

The Digital Transformation and Tariff Revenues

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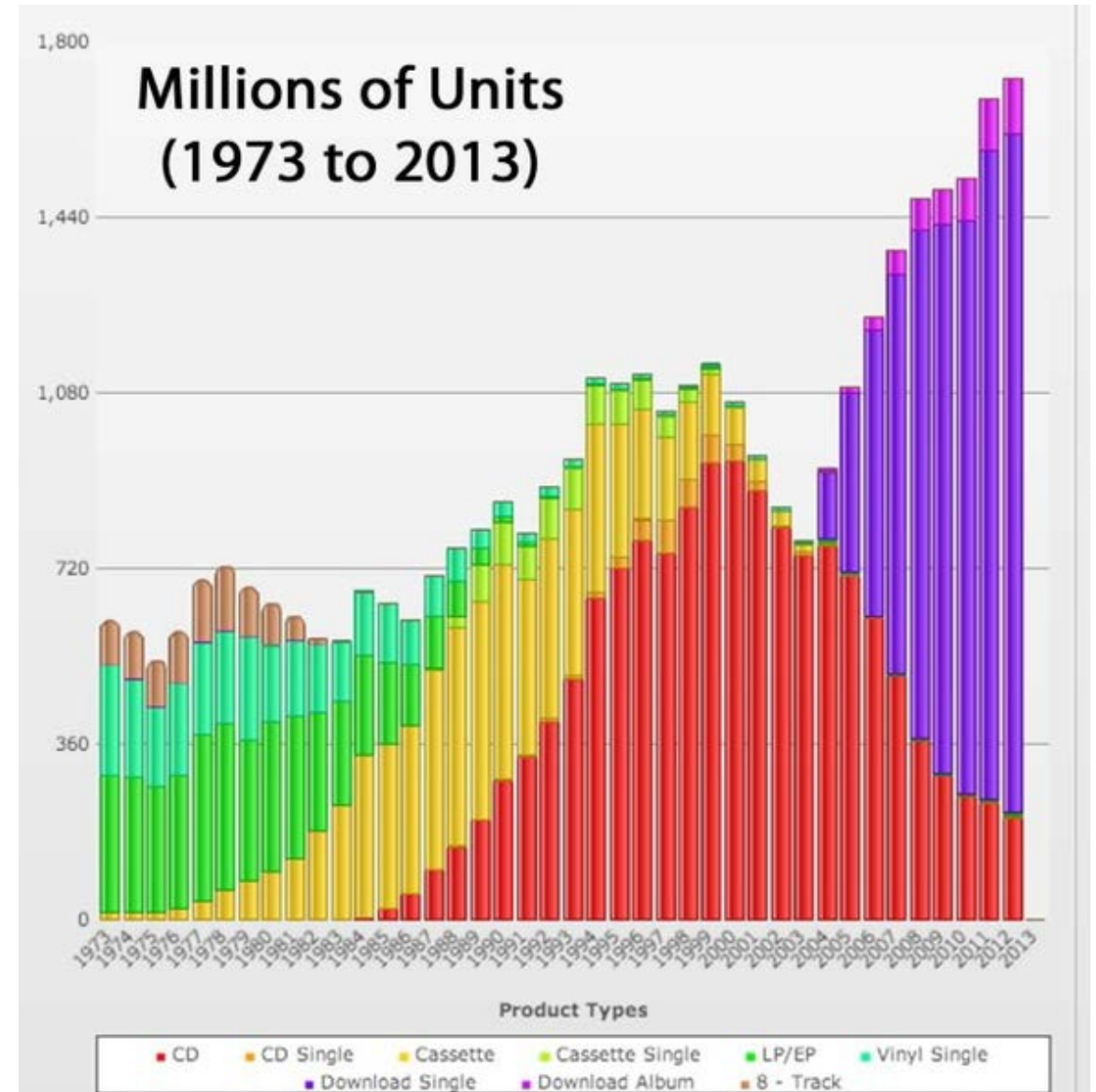
Presentation to the workshop on

“The Moratorium on Customs Duties on Electronic Transmissions”

World Trade Organization, Geneva, 29 April 2019

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



Source: Swensson, Andrea. 40 Years of Album Sales Data. The Current, Minnesota Public Radio. 20 February 2014.
<http://www.angrymobmusic.com/streaming-future-physical-digital-albums/>

Revenue neutrality

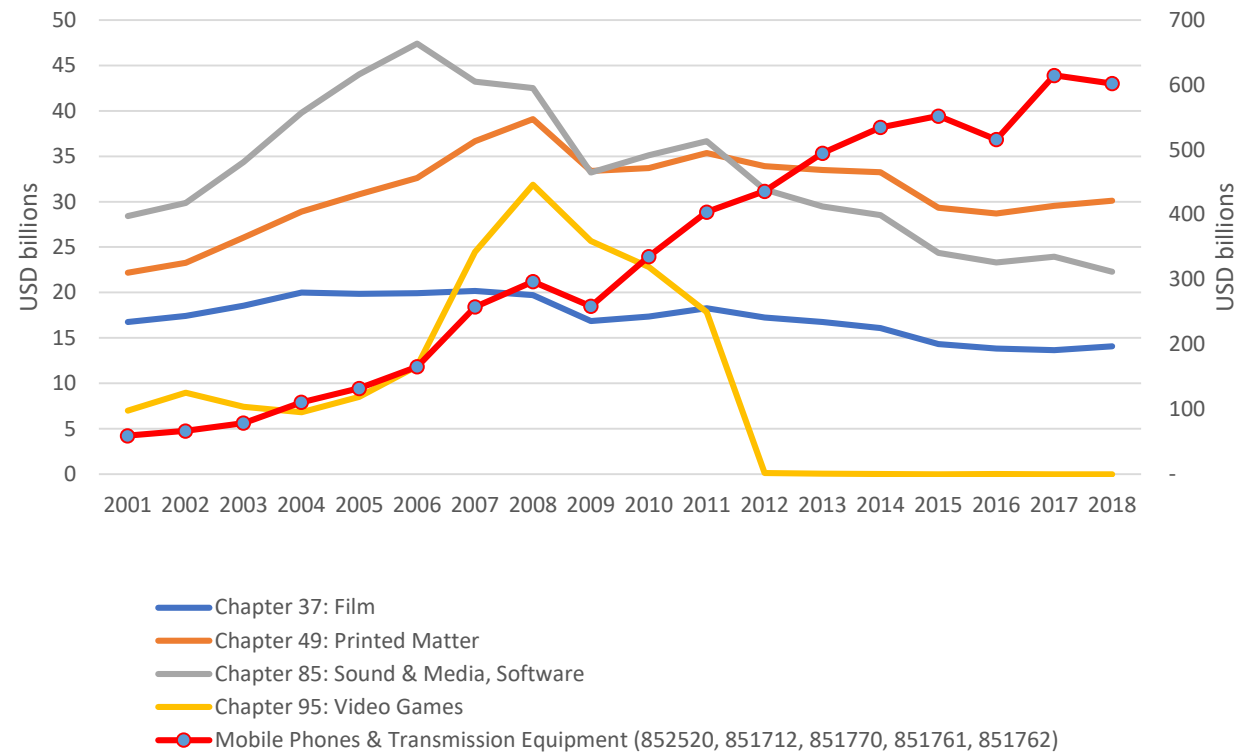
- Principle of tax neutrality across modes is sound in theory, but...
 - There is no clear distinction between goods and services
 - Services embodied in exported goods are subject to tariffs; services embodied in goods post-import are not
 - As technology enables new business models, companies will 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)

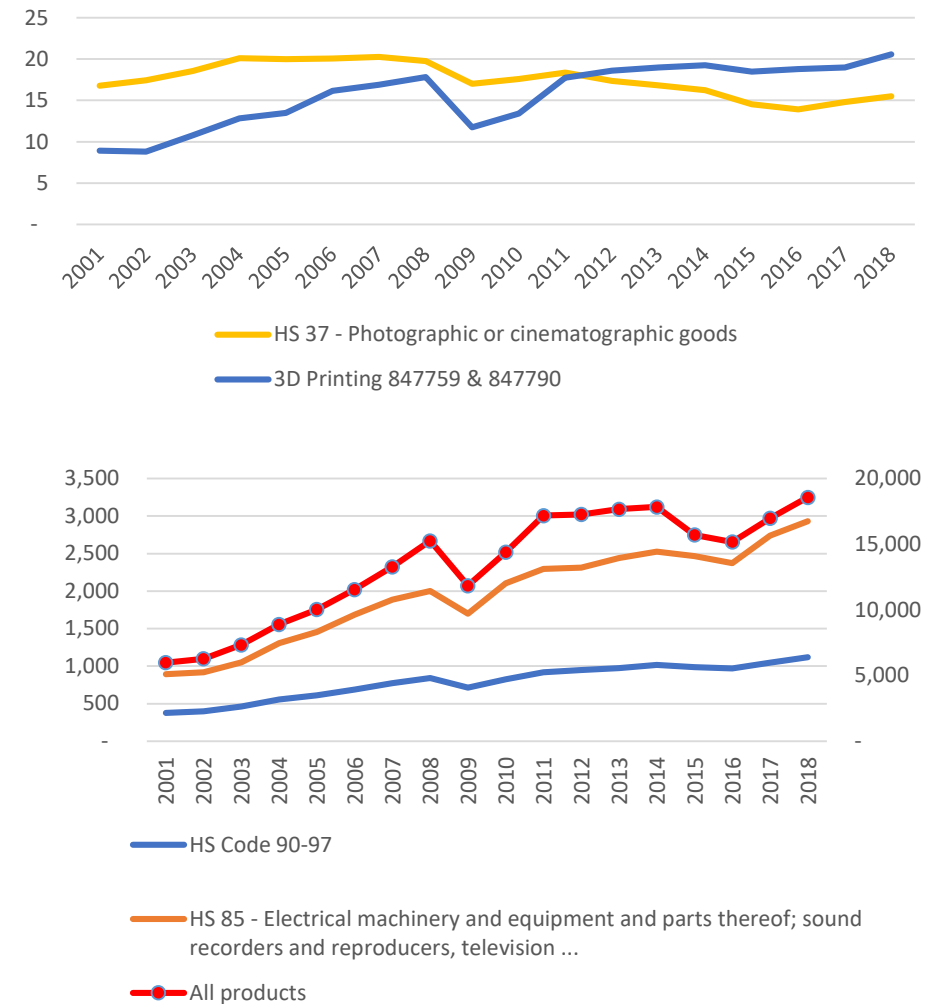


FTAs (CPTPP, RCEP, AfCFTA) lower the baseline tariff revenue – example sound media

Number of WTO Members with Different Rates	84
Average Difference in Rates	13.78%
Total Average Trade USD	14,266,759,582
Average Tariff with MFN Rates USD	1,031,247,117
Average Tariff with Applied Rates USD	997,151,000
Impact of FTAs on Tariff Revenue	-34,096,117
MFN tariff	7.23%
FTA average tariff	6.99%

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