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- WITS Analytical Tools: SMART

ARTNet Capacity Building Workshop for Trade Research

Phnom Penh, Cambodia

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Analytical Tools: SMART

Quick Database Query

Analytical Tools

Advanced Query

Utilities

Help and Information

■ SMART:

- Simulates the partial equilibrium impact of a tariff reduction for a single market
- Can't easily capture the effects of a full round of tariff negotiations (since one market at a time)
- Largely used to simulate the impact of preferential trade agreements (EPAs, bilateral etc.)

SMART

- A 3 step process:

1. Prepare or import data for simulation
2. Specify the simulation parameters
3. Review or update the data (optional)

The screenshot displays the SMART software interface, divided into two main sections: 'Required steps' and 'View options'.

Required steps:

- Step 1: prepare/import data for simulation
- Step 2: set simulation parameters
- Step 3: review/update simulation data table

View options:

- Trade creation effect
- Welfare effects
- Revenue impact
- Market view
- Exporter view
- Exclude zero effects

A red box highlights the 'Required steps' section, and a red arrow points from the first step of the list above to the first step in the software interface.

SMART: Example Scenario

- Consider USA grants a free trade agreement (FTA) to El Salvador, Guatemala and Honduras on chapters 61 and 63 (Textile products)
- Let's look at the consequences on:
 - The beneficiaries exports to USA
 - The trade creation, tariff revenue and consumer surplus for USA
 - Pakistan exports to USA on these chapters

SMART: Dataset Definition

Click on the button corresponding to Step 1 to define the dataset

Required steps:

- Step 1: prepare/import data for simulation
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- Step 3: review/update simulation data table

View options:

-
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SMART: Dataset Definition

Choose the importing market on which a tariff cut will be applied

Choose a year

Choose the product categories on which simulation will be applied. Output report will display information at the most detailed level (6 digits or Tariff line level)

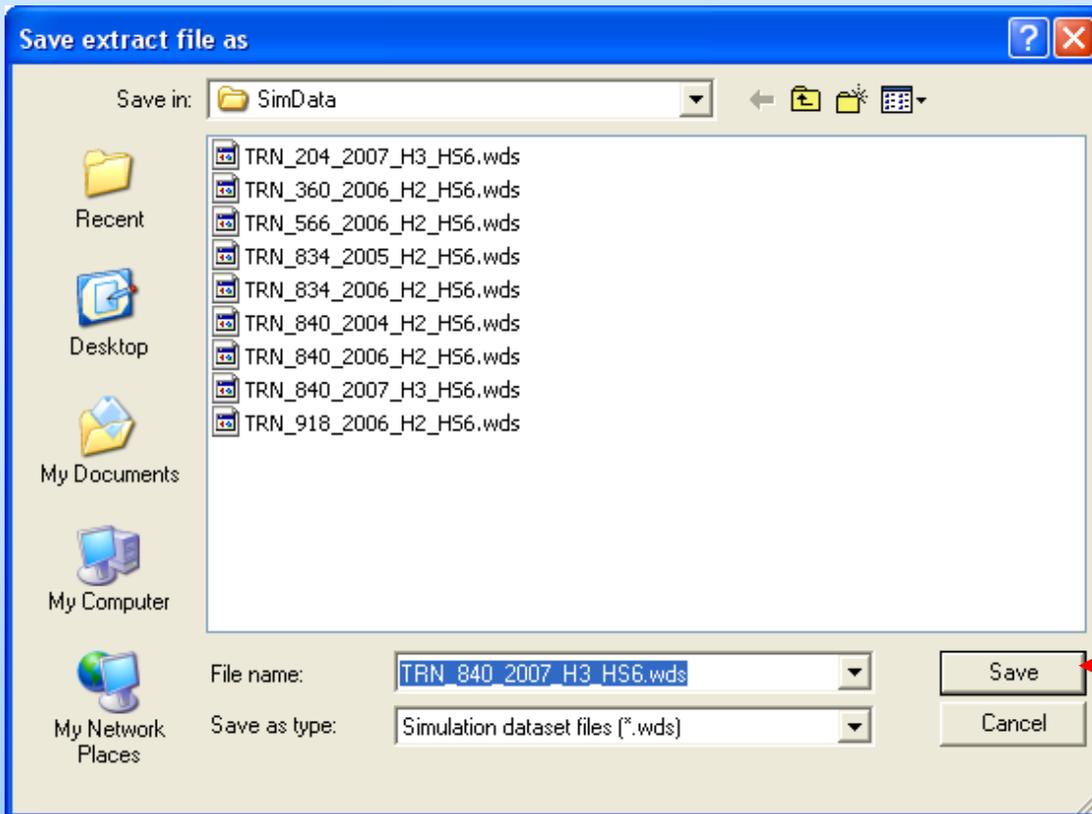
The screenshot shows the 'Simulation Data' dialog box with the following settings:

- Use** | **Extract** | **Import** (selected)
- Data Source:** TRAINS
- Duty:** Applied rate
- Reporter:** United States
- Year:** 2007
- Include rows with missing duties
- Products** | **Elasticities** (selected)
- Nomenclature:** HS - Combined
- Select product by:** Items Clusters Aggregates Search
- Product List:**
 - 60 Knitted or crocheted fabrics
 - 61 Articles of apparel and clothing accessories, knitted or crocheted
 - 62 Articles of apparel and clothing accessories, not knitted or crocheted
 - 63 Other made up textile articles; sets; worn clothing and worn textile arti
 - 64 Footwear, gaiters and the like; parts of such articles
 - 65 Headgear and parts thereof
 - 66 Umbrella, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crop
 - 67 Prepared feathers and down and articles made of feathers or of dow
 - 68 Articles of stone, plaster, cement, asbestos, mica or similar materials
 - 69 Ceramic products
 - 70 Glass and glassware
 - 71 Natural or cultured pearls, precious or semi-precious stones, precious
 - 72 Iron and steel
 - 73 Articles of iron or steel
 - 74 Copper and articles thereof
 - 75 Nickel and articles thereof
 - 76 Aluminum and articles thereof

Red arrows point from the text boxes to the 'Reporter' dropdown, the 'Year' dropdown, and the checked checkboxes in the product list.

SMART: Dataset Definition

Save the dataset. You can reuse it later to apply new cut parameters.



SMART: Dataset Definition

Step 1 is now completed as indicated by the checked box

We can now go for step 2 by clicking on this button

Trade Impact Simulation - Microsoft Internet Explorer - [Working Offline]

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WITS World Integrated Trade Solution

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WITS - Tariff Simulation

Trade Creation Effect, Welfare, and Revenue Impact Simulation

Required steps:

- Step 1: prepare/import data for simulation
- Step 2: set simulation parameters
- Step 3: review/update simulation data table

View options:

- Trade creation effect
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- Market view
- Exporter view

Exclude zero effects

SMART: Simulation Parameters

Here we are going to specify tariff cut, affected products as well as beneficiaries

The screenshot shows a dialog box titled "Beneficiaries, new rates and elasticities". It is divided into several sections:

- Beneficiary countries:** A radio button is selected for "All countries". Below it is a list of countries with checkboxes, including World, Afghanistan, Albania, Algeria, American Samoa, Andorra, Angola, Anguila, Antigua and Barbuda, Argentina, Armenia, Aruba, Australia, Austria, Azerbaijan, Bahamas, The, Bahrain, Bangladesh, Barbados, and Belarus. A checkbox at the bottom of this section is labeled "Show beneficiaries only".
- Affected products:** Two radio buttons are present: "All products" and "Range of products". A "Select..." button is next to the "Range of products" option.
- Custom rate adjustment:** A section with a title bar. It contains radio buttons for "New rate", "Maximum rate", "Linear cut", "Swiss formula", "Canadian formula", and "Customize". Each has an associated input field. The "Swiss formula" field contains the number "16". To the right of these fields is an "Apply" button. Below these is a checkbox for "Ignore bound rates" and a text area labeled "Rate adjustment formula".
- Elasticities:** A section with three checkboxes: "Import demand elasticity:", "Substitution elasticity:", and "Supply elasticity:". Each has an associated input field. An "Apply" button is to the right of the "Import demand elasticity" field.

At the bottom of the dialog box are four buttons: "Reset", "View data", "Cancel", and "Done".

SMART: Simulation Parameters

Here we are going to specify tariff cut, affected products as well as beneficiaries

Click on **Specific countries** to get access to the country selection panel and select **beneficiary countries**

Beneficiaries, new rates and elasticities

Beneficiary countries:

All countries

Specific countries:

- Guam
- Guatemala
- Guinea
- Guinea-Bissau
- Guyana
- Haiti
- Holy See
- Honduras
- Hong Kong, China
- Hungary
- Iceland
- India
- Indonesia
- Iran, Islamic Rep.
- Iraq
- Ireland
- Israel
- Italy
- Jamaica
- Japan

Show beneficiaries only

Affected products:

All products

Range of products

Custom rate adjustment:

New rate %

Maximum rate %

Linear cut %

Swiss formula Rate adjustment formula:

Canadian formula

Customize

Ignore bound rates

Elasticities:

Import demand elasticity:

Substitution elasticity:

Supply elasticity:

SMART: Simulation Parameters

Affected products can be either all previously selected products in the dataset or only part of them. Here we choose to apply the tariff cut to all.

Finally, we specify the cut type from the Custom rate adjustment panel. Here, since we consider a FTA we fix the new rate at 0. We next click on Apply to confirm the adjustment.

Click on Done when all parameters are set.

The screenshot shows the 'Beneficiaries, new rates and elasticities' dialog box. The 'Beneficiary countries' section has 'Specific countries' selected, with a list of countries including Guatemala and Honduras checked. The 'Affected products' section has 'All products' selected. The 'Custom rate adjustment' section has 'New rate' selected and set to 0%. The 'Apply' button is highlighted. The 'Done' button at the bottom right is also highlighted.

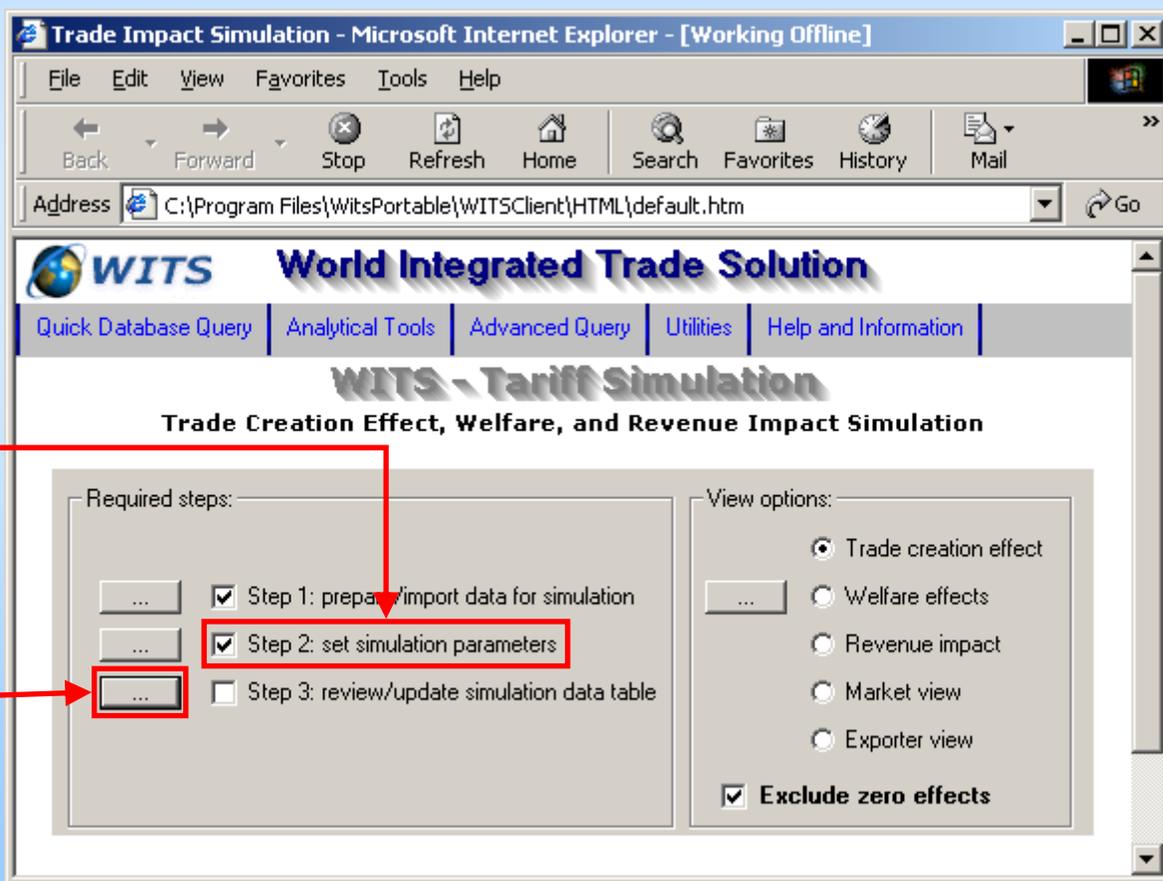
SMART: Simulation Parameters

WITS acknowledges the parameter definition



Step 2 is now completed as indicated by the checked box

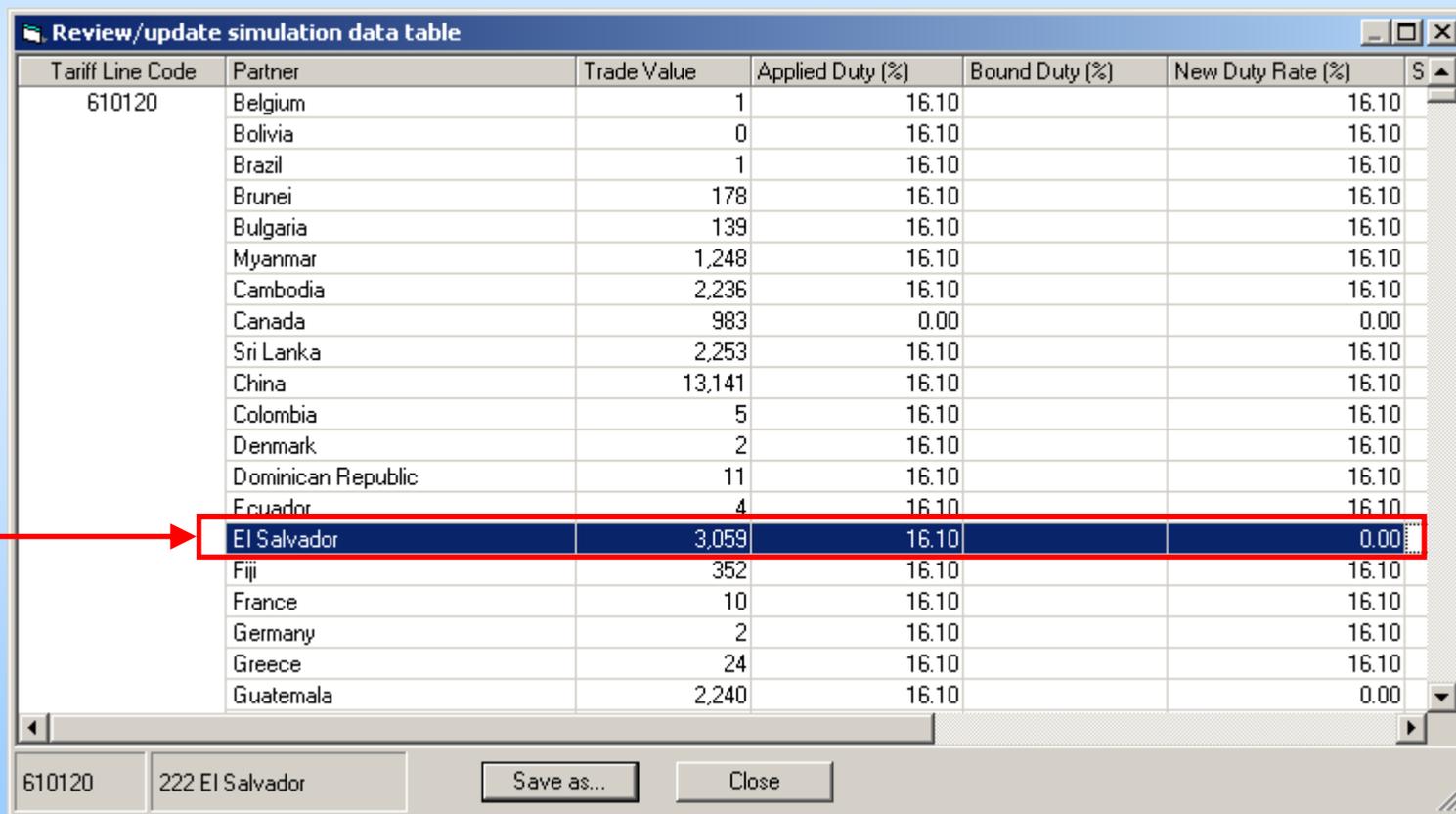
Click this button to display the data table (Step 3 is optional)



The screenshot shows the WITS World Integrated Trade Solution interface in a Microsoft Internet Explorer browser window. The browser title is "Trade Impact Simulation - Microsoft Internet Explorer - [Working Offline]". The address bar shows the URL "C:\Program Files\WitsPortable\WITSClient\HTML\default.htm". The page content includes the WITS logo and navigation links: "Quick Database Query", "Analytical Tools", "Advanced Query", "Utilities", and "Help and Information". The main heading is "WITS - Tariff Simulation" with the subtitle "Trade Creation Effect, Welfare, and Revenue Impact Simulation". Below this, there are two panels: "Required steps:" and "View options:". The "Required steps:" panel has three items, each with a button and a checkbox: "Step 1: prepare/import data for simulation" (checkbox checked), "Step 2: set simulation parameters" (checkbox checked, highlighted with a red box), and "Step 3: review/update simulation data table" (checkbox unchecked). The "View options:" panel has five radio buttons: "Trade creation effect" (selected), "Welfare effects", "Revenue impact", "Market view", and "Exporter view". There is also a checked checkbox for "Exclude zero effects". A red arrow points from the text box on the left to the "Step 2" checkbox, and another red arrow points from the text box below to the button next to "Step 2".

SMART: Review Simulation Data Table

This window allows to control that the parameters are properly set. Here we can see that tariff for El Salvador is indeed cut to 0.



Tariff Line Code	Partner	Trade Value	Applied Duty (%)	Bound Duty (%)	New Duty Rate (%)	S
610120	Belgium	1	16.10		16.10	
	Bolivia	0	16.10		16.10	
	Brazil	1	16.10		16.10	
	Brunei	178	16.10		16.10	
	Bulgaria	139	16.10		16.10	
	Myanmar	1,248	16.10		16.10	
	Cambodia	2,236	16.10		16.10	
	Canada	983	0.00		0.00	
	Sri Lanka	2,253	16.10		16.10	
	China	13,141	16.10		16.10	
	Colombia	5	16.10		16.10	
	Denmark	2	16.10		16.10	
	Dominican Republic	11	16.10		16.10	
	Ecuador	4	16.10		16.10	
	El Salvador	3,059	16.10		0.00	
	Fiji	352	16.10		16.10	
	France	10	16.10		16.10	
Germany	2	16.10		16.10		
Greece	24	16.10		16.10		
Guatemala	2,240	16.10		0.00		

610120 222 El Salvador Save as... Close

SMART: The Results

Results of the simulation are displayed using the View Options panel.

Trade Impact Simulation - Microsoft Internet Explorer - [Working Offline]

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WITS - Tariff Simulation

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- Exporter view

Exclude zero effects

SMART: The Results

- Through a set of 5 output reports, WITS provides the following results:
 - Trade Total Effect composed of:
 - Trade Diversion Effect
 - Trade Creation Effect
 - Pre and Post Exports by Partner
 - Pre and Post cut average duty rate
 - Consumer Surplus (Welfare)
 - Tariff Revenue effect
 - Price effect only if one uses a non infinite Supply elasticity (infinite by default in SMART)

SMART: Comments

- Preferential tariff reduction (free trade areas, customs unions, bilateral agreements) diverts trade away from countries not enjoying preferences
- When most efficient producers are part of the FTA, preferences may, on balance, create new trade

SMART: Exercise

- Consider USA offers a free trade agreement (FTA) to Cambodia on textile (HS chaps 61, 62 and 63)
- What would be the potential gains for Cambodia
- What would be the most benefiting products

SMART: Exercise

- Same exercise as above but with Australia