

ANNEX A

The trade facilitation indicators: Methodology

The OECD Trade Facilitation Indicators (TFIs) are composed of a set of variables, expressed in the form of factual questions and used to collect data on country policies in the area of trade facilitation. These variables measure the actual extent to which countries have introduced and implemented trade facilitation measures in absolute terms, but also their performance relative to others, using a series of quantitative measures on key areas of the border process. The aim is to ensure factual information that is geographically comparable and consistent over time irrespective of the various public and private entities providing the data. The variables and the possible scores that can be attributed to them are expressed in unambiguous terms, borrowing heavily from the TFA text which is widely understood among the trade policy and the business community.

Several iterations and extensive fine-tuning were necessary at the indicators' conceptualisation and drafting stage in order to ensure that terms were understood in the same way across countries, agencies and economic actors. The indicators and their composing variables were developed between 2010 and 2013 and further fine-tuned between 2014 and 2016 to better reflect implementation challenges and worldwide best practices, provide depth to the analysis of various components of TFA, and clarify variables to ensure consistent interpretation from answering entities.

The TFIs mirror the substantive provisions covered by Section I of the TFA, spanning TFA Article I Publication and Availability of Information (covering publication; information available through the Internet; enquiry points; and notifications) through to Article 12 (Customs Co-operation). An additional OECD indicator going beyond the scope of the TFA has been added to capture elements of good governance and impartiality of border administrations.

Each TFI indicator is composed of several specific, precise and fact-based variables related to existing trade-related policies and regulations and their implementation in practice. The approach taken to scoring in the TFIs is to transform qualitative regulatory information into a multiple binary scheme where the top score (2) corresponds to the best performance: variables representing measures within each of the 11 aggregate TFIs are coded with 0, 1, or 2. These seek to reflect not only the regulatory framework in the concerned countries but also delve – to the extent possible – into the state of implementation of various trade facilitation measures.

Where variables depend on numerical answers, these are broken down on thresholds to which 0/1/2 scores are applied. A scoring system that assigns discrete numerical values according to some metric of performance requires determining thresholds for what is best,

worst or in between. In most cases, there are “natural” thresholds, as for example for a variable such as the “Establishment of a national Customs website”. Thus, a country without a customs website will be assigned a score of 0; a country with a customs website will be assigned 1; and a country with a customs website which makes available a minimum set of information related to import or export procedures in one of the official WTO languages will be assigned a 2. In the cases where no natural thresholds can be identified, in order to reconcile the complexity of trade facilitation policies and implementation with the multiple binary scoring scheme, non-binary measures are broken down to multiple thresholds: if the variable is numerical in nature (e.g. number of advance rulings, percentage of post-clearance audits, percentage of physical inspections, etc.), the score can be determined by its percentile rank (e.g. below the 30th percentile of the country sample, between the 30th and 70th percentiles, above the 70th percentile of the country sample).

The TFIs are derived by aggregating variables across each of the 11 composite areas (Table 1.1 in Chapter 1). There are no hierarchies between variables. Within one aggregate indicator, variables are given equal weights. The TFIs represent a compromise between the comprehensive handling of the issues under review and the risk of including in the set certain variables for which the country coverage is incomplete. The expansive approach taken to the TFI variables was driven by the need to offer wide-ranging analysis across income levels, geographical regions and stages of development and to allow comparisons that will help countries move their reform agenda forward.

Using the TFIs for analysis

The TFIs are used to estimate economic impacts of trade facilitation reforms, and in particular of the implementation of the TFA, in a number of ways in this publication. Details of the methodology used in the main areas for analysis are below.

Implementation of the TFA

Calculation of the potential impact of the TFA is based on two scenarios: a) a “full” implementation scenario where countries implement all the options contained in the Agreement, including those formulated on a “best endeavours” basis; and b) a “limited” implementation scenario where countries implement only the mandatory provisions contained in the agreement, but taking into account that some of the best endeavours measures have already been implemented by some of these countries. These two scenarios provide upper and lower bounds of potential trade cost reductions likely to be obtained by implementing the TFA.

Trade costs

Trade costs include all costs incurred in getting a good to the final user, other than the cost of production itself. Given the difficulties involved in directly measuring trade costs, indirect methods can be used to infer the magnitude of trade costs from the volume of trade flows or price differences across borders. Trade costs estimates are thus drawn from the UN ESCAP-World Bank Trade Cost database. The calculated trade costs between two trading partners are a geometric average of trade costs in both directions.

Global Value Chains (GVCs)

Analysis linking the TFIs to the operation of supply chains has focused on three different measures of integration into GVCs, as mapped by selected OECD-WTO Trade in

Value Added (TiVA) indicators: the amount of foreign value-added embodied in final domestic demand or in gross exports of a reference country, and the amount of domestic value-added embodied in foreign final demand. These measures give a metric of engagement in the form of buying from and selling to GVCs, so as to enable the exploration within a gravity model framework of the impact of trade facilitation measures on the demand and the supply sides of value chain activity.

The TiVA indicators – available both at country and industry level – track both the direct and indirect flows of value added associated with international trade, thus revealing bilateral trade in value-added even when bilateral gross trade flows might be zero. At the industry level (agriculture-primary products, low-tech industries, medium-low tech industries, and high and medium-high tech industries), the average foreign value-added is a proxy for the extent to which industry value chains are segmented or “fine-sliced” into distinct tasks and activities that generate trade, compounding the double-counting effect. The model tests the response of the selected TiVA indicators to improvements in trade facilitation policies as expressed through the TFIs.

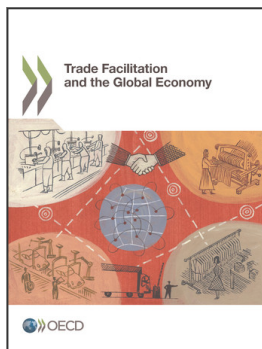
In addition to the TFIs, the set of explanatory variables includes the economic masses of the originating country and the destination country (proxies for the market size), the distance between the originating country and the destination country, and a series of other gravity variables (tariffs, the existence of a free trade agreement between the originating and destination countries, common border, common language), the distance to the closest manufacturing hub.

Time to trade and economy-wide effects

Trade facilitation improvements in the policy areas covered by the TFIs are shown to lead to reductions in both the import and export clearance times (available from the World Bank *Doing Business* indicators for *Trading Across Borders*), measured in hours, for each individual country. By linking the clearance time improvements with the value associated to one hour “saved” in transit, the trade facilitation policy changes are incorporated within the OECD METRO trade model using a novel methodological approach, which accounts for both supply and demand side gains triggered by trade facilitation improvements.

On the supply side, efficient border procedures are linked to decreasing losses resulting from fewer delays of goods at the border (“iceberg” effects). Delays in delivery increase the costs for firms of managing stocks and undermine their ability to respond rapidly to changes in consumer preferences. On the demand side, trade facilitation improvements are associated with an increase in the consumer’s “willingness to pay” for faster delivery, as consumers derive more utility from goods delivered earlier rather than later. Faster delivery of intermediate goods through the supply chain also improves final delivery times and increases consumers’ willingness to pay for the final product.

Trade facilitation policy changes are introduced in the METRO model as *ad valorem* equivalents (AVEs), expressing the value associated with a reduction in clearance delays triggered by improvements in border procedures. There are currently no data available on the relative importance of supply and demand effects (iceberg and willingness to pay) for the various product categories considered. The analysis therefore assumes equal importance and applies a mixed approach where the AVE estimate is introduced 50% as iceberg cost and 50% as willingness to pay.



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