



GINA
Economic

Methodological Notes

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Key takeaways

GINA Economic employs a framework for evaluating global trade dynamics, using advanced metrics like Global Imports and Exports scores from UN Comtrade data. This approach captures the total value of goods exchanged internationally, offering insights into global consumption trends and production capacities. These metrics are critical for understanding economic health, trade balances, and market demands. The detailed categorisation of import and export flows further enriches the analysis by providing insights into the economic interdependencies between nations.

The tool also introduces a nuanced analysis of global Foreign Direct Investment (FDI) flows with a focus on both outwards and inwards investments as recorded by the Organisation for Economic Cooperation and Development (OECD). This analysis includes tracking of investments made by domestic entities in foreign markets (FDI Outward) and foreign investments entering the domestic market (FDI Inward). It highlights the role of Special Purpose Entities (SPEs) and financial hubs in managing these investments. By examining these flows, GINA Economic provides essential information on how multinational corporations integrate into global markets and how domestic markets attract foreign capital.

The methodological notes of GINA Economic underscore the challenges of data completeness and discrepancies in trade and FDI reporting. It addresses the limitations of relying on data from sources like UN Comtrade and the OECD, which may not fully capture non-member states' data. Despite these challenges, the document emphasises a structured, multi-level analytical approach that focuses on the comprehensiveness of economic assessments. This methodological rigour ensures that the insights derived are both reliable and actionable for policymakers and economists alike.

1. Introduction

In an ever-evolving global landscape, the Hague Centre for Strategic Studies (HCSS) remains at the forefront of pioneering research into the intricacies of global, monadic, dyadic, and network relations within the geopolitical domain. Our Geopolitical Interactive Network Analysis (GINA) initiative aims to transcend the limitations of traditional, material-based analyses, shedding light on the nuanced tapestry of relational power dynamics that define our world.

This codebook serves as a cornerstone of our analytical framework, providing a categorisation of various data series. By examining the intertwined layers of voting and speech variables derived from UN data, we strive to construct both a comprehensive and quantitative overview of index and score variables. The codebook encapsulates our innovative approach to measurement, advocating for a dynamic methodology that reflects the geodynamics of international relations. By integrating considerations such as proxy actors, statistical rigour, and standardisation, we enhance the precision and depth of our analysis¹.

GINA Economic is the second instalment of our series of interactive network analysis tools, which also includes *GINA Military* (scheduled for August 2024), *GINA Information* (scheduled for September 2024), and *GINA Diplomatic* which was launched in June 2024. These tools are slated for deployment later this year.

In the following sections, the reader will find a detailed description of our data series, variables, and estimation methodologies for GINA Economic. Our measurements are structured into three distinct levels to enhance the precision and traceability of our analysis:

1. **Index Level:** We focus on the aggregation and normalisation of scores, facilitating comparative analysis across various datasets and temporal frames. This provides a standardised framework for interpreting raw scores within broader patterns and trends.
2. **Score Level:** Involves quantitative evaluations derived directly from our data, representing specific measurements or calculated values essential for constructing indices.
3. **Data Level:** We handle both textual and numerical information, collected from diverse sources.

This foundational work lays the groundwork for our open-source suite of tools, each designed to bring a deeper understanding of their respective domains through network analysis techniques.

¹ This is the first version (Version 1.0) of GINA Economic, and it is currently in its beta phase. Therefore proxy actors, statistical rigour, and standardisation have not been fully integrated in the analysis yet.

2. Trade Variables

A few remarks must be made about the United Nations Comtrade data. First and foremost, the UN Comtrade is ever dependent upon individual states reporting their trade. Most states do, but it must be taken into account that some trade flows are missing. It is also good to take into account that last year's data may not be complete yet as states may submit their trade data not immediately. Second, importers often report different values than exporters for the same trade. This is the known and well-studied problem of trade discrepancy. In the GINA dashboard, the first state that is given as input is the reporting state.

2.1. Global Imports

Category: Trade

Type: Numeric

Unit: Score

Source: [UN Comtrade](#)

Description: Global Imports captures the total value of goods imported by all countries worldwide. This metric aggregates the imports across nations to reflect global consumption trends and international demand for goods and services. Analysing global imports is essential for understanding worldwide economic health, trade dynamics, and shifts in market demands. This comprehensive overview aids policymakers, economists, and businesses in assessing global supply chains and economic interdependencies.

$$Global\ import\ flow = \sum_{i=1}^n Import\ flow_i$$

- n : Number of countries that have an import flow > 0 .
- $Import\ flow_i$: total import flow volume in USD for a given country.

2.2. Global Exports

Category: Trade

Type: Numeric

Unit: Score

Source: [UN Comtrade](#)

Description: Global Exports measures the total value of goods exported by all countries globally. This figure represents the cumulative exports from nations around the world, offering insight into the global productive capacity and international trade flows. Global exports are crucial for examining the economic output, trade balances, and competitive strengths of countries on a worldwide scale. This data assists in understanding how interconnected and dependent countries are on the global market.

$$Global\ export\ flow = \sum_{i=1}^n Export\ flow_i$$

- n : Number of countries that have an export flow > 0 .
- $Export\ flow_i$: total export flow volume in USD for a given country.

2.3. Trade Import

Category: Trade

Type: Numeric

Unit: Score

Source: [UN Comtrade](#)

Description: Trade Import measures the value of goods received by a country from foreign partners. It includes all commodities brought into the country for consumption, production, or further processing. Tracking imports is crucial for understanding a country's consumption patterns, dependency on foreign goods, and overall economic health. The data is often broken down by sector, country of origin, and product type to provide a detailed view of trade dynamics.

Import flow(I, E, V)

- **Importer:** The domestic country receiving the goods or services.
- **Exporter:** The foreign country or region from which the goods or services are sourced.
- **Volume:** The total monetary value of the imports, quantified in USD.

2.4. Trade Export

Category: Trade

Type: Numeric

Unit: Score

Source: [UN Comtrade](#)

Description: Trade Export quantifies the value of goods a country sends to foreign markets. This encompasses all products and services provided to international buyers, reflecting the country's productive capacity, competitive advantages, and integration into global markets. Exports are a vital component of economic growth, bringing in revenue, creating jobs, and contributing to a favourable trade balance. Detailed data on exports includes product categories, destination countries, and value over time.

Export flow(I, E, V)

- **Importer:** The domestic country initiating the export.
- **Exporter:** The foreign country or region receiving the goods or services.
- **Volume:** The total monetary value of the exports, quantified in USD.

3. FDI Variables

For the FDI data coming from the OECD, it must be taken into account that it is limited to only the 38 member states for the source of their data. Hence, FDI between two non-OECD states will not be in this data. This is a major shortcoming and we are in the process of finding data also for non-OECD states.

3.1. Global Outwards FDI

Category: FDI

Type: Numeric

Unit: Score

Source: [OECD](#)

Description: Global outwards FDI aggregates the total foreign direct investments made by all domestic entities across the globe into foreign markets. This metric encompasses investments aimed at establishing subsidiaries, purchasing foreign firms, or forming joint ventures abroad. Often, these investments are managed through Special Purpose Entities (SPEs) based in financial centres or tax havens to leverage fiscal advantages. This data provides insights into the global spread and economic influence of multinational corporations and is instrumental in assessing the extent of global business integration.

$$\text{Global outwards FDI} = \sum_{i=1}^n \text{Outwards FDI flow}_i$$

- n: Number of countries that have an Outwards FDI flow > 0,
- *Outwards FDI flow_i*: total import flow volume in USD for a given country.

3.2. Global Inwards FDI

Category: FDI

Type: Numeric

Unit: Score

Source: [OECD](#)

Description: Global inwards FDI measures the total capital inflows into countries worldwide from foreign investors. It includes investments directed toward establishing new operations, acquiring or merging with domestic firms, and other forms of capital contributions that enhance the recipient countries' economies. These investments are often facilitated by Special Purpose Entities (SPEs) and can pass through multiple jurisdictions, reflecting complex global investment strategies. This metric is relevant for understanding how countries attract foreign investment and integrate into the global economic landscape.

$$\text{Global inwards FDI} = \sum_{i=1}^n \text{Inwards FDI flow}_i$$

- n: Number of countries that have an Inwards FDI flow > 0,
- *Inwards FDI flow_i*: total import flow volume in USD for a given country.

3.3. FDI Outward

Category: FDI
Type: Numeric
Unit: Score
Source: [OECD](#)

Description: FDI Outward describes investments made by domestic investors in foreign markets. This category tracks financial outflows aimed at establishing or expanding operations overseas, including the creation of subsidiaries, acquisition of foreign firms, or investment in joint ventures. Investments are often channelled through Special Purpose Entities (SPEs) which may be located in financial hubs or tax havens to facilitate strategic financial management. This metric is crucial for understanding a nation's economic reach and its companies' global integration.

Outward FDI flow(A,T,V)

- **Actor:** The actor country initiating the investment,
- **Target:** The foreign country receiving the investment,
- **Volume:** The monetary value of the investment, in billions USD.

3.4. FDI Inward

Category: FDI
Type: Numeric
Unit: Data
Source: [OECD](#)

Description: FDI Inward represents the capital inflows from foreign investors into the domestic economy. This metric tracks investments from foreign entities that contribute to the domestic economy by establishing new operations or by acquiring or merging with existing domestic firms. Such investments are crucial for creating jobs, enhancing industrial capabilities, and driving economic growth. FDI Inward may include funds that have passed through third-party countries, utilising Special Purpose Entities (SPEs) for optimising fiscal strategies or navigating regulatory landscapes. This data helps gauge foreign confidence in the domestic market and the degree of economic globalisation.

inward FDI flow(A,T,V)

- **Actor:** The foreign country or entity making the investment,
- **Target:** The domestic country receiving the investment,
- **Volume:** The monetary value of the investment, in billions USD.