The Digital Transformation and Tariff Revenues

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Digital transformation forces taxes to chase economic activity

• As economic and social activity progressively shifts on-line, taxation and regulation will have to follow

• Change is continuous

Revenue neutrality

• Principle of tax neutrality across modes is sound in theory, but...
  • There is no clear distinction between goods and services
  • Services embodied in exported goods are subject to tariffs; services embodied in goods post-import are not
  • As technology enables new business models, companies will optimize business processes – and part of that is to minimize tax liability
  • Servicification can involve a company selling equipment at lower prices, attracting less tariff to maximize the post-sale services

• The issue for governments is to maintain approximate revenue neutrality
Where does data fit in?

• Data is the essential capital of the data-driven economy; in this sense, it is similar to intellectual property:
  • IP is not directly traded (although there are payments for license fees, including between subsidiaries and HQ) but rather is embodied in the value of goods and services;
  • IP embodied in traded goods pre-export is subject to tariffs; IP embedded in goods post-import is not

• The value of data, like value of IP, is not in the nature of a capital contribution to the value of a good or service:
  • For advanced manufacturing techniques like 3D/4D printing, IP and data are integrated in the product only after traded goods are exported
  • Data flows would likely be safeguarded from tariffs under the WTO moratorium and under trade agreements based on templates like CPTPP / USMCA
Factors to take into account in assessing implications for revenue policy

• Impact of technology can vary greatly across commodities

• Digitization affects all these sectors, but some experience their apocalypse sooner

• Other sectors that provide hardware complementary to digital products have dramatic growth – e.g mobile phones (Secondary Axis)
FTAs (CPTPP, RCEP, AfCFTA) lower the baseline tariff revenue – example sound media

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Number of WTO Members with Different Rates</td>
<td>84</td>
</tr>
<tr>
<td>Average Difference in Rates</td>
<td>13.78%</td>
</tr>
<tr>
<td>Total Average Trade USD</td>
<td>14,266,759,582</td>
</tr>
<tr>
<td>Average Tariff with MFN Rates USD</td>
<td>1,031,247,117</td>
</tr>
<tr>
<td>Average Tariff with Applied Rates USD</td>
<td>997,151,000</td>
</tr>
<tr>
<td>Impact of FTAs on Tariff Revenue</td>
<td>-34,096,117</td>
</tr>
<tr>
<td>MFN tariff</td>
<td>7.23%</td>
</tr>
<tr>
<td>FTA average tariff</td>
<td>6.99%</td>
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What trend to use for the counterfactual?

- Caution against using an extrapolation of a trend from any given time period during periods of rapid technological change as well as tectonic shifts in markets
  - Pre-GFC acceleration was followed by general flattening of trends
- Treatment approach probably a more reliable method of generating an estimate of impact of technology shifts on revenues
- WTO imports from WTO members
  - Top chart – decline of HS37 trade value of imports is more than offset by just two categories for classifying 3D printers and inputs
  - Bottom chart – trade in electronic machinery tracks trade in All Products (Secondary Axis); miscellaneous codes show steady growth
Conclusions

• Integration of value of IP and data into products inside the border avoids border taxes, but raises value addition inside the border
  • Modern tech (3D printing) seems to be recreating the conditions for branch plant economics
  • Mimics deliberate use of tariff escalation to capture processing activity
  • Domestic value addition is subject to taxation through VAT

• Technological change has not completely de-materialized trade – streaming of music removes CDs but creates trade in iPhones

• Price effect of the moratorium (and FTAs) has expanded trade beyond what it would have been – with positive welfare impacts, especially on lower –income groups for whom the price impact of tariffs would be more than nuisance level

• Bottom lines:
  • tax policy faces continual adjustment burden at times of technological change, but there are offsets as well as erosions
  • Benefits of trade for developing countries (acquisition of technology in particular) leads to on-going need to shift tax generation inside the border