



# Online Trade Outcomes Indicators

## - User's Manual-

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The World Bank

Version 1.0

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## ACRONYMS AND SYMBOLS

### ACRONYMS

CAGR	compound annual growth rate
COMTRADE	United Nations Commodity Trade Statistics database
EXPY	export sophistication index
GDP	gross domestic product
HS	Harmonized Commodity Description and Coding System
IMF	International Monetary Fund
PRODY	product technological sophistication index
RCA	revealed comparative advantage
RHCI	revealed human capital intensity of a product
RPCI	revealed physical capital intensity of a product
SITC	Standard International Trade Classification
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
USD	United States dollar
WDI	World Development Indicators database

### SYMBOLS

$H$	human capital
$i$	origin country or group
$j$	destination country or group
$k$	product or product group
$K$	physical capital
$L$	labor
$m$	import line value
$M$	total imports
$n$	count or number
$t$	year
$w$	set of all countries; world
$x$	export line value
$X$	total exports
$y$	GDP per capita
$Y$	GDP
$\Omega$	set or group
$\infty$	infinity
$\Sigma$	summation

## ACKNOWLEDGMENTS

This online trade indicator tool was prepared by a team led by José-Daniel Reyes, Economist, (PRMET), World Bank, and including Siddhesh Vishwanath Kaushik, Information Officer (DECDG), Rajesh Kumar Danda, Consultant (DECDG), Ganeshkumar Sathiyamoorthy, Consultant (DECDG), and Jared Fronk, Consultant (PRMET). This tool is an outcome of the World Bank Trade Competitiveness Diagnostic toolkit developed by the International Trade Unit. Overall guidance from Jose Guilherme Reis and Thomas Farole is gratefully acknowledged. Valuable contributions and inputs were also received from Daria Taglioni, Swarnim Wagle, Deborah Winkler, Guillermo Arenas, Gonzalo Varela, and Luis Diego Rojas. The online trade outcomes indicators tool was prepared under the direction of Mona Haddad (Sector Manager).

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## INTRODUCTION

The online trade outcomes indicators is a tool developed by the International Trade Unit of the World Bank that reviews the country-level performance of exports along various dimensions which together give a fairly comprehensive picture of trade competitiveness. The online trade outcomes tool follows the analytical framework developed by the World Bank Trade Competitiveness Diagnostic toolkit. It provides indicators along four different dimensions of trade performance: (i) the composition, orientation and growth of exports and imports, (ii) the degree of export diversification across products and markets, (iii) the level of sophistication of a country's main exports, and (iv) the survival rate of its export relationships. This framework allows the analyst to evaluate the dynamics of the country's exports along different margins of trade and to benchmark specific countries' position with respect to their peers. The toolkit can be used to assess the competitiveness of a country's overall basket of products as well as specific traded sectors. It facilitates the identification of the primary constraints to improved trade competitiveness and the policy responses to overcome these constraints

The principal data source is the United Nations Commodity Trade Statistics Database (UN-COMTRADE), which reports detailed bilateral export and import data. The database is regularly updated and includes information for over 170 countries, some of which have been reporting these types of statistics to the United Nations since 1962. The data are recorded according to various internationally recognized trade classifications. This database is available through the World Integrated Trade Solutions (WITS) platform, which is a gateway to trade statistics as well as a trade analytical tool developed by the World Bank. The online trade outcomes indicators is embedded in this platform. In addition to UN-COMTRADE data, the online trade outcomes tool makes use of other publicly available datasets, such as the World Bank's World Development Indicators and the UN Revealed Factor Intensity Indices.

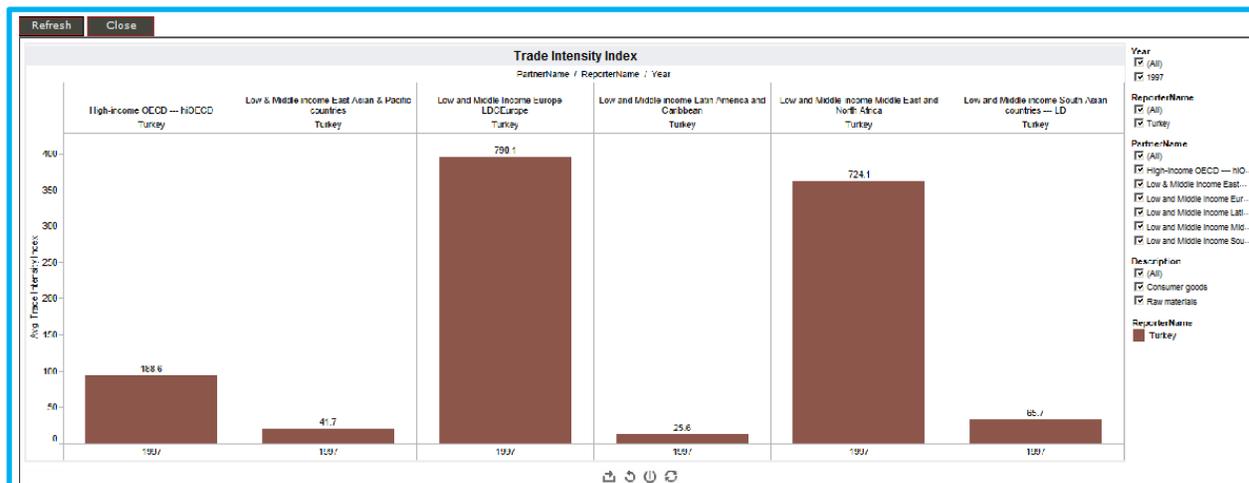
The online trade outcomes tool provides the user with a flexible array of options. These options include the selection of countries of interest, product classifications, the usage of reported or mirrored data, and the years of the analysis. In addition, the user can also create ad-hoc country and product groups or—when relevant—investigate specific trading partners. It is also possible to generate only a subset of indicators and get comparative data on peer countries. This user's guideline document provides specific details for these options.

The online trade outcomes tool is also user-friendly. As an alternative to the indicator by indicator analysis, the software offers a built-in set of choices that the user can automatically employ to generate the set of indicators by section for the country and the year of choice.

The output of the online trade outcomes tool is the data for each indicator along with a companion visualization, which can be easily exported in a number of formats. Special attention is given to produce a rich visualization outcome.

## CHART TIPS AND TRICKS

Each indicator is accompanied by a chart which provides a visualization of the requested data. This can be accessed by clicking on the *Chart*  icon on *View and Request Download* tab. The user is taken pop-up window which will contain a graph, scatter plot, or table, depending on the variable in question. For example, the Trade Intensity Index for Turkey in 1997 is given below:



In the upper left-hand corner are two tabs. *Refresh* will return the graph to its original state, while *Close* will exit the visualization. On the far right is a column containing a selection panel. The user may check or uncheck options here to alter which data are displayed. After any selection, the visualization will automatically update.

On the bottom of every chart, the user will find four symbols:    

*Export*  permits the user to export the chart as an image (.png), data (.txt), crosstab (.csv), or PDF (.pdf). Note that, due to server constraints, if the chart has been active for several minutes, the export button will deactivate. To reactivate it, simply refresh the chart. *Revert All*  returns the chart to its initial configuration. The third symbol is a toggle switch controlling *Automatic Updating* with two positions. The initial position  permits the chart to automatically update after a change in the selection panel to the right of the chart. Clicking on the toggle will switch it to the off position  which will pause automatic updating. *Refresh Data for this View*  will refresh the chart for the given selection.

In many cases, the graph may initially contain all countries or a large selection of products or years. If the user is interested in only a subset of these data, it is best to uncheck the box next to (All) in the selection panel. Next, pause automatic updating and make your desired selections. Once done, reactivate automatic updating. If you do not pause automatic updating, you will be forced to wait after every selection as the visualization updates itself.

Hovering the cursor over any data point, line, or bar will bring up the *Tool Tip* box. This box will contain the relevant information for the data point, typically including—when relevant—the partner name, reporter name, year, product code, and value.



At the bottom of the *Tool Tip* window are two options. *Keep Only* will keep only the selected data point in the chart and remove all others. *Exclude* will exclude the selected data point from the chart but leave the rest of the chart unchanged.

## SECTION 1 – ORIENTATION AND GROWTH

This section contains eight indicators that summarize the size, importance, composition and growth of trading relationships. This is the only section in which users may select both imports and exports; sections 2, 3, and 4 deal exclusively with exports.

The first two indicators give an overview of the size and importance of trade. *Exports, Imports, and Trade Balance* reports the total value of imports, exports, and balance of trade between chosen reporters and partners, serving as a preliminary indicator of the reporters' involvement in world trade. The *Openness to Trade* indicator provides a normalized view of a country's total trade by summing the total value of exports and imports and dividing by GDP; it also gives an illustration of the concave relationship between GDP per capita and trade openness.

The subsequent four indicators characterize trade growth and competitiveness. *Sectoral Composition, Comparative Advantage, and Growth* gives the percent of trade represented by selected sectors, compound annual growth rate, and revealed comparative advantage (Balassa, 1965). *Primary Products, Shares, and Growth* ranks products according to trade value, whereas *Market Composition and Growth* does the same for markets. The indicator *Growth in Value versus Volume* investigates whether changes in trade value are due to changes in volume or due to changes in prices.

The final two indicators in the section suggest potential sources of future growth. The *Trade Intensity Index* uses similar logic to that of revealed comparative advantage to indicate with which partners a reporter has a relatively intense trading relationship, vis-à-vis the world. Finally, the *Trade Complementarity Index* evaluates the extent to which the export profile of a reporter complements the import profile of a partner; strongly complementary profiles may indicate exploitable sources of growth.

## 1-1 EXPORTS, IMPORTS, AND TRADE BALANCE

**Description:** This indicator provides the total exports, total imports, and trade balances for any number of reports, both in absolute value and as a percentage of GDP. The trade balance indicates the degree to which domestic demand exceeds domestic supply, or vice versa. The trade balance alone does little to describe the health of an economy, yet may be used as an indicator of the country's involvement in the international marketplace. It is calculated as total exports to the world minus total imports.

**Mathematical Definition:**  $X_{it} - M_{it}$

Where  $X$  is the total value of exports and  $M$  is the total value of imports for country  $i$  at time  $t$ .

**Range of Values:** A negative trade balance implies imports exceed exports. A positive trade balance implies the reverse.

**Limitations:** The trade balance can be affected by a variety of factors, including domestic and international prices, exchange rates, trade agreements or barriers, tariffs, subsidies, and other trade regulations. Opinions vary on whether trade deficits are pro-growth, contractionary, or ultimately immaterial.

### Choice Parameters

Reporter: countries, groups

Years: any

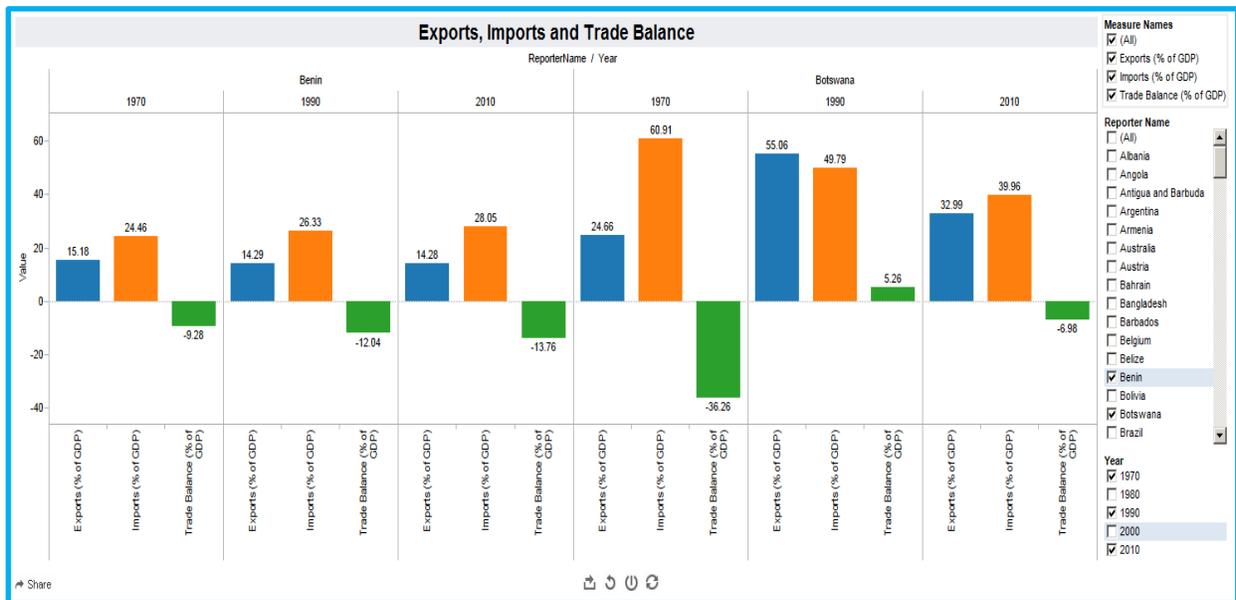
### Additional Data Sources: WDI

ReporterName	Year	Exports (Current USD)	Imports (Current USD)	Trade Balance (Current USD)	Trade Balance (% of GDP)
Albania	1990	312,500,000.000	487,500,000.000	-175,000,000.000	-8.3269
Albania	2000	705,460,096.000	1,382,117,632.000	-676,657,536.000	-18.3543
Albania	2010	3,508,994,048.000	6,099,628,544.000	-2,590,634,496.000	-21.8467
Angola	1990	3,992,499,968.000	2,147,299,968.000	1,845,200,000.000	17.9841
Angola	2000	8,181,963,776.000	5,735,659,520.000	2,446,304,256.000	26.7965
Angola	2010	51,400,294,400.000	35,421,220,864.000	15,979,073,536.000	19.3754
Antigua and Barbuda	1980	74,077,776.000	95,400,000.000	-21,322,224.000	-19.3721
Antigua and Barbuda	1990	348,311,104.000	340,559,264.000	7,751,840.000	1.9797
Antigua and Barbuda	2000	466,857,024.000	498,463,392.000	-31,606,368.000	-3.9384
Antigua and Barbuda	2010	533,984,224.000	651,960,256.000	-117,976,032.000	-10.2251
Argentina	1970	1,769,210,624.000	1,495,789,440.000	273,421,184.000	0.8657
Argentina	1980	3,895,791,616.000	4,989,980,160.000	-1,094,188,544.000	-1.4217
Argentina	1990	14,643,449,856.000	6,546,483,712.000	8,096,966,144.000	5.7282
Argentina	2000	30,936,899,584.000	32,738,199,552.000	-1,801,299,968.000	-0.6338
Argentina	2010	80,034,127,872.000	67,843,551,232.000	12,190,576,640.000	3.3063
Armenia	1990	789,960,896.000	1,045,655,232.000	-255,694,336.000	-11.3298
Armenia	2000	446,833,344.000	966,167,168.000	-519,333,824.000	-27.1680
Armenia	2010	1,928,926,336.000	4,196,501,504.000	-2,267,575,296.000	-24.1973
Australia	1970	5,354,463,232.000	5,455,258,112.000	-100,794,880.000	-0.2417

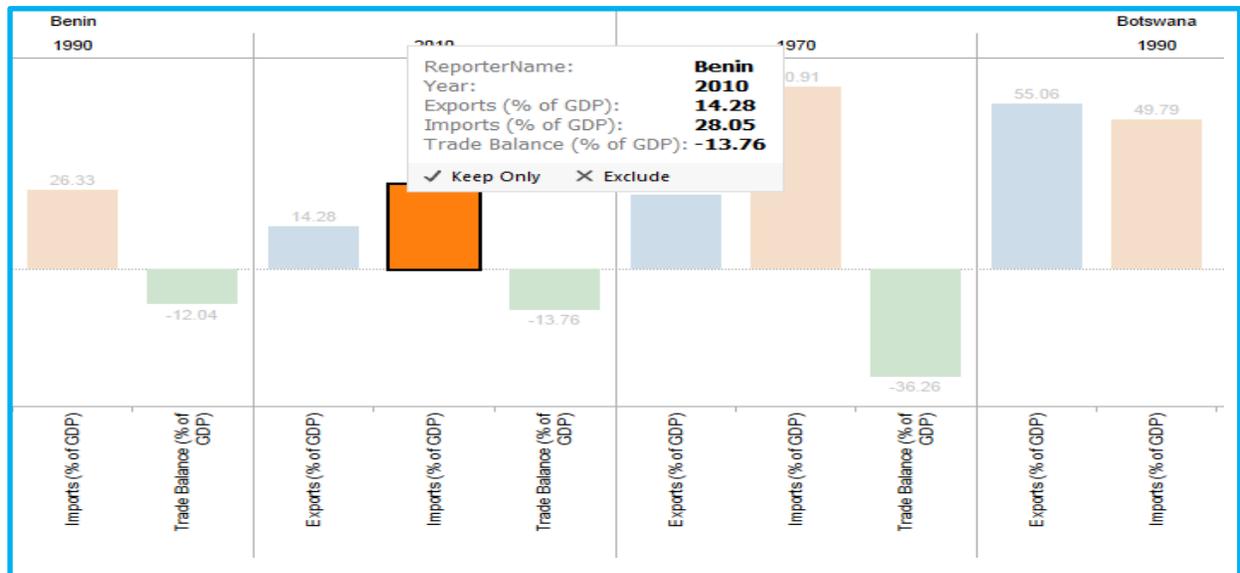
## 1-1 EXPORTS, IMPORTS, AND TRADE BALANCE – CHART

**Description:** The chart illustrates exports, imports, and trade balance as a percent of GDP using bar graphs.

**Options:** The column on the right allows the user to select a subset of variables, reporter countries, and years.



**Tooltip:** Hovering the cursor over any data point calls up the tooltip pop-up window with the reporter's name and year, as well as exports, imports, and trade balance as a percent of GDP.



## 1-2 OPENNESS TO TRADE

**Description:** Openness to trade is measured as the trade-to-GDP ratio. It weighs the combined importance of exports and imports of goods and services in an economy, giving an indication of the dependence of domestic producers on foreign demand and of domestic consumers on foreign supply. There is a concave relationship between trade openness and per capita income: as incomes rise, countries tend to trade more, but at a decreasing rate.

**Mathematical Definition:** 
$$\frac{X_{it} + M_{it}}{Y_{it}}$$

Where  $X$  is the total value of exports,  $M$  is the total value of imports, and  $Y$  is the GDP of country  $i$  at time  $t$ .

**Range of Values:** A trade value above 100 indicates that combined exports and imports exceed GDP; a trade value less than 100 implies the reverse.

**Limitations:** All else being equal, larger countries tend to have lower trade-to-GDP ratios because they may undertake a greater share of trade within their borders. Likewise, population and geography may distort trade openness; for example, landlocked countries trade less than the sizes of their GDPs would suggest.

**Choice Parameters:** Year

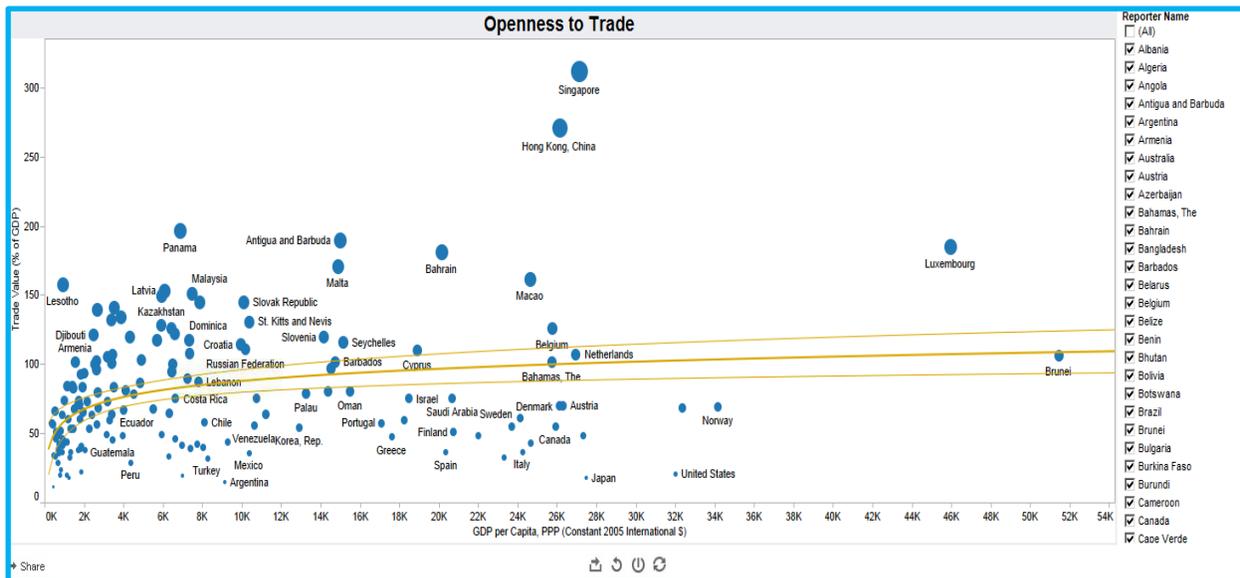
**Additional Data Sources:** WDI

ReporterName	Year	Trade Value (% of GDP)	GDP per Capita, PPP (Constant 2005 International \$)	ReporterISO3
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Albania	1992	100.0027	2572.5879	ALB
Algeria	1992	49.1891	5951.1602	DZA
Angola	1992	139.5214	2672.7402	AGO
Antigua and Barbuda	1992	189.4053	14987.7607	ATG
Argentina	1992	14.7310	9154.9141	ARG
Armenia	1992	101.0768	1551.2683	ARM
Australia	1992	32.7270	23313.6543	AUS
Austria	1992	69.9720	26305.7969	AUT
Azerbaijan	1992	140.8008	3543.4067	AZE
Bahamas, The	1992	101.4616	25728.4688	BHS
Bahrain	1992	181.1240	20157.3184	BHR
Bangladesh	1992	19.9340	774.4846	BGD
Barbados	1992	101.4794	14756.7021	BRB

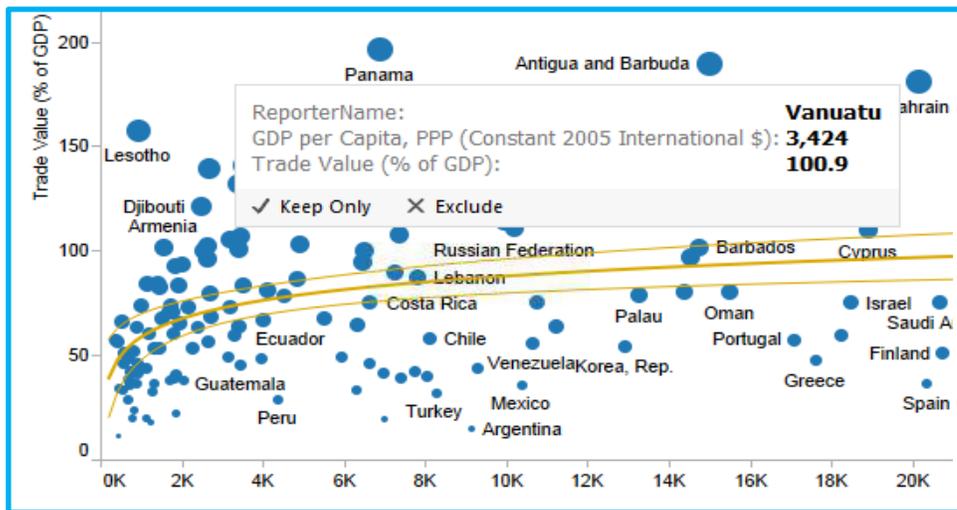
## 1-2 OPENNESS TO TRADE – CHART

**Description:** The chart illustrates the concave relationship between trade openness and per capita income. Countries are plotted with GDP per capita along the horizontal axis and trade value (as a percent of GDP) along the vertical axis. The thick yellow line is the quadratic trend, and the thinner yellow lines denote the 95 percent confidence interval. Note that values above 200 percent of GDP are excluded by default; however, users may choose to include them.

**Options:** The column on the right allows the user to select specific countries. The trend line is recalculated after each selection; there is a toggle at the bottom of the graph to pause this.



**Tooltip:** Hovering the cursor over any data point calls up the tooltip pop-up window with the reporter's name, GDP per capita, trade value, and the standard two options.



### 1-3 SECTORAL COMPOSITION, COMPARATIVE ADVANTAGE, AND GROWTH

**Description:** This indicator shows the sectoral composition of the reporter's exports to a given partner or group. The revealed comparative advantage (RCA) index is a measure of a country's relative advantage or disadvantage in a specific industry as evidenced by trade flows. An index above the unit indicates that a country's share of exports in that sector exceeds the global export share of the same sector. If this is the case, we infer that the country has a comparative advantage in that sector. The compound annual growth rate (CAGR) is the year-over-year growth rate. It is calculated by taking the nth root of the total growth rate, where n is the number of years.

**Mathematical Definition:**

$$CAGR_{ijk} = 100 * \left[ \left( \frac{x_{ijkt_2}}{x_{ijkt_1}} \right)^{\frac{1}{t_2-t_1}} - 1 \right] \quad RCA_{ijk} = \frac{\frac{x_{ijk}}{X_{ij}}}{\frac{x_{wjk}}{X_{wj}}}$$

Where  $x$  is the value of exports of product  $k$  from country  $i$  to destination  $j$ , and  $X$  is total exports from  $i$  to  $j$ ;  $w$  indicates the world as origin. Start and end years are  $t_1$  and  $t_2$ , respectively.

**Range of Values:** An RCA between 0 and 1 indicates a comparative disadvantage, while above 1 it indicates comparative advantage. CAGR indicates a contraction when less than 0 and growth when greater than 0.

**Limitations:** Because high export volumes can result from market distortions, such as subsidies or under-valued exchange rates, RCA has been argued to be a misnomer in that it is a better measure of competitiveness than comparative advantage (Siggel, 2006).

**Choice Parameters:**

Reporter: country  
 Trade Flow: imports, exports (reported or mirrored)  
 Product Classification: HS revisions

Year: start year, end year  
 Products: line, cluster, chapter  
 Partner: country, group

ReporterName	PartnerName	Start Year	End Year	ProductCode	% of Total - End Year	% of Total - Start Year	Reavealed Comparative Advantage - End Year	Reavealed Comparative Advantage - Start Year	Compound Annual Growth Rate
Finland	World	2007	2010	01-05_Animal	1.07	0.80	0.57	0.47	1.65
Finland	World	2007	2010	06-15_Vegetable	0.60	0.49	0.20	0.22	-1.48
Finland	World	2007	2010	16-24_FoodProd	0.87	0.71	0.29	0.27	-1.52
Finland	World	2007	2010	25-26_Minerals	0.44	0.24	0.29	0.28	12.43
Finland	World	2007	2010	27-27_Fuels	8.01	5.36	0.64	0.52	5.27
Finland	World	2007	2010	28-38_Chemicals	8.10	5.23	0.85	0.56	6.57
Finland	World	2007	2010	39-40_PlastiRub	4.26	3.48	0.94	0.78	-1.50
Finland	World	2007	2010	41-43_HidesSkin	1.08	0.55	1.72	0.89	15.64
Finland	World	2007	2010	44-49_Wood	20.48	19.55	8.02	6.73	-6.49
Finland	World	2007	2010	50-63_TextCloth	0.90	0.99	0.21	0.23	-10.57
Finland	World	2007	2010	64-67_Footwear	0.21	0.16	0.27	0.23	1.58
Finland	World	2007	2010	68-71_StoneGlas	1.53	1.27	0.41	0.42	-2.03

### 1-3 SECTORAL COMPOSITION, COMPARATIVE ADV., AND GROWTH – CHART

**Description:** The chart gives another look at the data in tabular form. Values are rounded to two decimal places

**Options:** Under *Measure Names*, users may select columns they wish to display. Under *Revealed Comparative Advantage*, users may select only those products for which the reporter has a revealed comparative advantage (RCA > 1) or no comparative advantage (RCA < 1).

ProductCode	Export for End Year in US\$1000	% of Total - End Year	Revealed Comparative Advantage (End Year)	Trade Value in US\$1000 - Start Year	% of Total - Start Year	Revealed Comparative Advantage - Start Year	Average Annual Growth between start year and end year
01-05_Animal	752,481.07	1.07	0.57	716,386	0.80	0.47	
06-15_Vegeta..	418,128.89	0.60	0.20	437,301	0.49	0.22	
16-24_FoodPr..	612,200.85	0.87	0.29	640,969	0.71	0.27	
25-26_Minerals	306,622.85	0.44	0.29	215,761	0.24	0.28	
27-27_Fuels	5,615,060.62	8.01	0.64	4,813,124	5.36	0.52	
28-38_Chemi..	5,680,594.05	8.10	0.85	4,692,959	5.23	0.56	
39-40_PlastiR..	2,984,762.57	4.26	0.94	3,122,765	3.48	0.78	

**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the end year, partner’s name, product code, reporter’s name, the value of exports for the end year in thousands of USD, and the standard two options.

ProductCode	Export for End Year in US\$1000	Revealed Comparative Advantage (End Year)
01-05_Animal	752,481.07	0.57
06-15_Vegeta..	418,128.89	0.20
16-24_FoodPr..	612,200.85	0.29
25-26_Minerals	306,622.85	0.29

End Year: **2010**  
 PartnerName: **World**  
 ProductCode: **06-15\_Vegetable**  
 ReporterName: **Finland**  
 Export for End Year in US\$1000: **418,128.89**

✓ Keep Only    ✗ Exclude

## 1-4 PRIMARY PRODUCTS, SHARES, AND GROWTH

**Description:** This indicator ranks products according to their relative importance in a country's trade, showing which products are most important by value. It returns the value of trade in each product, the percent of total trade to the selected partner that this represents, its rank, and its growth rate. The compound annual growth rate (CAGR) is the year-over-year growth rate. It is calculated by taking the nth root of the total growth rate, where n is the number of years.

**Mathematical Definition:** 
$$CAGR_{ijk} = 100 * \left[ \left( \frac{x_{ijkt_2}}{x_{ijkt_1}} \right)^{\frac{1}{t_2-t_1}} - 1 \right]$$

Where  $x$  is the value of exports of product  $k$  from origin country  $i$  to destination  $j$ . Total exports are given by  $X$ . The start and end years are given by  $t_1$  and  $t_2$ , respectively.

**Range of Values:** Ranks are assigned in descending order, with 1 being the partner with the greatest trade flow. CAGR shows a contraction when less than 0 and growth when greater than 0.

**Limitations:** None beyond those native to the UN COMTRADE database.

### Choice Parameters:

Reporter: country

Products: line, chapter (up to 30)

Trade Flow: imports, exports (reported or mirrored)

Partner: country, group

Product Classification: HS revisions

Years: start year, end year

Rank	ReporterName	PartnerName	ProductCode	Start Year	End Year	Trade Value in US\$1000	% of Total	Compound Annual Growth Rate
1	Japan	World	870323	2002	2007	46826279.825	6.5553	5.4769
2	Japan	World	870324	2002	2007	33075832.508	4.6303	16.3240
3	Japan	World	854229	2002	2007	29992746.675	4.1987	48.2227
4	Japan	World	847989	2002	2007	16928651.472	2.3699	26.2602
5	Japan	World	870322	2002	2007	15275193.511	2.1384	29.8594
6	Japan	World	852540	2002	2007	11753655.908	1.6454	8.8094
7	Japan	World	870840	2002	2007	11051939.908	1.5472	16.5853
8	Japan	World	890190	2002	2007	9531812.469	1.3344	13.7590
9	Japan	World	852990	2002	2007	8940503.23	1.2516	18.6620
10	Japan	World	842952	2002	2007	7802461.314	1.0923	23.8220
11	Japan	World	870899	2002	2007	6860459.619	0.9604	4.7225
12	Japan	World	870332	2002	2007	6598686.862	0.9238	18.1719
13	Japan	World	854140	2002	2007	5472218.225	0.7661	17.5668
14	Japan	World	890120	2002	2007	5146019.149	0.7204	6.1857
15	Japan	World	840991	2002	2007	4964730.359	0.6950	5.9299
16	Japan	World	870333	2002	2007	4217123.041	0.5904	9.5107

## 1-4 PRIMARY PRODUCTS, SHARES, AND GROWTH – CHART

**Description:** The chart gives another look at the data in tabular form. Trade values are rounded to three decimal places, percentages to two decimals, and growth rates to four decimals.

**Options:** Under *Measure Names*, users may select columns they wish to display, including variables, partners, and reporters.

Primary Products, Shares, and Growth						
ReporterName / PartnerName / Start Year / End Year						
Japan						
World						
2002						
2007						
RANK	ProductCode	ProductDescription	Trade Value in US\$1000	% of Total	Average Annual Growth Rate between start year and end year	
1	870323	Of a cylinder capacity exceeding 1,500 cc but not	46,826,300.000	6.56	5.4769	
2	870324	Of a cylinder capacity exceeding 3,000 cc	33,075,800.000	4.63	16.3240	
3	854229	Other	29,992,700.000	4.20	48.2227	
4	847989	Other	16,928,700.000	2.37	26.2602	
5	870322	Of a cylinder capacity exceeding 1,000 cc but not	15,275,200.000	2.14	29.8594	
6	852540	Still image video cameras and other video camera r	11,753,700.000	1.65	8.8094	
7	870840	Gear boxes	11,051,900.000	1.55	16.5853	
8	890190	Other vessels for the transport of goods and other	9,531,810.000	1.33	13.7590	
9	852990	Other	8,940,500.000	1.25	18.6620	
10	842952	Machinery with a 360° revolving superstructure	7,802,460.000	1.09	23.8220	
11	870899	Other	6,860,460.000	0.96	4.7225	
12	870332	Of a cylinder capacity exceeding 1,500 cc but not	6,598,690.000	0.92	18.1719	
13	854140	Photosensitive semiconductor devices, including ph	5,472,220.000	0.77	17.5668	
14	890120	Tankers	5,146,020.000	0.72	6.1857	
15	840991	Suitable for use solely or principally with sparki	4,964,730.000	0.70	5.9299	
16	870333	Of a cylinder capacity exceeding 2,500 cc	4,217,120.000	0.59	9.5107	

**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the end year, partner's name, product code, reporter's name, the value of exports for the end year in thousands of USD, and the standard two options.

ProductDescription	Trade Value in US\$1000	% of Total
Other		
Antiserum and other blood fractions and modified im		
Engines of a kind used for the propulsion of vehic		
Reciprocating piston engines of a kind used for th		
In gaseous state :-- Natural gas		
Electrical energy. (optional heading)		
Other parts and accessories :-- Other		
Other vehicles, with compression-ignition internal	1,372,580	1.04
Discs for laser reading systems :-- Other	1,369,850	1.04
Petroleum oils and oils obtained from bituminous m	1,294,780	0.99
Coniferous	1,292,420	0.98

## 1-5 MARKET COMPOSITION AND GROWTH

**Description:** This indicator ranks the top markets for the reporter's selected products, reporting the value of trade with each partner as well as the percent of total trade this represents. Also reported is the compound annual growth rate (CAGR): the year-over-year growth rate. It is calculated by taking the nth root of the total growth rate, where n is the number of years.

**Mathematical Definition:** 
$$CAGR_{ijk} = 100 * \left[ \left( \frac{x_{ijk_{t_2}}}{x_{ijk_{t_1}}} \right)^{\frac{1}{t_2-t_1}} - 1 \right]$$

Where  $x$  is the value of exports of product  $k$  from origin country  $i$  to destination  $j$ . Total exports are given by  $X$ . The start and end years are given by  $t_1$  and  $t_2$ , respectively.

**Range of Values:** Ranks are assigned in descending order, with 1 being the partner with the greatest trade flow. CAGR shows a contraction when less than 0 and growth when greater than 0.

**Limitations:** None beyond those native to the UN COMTRADE database.

**Choice Parameters:**

Reporter: country

Products: line, cluster, or group

Trade Flow: imports, exports (reported or mirrored)

Years: start year, end year

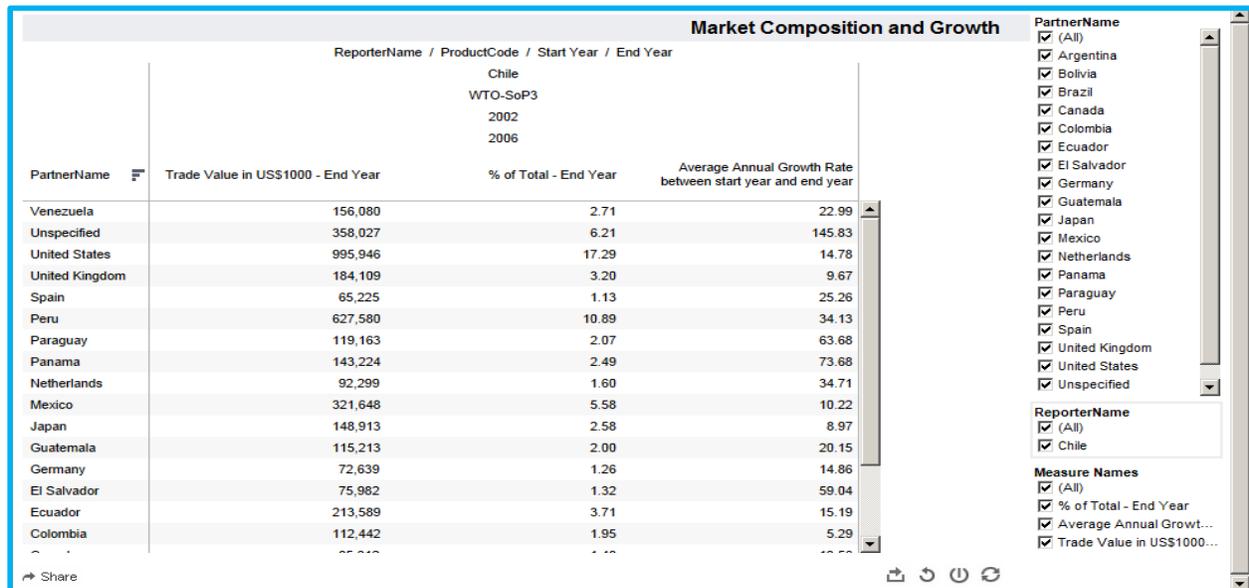
Product Classification: HS revisions

Rank	ReporterName	PartnerName	ProductCode	Start Year	End Year	Trade Value in US\$1000 - End Year	% of Total - End Year
1	Chile	United States	WTO-SoP3	2002	2006	995,945.70	17.29
2	Chile	Bolivia	WTO-SoP3	2002	2006	709,561.47	12.32
3	Chile	Peru	WTO-SoP3	2002	2006	627,579.71	10.89
4	Chile	Unspecified	WTO-SoP3	2002	2006	358,027.33	6.21
5	Chile	Mexico	WTO-SoP3	2002	2006	321,647.85	5.58
6	Chile	Argentina	WTO-SoP3	2002	2006	228,236.03	3.96
7	Chile	Ecuador	WTO-SoP3	2002	2006	213,588.97	3.71
8	Chile	United Kingdom	WTO-SoP3	2002	2006	184,109.33	3.20
9	Chile	Venezuela	WTO-SoP3	2002	2006	156,080.02	2.71
10	Chile	Japan	WTO-SoP3	2002	2006	148,912.91	2.58
11	Chile	Panama	WTO-SoP3	2002	2006	143,223.55	2.49
12	Chile	Paraguay	WTO-SoP3	2002	2006	119,162.70	2.07
13	Chile	Brazil	WTO-SoP3	2002	2006	115,449.94	2.00
14	Chile	Guatemala	WTO-SoP3	2002	2006	115,212.80	2.00
15	Chile	Colombia	WTO-SoP3	2002	2006	112,441.88	1.95

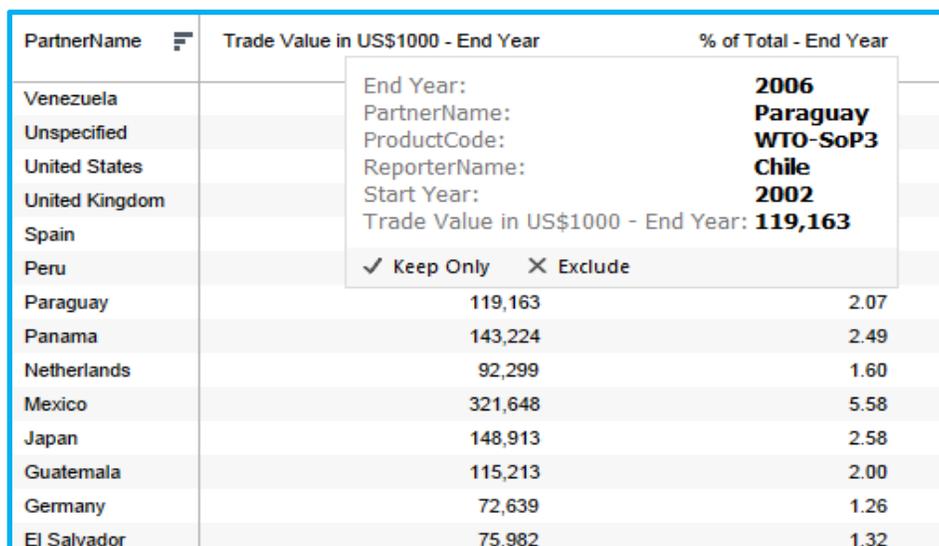
## 1-5 MARKET COMPOSITION AND GROWTH – CHART

**Description:** The chart gives another look at the data in tabular form. Trade values are rounded to the nearest whole number, while percentages and growth rates are rounded to two decimal places.

**Options:** Using the selection pane on the far right, users may choose a subset of countries, reporters, and indicators.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the end year, partner’s name, product code, reporter’s name, start year, the value of exports for the end year in thousands of USD, and the standard two options.



## 1-6 GROWTH IN VALUE VERSUS VOLUME

**Description:** Observed growth (or contraction) may be due to changes in prices, changes in export volume, or both. This indicator returns indexes for trade volume and trade value from the WDI database. Value indices are the current value of imports or exports (c.i.f.) converted to USD and expressed as a percentage of the average of the base period (2000). Volume indices are the ratio of the import or export value index to the corresponding unit value index. Unit value indexes are based on data reported by countries with demonstrated UNCTAD quality controls using the previous year's trade values at the SITC-3 level as weights.

**Mathematical Definition:** 
$$\text{Value Index} = 100 * \frac{X_t}{X_{t=2000}} \quad \text{Volume Index} = \frac{\text{Value Index}_t}{\text{Unit Value Index}_t}$$

Where  $x$  is the value of exports of product  $k$  from reporter country  $i$ , and  $X$  is country  $i$ 's total exports. Partner country  $j$ 's value of imports of product  $k$  is given by  $m$ , and its total imports value is denoted by  $M$ .

**Range of Values:** An index below 100 indicates a value (volume) less than reported in 2000 for that country. An index above 100 indicates a value (volume) greater than reported in 2000.

**Limitations:** Incomplete data are supplemented by a set of average price indexes constructed by UNCTAD at the SITC-3 level from a variety of international and national sources. For countries not covered by UNCTAD, the IMF's International Financial Statistics are used.

### Choice Parameters:

Reporter: country, group

Years: any

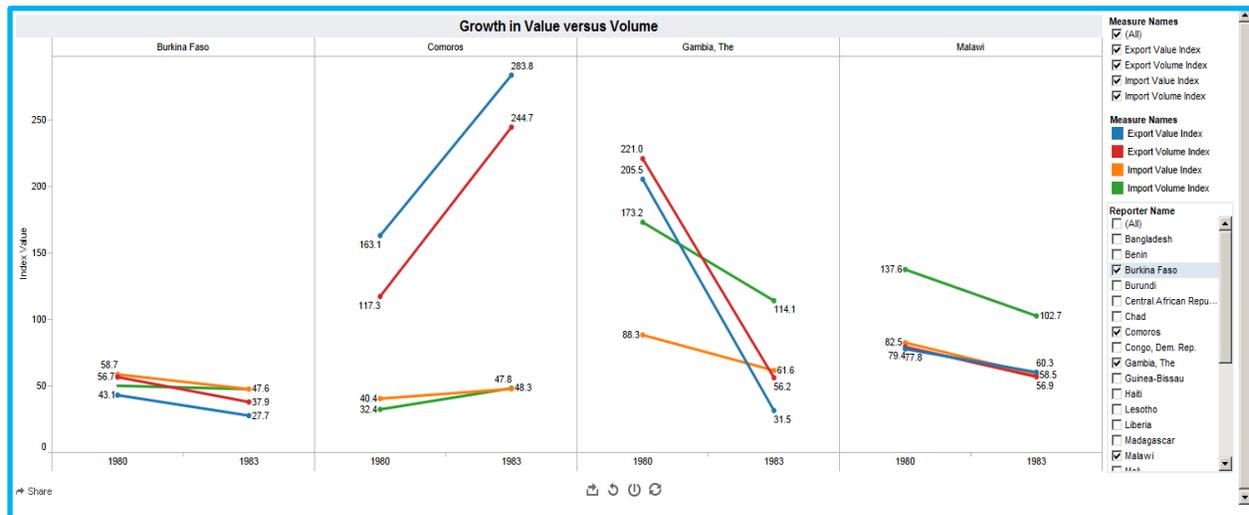
### Additional Data Sources: WDI

ReporterName	Year	Import Value Index	Import Volume Index	Export Value Index	Export Volume Index
Bangladesh	1980	31.0883	51.8139	11.8532	14.4552
Bangladesh	1983	25.8946	47.9530	11.3217	16.1739
Benin	1980	54.0196	81.8478	16.0089	28.0858
Benin	1983	51.8023	74.0033	16.9542	25.6882
Burkina Faso	1980	58.6863	50.1592	43.0839	56.6894
Burkina Faso	1983	47.5939	47.5939	27.6933	37.9360
Burundi	1980	113.5759	37.3605	130.7185	18.6209
Burundi	1983	122.7822	45.1405	159.8538	27.7043
Central African Republic	1980	69.3657	52.5498	71.9880	20.9267
Central African Republic	1983	57.8434	47.0271	46.3203	14.4751
Chad	1980	23.3276	24.2995	38.8204	37.3273
Chad	1983	49.7162	78.9146	57.1479	82.8231
Comoros	1980	40.4485	32.3588	163.1153	117.3491
Comoros	1983	47.7897	48.2725	283.8230	244.6750

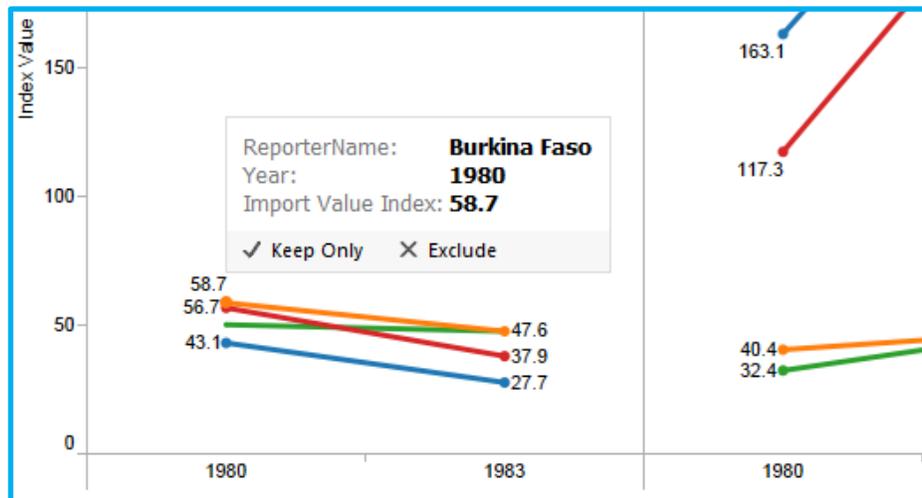
## 1-6 GROWTH IN VALUE VERSUS VOLUME - CHART

**Description:** The chart illustrates the change in index values over the selected time interval. Large changes in value indexes accompanied by only moderate changes in volume indexes indicate that the change in value is likely tied to a change in prices. However, if the value and volume lines are roughly parallel, this indicates that changes in value are mostly due to real changes in trade volume.

**Options:** In the right-hand pane users may select a subset of indexes and reporter countries. It also contains a legend declaring the color assignments on the graph for each index.



**Tooltip:** Hovering the cursor over any line calls up the tooltip pop-up window with the reporter's name, year, the name and value of the relevant index, and the standard two options.



## 1-7 TRADE INTENSITY INDEX

**Description:** The trade intensity index uses similar logic to that of revealed comparative advantage, but for markets rather than products. It indicates whether a reporter exports more, as a percentage, to a partner than the world does on average. It is measured as country  $i$ 's exports to country  $j$  relative to its total exports divided by the world's exports to country  $j$  relative to the world's total exports.

**Mathematical Definition:** 
$$100 * \left[ \frac{x_{ijk}}{X_{ik}} / \frac{x_{wjk}}{X_{wk}} \right]$$

Where  $x$  is the value of exports of product  $k$  from origin country  $i$  to destination  $j$ , and  $X$  is total exports from  $i$  of product  $k$ ;  $w$  indicates the world as origin.

**Range of Values:** 0 to  $+\infty$ . A value greater than 100 indicates a relationship more intense than the world average for the partner.

**Limitations:** None beyond those native to the UN COMTRADE database.

### Choice Parameters:

Reporter: countries, groups

Products: line, cluster, chapter

Trade Flow: exports (reported or mirrored)

Partner: countries, groups

Product Classification: HS revisions

Years: any

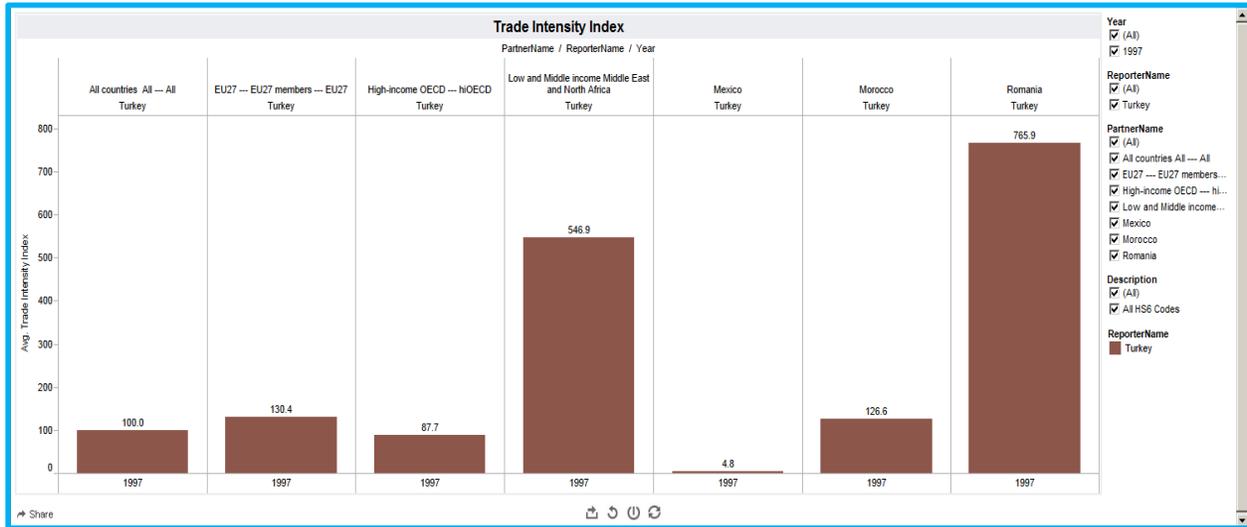
ReporterName	Year	PartnerName	ProductCode	Trade Intensity Index
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Turkey	1997	All countries All --- All	AllSubHeading	100.00
Turkey	1997	EU27 --- EU27 members --- EU27	AllSubHeading	130.43
Turkey	1997	High-income OECD --- hiOECD	AllSubHeading	87.67
Turkey	1997	Low and Middle income Middle East and North Africa	AllSubHeading	546.90
Turkey	1997	Mexico	AllSubHeading	4.75
Turkey	1997	Morocco	AllSubHeading	126.63
Turkey	1997	Romania	AllSubHeading	765.89

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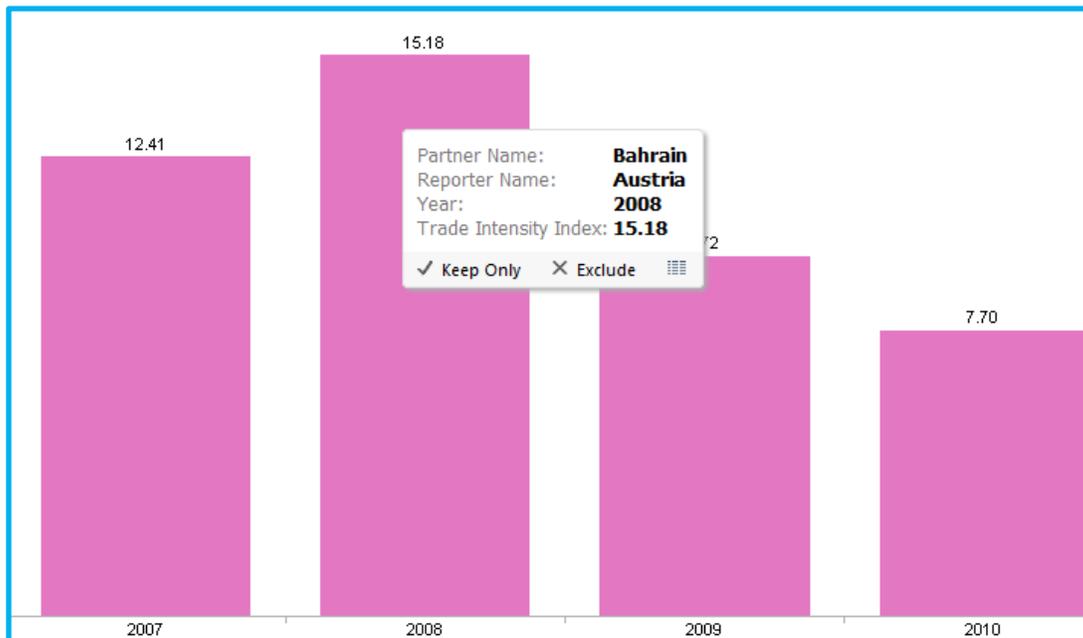
## 1-7 TRADE INTENSITY INDEX – CHART

**Description:** The chart illustrates the relative values of trade intensity indexes using a bar graph.

**Options:** From the selection pane on the far right users may choose subsets of years, reporters, partners, and products. The pane also contains a legend describing the color code of the graph.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the partner's name, reporter's name, year, trade intensity index value, and the standard two options.



## 1-8 TRADE COMPLEMENTARITY INDEX

**Description:** The trade complementarity index indicates to what extent the export profile of the reporter matches, or complements, the import profile of the partner. A high index may indicate that two countries would stand to gain from increased trade, and may be particularly useful in evaluating prospective bilateral or regional trade agreements.

**Mathematical Definition:** 
$$100 * \left[ 1 - \sum_k \left| \frac{m_{jk}}{M_j} - \frac{x_{ik}}{X_i} \right| \right]$$

Where  $x$  is the value of exports of product  $k$  from reporter country  $i$ , and  $X$  is country  $i$ 's total exports. Partner country  $j$ 's value of imports of product  $k$  is given by  $m$ , and its total imports value is denoted by  $M$ .

**Range of Values:** 0 to 100. A score of 100 indicates ideal trading partners; a score of 0 indicates that the two countries are perfect competitors.

**Limitations:** Countries that are geographically distant or otherwise incur high transportation and transaction costs may not be ideal trading partners despite a high complementarity index. The index may also suffer from aggregation bias.

**Choice Parameters:**

Reporter: country

Trade Flow: exports (reported or mirrored)

Product Classification: HS revisions

Products: 2-, 4-, or 6-digit

Partner: country or group

Years: any [up to 4]

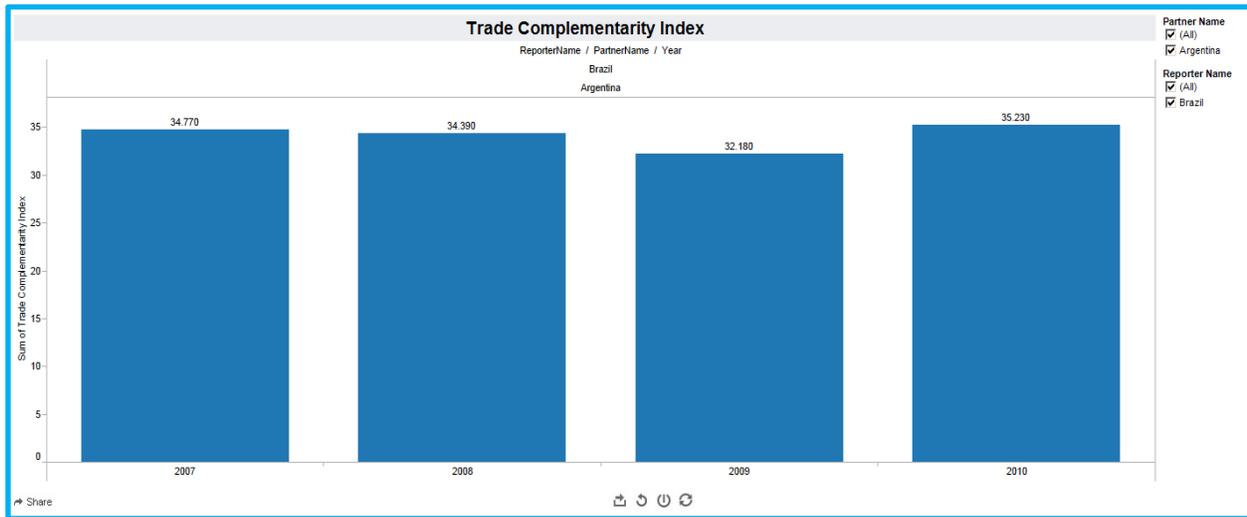
ReporterName	PartnerName	Year	Trade Complementarity Index
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Brazil	Argentina	2007	34.77
Brazil	Argentina	2008	34.39
Brazil	Argentina	2009	32.18
Brazil	Argentina	2010	35.23

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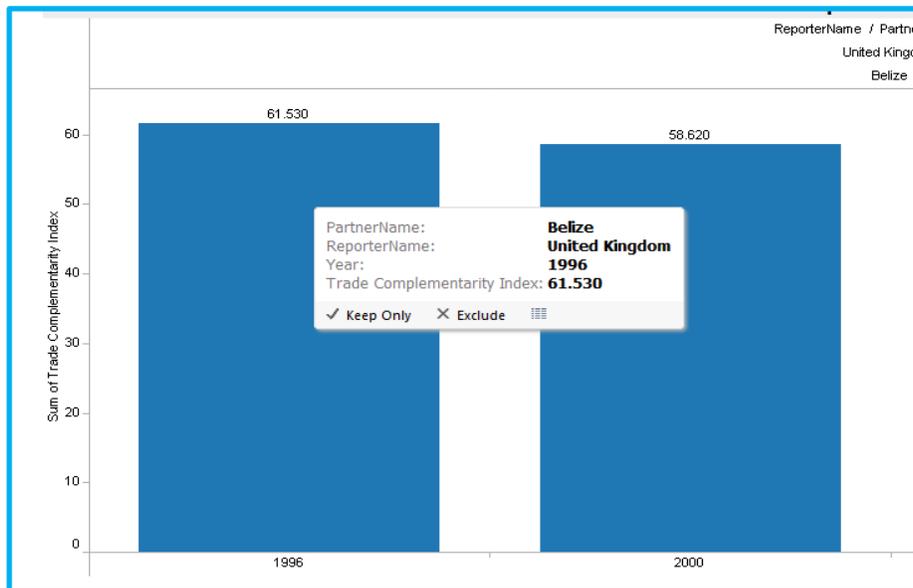
## 1-8 TRADE COMPLEMENTARITY INDEX – CHART

**Description:** The chart illustrates the relative values of trade complementarity index using a bar graph.

**Options:** In the far right pane users may select partners and reporters.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with partner's name, reporter's name, year, trade complementarity index, and the standard two options.



## SECTION 2 – EXPORT DIVERSIFICATION

This section contains seven indicators that characterize export portfolio diversification and trading relationships. Product and market diversification are closely tied to economic development, with more advanced economies exporting a wider range of goods to a greater number of trading partners. These indicators together provide perspective on the degree to which countries are taking advantage of potential trading relationships. Products are defined at the HS six-digit level. Markets are defined as partner countries and exclude outlying territories. The first indicator, *Number of Products and Markets*, provides a simple count of how many products (with trade values of at least 10,000 USD) each country exported in a given year and the number of destination markets. This serves as a basic framework for the other indicators in the section.

The next four indicators provide two indices each for products and markets. The *Herfindahl-Hirschman Product Concentration Index* measures dispersion of trade value across an exporter's products, while the *Herfindahl-Hirschman Market Concentration Index* does the same across an exporter's partners. A higher value indicates greater concentration of value across products or partners. *Growth Orientation of Products* compares the annualized growth rate of each exported product's trade value with that of the world. A growth rate above the world growth indicates an increase in market share. *Growth Orientation of Markets* reports the same growth comparison by market rather than by product.

*Value Reach of Exports* offers a count of the number of product-partner relationships that were created, survived, or terminated between selected start and end years. The *Index of Market Penetration* measures the extent to which a reporter's exports reach proven importers of those products worldwide. A higher index indicates that a country already exports to a greater percentage of existing markets for its products; a low value indicates potential for expansion.

## 2-1 NUMBER OF PRODUCTS AND MARKETS

**Description:** This indicator produces a list of all countries and gives the number of partner markets and number of products exported, counted at the 6-digit HS level. A market is counted if the exporter ships at least one product to that destination in the given year with a trade value of at least 10,000 USD. A product is counted if it is exported to at least one destination in the selected year with a value of at least 10,000 USD.

**Mathematical Definition:** This is simply the count of products and markets for each reporter in the selected year.

**Range of Values:** Products: 0 to ~5000. Markets: 0 to ~200.

**Limitations:** This describes only the extensive margin, with no adjustment for the intensive margin. For a more complete picture, one must also consider the size of these trade flows.

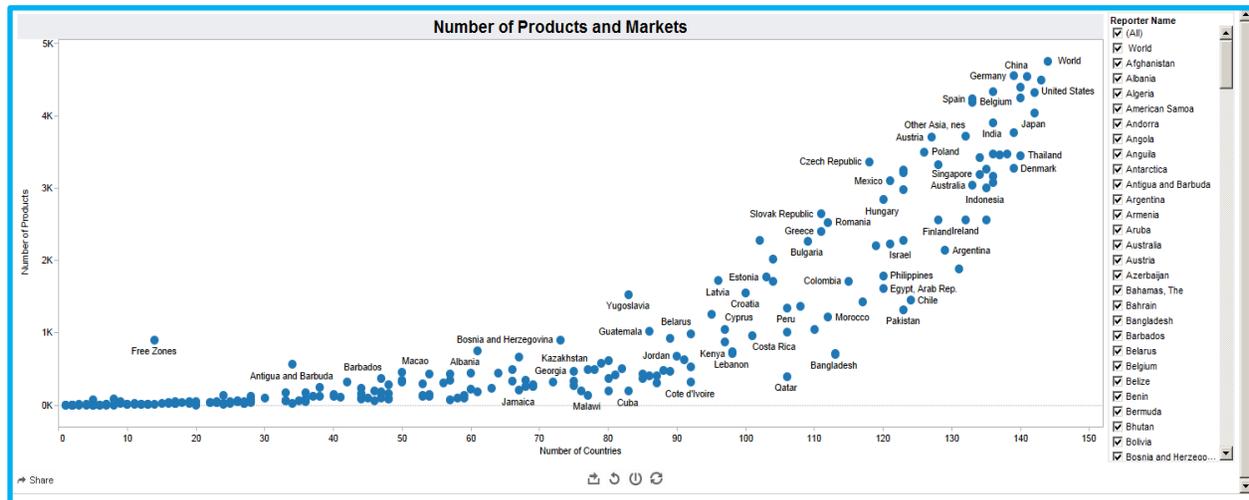
**Choice Parameters:** Year

ReporterName	Year	Number of Products	Number of Markets
<input type="text"/> ▼	<input type="text"/> ▼	<input type="text"/> ▼	<input type="text"/> ▼
St. Kitts and Nevis	2011	39	23
St. Lucia	2011	31	17
St. Vincent and the Grenadines	2011	39	22
Suriname	2011	105	47
Swaziland	2011	287	69
Sweden	2011	3474	136
Switzerland	2011	3473	138
Syrian Arab Republic	2011	929	89
Tajikistan	2011	156	40
Tanzania	2011	411	86
Thailand	2011	3448	140
Togo	2011	181	47
Tokelau	2011	45	19
Tonga	2011	23	15
Trinidad and Tobago	2011	348	68
Tunisia	2011	1362	108

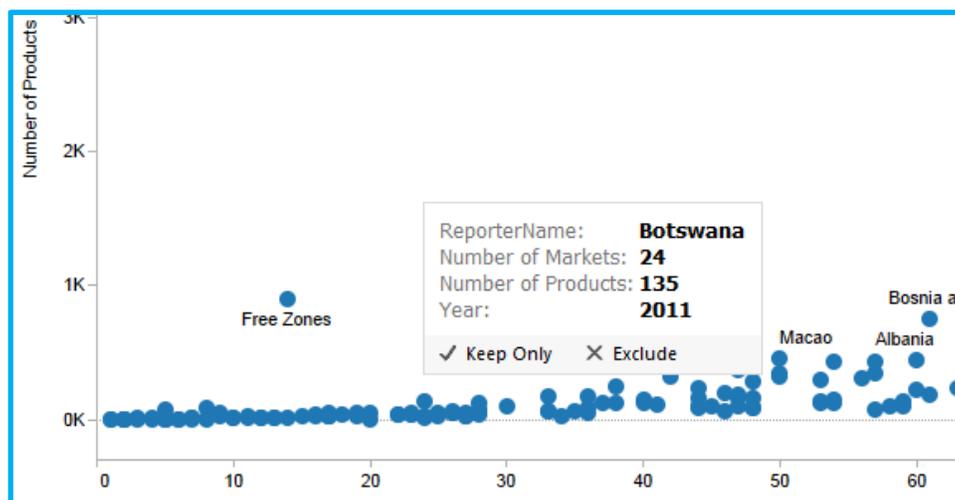
## 2-1 NUMBER OF PRODUCTS AND MARKETS – CHART

**Description:** The chart illustrates the positive relationship between number of markets and number of products. On the horizontal axis is the number of destination countries. On the vertical axis is the total number of products at the six-digit HS code level. Countries are then plotted on this graph.

**Options:** In the far right pane users may select a subset of reporter countries.



**Tooltip:** Hovering the cursor over any data point calls up the tooltip pop-up window with the reporter's name, the number of markets to which it exports, the number of unique products it exports, the year, and the standard two options.



## 2-2 HERFINDAHL-HIRSCHMAN PRODUCT CONCENTRATION INDEX

**Description:** This indicator is a measure of the dispersion of trade value across an exporter's products. A country with a preponderance of trade value concentrated in a very few products will have an index value close to 1. Thus, it is an indicator of the exporter's vulnerability to trade shocks. Measured over time, a fall in the index may be an indication of diversification in the exporter's trade profile. The user has the option of selecting product clusters, which will return the index with calculated only for that specified subset of products. Note that if a country exports only a single product, then the indicator returns no value.

**Mathematical Definition:** 
$$\frac{\sum_{k=1}^{n_i} \left(\frac{x_{ik}}{X_i}\right)^2 - \frac{1}{n_i}}{1 - \frac{1}{n_i}}$$

$X$  is the total value of exports from reporter  $i$ ,  $x$  is the value of exports of product  $k$  from country  $i$ , and  $n$  is the number of products exported by country  $i$ .

**Range of Values:** 0 to 1. A higher index indicates that exports are concentrated in fewer sectors, whereas a country with a completely diversified portfolio will have an index close to 0.

**Limitations:** A low index may not be a true indicator of a diversified trade portfolio if the number of products is low: it simply implies that it exports similar values of each product.

**Choice Parameters:**

Reporter: country

Year: any [up to 5]

Trade Flow: exports (reported or mirrored)

Products: lines, clusters, and groups

Product Classification: HS revisions

Partner: countries and groups

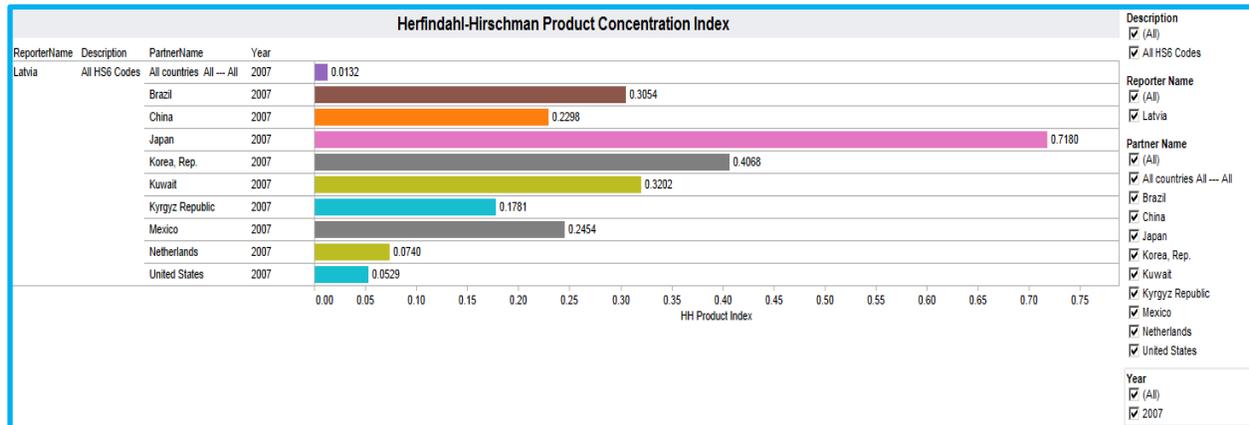
ReporterName	PartnerName	Year	ProductCode	HH Product Index	Number of Products
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Latvia	All countries All --- All	2007	AllSubHeading	0.0132	3639
Latvia	Brazil	2007	AllSubHeading	0.3054	31
Latvia	China	2007	AllSubHeading	0.2298	192
Latvia	Japan	2007	AllSubHeading	0.7180	123
Latvia	Korea, Rep.	2007	AllSubHeading	0.4068	62
Latvia	Kuwait	2007	AllSubHeading	0.3202	10
Latvia	Kyrgyz Republic	2007	AllSubHeading	0.1781	98
Latvia	Mexico	2007	AllSubHeading	0.2454	26
Latvia	Netherlands	2007	AllSubHeading	0.0740	551
Latvia	United States	2007	AllSubHeading	0.0529	524

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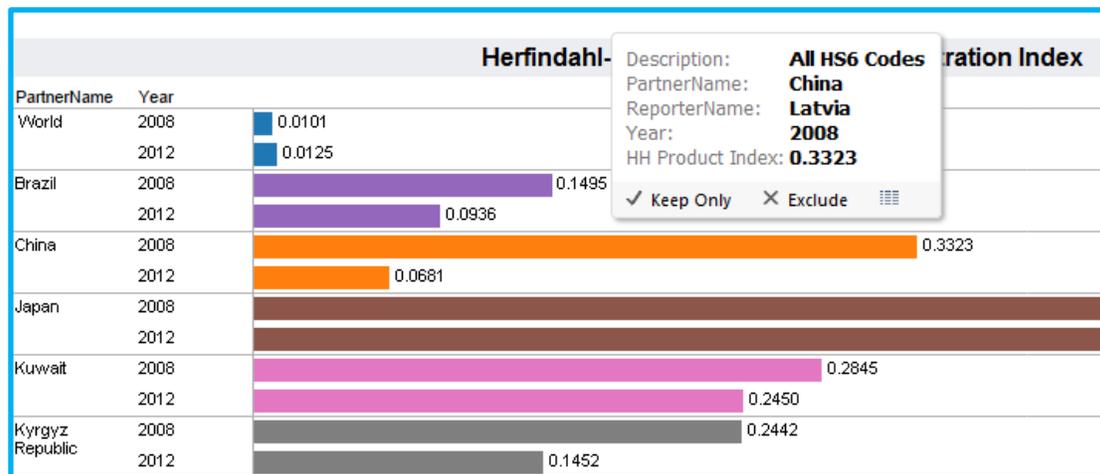
## 2-2 HERFINDAHL-HIRSCHMAN PRODUCT CONCENTRATION INDEX – CHART

**Description:** The chart produces a horizontal bar graph to illustrate the relative values of the concentration index among partners.

**Options:** On the right-hand side, users may select products, reporters, partners, and years.



**Tooltip:** Hovering the cursor over any bar calls up the tooltip pop-up window with the product description, partner's name, reporter's name, year, Herfindahl-Hirschman product concentration index value, and the standard two options.



## 2-3 HERFINDAHL-HIRSCHMAN MARKET CONCENTRATION INDEX

**Description:** This indicator is a measure of the dispersion of trade value across an exporter's partners. A country with a preponderance of trade value concentrated in a very few markets will have an index value close to 1. Thus, it is an indicator of the exporter's dependency on its trading partners and the danger it could face should its partners increase trade barriers. Measured over time, a fall in the index may be an indication of diversification in the exporter's trading partnerships. The user has the option of selecting product clusters, which will return the index calculated only for that specified subset of countries. Note that if a country exports to only a single market, then the indicator returns no value.

**Mathematical Definition:** 
$$\frac{\sum_{j=1}^{n_i} \left( \frac{x_{ij}}{X_i} \right)^2 - \frac{1}{n_i}}{1 - \frac{1}{n_i}}$$

$X$  is the total value of exports from reporter  $i$ ,  $x$  is the value of exports from country  $i$  to destination market  $j$ , and  $n$  is the number of partner markets to which country  $i$  exports.

**Range of Values:** 0 to 1. A higher index indicates that exports are concentrated in fewer markets, whereas a country trading equally with all partners will have an index close to 0.

**Limitations:** A low index may not be a true indicator of a broad partner base if the number of partners is low: it simply implies that it trades with each of them equally.

### Choice Parameters:

Reporter: country

Year: any [up to 5]

Trade Flow: exports (reported or mirrored)

Products: lines, clusters, and groups

Product Classification: HS revisions

Partners: countries and groups

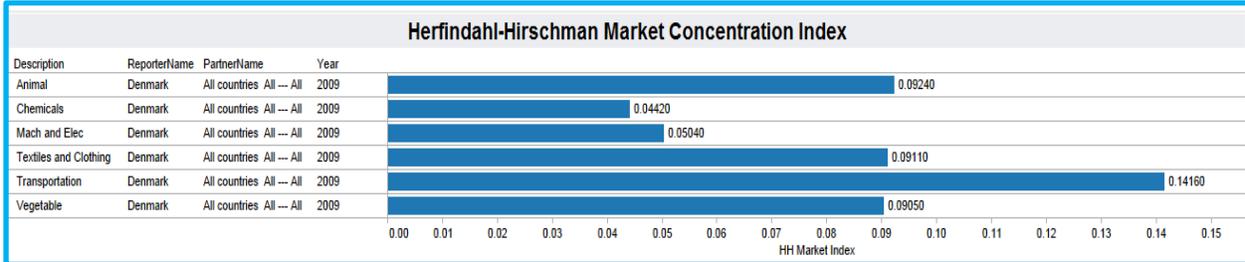
ReporterName	PartnerName	Year	ProductCode	HH Market Index	Number of Markets
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Denmark	All countries All --- All	2009	01-05_Animal	0.0924	114
Denmark	All countries All --- All	2009	06-15_Vegetable	0.0905	116
Denmark	All countries All --- All	2009	28-38_Chemicals	0.0442	127
Denmark	All countries All --- All	2009	50-63_TextCloth	0.0911	120
Denmark	All countries All --- All	2009	84-85_MachElec	0.0504	127
Denmark	All countries All --- All	2009	86-89_Transport	0.1416	119

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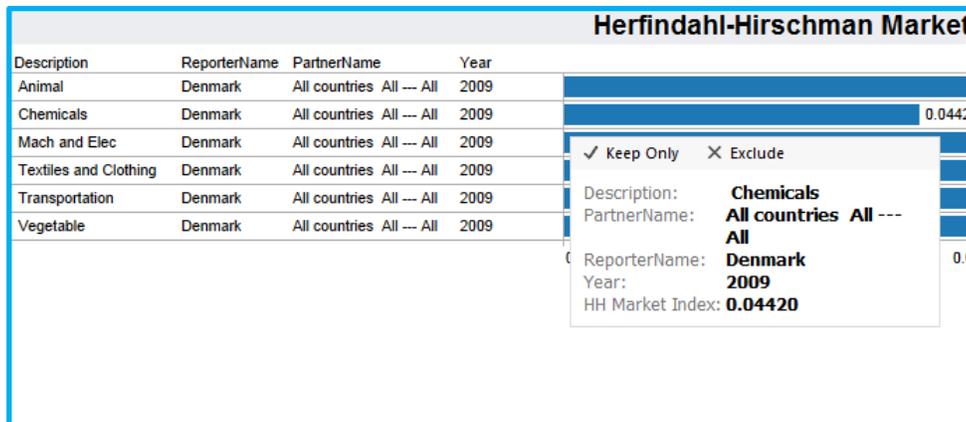
## 2-3 HERFINDAHL-HIRSCHMAN MARKET CONCENTRATION INDEX – CHART

**Description:** The chart produces a horizontal bar graph to illustrate the relative values of the concentration index among products.

**Options:** On the right-hand side, users may select the year.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product description, partner's name, reporter's name, year, Herfindahl-Hirschman market concentration index value, and the standard two options.



## 2-4 GROWTH ORIENTATION OF PRODUCTS

**Description:** This indicator evaluates the growth potential for a country's exports by comparing the compound annual growth rate (CAGR) of its primary exports to the worldwide growth rate of those same products. A growth rate above world growth implies an increase in world market share. Countries whose primary exports are in high growth industries may be well positioned for future growth. Furthermore, if the reporter's growth lags behind world growth, this may signal the presence of barriers inhibiting growth. The indicator also reports each product's value share of the selected country's total exports.

**Mathematical Definition:** 
$$CAGR_{ijk} = 100 * \left[ \left( \frac{x_{ijk_{t_2}}}{x_{ijk_{t_1}}} \right)^{\frac{1}{t_2-t_1}} - 1 \right]$$

Where  $x$  is the value of exports of product  $k$  from origin country  $i$  to destination  $j$ . Total exports are given by  $X$ . The start and end years are given by  $t_1$  and  $t_2$ , respectively.

**Range of Values:** The CAGR may take on any value from  $-\infty$  to  $\infty$ . Negative values indicate a contraction; positive values indicate growth. The share is reported as a percentage, and so may take on any value from 0 to 100.

**Limitations:** Changes in market share may be better indicators of changes in competitiveness— influenced by subsidies, tariffs, transaction costs, business environments—rather than changes in comparative advantage (Krugman and Hatsopoulos, 1987) . Furthermore, international trade is not a zero-sum game, and a decrease in market share may simply indicate an increase in the absolute size of a market.

**Choice Parameters:**

Reporter: country

Partner: country

Trade Flow: exports (reported or mirrored)

Years: start year, end year

Product Classification: HS revisions

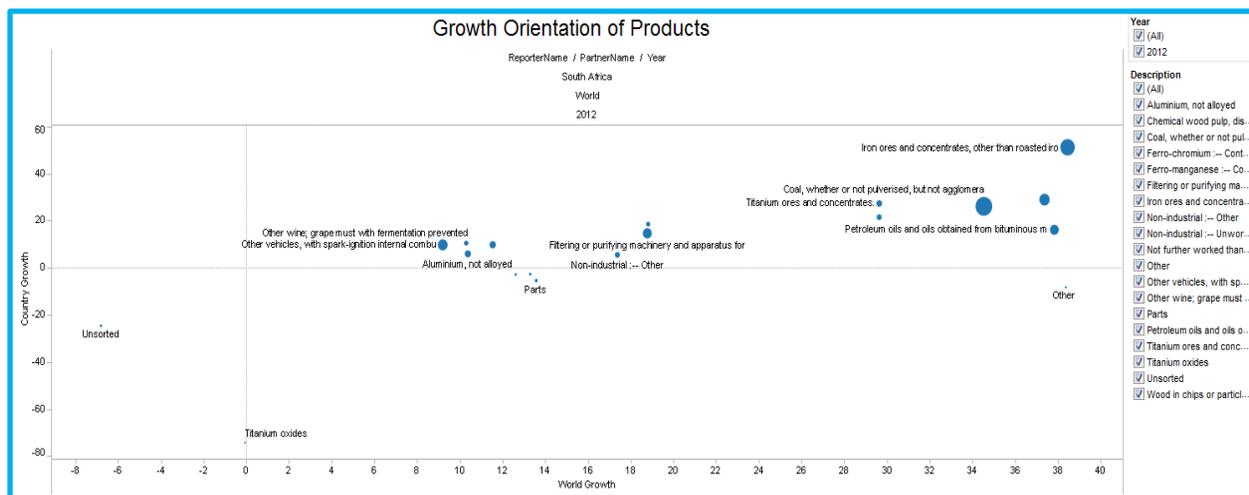
Products: lines, chapters (up to 30)

ReporterName	PartnerName	Start Year	End Year	ProductCode	Country Growth	Share - End Year	World Growth
South Africa	World	2007	2010	220421	1.4576	0.7684	1.0558
South Africa	World	2007	2010	260112	34.0259	7.0420	38.8368
South Africa	World	2007	2010	261000	18.5947	1.5490	23.8075
South Africa	World	2007	2010	261690	-19.5170	0.2745	24.3201
South Africa	World	2007	2010	270112	12.9319	7.3361	21.7414
South Africa	World	2007	2010	270900	-75.0792	0.0099	9.8376
South Africa	World	2007	2010	271011	2.2617	1.5770	9.9388
South Africa	World	2007	2010	710231	-10.0197	1.6630	-1.3618
South Africa	World	2007	2010	710239	-0.7654	0.9139	12.1219
South Africa	World	2007	2010	711011	-1.3783	4.4405	1.6265
South Africa	World	2007	2010	711019	14.4043	4.9491	10.2011
South Africa	World	2007	2010	711021	10.2700	1.0536	0.3006
South Africa	World	2007	2010	711031	-20.2029	1.2676	-21.8850
South Africa	World	2007	2010	711039	-15.7243	0.5648	-15.9295
South Africa	World	2007	2010	711041	-23.0614	0.2239	-16.4966
South Africa	World	2007	2010	720241	10.1643	4.6757	23.8204

## 2-4 GROWTH ORIENTATION OF PRODUCTS – CHART

**Description:** The chart illustrates the growth of the reporter’s exports by product relative to world growth. The horizontal axis is world growth and the vertical axis is country growth. The size of the circle is determined by the product’s share in total reporter exports; larger circles indicate larger shares and greater importance for the product in the reporter’s trade portfolio. The gray line is the 45-degree line. Products above the gray line are growing more quickly than world growth, and thus indicate an increase in market share for the reporter. Conversely, points below the gray line represent a loss in market share.

**Options:** On the far right selection pane, users may choose years and products. On the bottom of the pane is a legend explaining how circle size translates into trade shares.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product description, partner’s name, reporter’s name, year, world growth rate, country growth rate, trade share in the end year, and the standard two options.



## 2-5 GROWTH ORIENTATION OF MARKETS

**Description:** This indicator evaluates the growth potential for a country's exports by comparing the compound annual growth rate (CAGR) of its primary exports to their worldwide growth rate. A growth rate above world growth implies an increase in market share. Countries whose primary exports are in high growth markets may be well positioned for future growth. Furthermore, if the reporter's growth lags behind world growth, this may signal the potential for further expansion in the relevant market or, on the other hand, the existence of barriers inhibiting growth. The indicator also reports each product's value share of the selected country's total exports.

**Mathematical Definition:** 
$$CAGR_{ijk} = 100 * \left[ \left( \frac{x_{ijk_{t_2}}}{x_{ijk_{t_1}}} \right)^{\frac{1}{t_2-t_1}} - 1 \right]$$

Where  $x$  is the value of exports of product  $k$  from origin country  $i$  to destination  $j$ . Total exports are given by  $X$ . The start and end years are given by  $t_1$  and  $t_2$ , respectively.

**Range of Values:** The CAGR may take on any value from  $-\infty$  to  $\infty$ . Negative values indicate a contraction; positive values indicate growth. The share is reported as a percentage, and so may take on any value from 0 to 100.

**Limitations:** Changes in market share may be better indicators of changes in competitiveness— influenced by subsidies, tariffs, transaction costs, business environments—rather than changes in comparative advantage (Krugman and Hatsopoulos, 1987) . Furthermore, international trade is not a zero-sum game, and a decrease in market share may simply indicate an increase in the absolute size of a market.

**Choice Parameters:**

Reporter: country

Products: line or group [up to 1]

Trade Flow: exports (reported or mirrored)

Years: start year, end year

Product Classification: HS revisions

Partners: countries

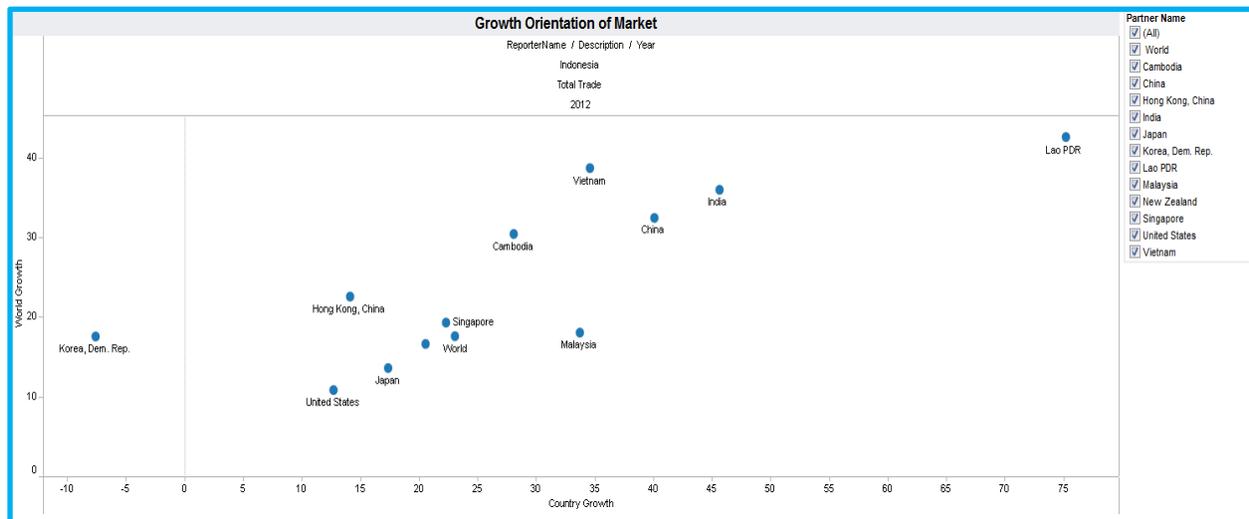
ReporterName	PartnerName	Start Year	End Year	ProductCode	Share - End Year	World Growth	Country Growth
Indonesia	China	2010	2012	02	3.2229	18.9663	-1.6451
Indonesia	Hong Kong, China	2010	2012	02	1.2120	2.4182	1.1637
Indonesia	Japan	2010	2012	02	1.7385	0.9572	17.7712
Indonesia	United States	2010	2012	02	0.4584	4.7556	-1.0345

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## 2-5 GROWTH ORIENTATION OF MARKETS – CHART

**Description:** The chart illustrates the growth of the total value of the reporter’s exports in a destination market relative to world growth in that market. The horizontal axis is world growth and the vertical axis is country growth. The size of the circle is determined by the market’s share in the reporter’s total exports; larger circles indicate larger shares and greater importance for the trading relationship in the reporter’s overall trade. The gray line is the 45-degree line. Observations above the gray line represent bilateral trade relationships that are growing more quickly than world growth, representing an increase in market share for the reporter. Conversely, points below the gray line represent a loss in market share.

**Options:** On the far right selection pane, users may choose partners. On the top of the pane is a legend explaining how circle size translates into trade shares.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product description, partner’s name, reporter’s name, start year, country growth rate, world growth rate, share of trade in the end year, and the standard two options.



## 2-6 VALUE REACH OF EXPORTS

**Description:** Economic development is generally accompanied by the introduction of new products, and the ability of a country to sustain trade relationships is a sign of economic maturity. This indicator reports the birth, survival, and death of products, as well as their trade values and number of markets to which they are exported in user-selected start and end years. A high death rate among products dispersed across industries may indicate economic volatility; concentrated in a sector, it may indicate evolutions in domestic production.

**Mathematical Definition:** Simple count of total markets plus indicators showing if the product existed only in the start year (death), only in the end year (new), or in both years (surviving).

**Range of Values:** Birth, survival, and death are all dichotomous variables. Number of markets ranges from 0 to ~200 and trade value goes from 0 to  $+\infty$ .

**Limitations:** None beyond those native to the UN COMTRADE database.

### Choice Parameters:

Reporter: country, group

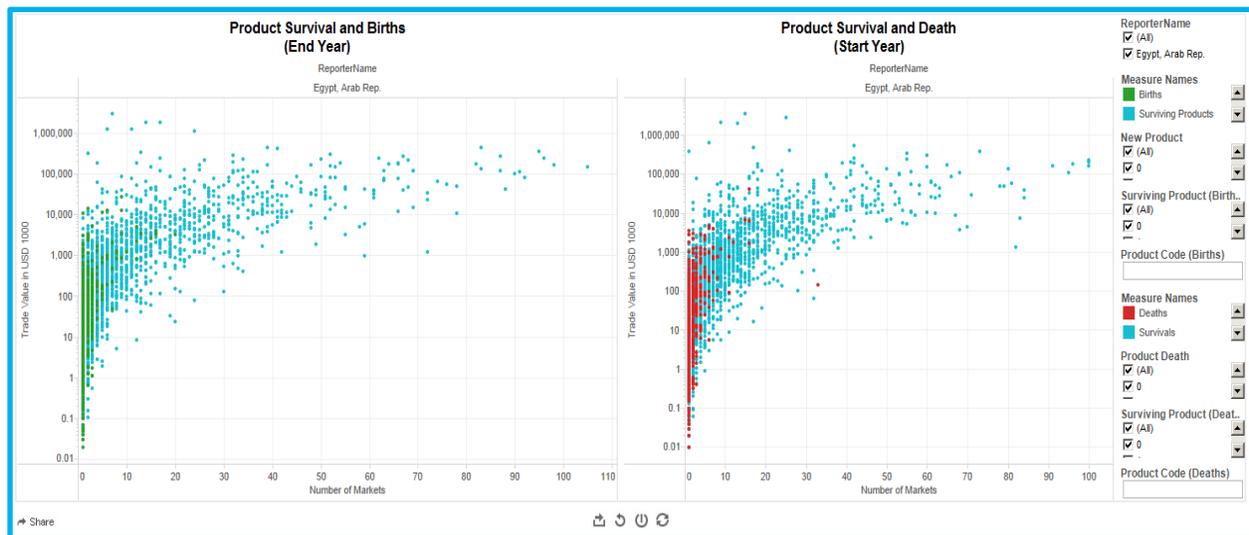
Years: any

ReporterName	ProductCode	End Year	Start Year	Number of Markets - Start Year	Number of Markets - End Year	Trade Value in US\$1000 - Start Year	Trade Value in US\$1000 - End Year	Product Death	New Product	Surviving Product
Egypt, Arab Rep.	010110	2012	2008	9	5	556.13	805.35	0	0	1
Egypt, Arab Rep.	010190	2012	2008	4	2	331.28	73.39	0	0	1
Egypt, Arab Rep.	010210	2012	2008	3		8.28		1	0	0
Egypt, Arab Rep.	010290	2012	2008	2	1	0.32	0.05	0	0	1
Egypt, Arab Rep.	010310	2012	2008	2	3	0.25	18.71	0	0	1
Egypt, Arab Rep.	010391	2012	2008		3		4.59	0	1	0
Egypt, Arab Rep.	010392	2012	2008	1	1	0.22	0.05	0	0	1
Egypt, Arab Rep.	010410	2012	2008	7	13	86.71	1,720.19	0	0	1
Egypt, Arab Rep.	010420	2012	2008	3	3	26.08	247.26	0	0	1
Egypt, Arab Rep.	010511	2012	2008	1	1	0.76	0.41	0	0	1
Egypt, Arab Rep.	010512	2012	2008					0	0	0
Egypt, Arab Rep.	010519	2012	2008		4		44.45	0	1	0

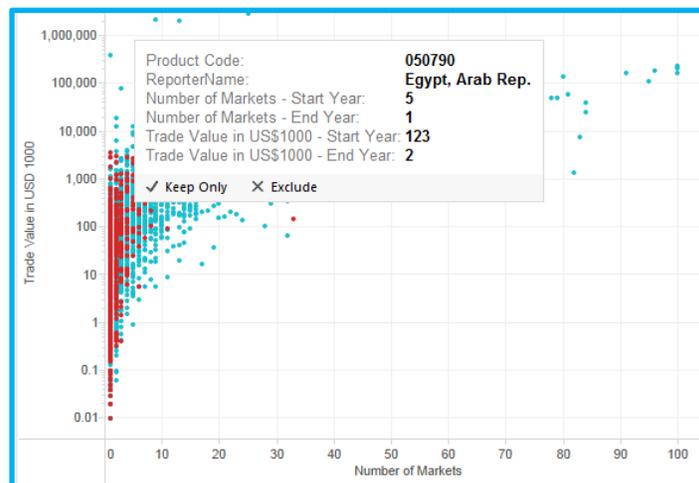
## 2-6 VALUE REACH OF EXPORTS - CHART

**Description:** The chart provides two graphs, each with number of destination markets on the horizontal axis and value in thousands of USD on the vertical axis. The first graph illustrates product survival and births. Surviving products are in blue, and new products are in green. The second graph illustrates product survival and death. Surviving products are in blue, and product deaths are in red.

**Options:** The selection pane on the right provides a number of options. For each graph, users may select surviving products or births (deaths) and search for specific product codes. The far right pane also contains legends explaining the color assignments: green for product births, blue for surviving products, and red for product deaths.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product code, reporter name, number of markets in start and end year, trade value in start and end years, and the standard two options.



## 2-7 INDEX OF EXPORT MARKET PENETRATION

**Description:** This indicator measures the extent to which a country’s exports reach already proven markets. It is calculated as the number of countries to which the reporter exports a particular product divided by the number of countries that report importing the product that year. A low export penetration may signal the presence of barriers to trade that are preventing firms from expanding the number of markets to which they export.

**Mathematical Definition:** 
$$\frac{n_{x,ik}}{n_{m,k}}$$

Where  $n_x$  is the number of countries to which country  $i$  exports product  $k$ , and  $n_m$  is the number of countries that import product  $k$  from any source.

**Range of Values:** 0 to 1. A value of 1 indicates that the reporter exports to every country that imports a particular product.

**Limitations:** The index counts a relationship for any trade flow greater than 0. As such, even a high index may mask great scope for export expansion if the trade flows are all relatively small. The index also ignores fixed costs of entering foreign markets, variable transactions costs, and their sources. It cannot distinguish between a low value caused by an adverse regulatory or business environment and that resulting from high transport and transaction costs.

**Choice Parameters:**

- Reporter: country
- Trade Flow: exports (reported or mirrored)
- Product Classification: HS revisions
- Products: line, cluster, chapter
- Partner: countries, groups
- Years: any

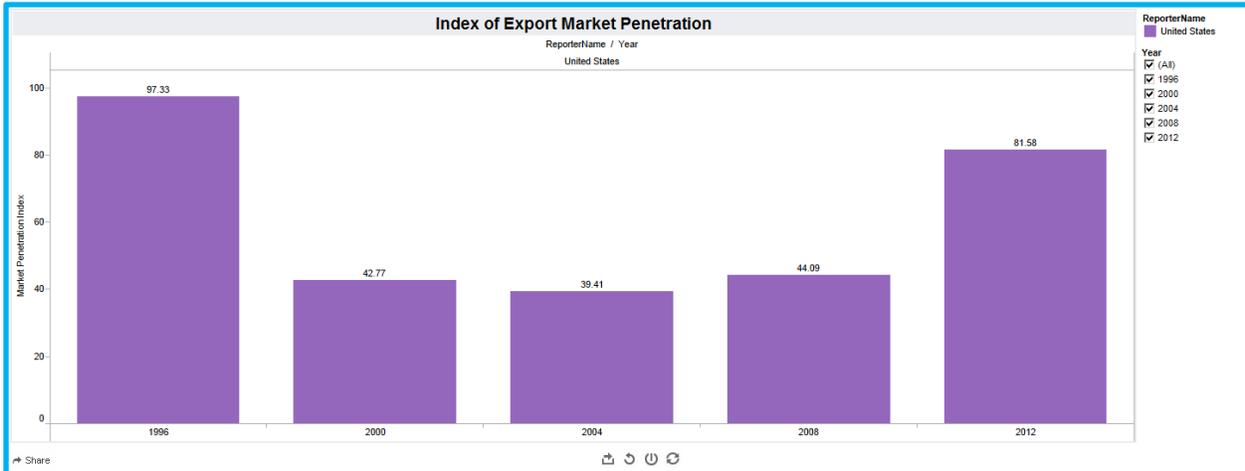
ReporterName	Year	Market Penetration Index
<input type="text" value="United States"/>	<input type="text" value="1996"/>	<input type="text" value="97.33"/>
United States	1996	97.33
United States	2000	42.77
United States	2004	39.41
United States	2008	44.09
United States	2012	81.58

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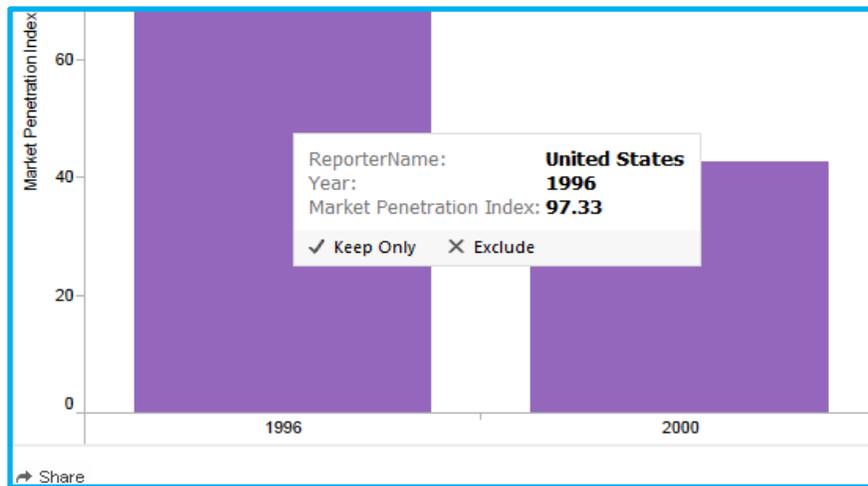
## 2-7 INDEX OF EXPORT MARKET PENETRATION – CHART

**Description:** The chart illustrates values for the penetration index using a vertical bar graph.

**Options:** In the selection pane, users may choose a subset of years.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the reporter's name, year, the market penetration index value, and the standard two options.



### SECTION 3 – EXPORT SOPHISTICATION

This section contains three indicators that draw on outside data sources to classify trade flows according to technological sophistication and explore Heckscher-Ohlin factor-based analyses of trade. The sophistication of a country's export products provides insight into its level of economic development and its location in the global production chain.

*Technological Classification of Exports* draws on work by Lall (2000) to sort all products into one of five mutually exclusive technological groupings: high tech, medium tech, low tech, primary products, and resource-based products. *Sophistication of Exports (EXPY)* uses methodology introduced by Hausman et al. (2006) to estimate the level of technological sophistication embodied in a country's export portfolio. Finally, the *Export Portfolio and Factor Endowments* indicator uses data from Cado et al. (2010) to compare the factor intensities of a country's export products with its factor endowments. The factors of consideration are human capital, proxied by years of education, and physical capital, proxied by a perpetual inventory method of capital stock estimation

### 3-1 TECHNOLOGICAL CLASSIFICATION OF EXPORTS

**Description:** This indicator gives a percentage breakdown of a country's exports according five broad technological categories embodied in the final products. The categories are: high tech, medium tech, low tech, primary products, and resource-based products (Lall, 2000). While the assignment of products to specific categories is not uncontroversial, analyzing how a country's export basket has changed over a span of years may give insight into the pattern of its economic development.

**Mathematical Definition:**

$$100 * \sum_{k \in \Omega_{tec}} \frac{x_{ijk}}{X_{ij}}, \quad \forall tec \in [HT, MT, LT, PP, RB]$$

Where  $x$  is the value of exports of product  $k$  from country  $i$  to partner  $j$ , and  $X$  is the total value of all exports of  $i$  to  $j$ .  $\Omega_{tec}$  is the set of all products in mutually exclusive categories: high tech (HT), medium tech (MT), low tech (LT), primary products (PP), and resource-based (RB).

**Range of Values:** 0 to 100%

**Limitations:** Categories are defined at the SITC-3 level. A standard correspondence is used to compute the index using HS 6-digit product codes. Indexes may be skewed by the presence of re-exports and labor-intensive assembly of high-tech products performed in low-wage countries.

**Choice Parameters:**

Trade Flow: exports (reported or mirrored)  
Reporter: countries [up to 5]

Partner: country, group  
Year: any [up to 2]

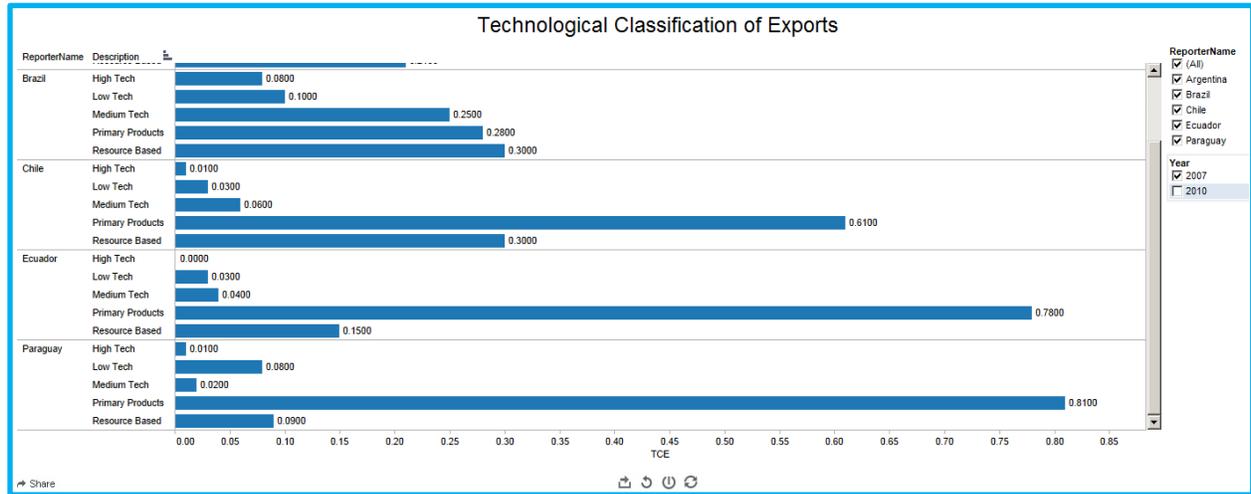
**Additional Data Source:** Technological classifications from Lall (2000).

ReporterName	Year	PartnerName	Technological Classification	% Total Exports
Argentina	2007	World	HighTech	0.02
Argentina	2007	World	LowTech	0.09
Argentina	2007	World	MediumTech	0.20
Argentina	2007	World	PrimaryProds	0.48
Argentina	2007	World	ResourceBased	0.21
Argentina	2010	World	HighTech	0.02
Argentina	2010	World	LowTech	0.07
Argentina	2010	World	MediumTech	0.23
Argentina	2010	World	PrimaryProds	0.50
Argentina	2010	World	ResourceBased	0.18
Brazil	2007	World	HighTech	0.08
Brazil	2007	World	LowTech	0.10
Brazil	2007	World	MediumTech	0.25
Brazil	2007	World	PrimaryProds	0.28
Brazil	2007	World	ResourceBased	0.30
Brazil	2010	World	HighTech	0.05

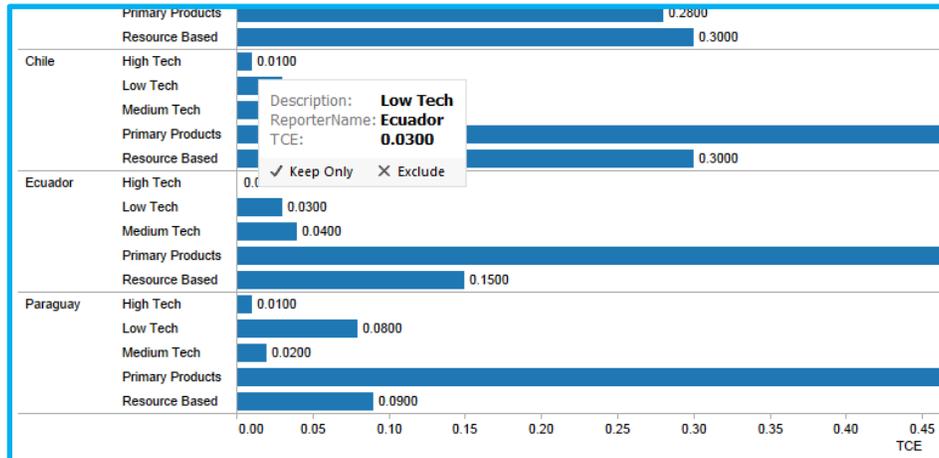
### 3-1 TECHNOLOGICAL CLASSIFICATION OF EXPORTS – CHART

**Description:** The chart illustrates the breakdown of each reporter’s trade portfolio by percentage into technological classifications using a horizontal bar graph.

**Options:** Users may select between reporter countries and years using the tick boxes on the far right.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with category name, reporter’s name, the percent of trade accounted for by the category, and the standard two options.



### 3-2 SOPHISTICATION OF EXPORTS (EXPY)

**Description:** Estimating the level of technological sophistication embodied in a country’s export portfolio gives an indication of that country’s economic development. PRODY is an outcome-based measure of sophistication: if a product is mostly produced by rich countries, then it is revealed to be a “rich,” or sophisticated, product. PRODY is calculated as a weighted average of per capita GDP of countries producing that product, with weights derived from revealed comparative advantage. The country’s expected GDP per capita, EXPY, is given by summing all the PRODY values for the products exported by the country, each weighted by the product’s share in total exports.

**Mathematical Definition:** 
$$PRODY_k = \sum_i \frac{\frac{x_{ik}}{X_i}}{\frac{x_{wk}}{X_w}} * y_i \quad EXPY_i = \sum_k \frac{x_{ik}}{X_i} * PRODY_k$$

X is the total value of all exports from reporter i, x is the value of exports of product k, and w is the world. Y is GDP per capita.

**Range of Values:** 0 to +∞. A higher PRODY indicates a more sophisticated product. A high EXPY indicates a more sophisticated export portfolio.

**Limitations:** PRODY values for a product can be skewed upwards simply because high income countries produce them (e.g. agricultural products). Furthermore, sophisticated products such as computers may have relatively low PRODY values because they are assembled in and ultimately exported from low-income countries. EXPY does not account for quality, and so overestimates the importance of sophisticated products from low-income countries. EXPY also may be skewed by labor-intensive assembly of high-tech products performed in low-wage countries.

**Choice Parameters:**

Trade Flow: exports (reported or mirrored)  
Reporter: countries [up to 5]

Partner: country, group  
Year: any [up to 5]

**Additional Data Sources:** WDI; Hausman, Hwang, and Rodrik (2006).

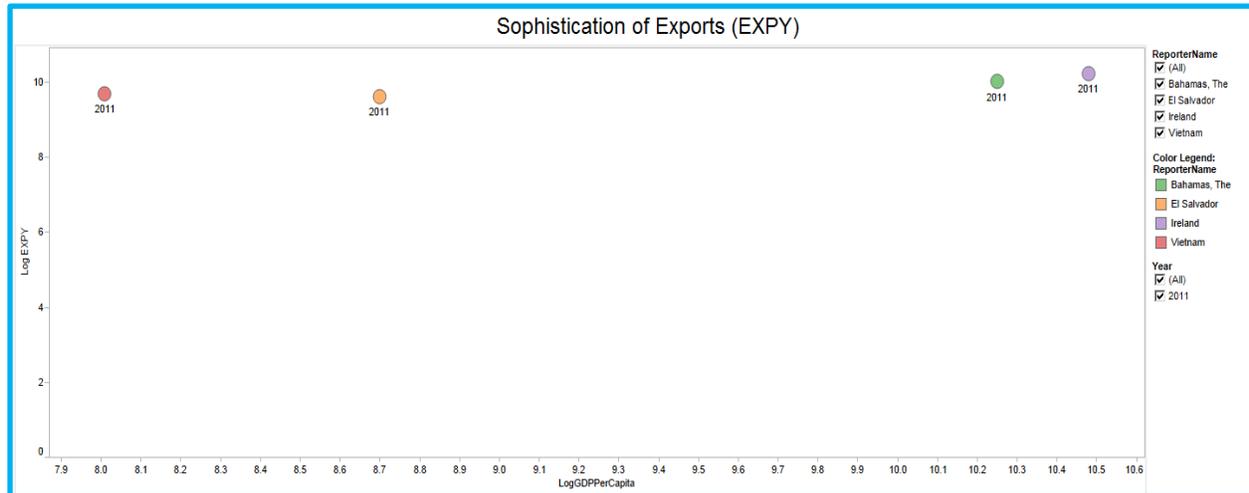
ReporterName	PartnerName	Year	Log of Product Sophistication (EXPY)	Log of GDP per Capita, PPP
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Bahamas, The	World	2011	10.00	10.25
El Salvador	World	2011	9.60	8.70
Ireland	World	2011	10.21	10.48
Vietnam	World	2011	9.67	8.01

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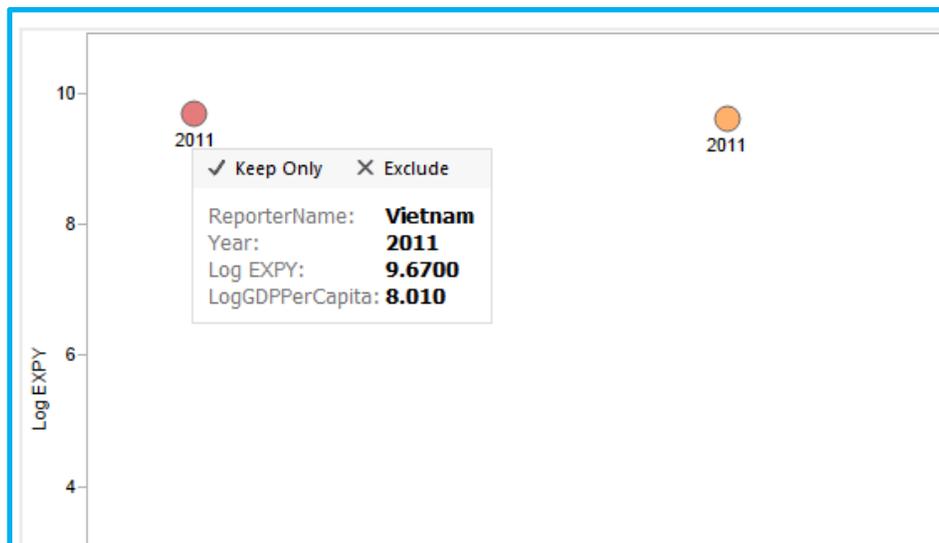
### 3-2 SOPHISTICATION OF EXPORTS (EXPY) – CHART

**Description:** The chart illustrates the relationship between GDP per capita and technological sophistication. On the horizontal axis is log of GDP per capita, and on the vertical axis is the log of EXPY, our index of technological sophistication.

**Options:** In the far right pane, users may select reporters and years. It also contains a legend assigning colors to the reporters.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the reporter's name, year, the log of EXPY, the log of GDP per capita, and the standard two options.



### 3-3 EXPORT PORTFOLIO AND FACTOR ENDOWMENTS

**Description:** Economic theory predicts that countries will specialize in products that are intensive in their relatively abundant factor. This indicator compares the value of a country's exports, the revealed factor intensities of those products, and its endowments of physical capital and human capital. The revealed physical capital intensity (RPCI) and revealed human capital intensity (RHCI) and are computed as weighted averages of the respective factor endowments of countries producing each product, with weights derived from revealed comparative advantage.

**Mathematical Definition:** 
$$RPCI_k = \sum_i \frac{\frac{x_{ik}}{X_i}}{\frac{x_{wk}}{X_w}} * \frac{K_i}{L_i} \qquad RHCI_k = \sum_i \frac{\frac{x_{ik}}{X_i}}{\frac{x_{wk}}{X_w}} * H_i$$

$X$  is the total value of all exports from reporter  $i$ ,  $x$  is the value of exports of product  $k$ , and  $w$  is the world. Human capital,  $H$ , is estimated by the average years of schooling. Physical capital,  $K/L$ , is estimated by the perpetual inventory method, which reconstructs capital stock estimates from investment flows by recursively adding up current investment to a previous period's capital stock, less depreciation.

**Range of Values:** Physical capital intensity: 1824 to 228,413. Human capital intensity: 2.25 to 12.45. Physical capital endowment: 322 to 284,372. Human capital endowment: 0.09 to 13.08.

**Limitations:** Revealed factor intensities face a number of potential problems. Natural resource endowments may trump comparative advantages in physical or human capital and result in disparate countries producing the same product, e.g. petroleum, precious metals and gems, etc... This methodology ignores the possibility of different factor-intensive methods of production, e.g. hand farming versus mechanized agriculture. It also cannot differentiate between products fabricated entirely within a country and those merely assembled there, which may skew results for many high-tech manufactured products.

**Choice Parameters:**

Trade Flow: exports (reported or mirrored)  
 Reporter: countries [up to 5]  
 Product: cluster

Partner: country, group  
 Year

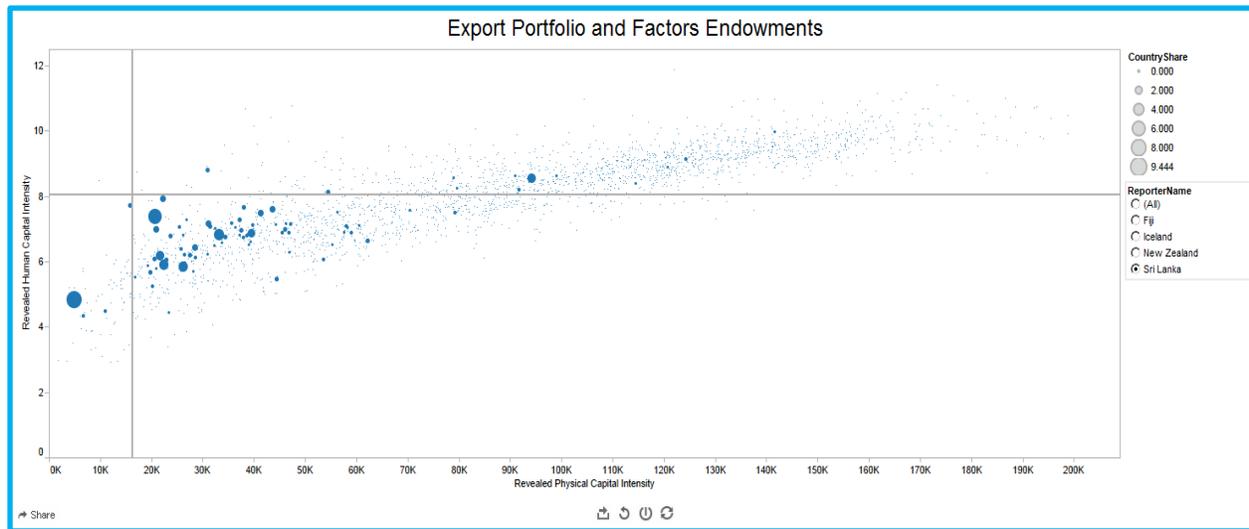
**Additional Data Source:** Intensities and endowments from Cado, Shirotori, and Tumurchudur (2010). Endowment data is available annually until 2007; data for 2007 is used for all later years.

ReporterName	PartnerName	Year	ProductCode	Share	Revealed Human Capital Intensity	Revealed Physical Capital Intensity	Physical Capital Endowment	Human Capital Endowment
Fiji	World	2009	010519	0.004721	8.08	65,133.16	29,491.52	10.84
Fiji	World	2009	010599	0.011904	9.06	102,091.90	29,491.52	10.84
Fiji	World	2009	020130	0.001459	7.63	43,361.30	29,491.52	10.84
Fiji	World	2009	020220	0.000089	8.85	62,296.24	29,491.52	10.84
Fiji	World	2009	020230	0.003680	7.98	46,503.95	29,491.52	10.84
Fiji	World	2009	020312	0.001716	9.60	139,377.20	29,491.52	10.84
Fiji	World	2009	020319	0.005644	10.56	154,050.70	29,491.52	10.84
Fiji	World	2009	020422	0.001538	12.04	146,798.80	29,491.52	10.84

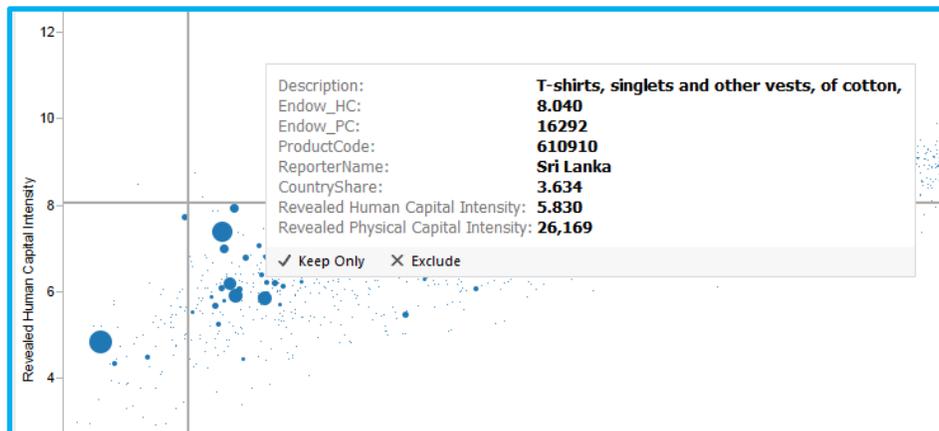
### 3-3 EXPORT PORTFOLIO AND FACTOR ENDOWMENTS – CHART

**Description:** The chart illustrates the relationship between export value and comparative advantage. On the horizontal axis is revealed physical capital intensity, and on the vertical axis is revealed human capital intensity. Products are plotted on this graph with the size of each observation reflecting its value share in the reporter’s total exports. The crossed gray lines represent the human and physical capital endowment of the selected reporter. Comparative advantage can be interpreted as the inverse of the distance from the intersection of the two gray endowment lines; that is, reporters have a comparative advantage in products closer to the intersection of the endowments, and one would expect to see larger circles clustered around here.

**Options:** On the far right is a legend explaining the scale used in assigning sizes to the observation circles. Here the user may also select between reporters.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product description, the country’s endowment of human capital and physical capital, the product code, the reporter’s name, the product’s value share of total exports, the product’s human capital and physical capital intensities, and the standard two options.



## SECTION 4 – SURVIVAL OF EXPORT RELATIONSHIPS

The persistence of trading relationships is a recognized sign of economic maturity. This section introduces three indicators that evaluate the duration and resilience of product-partner relationships and explore the factors influencing product birth and extinction.

The first indicator, *Export Duration*, measures the survival rate over successive years of new product-market relationships of at least 10,000 USD. The second indicator, *Export Suspension and Factor Endowments*, identifies the trade flows of at least 10,000 USD that have disappeared since the selected start year and compares the factor intensities of these products to the chosen country's factor endowments. The expectation is that product death will be more likely there farther their relative factor intensities are from the exporter's factor endowments.

Changes in export flows can take place along two different margins: intensive and extensive. The intensive margin covers changes in existing trade flows, and can be further divided into increases, decreases, and extinctions. The extensive margin covers the birth of new trade flows, which may occur because of the introduction of a new product, entry into a new market, or product diversification with an existing partner. The final indicator, *Decomposition of Export Growth along Margins of Trade*, divides all trade growth into one of seven mutually exclusive and exhaustive categories according to these margins.

## 4-1 EXPORT DURATION

**Description:** This indicator reports the number of new product-partner relationships with trade values of at least 10,000 USD in the start year and the number and percentage of those that survive in each succeeding year until the selected end date. The ability to maintain trade relationships is a sign of a well-developed economy. Large scale deaths of trading relationships may reflect economic shocks or be the result of new policies. By selecting specific product groups, users may evaluate the expansion, contraction, and volatility of specific industries.

**Mathematical Definition:** 
$$share_{it} = \frac{n_{ijt}}{n_{ijt_{start}}} * 100$$

Where  $n$  is the number of products exported from country  $i$  to partner  $j$  in year  $t$ , and  $t_{start}$  is the selected start year.

**Range of Values:** 0 to 100.

**Limitations:** This is a count of the number of export relationships and does not reflect the value or importance of each trade flow. A large trade flow that becomes very small may be more important than a small trade flow that disappears entirely, but that will not be reflected in this indicator.

**Choice Parameters:**

Product Classification: HS revisions

Product: product, group

Trade Flow: exports (reported or mirrored)

Partner: country, group

Reporter: countries [up to 5]

Year: start year, end year

ReporterName	PartnerName	ProductCode	Start Year	Nbr. Of Export Relationship - Start Year	Year	Nbr. Of Export Relationship	Share
Austria	World	AllSubHeading	2008	132	2008	132	100.0000
Austria	World	AllSubHeading	2008	132	2009	71	53.7900
Austria	World	AllSubHeading	2008	132	2010	83	62.8800
Kazakhstan	World	AllSubHeading	2008	442	2008	442	100.0000
Kazakhstan	World	AllSubHeading	2008	442	2009	195	44.1200
Kazakhstan	World	AllSubHeading	2008	442	2010	141	31.9000
Kuwait	World	AllSubHeading	2008	411	2008	411	100.0000
Kuwait	World	AllSubHeading	2008	411	2009	123	29.9300
Kuwait	World	AllSubHeading	2008	411	2010	116	28.2200

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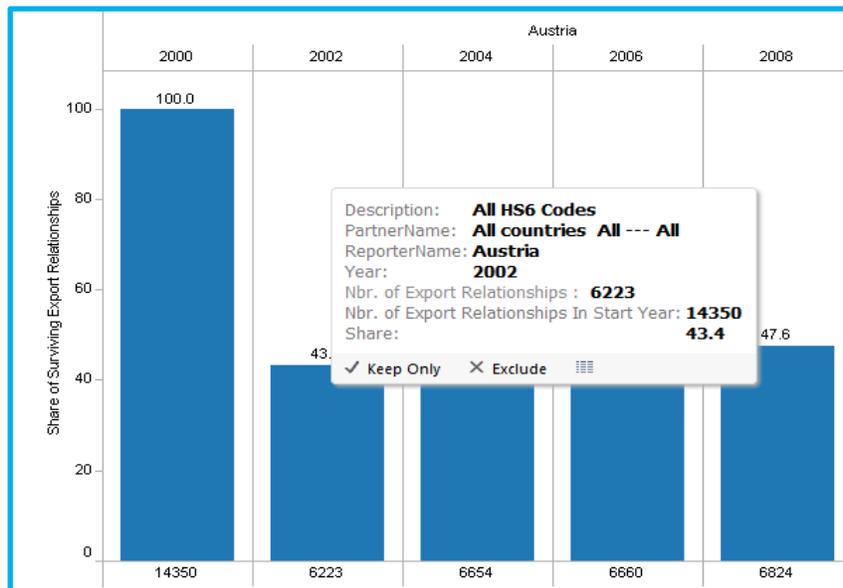
#### 4-1 EXPORT DURATION – CHART

**Description:** The chart represents the data using vertical bar graphs. On the horizontal axis is listed the number of export relationships in the year. On the vertical axis is the share of surviving export relationships relative to the start year. Each bar gives the number of export relationships that were new in the start year that persist in the selected year.

**Options:** On the right, users may select years and reporter countries. There is also a legend describing the assignment of graph color by country.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the product description, partner name, reporter name, year, number of new export relationships remaining, number of new export relationships in the start year, the share of relationships remaining, and the standard two options.



## 4-2 EXPORT SUSPENSION AND FACTOR ENDOWMENTS

**Description:** This indicator identifies the trade flows of at least 10,000 USD that have disappeared since the selected start year and compares the factor intensities of those products to the chosen country's factor endowments. Factor intensities are constructed as a weighted average of the factor endowments of all countries exporting each product; see indicator 3-3 for complete description. As such the inverse of the Euclidean distance between the factor endowment and a product's factor intensity serves as a measure of comparative advantage. The indicator also returns each product's value share in total partner trade.

**Mathematical Definition:**  $share_i = \frac{x_{ijk}}{X_{ij}} * 100$

$X$  is the total value of all exports from reporter  $i$  to partner  $j$ , and  $x$  is the value of exports of product  $k$ .

**Range of Values:** Physical capital intensity: 1824 to 228,413. Human capital intensity: 2.25 to 12.45. Physical capital endowment: 322 to 284,372. Human capital endowment: 0.09 to 13.08. Share 0 to 1.

**Limitations:** Because product intensities are trade-weighted averages of factor endowments, they may be better estimates of competitiveness than of comparative advantage. All caveats listed for indicator 3-3 also apply.

### Choice Parameters:

Trade Flow: exports (reported or mirrored)

Partner: country, group

Reporter: countries [up to 5]

Year: start year, end year

Product: cluster

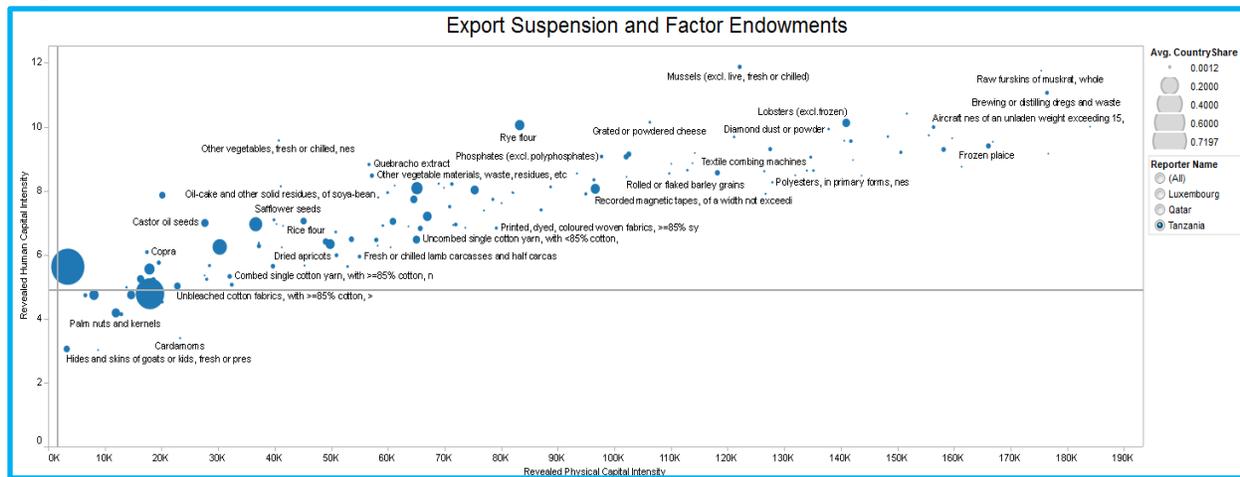
**Additional Data Sources:** Intensities and endowments from Cado, Shirotori, and Tumurchudur (2010). Endowment data is available annually until 2007; data for 2007 is used for all later years.

ReporterName	Year	PartnerName	ProductCode	Trade Value in US\$1000	Share	Revealed Human Capital Intensity	Revealed Physical Capital Intensity	Physical Capital Endowment	Human Capital Endowment
Luxembourg	2010	World	010420	42.00	0.0002	5.35	16,577.62	265,662.40	9.96
Luxembourg	2010	World	020641	16.69	0.0001	10.09	141,744.90	265,662.40	9.96
Luxembourg	2010	World	030321	13.35	0.0001	9.82	113,864.60	265,662.40	9.96
Luxembourg	2010	World	060110	19.45	0.0001	7.63	87,136.74	265,662.40	9.96
Luxembourg	2010	World	071410	3,727.37	0.0173	8.25	35,357.82	265,662.40	9.96
Luxembourg	2010	World	081340	55.00	0.0003	7.48	49,383.55	265,662.40	9.96
Luxembourg	2010	World	100700	61.92	0.0003	6.01	36,844.08	265,662.40	9.96
Luxembourg	2010	World	152200	215.14	0.0010	5.44	36,197.67	265,662.40	9.96
Luxembourg	2010	World	160530	414.79	0.0019	8.38	80,454.93	265,662.40	9.96
Luxembourg	2010	World	251010	35.69	0.0002	5.97	19,313.95	265,662.40	9.96
Luxembourg	2010	World	251520	13.14	0.0001	7.51	69,535.83	265,662.40	9.96
Luxembourg	2010	World	252910	197.86	0.0009	6.58	51,967.45	265,662.40	9.96
Luxembourg	2010	World	260200	44.00	0.0002	7.00	17,117.16	265,662.40	9.96
Luxembourg	2010	World	261400	417.25	0.0019	4.84	37,197.79	265,662.40	9.96
Luxembourg	2010	World	270799	14.76	0.0001	9.56	153,079.20	265,662.40	9.96
Luxembourg	2010	World	271220	17.99	0.0001	7.43	60,765.83	265,662.40	9.96
Luxembourg	2010	World	280490	42.97	0.0002	9.37	89,240.48	265,662.40	9.96
Luxembourg	2010	World	280530	59.02	0.0003	7.98	75,636.52	265,662.40	9.96
Luxembourg	2010	World	281119	382.04	0.0018	8.50	58,172.84	265,662.40	9.96

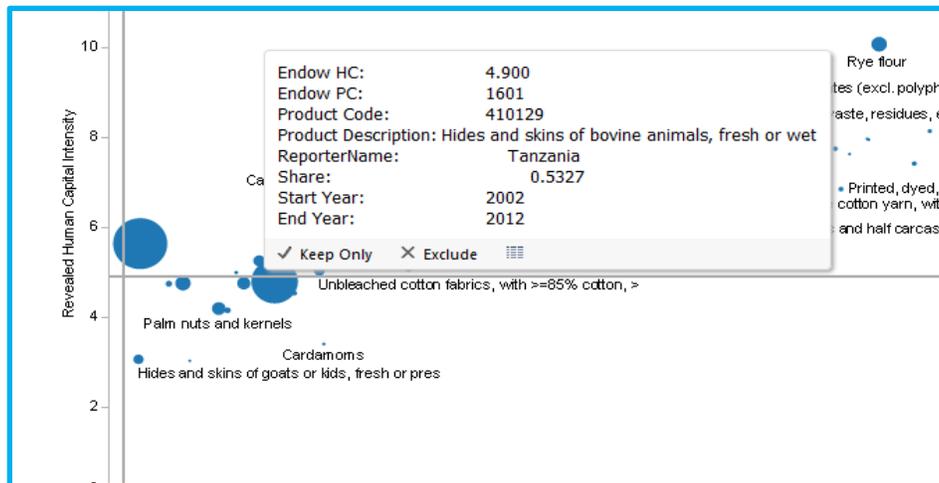
## 4-2 EXPORT SUSPENSION AND FACTOR ENDOWMENTS – CHART

**Description:** The chart illustrates the relationship between export suspension and comparative advantage. On the horizontal axis is revealed physical capital intensity, and on the vertical axis is revealed human capital intensity. Products whose trade flows ceased between the start and end year are plotted on this graph with the size of each observation reflecting its value share in the reporter’s total exports. The crossed gray lines represent the reporter’s human and physical capital endowment. Comparative advantage can be interpreted as the inverse of the Euclidean distance from the intersection of the two gray endowment lines; that is, reporters have a comparative advantage in products closer to the intersection of the endowments, and one would expect to see larger circles clustered around here.

**Options:** On the right, users may select which country to view. Also on the right is a legend explaining how the size of the observations equates to their value share of the reporter’s total exports.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the country’s endowment of human and physical capital, the product code, product description, report name, value share of exports, start and end years, and the standard two options.



### 4-3 DECOMPOSITION OF EXPORT GROWTH ALONG MARGINS OF TRADE

**Description:** Export growth can be divided into the expansion of existing trade flows (the intensive margin) and the addition of new products and markets (the extensive margin). This indicator assigns all product growth—and contraction—to one of seven bins.

#### Intensive Margin

- (1) Increase of existing products in established markets,
- (2) Decrease in existing products in established markets,
- (3) Extinction of exports of products in established markets,

#### Extensive Margin

- (4) Introduction of new products in new markets,
- (5) Introduction of new products in established markets,
- (6) Introduction of existing products in new markets,
- (7) Product diversification in established markets—e.g. France exports widgets to Guatemala and Singapore, but exports gizmos only to Singapore. The following year, France begins to also export gizmos to Guatemala, thereby diversifying its trade.

Existing products were exported to at least one partner in the previous year. Established markets are those to which the selected country exported at least one product in the previous year.

**Mathematical Definition:**  $\text{share}_{\text{bin}} = 100 * \sum_{k \in \Omega_{\text{bin}}} \frac{x_{ijkt}}{X_{ijt}} \quad \forall \text{bin} \in \{1...7\}$

$X$  is the total value of all exports from reporter  $i$  to partner  $j$ , and  $x$  is the value of exports of product  $k$  in year  $t$ . Start and end years are given by  $t_1$  and  $t_2$ , respectively.  $\Omega_{\text{bin}}$  represents a product group, with all products divided among 7 mutually exclusive bins. Products are assigned according to the following characteristics:

Bin (1)  $x_{ijkt} > 0$  for  $t = t_1, t_2$  and  $x_{ijk_{t_2}} - x_{ijk_{t_1}} > 0$

Bin (2)  $x_{ijkt} > 0$  for  $t = t_1, t_2$  and  $x_{ijk_{t_2}} - x_{ijk_{t_1}} < 0$

Bin (3)  $x_{ijk_{t_1}} > 0$  and  $x_{ijk_{t_2}} = 0$

Bin (4)  $\sum_j x_{ijk_{t_1}} = 0$ ,  $X_{ijt_1} = 0$ , and  $x_{ijk_{t_2}} > 0$

Bin (5)  $\sum_j x_{ijk_{t_1}} = 0$ ,  $X_{ijt_1} > 0$ , and  $x_{ijk_{t_2}} > 0$

Bin (6)  $\sum_j x_{ijk_{t_1}} > 0$ ,  $X_{ijt_1} = 0$ , and  $x_{ijk_{t_2}} > 0$

Bin (7)  $\sum_j x_{ijk_{t_1}} > 0$ ,  $X_{ijt_1} > 0$ ,  $x_{ijk_{t_1}} = 0$ , and  $x_{ijk_{t_2}} > 0$

**Range of Values:** 0 to 100.

**Limitations:** Countries that are already exporting to many markets and have highly diversified export portfolios may have sharply limited potential for expansion along the extensive margin. Even for developing countries, the extensive margin generally accounts for no more than 20% of export growth (Brenton and Newfarmer, 2009).

**Choice Parameters:**

Product Classification: HS revisions

Reporter: country

Trade Flow: exports (reported or mirrored)

Product: cluster

Partner: country, group

Years: start year, end year

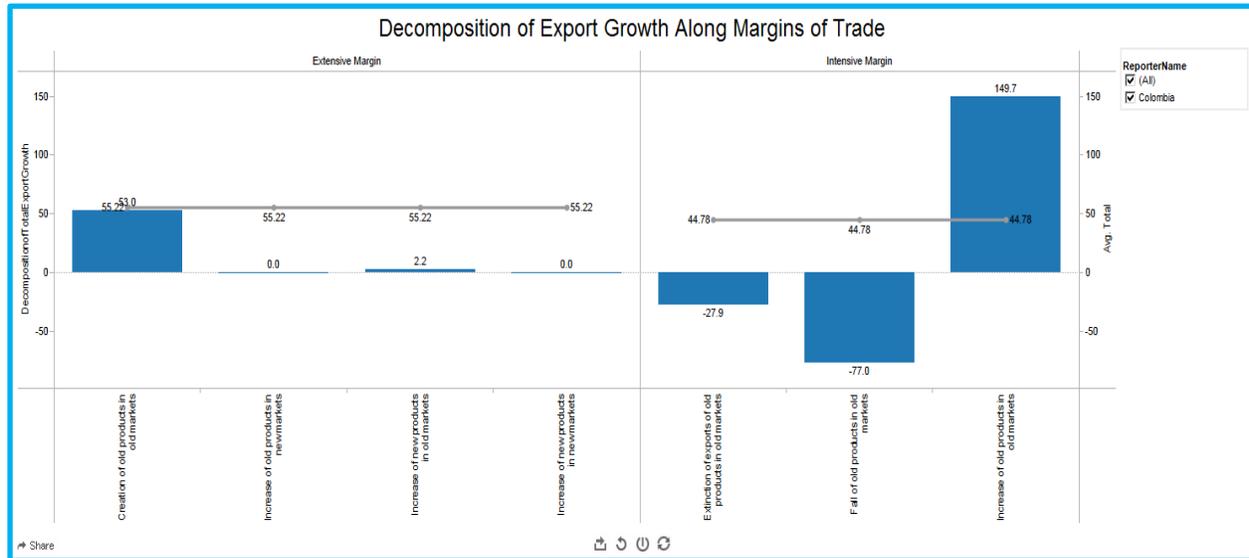
ReporterName	PartnerName	Start Year	End Year	ProductCode	CategoryDescription	Export Growth Decomposition
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Colombia	All countries All -- - All	2007	2010	AllProducts	Decrease in existing products in established markets	-77.02
Colombia	All countries All -- - All	2007	2010	AllProducts	Extinction of exports of products in established markets	-27.86
Colombia	All countries All -- - All	2007	2010	AllProducts	Increase of existing products in established markets	149.65
Colombia	All countries All -- - All	2007	2010	AllProducts	Introduction of existing products in new markets	0.01
Colombia	All countries All -- - All	2007	2010	AllProducts	Introduction of new products in established markets	2.23
Colombia	All countries All -- - All	2007	2010	AllProducts	Introduction of new products in new markets	0.00
Colombia	All countries All -- - All	2007	2010	AllProducts	Product diversification in established markets	52.98

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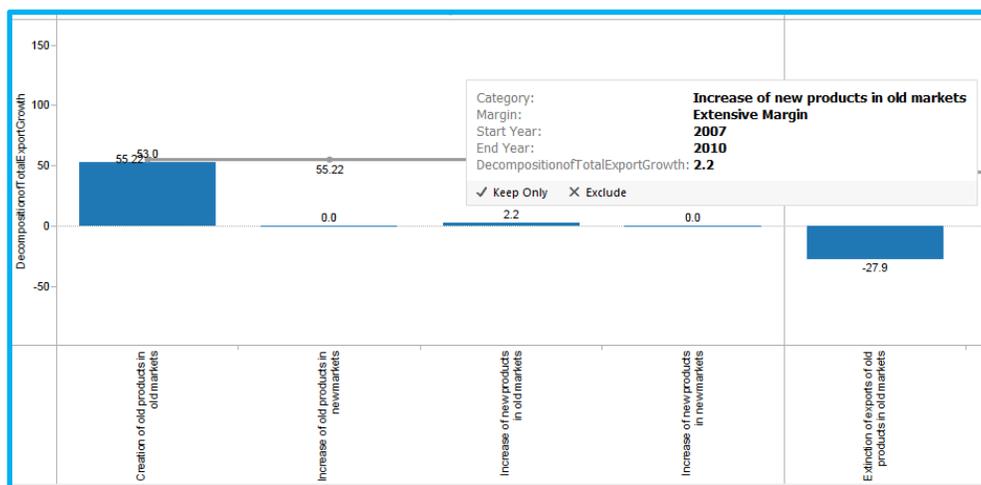
### 4-3 DECOMPOSITION OF EXPORT GROWTH ALONG TRADE MARGINS – CHART

**Description:** The chart illustrates the categorical breakdown using vertical bar graphs. Each category is labeled along the horizontal axis, and on the vertical axis is the category’s share of total export growth. The share value may be positive or negative depending on whether exports of products in the group grew or contracted. The gray horizontal line represents the net effect of each of the two margins.

**Options:** On the right-hand side, users may select countries to view.



**Tooltip:** Hovering the cursor over any entry calls up the tooltip pop-up window with the category description, margin name, star year, end year, the category’s share in total export growth, and the standard two options.



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