

Introducing TRIST

A Tool to Simulate the Short-Term
Impacts of Tariff Reform

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What TRIST can do...

- Estimate short-term impact of changes in tariffs on tariff, VAT and excise revenue and on import values at tariff line level
- Calculate the resulting implications for applied tariffs and prices by sector
- Give an indicative idea of the magnitude of initial output and employment changes by sector

All this is done in a simple, transparent manner in an easy to use spreadsheet.

Key features of TRIST

- **Results based on ACTUAL import and revenue data**
 - Uses collected tariff, excise and VAT rates so tariff exemptions at product level and non-ad valorem tariffs can be taken into account
- **Answers a range of policy relevant questions**
 - include VAT and excise tax changes to calculate total fiscal impact
 - report results at tariff line level for each trading partner
- **Is flexible enough to respond to changes in trade policy scenarios and required analysis**
 - Different trade policy scenarios can be quickly incorporated with results available immediately
- **Simple, open and transparent**
 - TRIST is set up in excel (no proprietary software is required), all formulas and steps taken are visible to user
 - flexibility to incorporate local knowledge (eg. Sensitive sectors)
 - Simple and intuitive modeling and assumptions
 - Ongoing stake holder dialogue to improve according to clients' needs

Policy issues to which TRIST can contribute

- Revenue impacts of trade policy changes
 - Unilateral reforms, regional agreements, EPAs, multilateral negotiations
 - Conversion of specific tariffs
 - Changes to policy on duty exemptions
- Impact of changes in VAT or excise rates (e.g. to compensate for revenue losses from tariff reform)
- identify sensitive products
 - from revenue or employment perspective
- Adjustment implications (Output, prices, employment)
 - to inform decision making in trade negotiations
 - to inform the domestic policy debate



This is how TRIST works:

CUSTOMS: Data on imports and tariff, excise and VAT revenue by product and trading partner

NATIONAL STATISTICS: Data on domestic output and employment by sector

USER: Definition of tariff reform scenarios and model parameters

TRIST:
A single Excel file containing all data, tariff reform definitions and a simple partial equilibrium model of importing

RESULTS:

- Imports by product and trading partner
- Tariff, excise and VAT revenue by product and trading partner
- Applied tariff rate and price changes by sector
- Domestic output and employment by sector



Some examples of TRIST applications

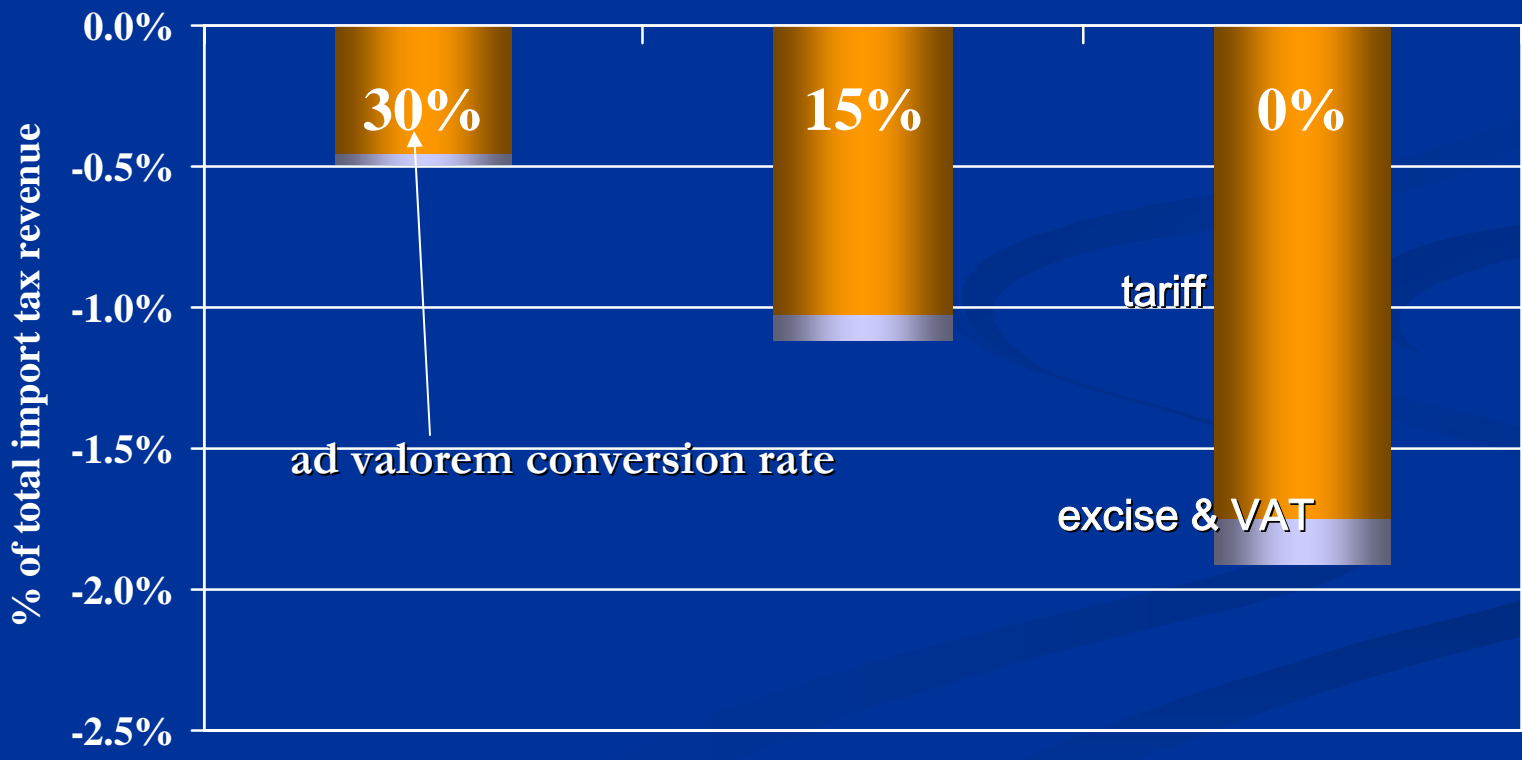
- The following are slides from our work in Africa

A priority in tariff reform is converting specific duties

- Specific duties
 - Particularly pernicious – ad valorem equivalents can often exceed 100%
 - Non-transparent
 - Onerous for customs – complexity leads to needless checking - diverting resources towards inspection of what would otherwise be low risk shipments
 - Allow for discretion and corruption
 - Not clear what they are protecting – duties hit low quality-small shipments hardest

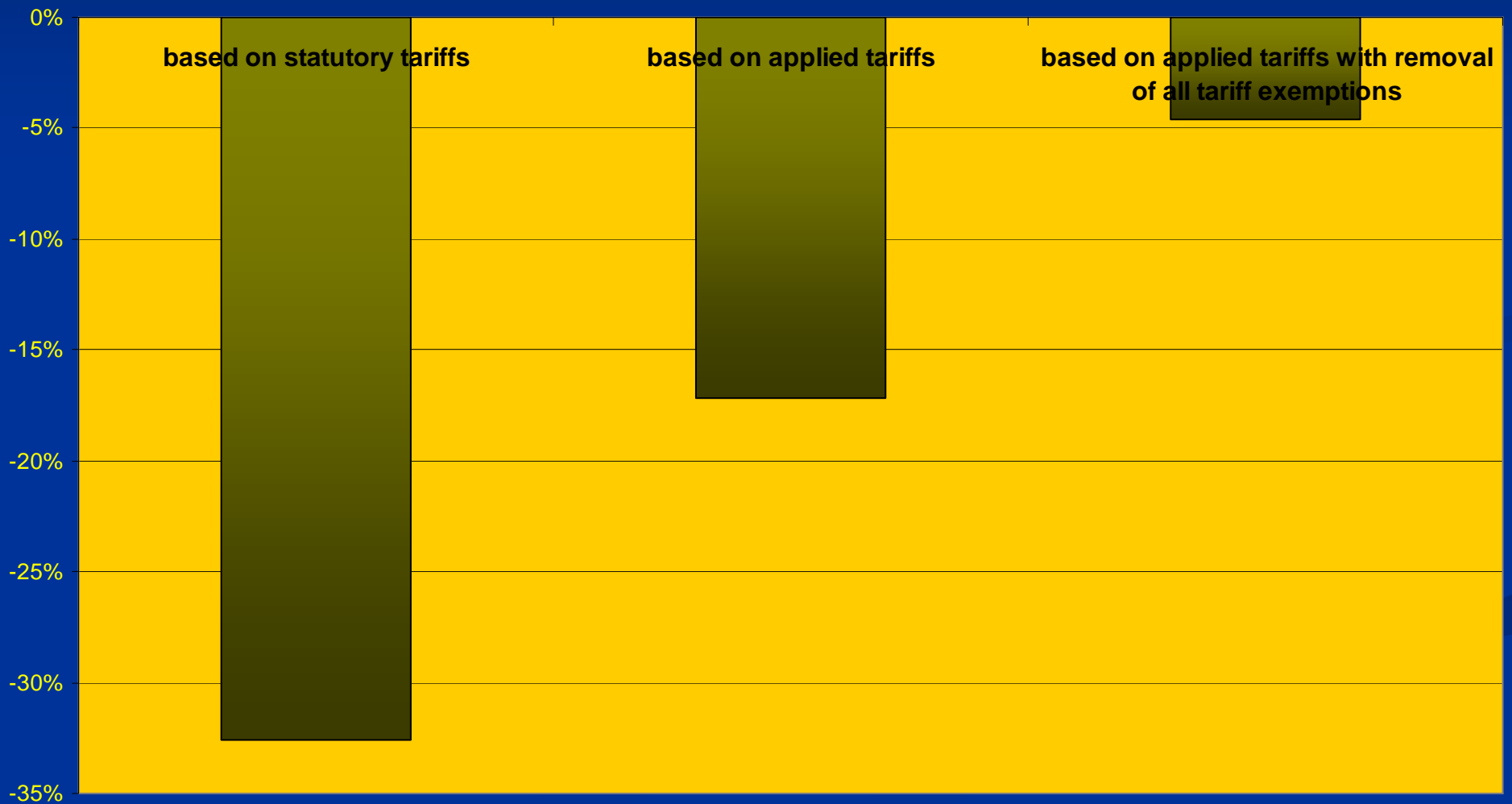
Specific duties contribute little to revenues but divert customs resources

Estimated loss in tariff, excise and VAT revenue from removing specific tariffs





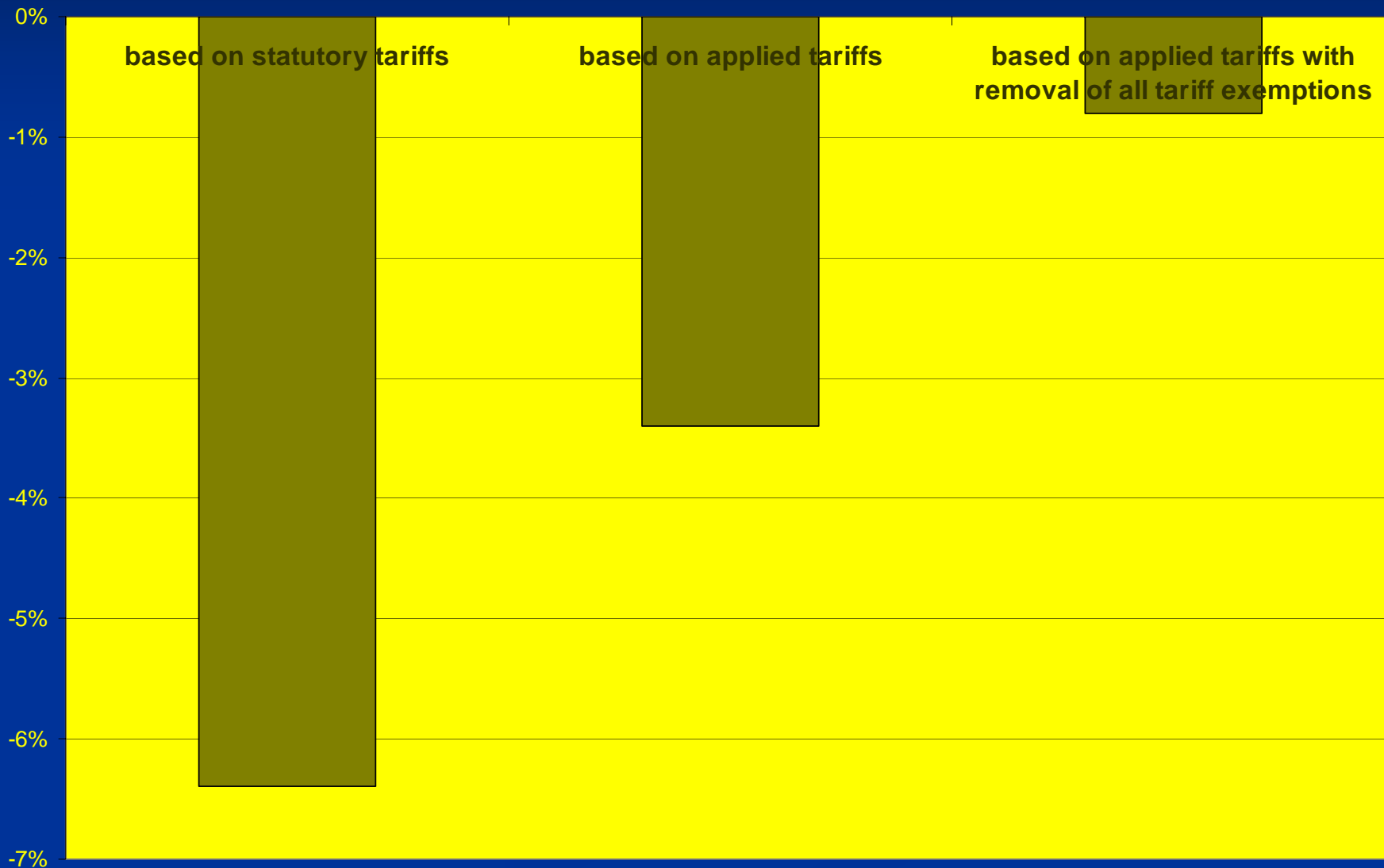
Using TRIST: The impact of an EPA on tariff revenues in Ethiopia



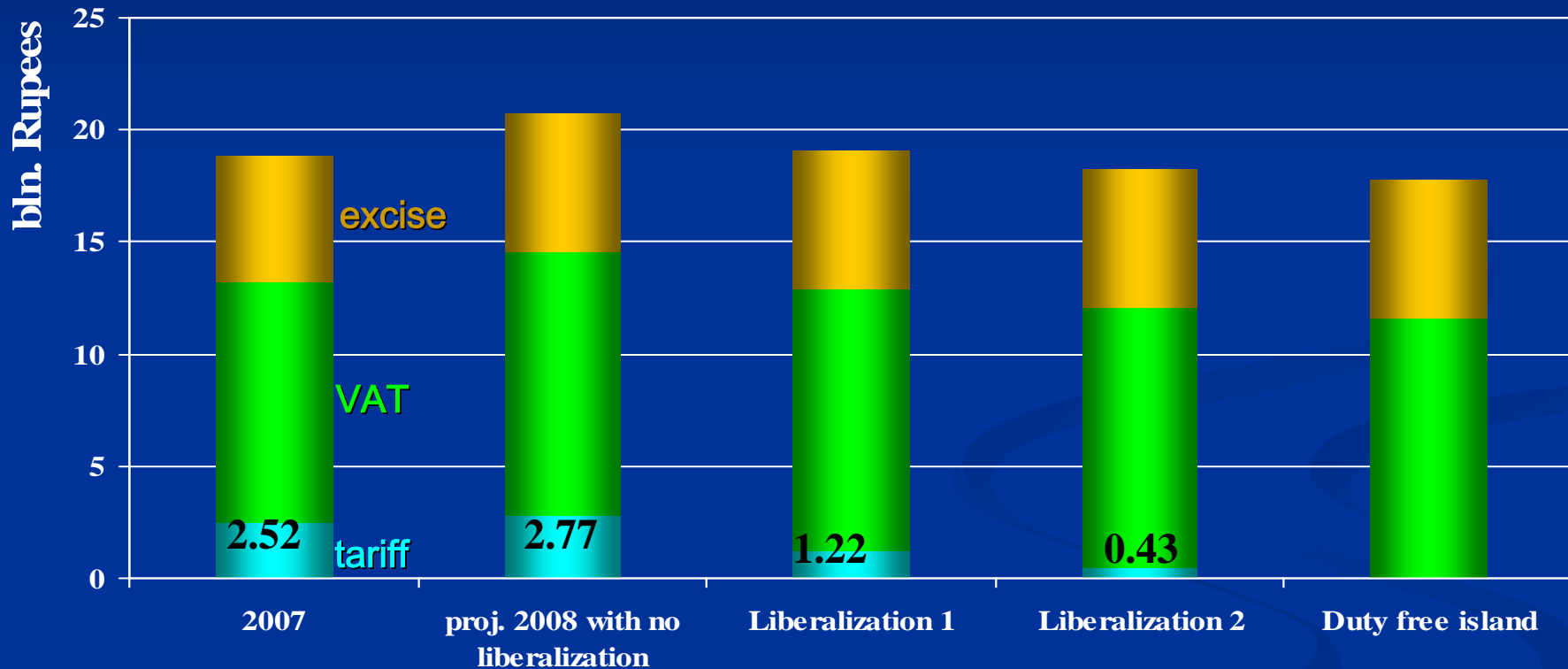


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Using TRIST: The impact of an EPA on revenues from trade in Ethiopia



TRIST example: removal of remaining tariffs will cost little in terms of revenue...



Liberalization 1: specific duties: -50%; ad valorem: 30->15 ,15->5, 10->0

Liberalization 2: specific duties and ad valorem 30 -> 15; all other tariffs 0

Duty free island: all duties to 0

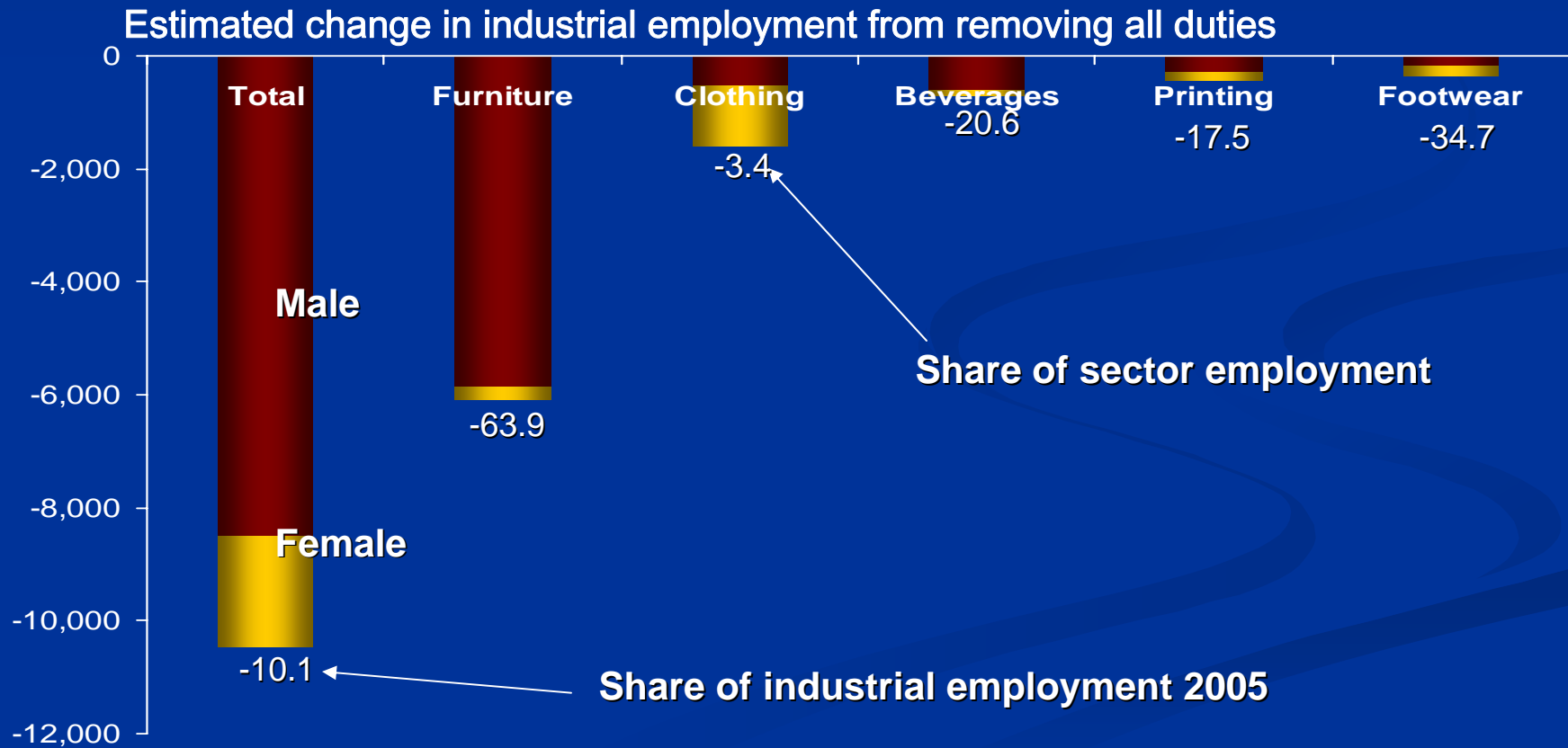
Assuming a weak trade response to tariff change and exogenous import growth of 10%.

These figures are adjusted to exclude gains in VAT and excise at the border that come from domestic production being replaced with imports as these represent a redistribution rather than a gain in total revenue.



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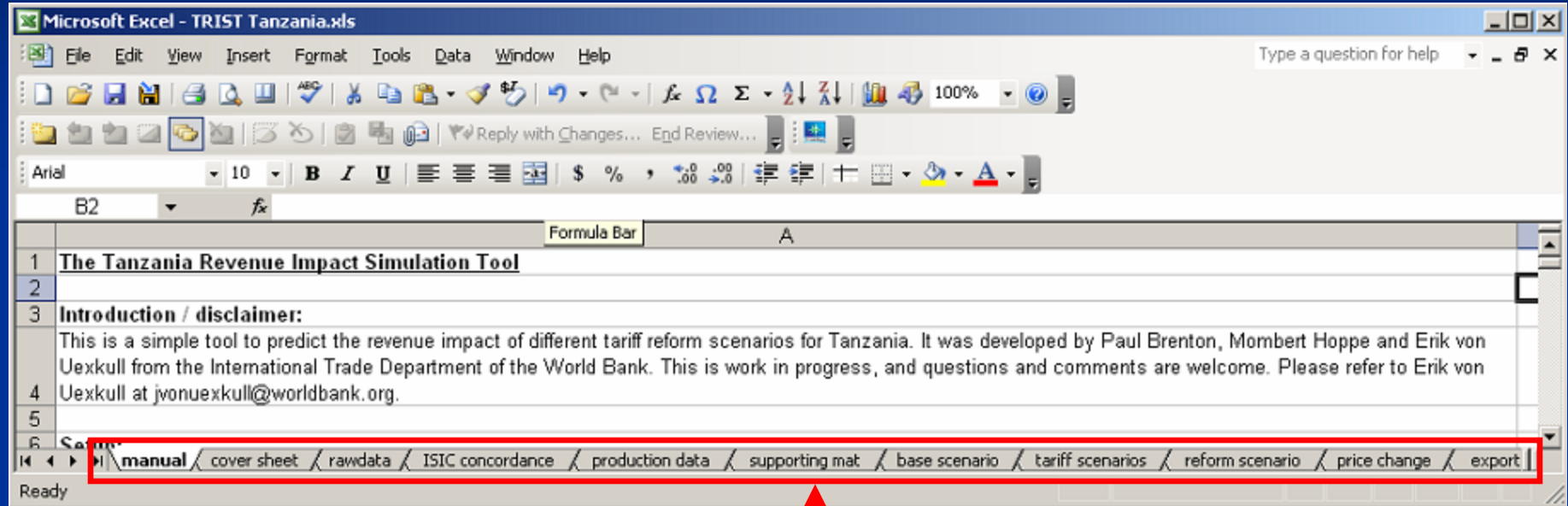
Moving to a “duty free island” would displace a small number of workers, but a few sectors would suffer



Where we stand

- TRIST have been developed for the following countries: Tanzania, Ethiopia, Zambia, Madagascar, Malawi, Tunisia, Morocco, Nigeria, Mauritius, Bolivia
- TRISTs are currently being constructed for Albania, Senegal, Mozambique
- Existing TRISTs can be downloaded free of charge at <http://go.worldbank.org/2P8FPC0760>
- We have provided hands-on training on how to use TRIST in Tanzania, Zambia, Madagascar, Mauritius and Bolivia
- We are constantly working to further improve TRIST and respond to the feedback we receive
- We are trying to build an online community of users to exchange experiences and further develop the product following an open-source-principle
- So far, TRIST is available in English, French and Spanish

TRIST demonstration



TRIST has a number of different worksheets. The first one, 'manual', explains what is done on each worksheet.

'cover sheet' is the main user interface where reform scenarios and the simulation parameters can be defined and summary results are displayed. In this example, we work with TRIST Tanzania to estimate the revenue impact of zero tariffs with the EU and all EAC partners.

TRIST demonstration

Step 1: Use the dropdown menus to select the reform tariff scenario for each country or group. If you want to leave the tariff unchanged, this should be set to 'applied'.

		available tariff scenarios	
Burundi	0		
Rwanda	0	applied	The actual applied tariff rate
Kenya	0	statutory	The statutory (de jure) tariff rate
Uganda	0		
South Africa	applied	applied<statutory	The smaller of the two tariff rates
only COMESA*	applied	applied<statutory<25	The smaller of the statutory and applied, capped to a maximum rate of 25%
only SADC*	applied	applied<statutory<20	The smaller of the statutory and applied, capped to a maximum rate of 20%
COMESA and SADC*	applied	applied<statutory<5	The smaller of the statutory and applied, capped to a maximum rate of 5%
EU	0		A flat uniform 5% tariff
Rest of the World	applied	0 ITA	No tariff The applied tariff, but with all tariff lines covered under the WTO Information Technology Agreement set to zero

*) excludes countries that are listed individually

To run the simulation, open 'cover sheet'. Then, go through three simple steps:

First, a number of tariff reduction scenarios can be applied to the different trading partners of the liberalizing country. User defined tariff reduction scenarios can be added easily through the 'tariff scenarios' sheet.

New trading partner groups can be defined using a supplemental aggregation tool that is available for most TRISTs

For this example from TRIST Tanzania, we assign a 0 tariff to the EU and all EAC partners.

TRIST demonstration

Step 2: Put in a elasticity for the exporter substitution effect (eg. to what extent are imports from Burundi replaced by imports from EU if EU tariff is lowered), the domestic substitution (ie how much do imports raise at the expense of domestic production if tariffs are lowered) and for the overall demand effect (ie how does total demand for imports and domestic goods react to a price change of that good).

Elasticity for exporter substitution effect	1.5
Elasticity for domestic substitution	1.5
Elasticity for demand effect	0.5

Step 3: Decide whether domestic production should be taken into account.	
	available options
Take into account domestic production	yes
	no

In step 2, elasticities for substitution between exporters, substitution of domestic production with imports and overall demand have to be entered (it is possible to adjust for product specific elasticities by changing the adjustment coefficients on the 'rawdata' sheet). For example, start with 1.5/1.5/0.5 and check the robustness of your results by trying different values.

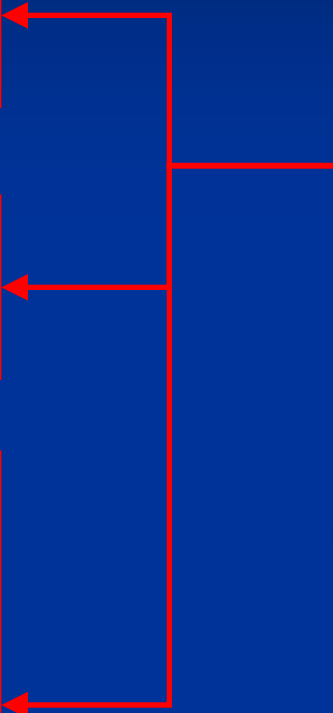
Step 3: Domestic production can be taken into account if appropriate data are available.



TRIST demonstration

REVENUE RESULTS		US\$
Impact on imports:		
Old imports		3,685,714,612
<i>(saved result)</i>		
New imports		3,715,341,426
Change in imports		29,626,814
% Change in imports		0.8%
<i>(change since saved result)</i>		
<i>(% change since saved result)*</i>		
Impact on revenue:		
Old tariff revenue		170,851,649
<i>(saved result)</i>		
New tariff revenue		136,557,178
Change in tariff revenue		-34,294,470
% Change in tariff revenue		-20.1%
<i>(change since saved result)</i>		
<i>(% change since saved result)*</i>		
Old total import tax revenue		775,838,401
<i>(saved result)</i>		
New total import tax revenue		740,626,371
Change in import tax revenue		-35,212,030
% Change in import tax revenue		-4.5%
<i>(change since saved result)</i>		
<i>(% change since saved result)</i>		
Change in import tax revenue + potential changes in domestic excise and VAT		-37,000,164
% Change in import tax revenue + potential changes in domestic excise and VAT		-4.8%
<i>(change since saved result)</i>		
<i>(% change since saved result)</i>		
*) calculated as change since saving over original imports and revenue (NOT imports and revenue at the time of saving)		
For more detail on revenue results, see worksheet 'detailed results'		

The 'Revenue Results' box presents the total change in imports, tariff revenue, and import tax revenue (including VAT and excise). Detailed results by product and trading partner can be found on worksheet 'detailed results'.





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TRIST demonstration

Protection and Price Change Results				
Sector	Applied tariff		Price Change	
	before reform	after reform	imports	total domestic
01to09 - Agriculture, forestry and fishing, excl. sugar cane	0.95%	0.84%	-0.10%	-0.04%
SUGAR - Sugar cane	?	?	0.00%	0.00%
10to14 - Mining and Quarrying	0.10%	0.09%	-0.01%	-0.01%
1511 - Production, processing and preserving of meat and meat products	3.08%	0.80%	-1.96%	-0.51%
1512 - Processing and preserving of fish and fish products	0.01%	0.00%	0.00%	0.00%
1513 - Processing and preserving of fruit and vegetables	10.21%	5.64%	-3.95%	-1.60%
1514 - Manufacture of vegetable and animal oils and fats	1.31%	1.26%	-0.05%	-0.03%
1520 - Manufacture of dairy products	0.14%	0.06%	-0.07%	-0.04%
1531 - Manufacture of grain mill products	0.02%	0.01%	-0.01%	0.00%
1532 - Manufacture of starches and starch	0.30%	0.24%	-0.06%	-0.06%
1533 - Manufacture of prepared animal feeds	6.48%	4.77%	-1.53%	-0.07%
1541 - Manufacture of bakery products	28.22%	20.20%	-5.65%	-0.95%
1542 - Manufacture of sugar	0.01%	0.01%	-0.01%	0.00%
1543 - Manufacture of cocoa, chocolate and sugar confectionery	14.30%	7.16%	-5.85%	-3.90%
1544 - Manufacture of macaroni, noodles, couscous				

Results on protection and price changes are presented by ISIC sector (here: from TRIST Mauritius)

TRIST demonstration

Imports, Output and Employment Results						
Sector	Imports		Output		Employment	
	change	% change	change	% change	change	% change
01to09 - Agriculture, forestry and fishing, excl.						
sugar cane	6,011,984	0.11%	-3,172,796	-0.04%	-12	-0.04%
SUGAR - Sugar cane	0	0.00%	0	0.00%	0	0.00%
10to14 - Mining and Quarrying	129,073	0.00%	-10,621	-0.01%	0	-0.01%
1511 - Production, processing and preserving of meat and meat products	29,594,176	2.16%	-16,224,568	-0.41%	-5	-0.41%
1512 - Processing and preserving of fish and fish products	166,863	0.00%	-73,273	0.00%	0	0.00%
1513 - Processing and preserving of fruit and vegetables	27,201,037	4.18%	-14,182,398	-1.44%	-9	-1.44%
1514 - Manufacture of vegetable and animal oils and fats	839,282	0.05%	-425,662	-0.02%	0	-0.02%
1520 - Manufacture of dairy products	1,350,252	0.06%	-510,587	-0.04%	0	-0.04%
1531 - Manufacture of grain mill products	143,563	0.01%	-75,419	0.00%	0	0.00%
1532 - Manufacture of starches and starch	20,554	0.03%	0	0.00%	0	0.00%
1533 - Manufacture of prepared animal feeds	1,963,056	2.20%	-1,270,449	-0.07%	-1	-0.07%
1541 - Manufacture of bakery products	24,651,329	7.48%	-15,020,970	-0.89%	-25	-0.89%
1542 - Manufacture of sugar	40,747	0.01%	-25,314	0.00%	0	0.00%
1543 - Manufacture of cocoa, chocolate and sugar confectionery	17,620,265	4.79%	-6,750,640	-3.54%	-4	-3.54%
1544 - Manufacture of macaroni, noodles, spaghetti						

If the required data is available, TRIST also presents indicative results for the expected change in output and employment (here: from TRIST Mauritius).