a good place to live for immigrants from other countries? [yes/no]	Solidarity	Outward Solidarity
WP61	Were you treated with respect all day yesterday? [yes/no]	Solidarity	Outward Solidarity
WP129	Do you believe that children in (Country) are treated with respect and dignity, or not? [yes/no]	Solidarity	Outward Solidarity
WP138	In this country, do you have confidence in each of the following, or not? How about judicial system and courts? [yes/no]	Agency	Institutional Trust
WP139	In this country, do you have confidence in each of the following, or not? How about national government? [yes/no]	Agency	Institutional Trust
WP146	Is corruption widespread throughout the government in this country, or not? [yes/no]	Agency	Institutional Trust
WP134	In this country, are you satisfied or dissatisfied with your freedom to choose what you do with your life? [satisfied/dissatisfied]	Agency	Personal Agency
WP93	In the city or area where you live, are you satisfied or dissatisfied with the educational system or the schools? [satisfied/dissatisfied]	Agency	Public Services and Infrastructure
WP97	In the city or area where you live, are you satisfied or dissatisfied with the availability of quality healthcare? [satisfied/dissatisfied]	Agency	Public Services and Infrastructure
WP98	In your city or area where you live, are you satisfied or dissatisfied with the availability of good, affordable housing? [satisfied/dissatisfied]	Agency	Public Services and Infrastructure
WP92	In the city or area where you live, are you satisfied or dissatisfied with the roads and highways? [satisfied/dissatisfied]	Agency	Public Services and Infrastructure
WP91	In the city or area where you live, are you satisfied or dissatisfied with the public transportation systems? [satisfied/dissatisfied]	Agency	Public Services and Infrastructure