

Trade2

Aleksandr Matrunich

August 8, 2015

Initial validation of trade data

At prevalidation step we are to make a decision should we accept data from a specific country for the further processing or not. A country could provide data of good quality for one part of commodities and inadequate level of quality for another part. We want to estimate quality differences between commodities of a country.

Quality of data is estimated by following indicators:

- Share per cent of missing quantities
- Share per cent of unit value outliers

Self-trade

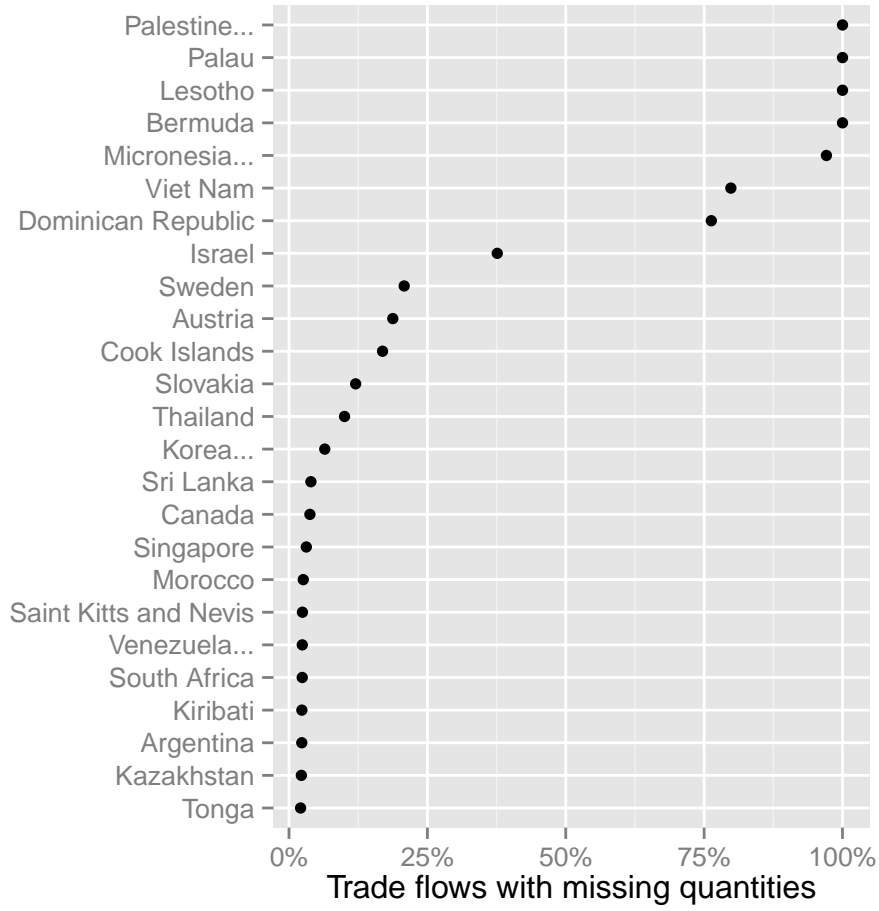
There are cases when a country reports itself as a partner to exports or imports. Such situations can occur due to mistakes or when an entrepôt exists.

Table 1: Self-trade of commodities from 2nd, 10th and 15th HS chapters in 2011

Reporter	Flow	Total
France	Import	163
Canada	Import	56
Portugal	Import	50
Slovakia	Import	50
New Zealand	Import	31
South Africa	Import	27
United Kingdom	Import	17
Slovenia	Import	16
Estonia	Import	12
Thailand	Import	12
China	Import	7
Greenland	Import	3
Ethiopia	Import	2
Papua New Guinea	Import	2
Saint Kitts and Nevis	Import	2
Indonesia	Import	1
Malaysia	Import	1
Palau	Import	1

Missing indicators

We identify which reporters provide data of insufficient quality. Firstly for every reporter proportion of trade flows with missing quantity is calculated.

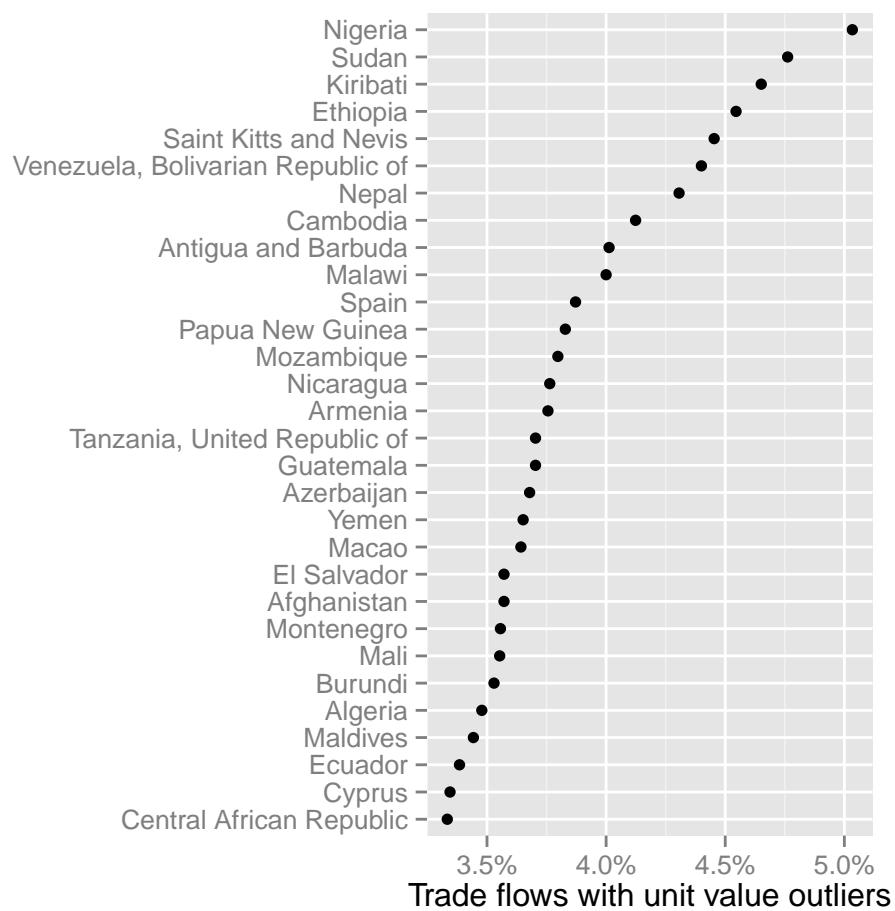


Detection of outliers

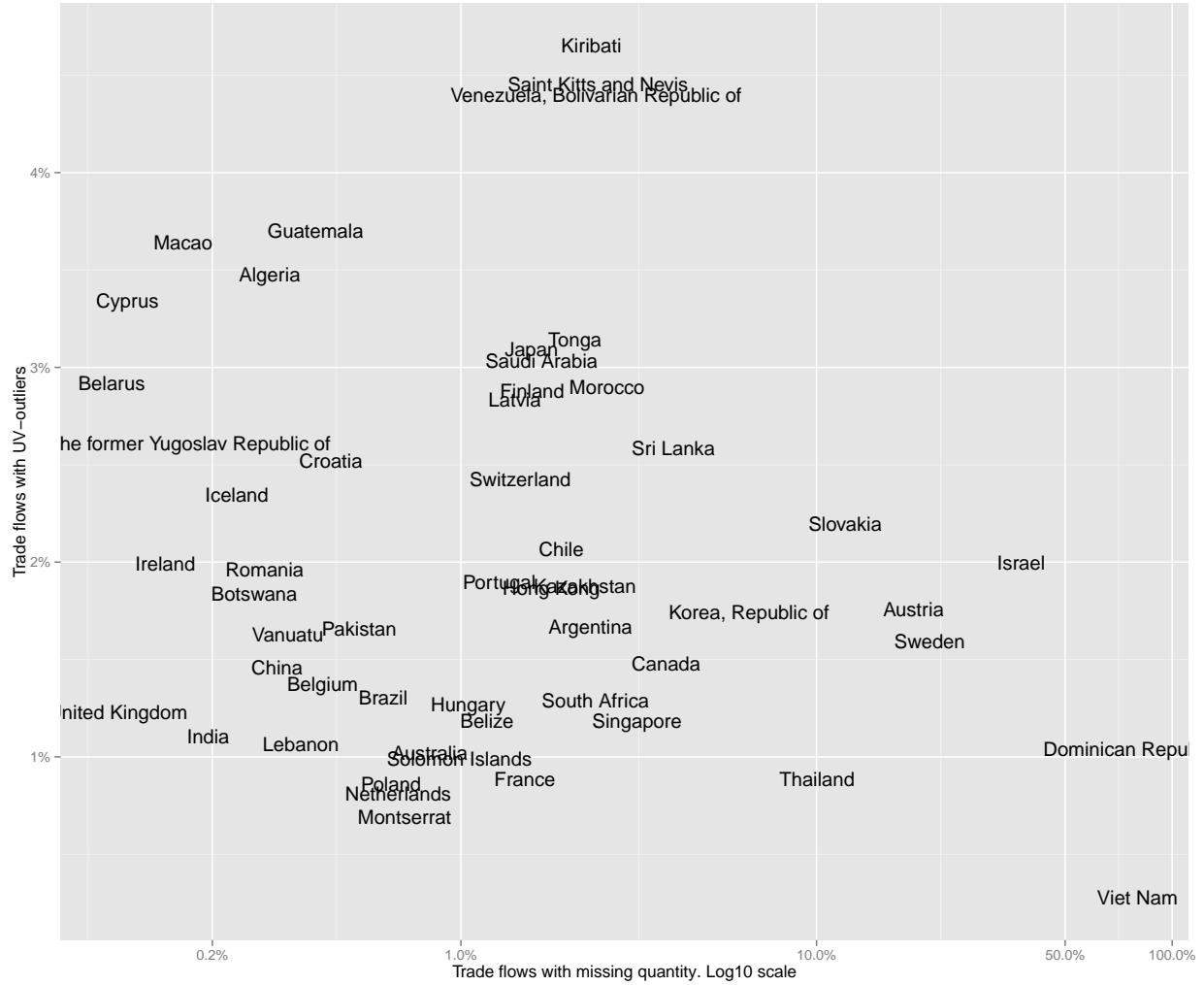
We define outliers as observations located outside the range:

$$[Q_1 - k(Q_3 - Q_1), Q_3 + k(Q_3 - Q_1)]$$

where Q_1 and Q_3 are the lower and upper quartiles respectively, and k is a nonnegative constant. In this paper we use k equals 1.5.



Missing quantites and outliers combined



Imputing of missing quantities and replacement of outliers

In data reported by USA for 2011 year in HS chapters 2, 10 and 15 there are 0 trade flows with missing quantity and 33 trade flows with UV-outliers.

Table 2: Example trade flows with outlied unit values

Reporter	Partner	Flow	Weight	Value	UV
United States	NA	1	260	3894	14.976923
United States	NA	1	737	10788	14.637721
United States	Germany	1	643	1973457	3069.139969
United States	Netherlands	1	280	4124	14.728571
United States	Japan	1	327	2479	7.581040
United States	France	1	311	59170	190.257235
United States	Japan	1	2853	24030	8.422713