

Project TAAJ: Final Report

**Construction of a Cross-Country Historical Database
on
Tariff and Trade Indicators of Trade Openness**

Key Policy Issue/Research Question

One frequently asked question in international economics is: How open is a country to international trade? A related question of interest is: how much progress has a given country made toward opening its economy to international trade? These are important questions for at least two reasons. First, countries are frequently urged to increase their openness to international trade (often through lowering tariff barriers, but through changing other types of barriers as well) and this is sometimes a component of World Bank sponsored adjustment programs. To gauge whether a country is making progress toward this objective, there must be some way to measure whether a country has become more open that is economically meaningful.

The second reason is that a number of researchers claim that countries that are more open to international trade grow faster than those that are less open. If correct, this hypothesis suggests that as a matter of policy, low-income countries could grow faster, (and perhaps achieve another goal of reducing poverty) if they adopted a more open trade regime. A number of researchers have investigated this proposition using econometric techniques, but there are a number of hurdles that have yet to be overcome, especially with respect to the data needed to carry out a rigorous test of this proposition.

A principal ingredient needed for an analysis of the impact of tariff restrictions on growth and other variables of interest is a database on the actual tariff rates that countries have applied across time and this has been missing from the literature. UNCTAD's Trade Analysis and Information System (TRAINS) maintains tariff data for over 1000 country/years, but the data are only available since 1988 when the Harmonized System was introduced. Gaps clearly exist in this database in that data are not available and an uninterrupted time series is missing for some countries. No complete database exists that contains tariff data for a longer time period, let alone measures of trade restrictiveness that have become accepted in the academic literature on international trade theory. Construction of a long, historical time series would be a new product that would serve both research and policy interests of many.

In fact, the lack of data on tariff rates across countries for a long time period has forced researchers to use indicators that proxy for tariffs and trade restrictions more generally. These

indicators are imperfect substitutes for actual measures of tariff (trade) restrictions and using them may lead to misleading conclusions regarding the relationship between openness to trade and economic growth. Therefore, one contribution of this project is to make available, on a wide basis, a database that contains the actual tariff rates that countries have applied across time. As a result of this project, researchers can now use actual data on tariff rates, rather than rely on indicators that possess a number of undesirable features.

Besides containing data on actual tariff rates, this new database would make it possible to calculate “trade restrictiveness indices” that are well-grounded in economic theory and overcome many of the shortcomings associated with using simple average or trade-weighted tariffs. They can be calculated rather simply using for long time periods once historical data on tariff rates have been collected. Having such indicators available to policy makers would help them assess whether their economies have become more open to international trade over time. In particular, it would also assist many poor, low-income countries without access to the necessary data, assess whether their trade policies have become more restrictive. One of the ingredients needed to calculate TRIs is import demand elasticities at the product level. While this might seem like a daunting requirement, these elasticities have actually been estimated by Kee, Nicita, and Olareaga (2008) using techniques that pass peer review. In this database, we pair the detailed estimates of import demand elasticities (estimated at the six-digit HS system by Kee et al.) with detailed tariff data over a long time series in order to facilitate the calculation of TRIs. This pairing of trade data and elasticities also allows researchers to undertake a wide range of empirical analyses.

UNCTAD, in collaboration with IMF and with financial assistance from UK DFID, initiated a new project in May 2010 to build this time-series database based on the longest standing product nomenclature, namely, the Standard International Trade Classification, Revision 1 (SITC Rev.1) and develop an application to manipulate the database.

The tariff data contained in the database comes from a variety of sources, including (i) the TRAINS Harmonized system database; (ii) the WTO IDB database; (iii) a GATT Tariff Study conducted under the auspices of the GATT for the ---- round; (iv) data obtained from the historical files of UNCTAD; and (v) tariff schedules for various countries purchased from the International Customs Tariff Bureau (BITD). The data from these various sources were standardized (converted to the SITC Revision 1 classification) and incorporated into a single historical database covering a long time series. The new database is a homogenous analytical one of tariff and import statistics from 1970 to the present. Database is available as UNCTAD Long Time-Series TRAINS database. The use of SITC Rev 1 product classification enables easy multi-country, multi-year comparisons.

The second phase of the database construction includes various tasks performed by UNCTAD: (i) ensure data quality and accuracy; (ii) calculate (where possible) ad-valorem equivalents (AVEs) of tariffs given in specific form, (iii) calculation of SITC product elasticities for different

time periods, and (iv) inclusion of GDP and import revenue indicators from IMF databases. These tasks will be performed by experienced staff of UNCTAD or their consultants.

The third phase is the development of user-friendly interface software to provide easy access to the database information to retrieve, aggregate, report, and export required indicators and measures.

In short, this project was initiated to fill a gap in the needs of policymakers, namely, to develop a system of information (tariff rates and elasticities) that would allow them to gauge the stance of policy over time in an economically meaningful fashion. The database will also be a useful resource for researchers interested in conducting their own analyses of the impact of tariff changes over a long time period. Currently, there is no single source for a long time series of historical data on tariff rates at a detailed commodity level. Therefore, this new database provides researchers an opportunity to conduct new research.

I. Project Outputs

The principal output of the project is a comprehensive package of information combining a long time series database of tariff and import statistics, powered by easy-to-use software that enables calculation of various indicators and allows users to perform simple simulations. The database contains the following information for as many countries as possible (currently about 52): (i) ad-valorem tariff rates at detailed level (SITC Rev1 at most detailed level) ; (ii) data on the value of imports corresponding to the tariff information; (iii) GDP in current and constant dollars, which are available from a database published by the IMF; (iv) import demand elasticities, estimated by Kee, Nicita, and Olarreaga (2008) and at a level of disaggregation that corresponds to tariff and import data; and (v) data on tariff revenue by country, which is published in a database published by the IMF, *Government Revenue Statistics*.

With the package, researchers can calculate indicators such as: (i) the simple average tariff rate by country and product grouping; (ii) trade-weighted tariff rates; (iii) collected tariff rates (tariff revenue divided by imports at the aggregate level); and (iv) a partial-equilibrium version of the Anderson/Neary trade restrictiveness index (TRI), which combines information on tariffs, imports, GDP, and import demand elasticities noted above.

II. Potential Users/User Engagement

We envisage a large number of possible users of this new database. These would include: (i) empirical trade researchers (in academia and in research institutions) who would want to undertake analytical research on the issues discussed in section I; and (ii) policymakers would

provide advice to countries on the stance of trade policy. The information contained in this new database would allow researchers and policymakers to discern whether country's trade policies have more open or not, utilizing various methods.

III. Communications Strategy

The package including the entire database is available, free of charge, to all interested researchers. It can be downloaded from the UNCTAD website (<http://www.unctad.info/en/Trade-Analysis-Branch/Data-And-Statistics/TRAINSWITS/>) or directly from ftp://ftp.unctad.org/aki/LTS_TRAINS/. A DVD package may be obtained by sending an email to tab@unctad.org or trains@unctad.org.

Results from research conducted using the database could be disseminated through various UNCTAD and/or IMF publications.