ECIPE Study

The Compounding Effect of Tariffs on Medicines: Estimating the Real Cost of Emerging Markets’ Protectionism

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Outline

1. Why this study?

2. Methodology

3. Major results
Why this study?

– Access to health is a human right

– “Access to affordable medicines on a sustainable basis in developing countries” is a priority of the UN, the WHO – and the WTO

– **Access** to health and medicines is, inter alia, **a function of prices**

– **Determinants of prices:**
  – Product variety
  – *(In-)efficientices in distribution chains (mark-ups of up to 90 per cent of final price; HAI analysis)*
  – Competition incl. generic competition
  – Licensing requirements for distributors
  – Approval and licensing requirements for importers (NTBs)
  – **Trade facilitations inefficiencies (NTBs)**
  – **Import tariffs**
Why this study?

- Tariffs in pharmaceuticals?
- **Reality**: many governments still inflate the price of imported medicines through import tariffs and taxes – and are not sufficiently held accountable
- **Import tariffs** on pharmaceuticals are still high in many low and middle income countries, incl. BRICS-MINT countries
- **Problem**: vivid public debate about “various types of market failure” and IPRs rather than government failure – import tariffs, border facilitation inefficiencies and net government losses due to the imposition of tariffs on medicines
- **At the same time**: 34 developed countries (incl. the EU and the US) **eliminated tariffs on pharmaceuticals** as well as tariff equivalents (NTBs) – for good reasons...
Distribution of tariffs within applied tariff lines

Brazil (146 tariff lines in 2016)

India (137 tariff lines in 2016)
Methodology - calculation of the compounding effect

For individual **BRICS-MINT countries**, the compounding effect ($CE_i$) in percentage terms is calculated as follows:

\[
CE_i = 1 \times (1 + p_{\text{Border},i}) \times (1 + p_{\text{tariff},i}) \\
\times (1 + p_{\text{MImporter},i}) \times (1 + p_{\text{MWholesale},i}) \\
\times (1 + p_{\text{MSubWholesale},i}) \times (1 + p_{\text{MRetail},i}) \\
\times (1 + p_{\text{Tax},i}) - 1,
\]

where $p_{\text{Border},i}$ represents costs that accrue in both the exporting and the importing country.
Methodology - assumptions

- Estimations are based on:
  1. Country-specific weighted average tariffs on imports of pharmaceuticals (HS 3004 category)
  2. Country-specific import volumes of pharmaceuticals in 2016
  3. Country-specific tariff equivalents for existing trade facilitation inefficiencies
  4. A range of mark-up estimates for
     a) Local importers
     b) Local wholesalers
     c) Local sub-wholesalers
     d) Local retailers (e.g., doctors, pharmacies, hospitals)

- Estimations were conducted for low and high mark-ups, as published by the World Bank’s International Finance Corporation (IFC 2017)
Methodology: weighted average tariffs (2017)

- China: 4.2% (2016), 4.4% (2007)
- Indonesia: 4.4% (2016), 4.5% (2007)
- Mexico: 2.6% (2016), 7.1% (2007)
- Brazil: 10.1% (2016), 9.9% (2007)
- Russia: 4.3% (2016), 9.9% (2007)
- India: 10.0% (2016), 12.5% (2007)
- Nigeria: 0.0% (2016), 14.8% (2007)
Methodology – the example of India

<table>
<thead>
<tr>
<th>Sales price ex factory</th>
<th>Sales price after import tariff</th>
<th>Sales price after importers' mark-up</th>
<th>Sales price after wholesalers' mark-up</th>
<th>Sales price after subwholesalers' mark-up</th>
<th>Sales prices after retailers' mark-up</th>
<th>Final price after sales tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00 USD</td>
<td>5.18 USD</td>
<td>6.74 USD</td>
<td>10.11 USD</td>
<td>17.69 USD</td>
<td>30.96 USD</td>
<td>32.51 USD</td>
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<td>5.29 USD</td>
<td>5.82 USD</td>
<td>7.56 USD</td>
<td>11.35 USD</td>
<td>19.86 USD</td>
<td>34.75 USD</td>
<td>36.48 USD</td>
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</tbody>
</table>

Tariff revenue at 10 per cent import tariff: 0.53 USD

Difference in final price due to tariff and trade facilitation inefficiencies: 3.97 USD

- Zero-tariff price and 50 per cent reduction of trade facilitation cost, high mark-ups
- Status quo price, high mark-ups
Major Findings
Effective financial burden of import tariff and border inefficiencies, in per cent of ex factory (export) value

<table>
<thead>
<tr>
<th>Country</th>
<th>At low mark-ups, incl. sales taxes</th>
<th>At high mark-ups, including sales taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>39.2%</td>
<td>79.8%</td>
</tr>
<tr>
<td>Russia</td>
<td>19.4%</td>
<td>39.6%</td>
</tr>
<tr>
<td>India</td>
<td>39.0%</td>
<td>79.5%</td>
</tr>
<tr>
<td>China</td>
<td>21.7%</td>
<td>44.2%</td>
</tr>
<tr>
<td>South Africa</td>
<td>6.1%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Mexico</td>
<td>12.9%</td>
<td>26.4%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>21.3%</td>
<td>43.4%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>8.0%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Turkey</td>
<td>5.5%</td>
<td>11.1%</td>
</tr>
</tbody>
</table>
Estimated tariff-induced price impact on a range of final prices, high mark-up scenario incl. trade facilitation inefficiencies

<table>
<thead>
<tr>
<th>Country</th>
<th>100 USD</th>
<th>50 USD</th>
<th>10 USD</th>
<th>5 USD</th>
<th>1 USD</th>
<th>0.5 USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>44.23 USD</td>
<td>22.11 USD</td>
<td>4.42 USD</td>
<td>2.21 USD</td>
<td>0.44 USD</td>
<td>0.22 USD</td>
</tr>
<tr>
<td>India</td>
<td>79.46 USD</td>
<td>39.73 USD</td>
<td>7.95 USD</td>
<td>3.97 USD</td>
<td>0.79 USD</td>
<td>0.40 USD</td>
</tr>
<tr>
<td>Russia</td>
<td>39.63 USD</td>
<td>19.82 USD</td>
<td>3.96 USD</td>
<td>1.98 USD</td>
<td>0.40 USD</td>
<td>0.20 USD</td>
</tr>
<tr>
<td>Brazil</td>
<td>79.83 USD</td>
<td>39.92 USD</td>
<td>7.98 USD</td>
<td>3.99 USD</td>
<td>0.80 USD</td>
<td>0.40 USD</td>
</tr>
</tbody>
</table>
Aggregate compounding effects (CE) in USD

Country

Turkey

- 142,721,313 USD
- 0 USD
- 59,925 USD

Nigeria

- 123,022,087 USD
- 86,547,384 USD
- 25,221,096 USD

Indonesia

- 325,225,232 USD
- 200,334,187 USD
- 85,082,920 USD

Mexico

- 361,664,521 USD
- 301,909,600 USD
- 86,734,175 USD

South Africa

- 301,909,600 USD
- 86,734,175 USD
- 8,000,000 USD

Brazil

- 1,285,563,754 USD
- 1,070,736,757 USD
- 329,883,260 USD

China

- 3,057,265,512 USD
- 2,138,170,935 USD
- 1,350,872,876 USD

India

- 92,775,160 USD
- 361,664,521 USD
- 301,909,960 USD

Russia

- 1,070,736,757 USD
- 297,377,156 USD
- 295,849,934 USD

Turkey, China, and Brazil have the highest compounding effects, with Turkey (
142,721,313 USD), China (3,057,265,512 USD), and Brazil (1,285,563,754 USD)
in USD.

Turkey and China also have the highest compounding effect, high mark-ups,
including sales taxes, compared to zero-tariff trade and a 50 per cent cut in border
compliance and documentation costs. Mexico and South Africa have the lowest
compounding effects, low mark-ups, incl. sales taxes, compared to zero-tariff trade
and a 50 per cent cut in border compliance and documentation costs.

Brazil, Russia, and India have the lowest compounding effects, low mark-ups,
incl. sales taxes, compared to zero-tariff trade.

Annual import tariff revenue (2016)

6,231,930,020 USD
Effective burden of import tariff in per cent of annual out of pocket spending on medicines

<table>
<thead>
<tr>
<th>Country</th>
<th>Annual import tariff revenue (2016)</th>
<th>Cumulated distortion at low mark-ups, incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</th>
<th>Cumulated distortion at high mark-ups, including sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>6.6%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>13.5%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>11.8%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>24.0%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>11.5%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>17.8%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.8%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
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<tr>
<td>Nigeria</td>
<td>2.8%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
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<tr>
<td>Turkey</td>
<td>15.7%</td>
<td>Incl. sales taxes, compared to zero tariff trade and a 50 per cent cut in border compliance and documentation cost</td>
<td></td>
</tr>
</tbody>
</table>
Collected tariff revenues vs. compounded financial burden born by national governments due to gov. healthcare expenditure

- Brazil
- Russia
- India
- China
- South Africa
- Mexico
- Indonesia
- Nigeria
- Turkey

Government tariff revenue, per capita
- Maximum compounded financial burden born by government, per capita
- Estimated (maximum) aggregate net loss born by government (right axis), in million USD

Legend:
- Government tariff revenue, per capita
- Maximum compounded financial burden born by government, per capita
- Estimated (maximum) aggregate net loss born by government (right axis), in million USD
Summary of Major Findings

– Except for South Africa, Turkey and Nigeria, tariffs on pharmaceuticals are still high among BRICS-MINT countries (up to 15 per cent in the case of Mexico and Indonesia)

– **Trade facilitation inefficiencies** are still high in all BRICS-MINT countries

– BRICS-MINT countries’ trade in pharmaceuticals is growing rapidly: a larger proportion of globally marketed medicine products may be subject to high tariffs

– The total financial burden accruing to patients in the importing countries range from 6 to 11 per cent of the import value in Turkey to **39 to 80 per cent in Brazil and India**

– The estimated aggregate savings for patients would be highest in China (up to 6.2bn USD), Russia (up to 2.8bn USD), Brazil (up to 2.6bn USD), and India (737mn USD)

– As most BRICS-MINT governments directly buy, settle or reimburse patients’ invoices for a bulk of medicine products, the sum of all tariff-induced premiums on final prices for pharmaceuticals paid for by governments tends to exceed by far the tariff revenues initially collected by customs authorities.
Major Take-aways

- Contrary to other policy measures to improve access to medicines, the elimination of all tariffs on pharmaceutical imports would be **low hanging fruit**
- Eliminating tariffs would **improve government finances and increase transparency and accountability of governments of low and middle income countries**
- The results of this study are a **wake-up call** for all low and middle income governments to join the “zero for zero” pharmaceutical agreement
- Joining the “zero for zero” pharmaceutical agreement would help to significantly

1. **cut the costs of medicines** in general,
2. **reduce obscurity and absurdities in government spending** and
3. **create better conditions for the access to medicines for low-income patients** in low and middle income countries.