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BILATERAL TRADE ASYMMETRIES

Development of data strategy
Pilot projects with countries
Cooperation with SAS

Report by UNSD

1. The existence of large bilateral trade asymmetries, both in goods and services, is well-known and this problem was discussed many times by trade statisticians in various fora. On a case by case basis, countries have undertaken sporadic reconciliation exercises. However, a more systematic approach is needed to address and reduce asymmetries in international trade statistics. Such approach has become more of a necessity in recent years due to the need for building global input-output (I-O) tables to derive estimates of trade in value added (TiVA). Global or regional I-O tables need balanced inputs where the exports of one country correspond to the imports of its trading partner.

2. So far, the compilers of those international I-O tables have taken decisions as to what would be the acceptable bilateral trade in cases of (sometimes large) inconsistencies. Agreement among countries on a systematic approach of reducing (or even eliminating) bilateral trade asymmetries will boost the credibility and more widespread use of global I-O tables and TiVA estimates.

3. UNSD commissioned a report[1] on the analysis of bilateral asymmetries in international merchandise trade statistics (IMTS) for the International Conference on the Measurement of International Trade and Economic Globalization at the end of September 2014 in Aguascalientes, Mexico. The report described three main causes of asymmetries, namely partner country attribution, valuation and differences in trade

[1] See Documents of http://unstats.un.org/unsd/trade/events/2014/mexico/default.asp

system. It also pointed out that the recommendations of IMTS adopted in 2010 addressed the issues of partner attribution and valuation.

Partner country attribution

4. IMTS 2010 contains following recommendations regarding partner attribution: (a) in the case of imports, the *country of origin* should be recorded; (b) in the case of exports, the *country of last known destination* should be recorded. IMTS 2010 clearly states that such partner attribution is not ideal. It explicitly warns that there are limitations to the use of data compiled on a country-of origin basis; most notably, such an approach does not permit a symmetrical recording of the same trade transactions by the exporting country and the importing country and that this creates incomparability and detracts from the usefulness of such trade data for some types of economic analysis. The awareness of this limitation led to the recommendation in IMTS 2010 that country of consignment be also included as a second partner attribution both for imports and for exports. So, on the basis of country of consignment bilateral asymmetries should be reduced.

Valuation

5. As most countries apply a CIF-type valuation of imports and a FOB-type valuation of exports certain CIF/FOB adjustments of imports are usually applied for the compilation of supply and use tables and I-O tables. IMTS 2010 recommends that countries compile also imports on FOB basis. In general, the compilation of imports value on a FOB-type basis ideally should be done by collecting information on freight and insurance at the transaction level. However, this is, for majority of countries, not feasible in practice. Freight and insurance is available at shipment level and breakdowns to transaction level can be estimated. Alternatively, detailed freight and insurance information could be collected from a sample of transactions (by commodity, partner and mode of transport) and this information could then be used to estimate FOB value for other transactions.

Trade System

6. The use of different trade systems is another common reason for asymmetry in international trade statistics. Depending on what parts of the economic territory are included in the statistical territory, the trade data-compilation system adopted by a country (its trade system) may be referred to as general or special. The general trade system is in use when the statistical territory coincides with the economic territory, while the special trade system is in use when the statistical territory comprises only a particular part of the economic territory, usually excluding customs warehouses, free trade and processing zones. IMTS 2010 recommends that all countries use the general trade system. If a change from the special to the general trade system is impractical for some countries, then it is recommended that countries compile or estimate missing flows to facilitate the necessary adjustments on a general trade system basis.

Other systemic causes of asymmetries

7. Even if partner attribution, valuation and trade system can be accounted for, certain large bilateral asymmetries will still exist. One cause, which UNSD would like to further explore, is the trade involving foreign affiliates. As shown in Annex 1, in 2013 Costa Rica reported exports in computer chips (HS heading 8542) in the amount of 2.4 billion USD, whereas in the same year the trading partners of Costa Rica reported corresponding imports totalling 20.8 billion USD. This is an enormous asymmetry for Costa Rica, but also a significant difference at the global level.

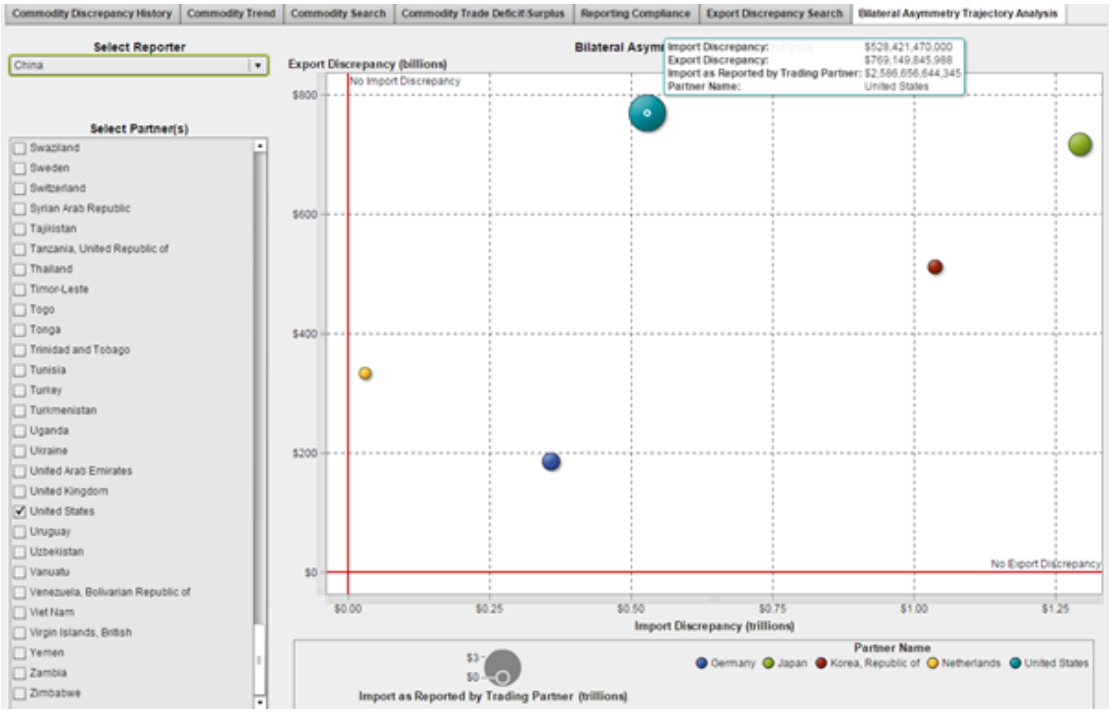
8. If we take the case of the bilateral trade asymmetry of Costa Rica and China for HS heading 8542, it shows that Costa Rica reported exports of computer chips for 300 million USD and 420 tons, whereas China reported imports from Costa Rica of computer chips for a total of 4.5 billion and 850 tons. Aside from the possibility that we may have to compare these values taking into account the reported trade with China, Hong Kong SAR, we do have a sharp difference in unit value: $712 per kg at the export side of Costa Rica and $5,259 per kg at the import side of China. Given the fact that foreign affiliates of the US firm Intel produced the chips in Costa Rica, the conclusion could be that the difference in export price and subsequent import price was an income flow into the US economy. To find satisfying solution, these cases will therefore need to be discussed and examined with all related parties (Costa Rica, China, Hong Kong and the United States).

9. A slightly different case is the bilateral trade asymmetry of Costa Rica and the Netherlands for headings 8542 and 8473. The bilateral values and quantities associated with these two headings seem to indicate that for the year 2010 both countries used both headings for Costa Rica's exports of computer chips (8542) and computer parts (8473) and corresponding imports on the Dutch side. In years after Costa Rica almost exclusively reported exports to the Netherlands under 8542, whereas the Netherlands shifted the imports almost exclusively to 8473. The bilateral trade asymmetry showed in this case both the valuation issue as seen for the Costa Rica-China case and on top of that also a shift in classification between exports and imports. The import value reported by the Netherlands was in the order of 3.5 billion USD (for 8473) as compared to the exports value reported by Costa Rica of about 400 million USD (for 8542).

Data strategy

10. Besides the methodological considerations, UNSD is also working out a strategy to find all relevant bilateral trade asymmetries in the UN Comtrade database. This comprehensive approach uses functionalities, which have been worked out in close collaboration with the SAS institute. Starting with SAS Visual Analytics, custom-made functionalities were developed which can present the largest asymmetries (in absolute terms) at bilateral level with possibilities of drilling down to specific 6-digit HS subheadings. The picture below shows an example of China

bilateral asymmetries with several big trading partners (Germany, Japan, Rep. of Korea, Netherlands and United States). The SAS program can select the trading partners with largest discrepancies. These functionalities have been made available to UNSD, but can be shared with our partners.



Next steps

UNSD has contracted again the services of Vladimir Markhonko to present this strategic approach and the data explorations at the meeting of the UN expert group of international trade and economic globalization statistics in January 2016.

In the first half of 2016, we will set up some meetings with Costa Rica, Mexico, United States, China, Hong Kong and the Netherlands to look in all the details of the large bilateral trade asymmetries and hope to come up with solutions for balancing them. The Task Force members are invited to take part in these meetings as well.

4.

Annex 1

Costa Rica – Bilateral Trade Asymmetries – HS heading 8542 – Year 2013

	Reported exports by Costa Rica			**Reported imports by the partners of Costa Rica**		
Partner	*Netweight (kg)*	*Trade Value (US$)*	*Unit-value*	*Netweight (kg)*	*Trade value (US$)*	*Unit-value*
World	3629647	$2,396,175,059.00	$660.17		$20,849,976,336.00	
USA	1107440	$644,224,152.00	$581.72		$7,667,622,314.00	
China, Hong Kong SAR	831684	$586,765,523.00	$705.51		$1,819,220,870.00	
Netherlands	579503	$398,048,784.00	$686.88	43413	$68,176,396.00	$1,570.41
China	421802	$300,451,505.00	$712.30	854144	$4,492,191,875.00	$5,259.29
Malaysia	403766	$282,085,646.00	$698.64		$1,466,209,599.00	
Japan	88787	$63,795,805.00	$718.53		$193,546,137.00	
Singapore	40935	$27,765,250.00	$678.28		$548,120,962.00	
India	29790	$18,290,045.00	$613.97			
Rep. of Korea	20196	$11,838,205.00	$586.17	7204	$19,515,899.00	$2,709.04
Mexico	14262	$8,664,108.00	$607.50		$2,752,221,646.00	