WORLD INTEGRATED TRADE SOLUTION (WITS)

Context:

Trade data is voluminous and complex given its multidimensional nature of bilateral trade flows between countries for over 5000 products recorded in several product nomenclature. For example, the underlying trade data from UN COMTRADE has over 3 billion rows of raw data.

To use this data for performing analysis, users need access to high capacity computers, often needing to download millions of rows of data before writing code to perform the analysis.

Similarly, tariff data reported by countries has MFN and preferential tariffs, but additional metrics are needed to understand the impact of these tariffs on trade.

These metrics may include:

Conversion of specific duties to ad valorem equivalents

Extracting the bilateral applied tariff (the lowest of a preferential and MFN tariff) at the national tariff line level

Aggregating tariff line level tariffs to the HS 6-digit level or higher to make information cross-country comparable

Calculation of simple and weighted average tariffs

Trade data is often needed to carry out simulations of trade policy reforms such as tariff cuts as well as to derive indicators of trade competitiveness and to undertake analyses of Global Value Chains. These require a good understanding of methodologies and often involve complex calculations.

Due to this complexity and need for high computing power, many users—especially those in developing countries—are not able to analyze trade data. Even a relatively simple task such as calculating regional exports and imports for various sectors can involve significant data download, preparation, and coding to derive the numbers.

Maintaining a repository of data to ensure it is up to date when new data is reported every year is also a time-consuming and expensive activity—especially if duplicated by individual users.

PROGRAM:

Multi-Donor Trust Fund for Trade and Development 2 (MDTF-TD2); Umbrella Facility for Trade

TEAM LEADER:

Siddhesh Kaushik

TIME PERIOD:

September 2012 - present

ACTIVITY:

+ Advisory services and diagnostics
+ Research
+ Knowledge sharing

COUNTRIES:

Global

TRADE AREA:

+ Trade data analysis

BENEFICIARIES:

Economists, governments, policymakers, researchers, think tanks, academia, and general users interested in trade flows and market access.

IMPLEMENTING PARTNERS:

World Bank, UNCTAD, UNSD, WTO, ITC

WORLD BANK GROUP
Ministry of Foreign Affairs of the Netherlands
Sida SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
Department for International Development
NORWEGIAN MINISTRY OF FOREIGN AFFAIRS
Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra
Swiss Confederation
Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

WITS brings data from multiple international organizations to a single platform, managing and harmonizing the data and calculation methodologies. WITS is a partnership product developed with UNCTAD and in consultation with UNSD, WTO and ITC, and thus leverages the mutual strengths of the respective organizations in data collection, processing, online analytics and reporting.

Intervention:

WITS brings together several international, trade, and protection databases under one platform. More importantly, it provides data management, aggregation and dissemination services in a very user-friendly manner. The portal provides data management services such as the conversion of specific duties to ad valorem equivalents and the calculation of simple and weighted average tariffs thus harmonizing the methodology of these calculations and ensuring users worldwide have access to the same tariff data.

During the Doha Round of WTO trade negotiations, a module was developed to enable countries to simulate the impact of tariff cuts. In 2012, this module was extended to simulate multi-market tariff reductions. In the same year, the World Bank published the Trade Competitiveness Diagnostic Toolkit which included a set of indicators to assess the competitiveness of a country. These indicators were converted into a Trade Outcome Module in WITS. Collected data on non-tariff measures (NTMs) has also been included in WITS with a module developed to calculate NTM indicators like frequency and coverage ratios and to assess the impact of NTMs on various sectors and on trade. For more general uses to obtain high-level information on trade, for example, the main exporting/importing countries in a product, a module called TradeStats has been developed that pre-aggregates data and presents it in tables and charts.

Chat bot Search

The data collected by WTO, UNSD, UNCTAD and ITC can be queried and downloaded using a single application thereby negating the need for users to go to multiple locations or learn to use multiple interfaces. The system also provides several value-added services like custom aggregation of trade and tariff data by country or product groupings without the need for custom coding. These are often needed for sectoral and regional analysis of trade. TradeStats has close to two million pages on the WITS website and a chatbot to guide users to the correct page. The chatbot uses machine learning based services to interpret the intent and entities in the user question to provide a set of relevant pages to browse.

Key Impacts:

WITS is one of the World Bank's **most popular websites** and had over **8 million page views** in 2019. On average, registered users download about 12 billion rows of data per month.

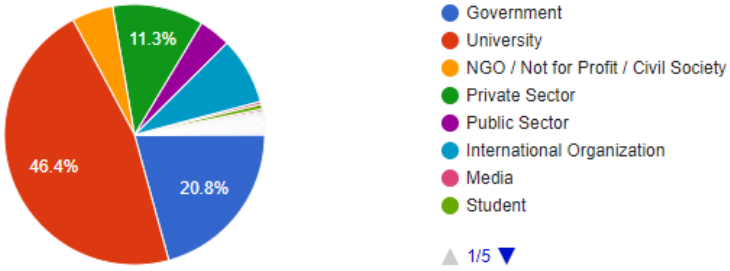
WITS has been optimized to run from a single server to enable users in low-bandwidth countries to utilize its features. Most of the data ingestion work has been automated to improve efficiency and timeliness of data and make the operation of the system cost-effective. Trade data also runs into billions of rows and analysis needs combining different types of data like merchandise, services and value-added trade along with other sources. To boost the computing capacity, WITS now has a cloud-based repository and distributed computing capabilities to store and process massive amounts of data for World Bank staff.

The output of these analyses are made available to everyone as a global public good. As a first step, the website has provisioned bulk download of all trade indicators and derived product nomenclature data.

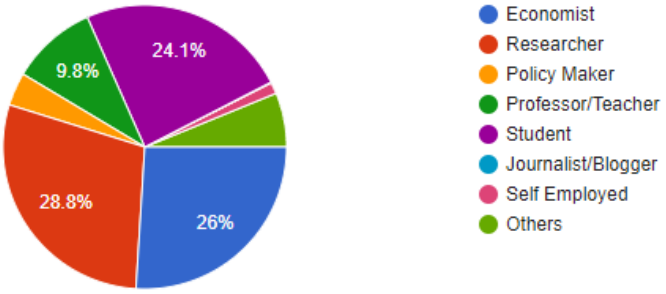
Survey

Based on an analysis of a survey conducted by the WBG in 2016 with more than 1,100 responses as well as follow-up interviews with identified 'super users', trade analysis and research using WITS is actively contributing to trade policy reforms in developing countries as well as promoting transparency in trade. **Below is the breakdown of audience segmentation of the survey responders:**

Sector



Occupation



Academics, researchers, and division heads at development agencies use WITS for a variety of purposes:

- Monitoring trends
- Generating knowledge products
- Designing capacity building exercises
- Providing antitrust services
- Developing economic models
- Aggregating data for trade negotiation purposes
- Generating policy advice

Notable areas of research that have used WITS

Afghan agribusiness, Pakistan's textile manufacturing industry, and resource dependency in Russia have all used WITS to generate research. Respondents have used WITS data to analyze trade flow changes over time, determine subregional and sectoral changes, assess competitiveness and export potential, measure the level of participation in global value chains and identify tariff and non-tariff barriers.

Furthermore, WITS data have been used recently in a wide variety of applications, including trade policy analysis for Uzbekistan, the analysis of potential tariff reform in the Western Balkans, and for modeling the impacts of the proposed African Continental Free Trade Area.

By facilitating this analysis, WITS is a leader in supporting trade policymaking for developing countries. In the absence of a simple user-friendly analytical tool, many users, especially in low and lower middle-income countries, would not be able to analyze trade and protection data to facilitate the design of evidence-based policies.