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Chapter 33

Globalisation continues: The Maastricht Globalisation Index revisited and updated[68]

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Abstract

Globalisation is a complex process which leads to increasing connectedness and interrelatedness in the political, economic, social and cultural, technological, and environmental domains at many different scales. While this is a truly global phenomenon, it also has different impacts and manifestations in different geographic localities. As a result, different nations exhibit different levels of globalisation or connectedness. Furthermore, perspectives on globalisation are manifold and change over time, so it is crucial to continuously reflect upon and revise existing methodologies. Composite indices are a powerful tool to capture and measure complex concepts, allowing complex systems to be monitored over time and yielding relative rankings and comparisons. This chapter presents a revised and updated Maastricht Globalisation Index for 117 countries and three points in time – 2000, 2008, and 2012 – including a new calculation methodology and data. Results show that globalisation still continues but has slowed down recently.

33.1 Introduction: a pluralistic approach to globalisation

Globalisation has the key characteristics of being multi-dimensional and multi-scalar. As laid out by Jessop (2000), globalisation is the result of the co-evolution of nested and complex system structures, rather than exhibiting simple and one-dimensional characteristics. This pluralistic (or complexity-based) approach enables us to perceive globalisation as a phenomenon, or an over-arching process in which many different processes take place simultaneously in many domains (Martens & Rotmans, 2005; Martens & Rotmans, 2002). After all, not all factors that underlie or shape globalisation, or all the consequences of this process, have as yet been identified. Acknowledging the pluralistic character of the driving forces and its consequences is an essential step in describing the phenomenon. From a conceptual perspective, this implies that one cannot grasp the full extent of globalisation by looking at it only from one perspective. However, one can more or less consciously choose to ignore other dimensions. Taking a truly global or holistic perspective on globalisation by acknowledging its multi-scalarity also has certain implications. Processes and structures at different scales, i.e. the global, international, regional, national and sub-national scales, are seen to be interconnected and co-evolving and should therefore not be analysed in isolation. Several scholars who follow Scholte's definition of globalisation as supra-territoriality regard it as a single process that takes place only at the global scale. Accordingly, they argue that it should be conceptually differentiated from other concepts, such as internationalisation, liberalisation and universalisation (Caselli, 2012; Dreher, Gaston, Martens, & Van Boxem, 2010; Lombaerde & Lapadre, 2008; Scholte, 2005, 2008).

In the broadest sense, globalisation is defined as "the growing interconnectedness and inter-relatedness of all aspects of society" (Jones, 2010). Adding multi-dimensionality and multi-scalarity, we define contemporary globalisation as the intensification of cross-national interactions that promote the establishment of trans-national structures and the global integration of cultural, economic, ecological, political, technological, and social processes at global, supra-national, national, regional, and local levels (Rennen & Martens, 2003). Taking a global systems perspective, globalisation as the growing interconnectedness of sub-systems results in increasing system complexity at various scales, although different national systems may of course exhibit diverging levels of connectedness and complexity.

From a scientific perspective, it is crucial to develop tools and methods to measure and assess complex phenomena, such as globalisation. Section 1 below introduces composite indicators, and more specifically the Maastricht Globalisation Index. Section 2 describes the empirical operationalisation of the different components. Section 3 explains the recently updated calculation methodology. Section 4 reports the results, showing the state of globalisation and changes therein for 117 countries for the years 2000, 2008 and 2012. Section 5 discusses some issues regarding the quantitative empirical work on globalisation.

33.2 The Maastricht Globalisation Index (MGI)

One powerful tool to grasp, illustrate, monitor, and communicate complex issues or concepts that exhibit multi-dimensionality, such as globalisation, is that of composite indicators (CIs). CIs are constructed by aggregating individual quantitative or qualitative indicators into a final index. Most CIs are constructed at a national level, thereby allowing for a relative ranking or comparison of country performance (OECD, 2008). It is important to acknowledge that CIs are quantitative, mathematical, or computational models and their construction process involves many subjective choices by the person who puts them together. In his critique, Caselli (2012) argues that globalisation can only be measured indirectly. Accordingly, there is not one correct or objective way to do it, and it is rather important that subjective methodological choices are made transparent.

One composite indicator is the Maastricht Globalisation Index (MGI), developed by Martens & Raza (2009); Martens & Zywietz (2006); and Rennen & Martens (2003), and further applied in Martens, Akin, Maud, & Mohsin (2010); Martens & Amelung (2010); and Martens & Raza (2010). For a detailed discussion of the use of indicators to measure globalisation, we refer to Dreher et al. (2008). For critical reflections see Caselli (2008) and (2012); Dreher et al. (2010); and Lombaerde & Lapadre (2008). For the most recent overview on "new directions in Globalisation Indices" we refer to Martens et al. (2015). The following sections describe the successive steps of the index construction process, namely the choices of domains and variables and the calculation methodology.

33.3 Components of the MGI

The choice of which domains and indicators to include and which to omit is a subjective one. Different scholars would make, and already have made, different choices for their own reasons, as the variety of existing indices shows. Where one researcher may decide to include a particular domain/indicator or not, another might make the opposite choice, with arguments which may be equally valid; the same holds for the calculation method, as is explained below. The choices reflect a person´s perception of what he or she thinks are the most important aspects. The choice is also subject to data availability and quality. Indicators included in a CI should therefore be seen as exemplifying the major themes within the globalisation debate, as perceived by its author. However, stating that one is making an objective measurement or that a CI represents an objective truth about globalisation creates the danger of hiding behind a "veil of quantitative and statistical objectivity."

The original MGI (Martens & Zywietz, 2006) was an effort to improve on the indices characterised by a neo-liberal focus on the economic dimension of globalisation. The first step in its development was to choose the domains. In line with the multi-dimensional definition of globalisation set out above, the MGI is made up of 5 domains:

the political, economic, socio-cultural, technological, and environmental domains. Table 33.1 lists all the sub-indicators which were chosen. Log means that the data has been transformed by taking the logarithms, for reasons explained in the section on the calculation of the MGI. What makes the MGI unique compared to other multi-dimensional globalisation indices is the inclusion of the environmental domain and an indicator of the globalisation of a country's military-industrial complex. The current version of the MGI covers 117 countries (see Figure 33.1 and Table 33.2 in section 33.5).

Table 33.1 Maastricht Globalisation Index (MGI) indicators.

Domain	Indicator name, abbreviation	Weight / transformation	Indicator definition
Political	Embassies (Emb)	1/15	Absolute number of in-country embassies and high commissions
	Organisations (Org)	1/15	Absolute number of memberships in international organisations
	Military (Mil)	1/15 Log	Trade in conventional arms as a share of military spending
Economic	Trade (Tra)	1/15	Imports + exports of goods and services as a share of GDP
	FDI (Fdi)	1/ 15 Log	Gross foreign direct investment, stocks (% of GDP)
	Capital (Cap)	1/15 Log	Absolute value of net private capital flows (% of GDP)
Social & Cultural	Migrants (Mig)	1/10 Log	International migrant stock as a share of population
	Tourism (Tou)	1/10 Log	International arrivals + departures per 100 inhabitants
Technological	Cell Phone (Cel)	1/ 10	Mobile cellular subscriptions per 100 inhabitants
	Internet (Int)	1/10	Internet users as a share of population
Environmental	Eco footprint (Env)	1/5 Log	Ecological footprint of imports and exports as a share of biocapacity

33.4 Calculation of the MGI

Calculating the index is the next step in the construction process. For an overview of the different methodological approaches we refer to the OECD "Handbook on Constructing Composite Indicators" (OECD, 2008). The calculation methodology is just as subjective as the choice of domains and indicators to be included. This section briefly explains the calculation methodology applied in the MGI.

The first step involves calculation of indicators and imputation of missing data. Calculation is necessary for those indicators that are not directly available as used in the index. Imputation of missing data is done through extrapolation from historical data. Secondly, indicators which have highly skewed distributions are transformed by taking the logarithm. This is a necessary step for the normalisation of the data and is applied to the variables military, FDI, capital, migrants, tourism, and eco-footprint (see Table 33.1). Thirdly, following Dreher (2006), indicator scores are calculated, by applying panel normalisation and using the formula $((V_i-V_{min})/(V_{max}-V_{min})*100)$. As a result of the previous steps, we can then finally aggregate the indicators first at the domain level and subsequently at the MGI level. Here equal weighting is applied in both aggregation steps, in agreement with our multi-dimensional definition of globalisation. We assume that there is no hierarchy of domains, but that each is equally important. The final score is then used to rank and compare countries. The higher the score, the more "globalised" a country is (see Table 33.2).

The data used in the MGI does not distinguish explicitly between globalisation, internationalisation, and regionalisation. Whereas some see this as a problem (Caselli, 2012; Lombaerde & Lapadre, 2008), we rather argue that this is in line with our multi-scalar definition. Accordingly, internationalisation and regionalisation are seen as integral sub-processes of globalisation, rather than as separate processes. Accordingly, we do not claim to measure globalisation as defined by Scholte as supraterritoriality (2008). We make the implicit assumption that countries with many international and regional links also have a greater number of global linkages. Furthermore, we do not distinguish between the globalisation based on the two criteria of functional (economic) integration and the extent of geographical spread as laid out by Dicken (2011). An index of globalisation as a distinctive process is definitely interesting, but cannot be constructed with the data at hand. Concluding, one could argue that the MGI should actually be called Maastricht Globalisation / Internationalisation / Regionalisation Index.

33.5 Results

Composite indicators allow for several types of observations. First, "global" observations can be made about general trends (e.g. increasing or decreasing). Secondly, the scores and rankings reveal relative changes in individual countries. Thirdly, observations can be made for groups of countries that are clustered according to certain characteristics (e.g. geographic region, economic performance, and level of globalisation). And lastly, indicators that have been constructed with different methodologies can be compared. This analysis is limited to the first two types of observations.

On average, the globalisation scores of countries rose from 40.56 in 2000 to 51.19 in 2012. The most significant driver has been the technological domain, which increased

from 1.89 to 9.08. This should not be surprising, given that the indicators for this domain are internet users and mobile phone subscriptions. Globalisation was slower between 2008 and 2012 than in the preceding period, with an absolute decrease in the economic domain. This is due to the global economic crisis which started in 2008 and had still not been fully overcome in 2012.

Table 33.2 gives an extensive overview of ranks, scores, and developments over time. The first column is the rank according to the MGI for 2012 and "dR 00-12" is the change (d = delta) in rank between 2000 and 2012. The results for the 2012 MGI score can also be seen in Figure 33.1.

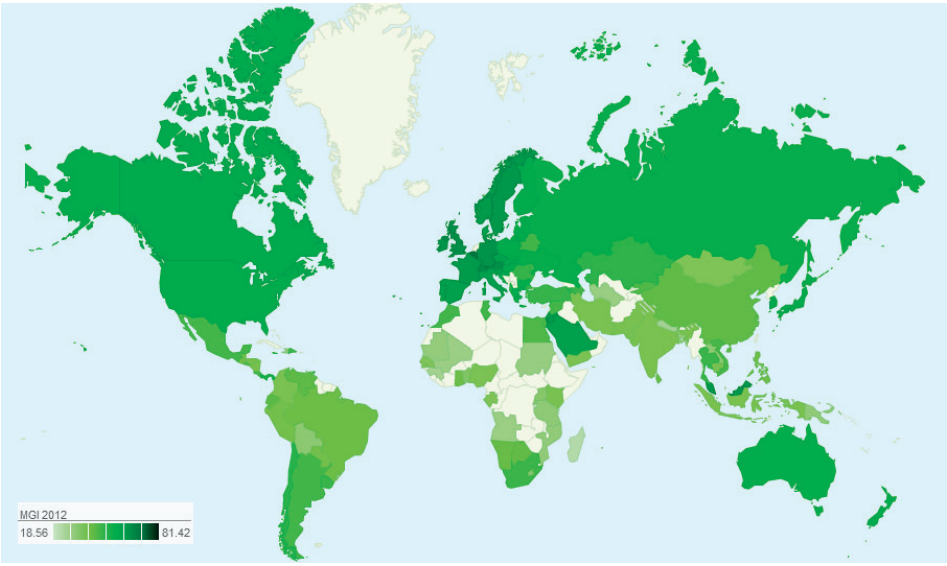

Figure 33.1 World Map of MGI 2012

The most globalised country is Belgium, followed by the Netherlands, Switzerland, the UK, Austria, and Germany. In general, the top end of the list is dominated by European countries. Interestingly, however, Malaysia managed to jumped up by 10 ranks and is now the 9th most globalised country, while Jordan ranks 12th. The BRICS countries, which are said to be the biggest emerging economies of the 21st century rank 39 (Russia), 53 (South Africa), 71 (China), 75 (Brazil) and 85 (India). An interesting finding is that South Africa actually dropped by 6 ranks, while all of the others rose by between 11 and 18 ranks. The lowest ranking countries are Burundi, Madagascar, Nepal, Guinea, Mali, Angola, and Turkmenistan.

The next three columns give the scores for 2000, 2008, and 2012, while "dS 00-12" is the change in score between 2000 and 2012. The colour of the columns visualises the above observation that the general trend is towards more globalisation. Only two

countries, Papua New Guinea and Burundi, were (slightly) 'de-globalising' in absolute terms. Most notably, Albania increased its rank by 42 and its score by 25.24 points.

The last column, "more G recently", is the per annum change between 2000 and 2008 minus the per annum change between 2008 and 2012. Accordingly, a positive number means that countries have been globalising more in the period between 2008 and 2012 than in the period between 2000 and 2008. Highest scoring countries here are Armenia, Botswana, Turkmenistan, Nepal, and Mongolia. A general observation is that this is rather the case for some lower-ranking countries, whereas globalisation processes have been slowing down in the more highly ranking countries. There are two plausible explanations. First, those countries had a strong momentum for globalisation, and secondly they were initially less integrated in the global capitalist system, so the economic crisis had a smaller impact on them.

Table 33.2 Maastricht Globalisation Index (2012)

country	Rank 12	dR 00-12	Score 00	Score 08	Score12	dS 00-12	more G recently
Belgium	1	1	67.86	77.25	81.42	13.56	-0.13
Netherlands	2	-1	69.22	78.72	78.12	8.90	-1.34
Switzerland	3	0	65.72	73.78	74.69	8.96	-0.78
United Kingdom	4	5	58.79	71.18	73.21	14.42	-1.04
Austria	5	-1	61.55	72.11	72.81	11.27	-1.15
Germany	6	-1	61.26	68.97	72.22	10.96	-0.15
Ireland	7	4	58.11	68.17	70.94	12.82	-0.56
Sweden	8	-2	60.82	69.49	70.74	9.92	-0.77
Malaysia	9	10	54.89	65.79	70.69	15.80	-0.14
France	10	-3	59.65	68.60	69.91	10.27	-0.79
Norway	11	4	56.72	67.77	69.71	13.00	-0.90
Jordan	12	4	55.71	66.70	69.57	13.85	-0.66
Denmark	13	-5	59.58	70.20	68.73	9.15	-1.70
Israel	14	-4	58.40	66.24	68.29	9.89	-0.47
Spain	15	2	55.17	66.41	68.23	13.06	-0.95
Italy	16	-4	57.25	65.25	68.04	10.80	-0.30
Saudi Arabia	17	13	49.66	63.37	67.95	18.30	-0.57
Portugal	18	5	52.45	64.06	67.43	14.98	-0.61
Czech Republic	19	7	51.91	65.45	66.76	14.84	-1.37
Slovenia	20	9	50.19	61.89	66.74	16.56	-0.25
Kuwait	21	-1	54.51	64.85	64.80	10.29	-1.31
Hungary	22	5	51.65	64.62	64.43	12.78	-1.67
Korea, Rep.	23	-1	52.89	63.93	64.33	11.43	-1.28
Canada	24	-11	56.90	61.34	64.13	7.22	0.14
Croatia	25	13	44.04	61.00	63.84	19.79	-1.41

country	Rank 12	dR 00-12	Score 00	Score 08	Score12	dS 00-12	more G recently
Slovak Republic	26	10	45.49	62.06	62.87	17.39	-1.87
Finland	27	-13	56.88	61.09	62.72	5.84	-0.12
Poland	28	9	45.05	59.56	62.66	17.62	-1.04
Japan	29	2	49.47	59.25	62.43	12.96	-0.43
Estonia	30	-9	53.21	61.08	62.31	9.10	-0.67
United States	31	-13	55.00	61.41	62.18	7.18	-0.61
Lithuania	32	7	43.99	59.89	61.74	17.75	-1.53
New Zealand	33	-8	52.25	60.33	61.59	9.34	-0.69
Greece	34	-10	52.26	61.56	61.59	9.32	-1.15
Latvia	35	5	43.95	59.73	60.81	16.87	-1.70
Bulgaria	36	7	43.16	61.52	60.66	17.50	-2.51
Australia	37	-9	50.78	58.67	60.59	9.81	-0.51
Ukraine	38	3	43.70	56.92	60.09	16.39	-0.86
Russian Federation	39	15	40.88	54.39	59.92	19.04	-0.31
Trinidad and Tobago	40	-5	45.77	55.05	57.56	11.80	-0.53
Panama	41	4	42.56	51.85	57.47	14.92	0.24
Albania	42	42	31.98	51.61	57.22	25.24	-1.05
Armenia	43	17	39.08	43.98	55.71	16.63	2.32
Chile	44	2	42.45	52.45	55.58	13.13	-0.47
Jamaica	45	-12	46.82	56.81	55.49	8.67	-1.58
Kazakhstan	46	-14	47.57	50.94	55.00	7.43	0.60
Macedonia	47	6	40.92	52.62	54.56	13.64	-0.98
Mauritius	48	-14	46.51	53.36	54.34	7.82	-0.61
Romania	49	12	38.87	53.63	53.78	14.91	-1.81
Turkey	50	9	39.10	51.45	53.64	14.54	-1.00
Uruguay	51	13	38.62	51.19	53.55	14.93	-0.98
Thailand	52	-10	43.64	52.35	53.27	9.63	-0.86
South Africa	53	-6	42.41	51.25	52.97	10.57	-0.67
Dominican Republic	54	2	40.26	47.35	52.71	12.45	0.45
Georgia	55	0	40.58	48.89	52.21	11.63	-0.21
Azerbaijan	56	10	38.00	48.29	52.07	14.06	-0.34
Moldova	57	1	39.51	49.76	52.03	12.52	-0.72
Tunisia	58	-14	42.73	53.33	51.91	9.18	-1.68
Argentina	59	-11	42.35	49.12	51.69	9.34	-0.20
Belarus	60	-11	41.58	47.62	51.68	10.10	0.26
Morocco	61	8	36.95	47.86	51.40	14.45	-0.48
Mexico	62	-12	41.21	46.98	51.38	10.17	0.38
Syria	63	5	37.18	46.05	51.29	14.11	0.20
Costa Rica	64	-12	40.99	49.67	51.20	10.21	-0.70

country	Rank 12	dR 00-12	Score 00	Score 08	Score12	dS 00-12	more G recently
Viet Nam	65	22	31.67	44.59	50.46	18.79	-0.15
Egypt, Arab Rep.	66	-9	39.71	47.74	50.04	10.33	-0.43
Kyrgyzstan	67	12	32.73	46.13	49.36	16.63	-0.87
El Salvador	68	3	36.51	45.94	48.93	12.42	-0.43
Ecuador	69	4	34.44	40.36	47.20	12.76	0.97
Venezuela, RB	70	-8	38.83	45.81	46.74	7.91	-0.64
China	71	11	32.54	41.59	46.44	13.90	0.08
Botswana	72	-5	37.96	38.94	45.95	7.99	1.63
Namibia	73	-22	41.05	46.92	45.37	4.32	-1.12
Sri Lanka	74	-4	36.93	42.15	44.39	7.46	-0.09
Brazil	75	16	30.84	39.35	44.01	13.17	0.10
Ghana	76	-13	38.78	42.15	43.61	4.83	-0.05
Guatemala	77	6	32.30	41.22	43.41	11.11	-0.57
Philippines	78	-13	38.29	41.68	43.21	4.92	-0.04
Paraguay	79	13	30.78	40.49	42.67	11.89	-0.67
Gambia, The	80	-4	34.22	40.42	42.23	8.01	-0.32
Peru	81	13	29.89	41.44	42.20	12.31	-1.25
Honduras	82	7	31.31	40.69	41.91	10.61	-0.87
Nicaragua	83	5	31.50	37.26	41.44	9.93	0.32
Cambodia	84	11	29.61	39.57	40.96	11.36	-0.90
India	85	18	28.00	35.13	40.66	12.66	0.49
Indonesia	86	-5	32.60	36.54	40.58	7.98	0.52
Pakistan	87	-2	31.91	39.09	40.34	8.44	-0.58
Kenya	88	-8	32.62	36.92	40.31	7.69	0.31
Iran	89	-11	32.82	36.78	40.21	7.39	0.36
Colombia	90	8	28.78	38.48	40.19	11.41	-0.78
Nigeria	91	5	29.56	38.00	39.87	10.31	-0.59
Yemen	92	-20	35.54	39.89	39.72	4.18	-0.59
Mongolia	93	20	22.89	30.71	38.95	16.05	1.08
Gabon	94	-17	34.03	38.20	38.89	4.86	-0.35
Senegal	95	5	28.37	36.98	38.75	10.38	-0.63
Cote d'Ivoire	96	-10	31.89	37.32	38.17	6.28	-0.47
Benin	97	8	27.72	35.50	37.65	9.92	-0.43
Uganda	98	3	28.32	33.90	36.12	7.80	-0.14
Togo	99	-9	31.02	35.21	35.90	4.88	-0.35
Lesotho	100	-26	34.43	35.39	35.22	0.80	-0.16
Bolivia	101	6	26.58	33.37	34.87	8.30	-0.47
Rwanda	102	0	28.31	31.47	34.59	6.28	0.38
Laos	103	3	26.98	31.24	34.38	7.40	0.25

country	Rank 12	dR 00-12	Score 00	Score 08	Score12	dS 00-12	more G recently
Tanzania	104	0	27.72	33.97	33.89	6.17	-0.80
Mozambique	105	3	25.96	32.08	33.46	7.50	-0.42
Papua New Guinea	106	-31	34.35	33.25	33.45	-0.90	0.19
Haiti	107	2	25.39	31.79	33.20	7.81	-0.45
Bangladesh	108	-9	28.51	33.24	33.08	4.58	-0.63
Mauritania	109	1	24.96	29.31	32.67	7.71	0.29
Sudan	110	2	24.05	31.88	31.77	7.72	-1.01
Turkmenistan	111	-18	30.10	27.10	31.56	1.46	1.49
Angola	112	-15	29.14	30.77	31.18	2.04	-0.10
Mali	113	-2	24.45	27.94	30.84	6.39	0.29
Guinea	114	0	22.40	27.84	28.42	6.02	-0.54
Nepal	115	0	21.18	21.82	27.91	6.72	1.44
Madagascar	116	1	17.27	23.84	23.65	6.38	-0.87
Burundi	117	-1	19.13	17.15	18.56	-0.57	0.60

33.6 Is globalisation good or bad?

Globalisation indices by themselves do not contribute much to the debate on whether it is good or bad. Linking the MGI to indices of sustainability may give better answers to the question whether globalisation is good or bad. Several studies with the MGI have shown that countries that are more globalised are also more sustainable, and in general also healthier (Martens, et al., 2010; Martens & Raza, 2010). A review of the work with the KOF index of globalisation further shows that contemporary globalisation has exerted positive effects on economic growth and human rights, but negative effects on within-country inequality (Potrafke, 2014). At the same time, international trade allows for externalisation of social and environmental costs. The pressures and impacts of consumption on distant socio-economic and ecological systems are detached from the experience of consumption. Two recent studies (Weinzettel et al., 2013; Yu et al., 2013) show that countries with higher incomes, such as the US, Europe, and Japan, for example, displace 33%, 50%, and 90%, respectively, of their land use to other countries, through international trade. Taking a multi-dimensional perspective, it would be interesting to analyse whether countries that are more globalised (not only in the economic domain) have larger ecological footprints. Globalising countries may achieve desirable outcomes in human development, health, and economic performance, but may do so within a global system that puts other countries and the natural world at a disadvantage by externalising social and environmental costs.

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