

HOW MUCH ARE COUNTRIES GLOBALIZED?

Construction of a globalization sub-index

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GEOPOLITICS FOR BUSINESS - GROUP 4

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1. Abstract

Globalization has shaped our world in profound ways across various domains. Nowadays, as stated by Elizabeth Braw in a speech at Bocconi University (April 2024), recent events show a different story – a more deglobalized world, divided into spheres of influence is coming.

After the Cold War, globalization accelerated at breakneck speed. Manufacturing, transport, and consumption defied national borders, companies made more money, and consumers had access to an ever-increasing range of goods. But in recent years, a profound shift has begun to take place.

Business executives and politicians alike are realising that globalization is no longer working. Supply chains are imperiled, Russia has been expelled from the global economy after its invasion of Ukraine, and China is using these fissures to leverage a strategic advantage.

Given the importance of the topic, the purpose of our work is to understand, formalize, and capture a country's globalization level. The final aim is the construction of a geopolitical risk index, exploitable in the future by business and non-business stakeholders.

In our work we capture four different dimensions of globalization, each one divided in many sub-indexes:

1. Trade and investment
2. Tech, Innovation and People
3. Multinational enterprises
4. Politics

2. Introduction

Overall, we found the index to be a good representation of the globalization status of the countries included.

Therefore, we updated the various sub-indexes, both timewise and country-wise, and we formatted the Excel file to make it more comprehensible and uniform.

In the Excel we have also updated the formula to assign the score as a percentile for the various countries. To make the formula more straightforward and easier to understand we replaced the “=IFS” with the built-in formula (“=Percentrank”) to assign the percentile to each country.

We were able to expand the index both temporally and geographically, indeed the final index spans from 2000 to 2022 and it includes 216 Countries.

3. Data

3.1. Trade and Investments

Trade and Investments sub-index takes into account import and export of goods and services, foreign direct investment and portfolio investments. Data are also analyzed in relative terms, dividing them by countries' GDP. The sub-index has been updated using the same source as last year therefore World Bank indicators (<https://data.worldbank.org/indicator/NE.IMP.GNFS.ZS>). After careful consideration, it is the best available representation for Trade and Investments and so we maintain this source of information.

We were able to increase the number of countries in the sample that are currently 218 and also expanded the time horizon to include 2021 and 2022 data.

Firstly, the import and export activities of each country are crucial components in our index, acknowledging their pivotal role. These indicators are essential as they illustrate how countries wield

economic influence over one another and their vulnerability to global or regional economic shifts.

Secondly, we incorporated Foreign Direct Investments (FDI) to capture countries' collaborations or impact on each other through investment activities. Therefore, FDI reflects medium to long-term cross-border partnerships.

Lastly, we integrated portfolio investments, which denote short-term cross-border partnerships by measuring investments in foreign companies for less than 10% of shareholders' equity.

3.2. Technology, Knowledge and People

The Tech, Innovation and people sub-index was updated along different dimensions.

The sub-sub index called “Internet users (%)”, whose name is quite self-explanatory, was updated with data from the World Bank from 2022 and extended with historical data all the way back to 1995, when before the data range went from 2000 to 2021.

When it comes to the two sub-sub-indexes related to tourists' inflows, we found that keeping both would have been quite redundant, as what they were measuring was very similar. Indeed, they were both measuring tourists' arrivals, one as a percentage of the destination country's population and the other as a percentage of total flow of tourists worldwide. We decided to keep the latter, as the former was oversensitive to small countries with exceptionally high flows of visitors. This sub-sub-index was also updated with data from 2021 and 2022, which were taken from the [UNWTO](#), which is where the World Bank data are sourced, as the WB had not updated its dataset yet.

The sub-sub-index called “English Proficiency” was removed, as the data were complete only for 52 countries, and ranged from 2010 to 2021. Moreover, the data could not be extended as the data owner and provider, EF education First, stopped releasing the relevant raw data and, when contacted, claimed that they will not release them in

the future. As an interesting alternative that bridges between the topics of international mobility and cultural exchanges, we added the index called “Inbound mobility rate”, based on a dataset from the [UNESCO Institute for Statistics](#) , which captures the share of international students over the number of total tertiary enrollments in each country. As mentioned above, this allows us to capture a very specific and dynamic type of cultural exchange, the interactions among students from different countries, which are quite impactful as they happen in a phase where young adults are very prone and open to new inputs and ideas.

3.3. MNEs

The MNEs sub-index has been updated using the same source as last year (the KOF index developed by ETH Zurich), which, after careful consideration, is the best available representation of the MNEs presence among the countries. In particular, the sub-index of the KOF chosen is called de jure Cultural Globalisation (KOFcuGldf) takes into account the trade in cultural goods and in personal services, the number of international trademarks and the number of McDonald’s restaurants and IKEA stores.

As we were updating the data frame to add two years to the sub-index, we noticed that the entire dataset changed, even for previous years (e.g. 2000). We then proceeded to investigate to search for the reason behind this change, and we found it in the methodology pdf published on their website. The reason is that the weights given to each sub-index are assigned via a Principal component analysis with a 10-year rolling window horizon. As data are refreshed to add the latest year, the rolling window “rolls” and the weights assigned for past years change.

The time horizon has been expanded two years to include 2021 (latest year available) and it contains data for 201 countries.

3.4. Politics

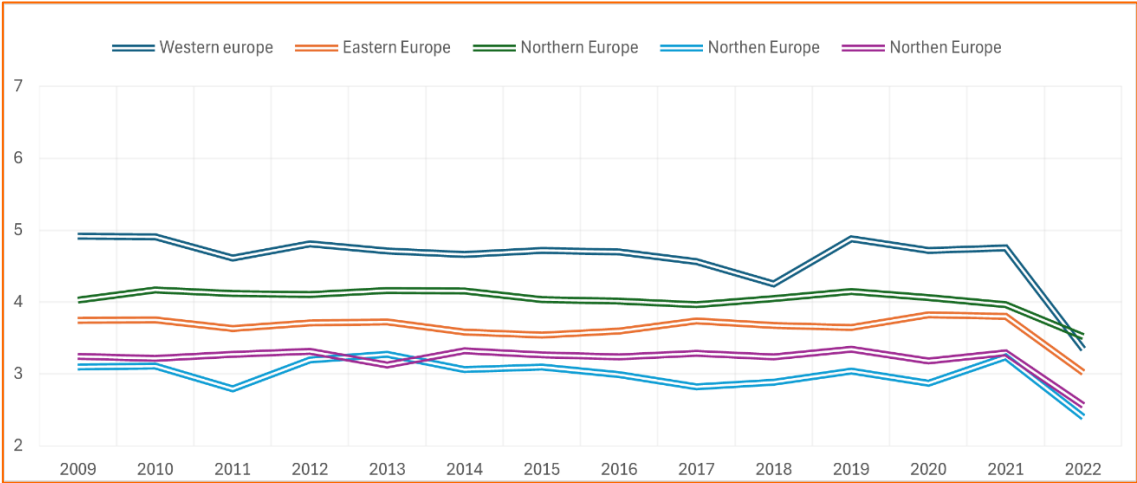
The Politics sub-index was updated with data from 2022 and 2023 and increasing the number of countries from 216 to 233. The source is the same as the past two years: the Global Trade Alert ([GTA](#)) by the St. Gallen Endowment for Prosperity through Trade (SGEPT). Moreover, it is important to note that some changes were made to data recorded in the past two years, as “the GTA database is updated continuously – including with policy changes implemented years ago.” The GTA data bank is largely considered the best database regarding policies that affect world commerce; this is also the opinion of the International Monetary Fund, which in 2016 noted that the GTA “has the most comprehensive coverage of all types of trade-discriminatory and trade-liberalizing measures.”

The Politics Exposure and Contribution variables are computed, respectively, as the difference between the exposure to liberal policies and the exposure to harmful ones, and the difference between the contribution to liberal policies and the contribution to harmful ones. These variables are the only ones in the sub-index whose percentiles have a range of values from -5 to +5. The reason behind this choice was to give a negative value to contribution and exposure when the number of harmful policies exceeded the liberalizing ones. This was done to reduce the value of the overall index when the country enacts or gets exposed to more harmful policies than liberalizing ones, as this would for sure reduce the level of globalization of the country.

4. Results

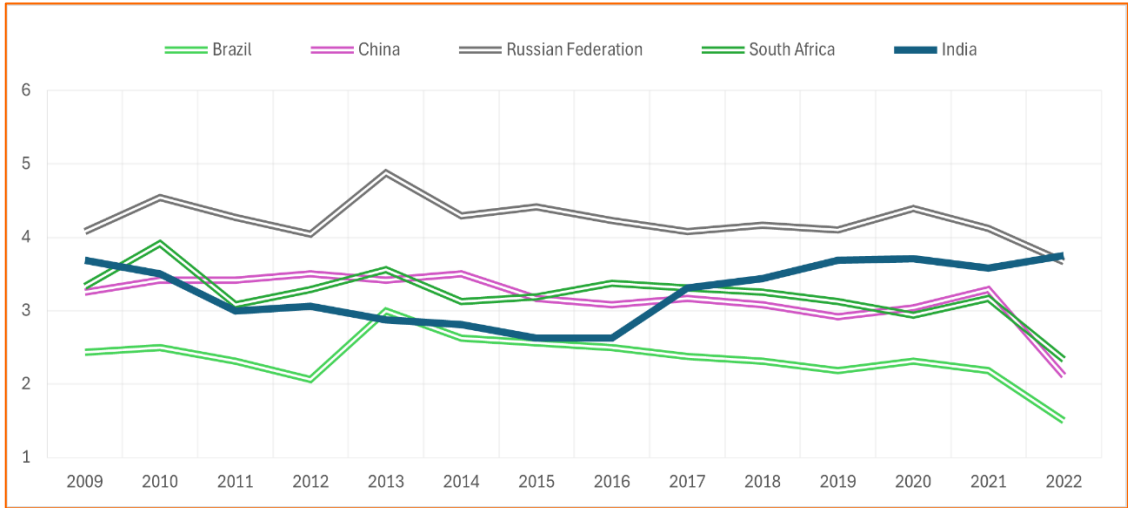
We decided to test our data, analysing the globalization index of some countries. Firstly we investigate the output for European countries, secondly all G7 countries and finally the BRICS.

4.1. European countries



In Europe, we see quite a stable situation in the past 12 years, with Western Europe leading in terms of globalization, compared to other macro-areas like Eastern and Southern Europe and the Baltics. In 2021, the war hit hard all the European regions, which saw a remarkable drop in the levels of globalization.

4.2. BRICS



The graph above shows that among the (original) BRICS countries, Russia was the most globalized one at the end of 2021 (before the

full-scale invasion of Ukraine). In addition, it is important to note the process of globalization that took place in India from 2016 to 2022 and helped the country overcome China in this measure and reach Russia. Another important figure that the graph highlights is that China suffered from the trade war with the United States.

5. Limitations

- Regarding the Trade and Investments sub-index, a future interesting option could be a deeper analysis of portfolio investments, considering the level of capital flow between countries over time. As of today, we were not able to find a database exploitable in our analysis.
- For the Tech, Innovation and People sub-index, a further interesting option to explore is the flow of cultural goods across borders, specifically imports and exports of cultural goods from each country. However, the only data source we found was again the UNESCO Institute for Statistics, whose dataset ranged from 2004 to 2019, which we considered to be too small of a time period for it to be included in the Index. However, this could be a good starting point for future developments, and a good possible metric to further investigate.
- For the MNEs sub-index, we removed the GVC index as there was a lack of data and the inclusion of the database would have limited the precision and the details of the final index.
- For the Politics sub-index, the GTA is a complete index and is considered by many institutions as the best one in gathering data on liberalizing and protectionist policies enacted around the world. However, the dataset was started in 2009, after the GFC, when it was feared that governments would have adopted 1930s-style protectionist policies. For the Geopolitical Risk Index created by this class, 2009 represented a good starting point, as it extended the timeframe of the old final index by more than 10 years. However, for future purposes, other groups may have to choose a different dataset to overcome this time limit.

6. Conclusions

Our task was to create an index that measured globalization, with the greater aim of producing, along with the other groups, a geopolitical risk index – to be used by different stakeholders. We decided to structure this index in a way that captures globalization through its multiple facets. Hence, we identified four dimensions to develop: trade and investments; technology, knowledge, and people; multinational enterprises; politics.

Subsequently, we deliberated on the selection of data for each dimension, considering both temporal span and geographical coverage as our criteria for inclusion.

Then we standardized the variables and we performed a panel normalization of them. Our final index is the result of the equally weighted average of the four dimensions, and it covers 216 countries from 2000 to 2022.

After computing the index, we considered some countries to test the performance of our index: European countries and BRICS.

7. References

Trade and Investments sub-index

<https://data.worldbank.org/indicator/NE.IMP.GNFS.ZS>

<https://data.worldbank.org/indicator/NE.EXP.GNFS.ZS>

<https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD>

<https://data.worldbank.org/indicator/BN.KLT.PTXL.CD>

Tech, Innovation and People sub-index

<https://data.worldbank.org/indicator/ST.INT.ARVL>

https://data.worldbank.org/indicator/IT.NET.USER.ZS?year_high_desc=true

<https://uis.unesco.org/en/glossary-term/inbound-mobility-rate>

Multinational Enterprises sub-index

<https://kof.ethz.ch/en/news-and-events/media/press-releases/2023/12/globalisation-index.html>

Politics sub-index

https://www.globaltradealert.org/global_dynamics