**Appendix**

***Calculation of tariff rates:***

The imposed tariff is defined as follows:

$$iTariff\\_imposed\_{c,s,p,t}=\frac{\sum\_{h=1}^{h=s\_{h}}T\_{c,h,p,t}\*M\_{c,h,p,t}}{Import in value-added\_{c,s,p,t}}$$

where $c$, $h$, $p$, and $t$ country, product, partner country, and year respectively. $s\_{h}$ shows the number of products in each sector $s$.

$T\_{c,h,p,t}$= Country $c$’s imposed tariff on product ($h$) at HS6 digit code of partner country ($p$)

$M\_{c,h,p,t}$= Country $c$’s import value of product ($h$) at HS6 digit code from partner country ($p$)

$Import in value-added\_{c,s,p,t}$= Country $c$’s import in value-added of sector ($s$) from partner country ($p$) (comes from I-O calculations)

Since the dataset is bilateral, the imposed tariff of country A on sector x of partner country B is also the faced tariff of sector x of partner country B from country A. We then rearrange our dataset to include both imposed and faced tariffs in our dataset.

***Calculation of cumulative tariff rates:***

Let’s consider the global economy with $G$ number of countries and $N$ number of sectors. Cumulative tariffs embodied in an import of product from a country-sector to a partner country-sector have a direct part corresponding to simple tariffs and an indirect part corresponding to all along production linkages. In this environment, Rouzet and Miroudot (2013) provide the calculation of cumulative tariff rates as follows:

$$CT\_{JxJ}=T\_{JxJ}+\left[e\_{1xJ} x B\_{JxJ} x A\_{JxJ}^{n}\right]^{'} x e\_{1xJ}$$

where

$$e\_{1xJ}=\left[1 1 1 1 1……….1\right]\_{1xJ}$$

$B\_{JxJ}=A\_{JxJ} x T\_{JxJ}$ (element to element multiplication)

$J$= GNxGN

$A\_{JxJ}$= Leontief matrix

$T\_{JxJ}$= Input tariff at the first stage

n= Number of cross bordering, that is production stage (distance or forward length measure) We take n as 6 for the years 1990 and 1991, 5 for the year 1992, and 4 for 1993 and onwards.

**Table A1.** Countries

|  |  |  |
| --- | --- | --- |
| **Developed Countries** |  | **Developing and Less Developed Countries** |
| Australia |  | Afghanistan | Congo | Jordan | Niger | Tajikistan |
| Austria |  | Albania | Costa Rica | Kazakhstan | Nigeria | Tanzania |
| Bahamas |  | Algeria | Cote dIvoire | Kenya | Oman | Thailand |
| Belgium |  | Angola | Croatia | Kyrgyzstan | Pakistan | Togo |
| Brunei |  | Antigua | Czech Republic | Laos | Panama | Trinidad and Tobago |
| Canada |  | Argentina | DR Congo | Latvia | Papua New Guinea | Tunisia |
| Cyprus |  | Armenia | Djibouti | Lebanon | Paraguay | Turkey |
| Denmark |  | Azerbaijan | Dominican Republic | Lesotho | Peru | Turkmenistan |
| Finland |  | Bahrain | Ecuador | Liberia | Philippines | Uganda |
| France |  | Bangladesh | Egypt | Libya | Poland | Ukraine |
| Germany |  | Barbados | El Salvador | Lithuania | Portugal | Uruguay |
| Hong Kong |  | Belarus | Eritrea | Macao SAR | Romania | Uzbekistan |
| Iceland |  | Belize | Estonia | Madagascar | Russia | Vanuatu |
| Ireland |  | Benin | Ethiopia | Malawi | Rwanda | Venezuela |
| Israel |  | Bhutan | Fiji | Malaysia | Samoa | Viet Nam |
| Italy |  | Bolivia | Gabon | Maldives | Sao Tome and Principe | Yemen |
| Japan |  | Bosnia and Herzegovina | Gambia | Mali | Saudi Arabia | Zambia |
| Kuwait |  | Botswana | Georgia | Malta | Senegal | Zimbabwe |
| Netherlands |  | Brazil | Ghana | Mauritania | Serbia |  |
| New Zealand |  | Bulgaria | Greece | Mauritius | Seychelles |  |
| Norway |  | Burkina Faso | Guatemala | Mexico | Sierra Leone |  |
| Qatar |  | Burundi | Guinea | Moldova | Slovakia |  |
| Singapore |  | Cambodia | Guyana | Mongolia | Slovenia |  |
| Spain |  | Cameroon | Haiti | Montenegro | South Africa |  |
| Sweden |  | Cape Verde | Honduras | Morocco | South Korea |  |
| Switzerland |  | Central African Republic | Hungary | Mozambique | Sri Lanka |  |
| Taiwan |  | Chad | India | Myanmar | Sudan |  |
| UAE |  | Chile | Indonesia | Namibia | Suriname |  |
| UK |  | China | Iran | Nepal | Syria |  |
| USA |  | Colombia | Jamaica | Nicaragua | TFYR Macedonia |  |

**Notes:** Income classification is based on the country’s 1990 income level, which is the initial year of our dataset (World Development Indicators (WDI)-World Bank, 2020).