

Trade Reporting Maturity & Granularity Analysis

1. About the Dataset

This dataset focuses on the availability, coverage, and reporting granularity of international trade import data across countries and years. It captures metadata related to how countries report their import statistics, including reporting periods, classification granularity levels, reporting systems, partner country structures, and publication status.

Rather than describing specific products or trade values, the dataset provides insight into the level of detail at which import data is reported and the consistency of reporting over time. The presence or absence of publication records for specific years helps identify reporting gaps, late publications, and historical limitations in data availability.

By analyzing this dataset, we can assess how trade reporting standards have evolved, identify periods of improved data maturity, and determine which years and countries provide reliable, high-granularity data suitable for deeper trade analysis.

2. Problem Statement

International trade datasets are widely used for economic analysis, forecasting, and policy evaluation. However, the reliability of such analyses depends heavily on the availability, consistency, and granularity of reported data.

The objective of this project is to evaluate how trade import data reporting has evolved across countries and over time, focusing on classification granularity, coverage across reporting years, and publication completeness. By analyzing reporting metadata rather than trade values, this project aims to identify periods of strong data maturity, detect reporting gaps, and assess which years and classification levels are suitable for detailed downstream analysis.

3. Objectives

Objectives Achieved Using Excel

Analyze the years of reporting coverage for each country

Evaluate trends in reporting record volume over time

Assess classification granularity coverage across reporting countries

Analyze the number of countries reporting data for each classification code

Objectives Achieved Using Power BI

Analyze the temporal coverage of trade reporting data across countries

Identify classification granularity levels most widely supported

Determine the highest classification granularity achieved within the dataset

Analyze how classification granularity has evolved over time

4. Data Preparation & Methodology

The analysis was performed using Microsoft Excel and Power BI. Initial data exploration and aggregation were carried out in Excel using pivot tables to understand reporting coverage, classification distribution, and publication gaps.

The dataset was then imported into Power BI for interactive analysis and visualization. Data preparation steps included standardizing classification codes, validating reporting periods, handling missing publication records, and creating calculated measures to evaluate reporting coverage and granularity trends.

Filters and slicers were implemented to enable analysis by country, classification code, reporting year, and tariff-line-level reporting availability, allowing both high-level trend analysis and focused drill-down exploration.

5. Dashboard Description & Analytical Approach

The Power BI dashboard was structured into multiple analytical pages, each addressing a specific aspect of the problem statement:

Overview Page – High-level summary of country participation and reporting year coverage

Classification Coverage Page – Reporter support across classification granularity levels

Granularity Evolution Page – Progression of reporting detail over time

Record Volume & Publication Page – Reporting intensity and data availability gaps

Together, these views provide a comprehensive assessment of trade reporting maturity across countries and years.

6. Key Insights & Observations

Trade reporting coverage increases significantly after the late 1980s

Early periods are dominated by low-granularity classification codes

Higher granularity levels (H4–H6) appear predominantly in recent years

Some countries demonstrate long-term and consistent reporting histories

Record volume trends confirm increased reporting intensity over time

7. Conclusion & Recommendations

This analysis demonstrates a clear evolution in international trade reporting maturity over time. While early years are characterized by limited coverage and low classification granularity, recent periods offer substantially improved data availability and reporting detail.

For downstream trade analysis, it is recommended to focus on years with higher classification granularity (H4 and above) and consistent publication records. Earlier periods should be used cautiously and are more suitable for high-level trend analysis rather than detailed product-level insights.

Overall, the dataset provides a strong foundation for trade analysis when appropriate temporal and granularity constraints are applied.