New

MAGIC

Module for the Analysis of Growth in International Commerce

Martha Cordero

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Martha Cordero

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Explanatory notes:
- A full stop (.) is used to indicate decimals.
- The word "dollars" refers to United States dollars, unless otherwise specified.

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Índice

Table

Figures

Diagrams

Images

Summary

This guide describes the main characteristics of the new Module for the Analysis of Growth in International Commerce (MAGIC), developed by the Subregional Headquarters of the Economic Commission for Latin America and the Caribbean (ECLAC) in Mexico City. The first part describes MAGIC's development and its main characteristics, as well as the technical requirements for using the software. A second part describes each of the new modules the MAGIC comprises, its functions and the parameters required before consulting it. It also includes an exercise for interpreting the data and indicators in each module. Lastly, the annexes section provides the user with tools that should assist in understanding and analysing the data contained in MAGIC. The annexes include a glossary, a volume unit reference, another for identifying and solving technical errors and a section providing breakdowns of the mathematical formulas underpinning MAGIC's indicators.

Introduction

The new Module for the Analysis of Growth in International Commerce (MAGIC) is an interactive software program developed by the Subregional Headquarters of the Economic Commission for Latin America and the Caribbean (ECLAC) in Mexico City for ex-post analysis of export competitiveness. It provides information on foreign trade in goods of the United States, Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama), Mexico and countries belonging to the European Union.

MAGIC was initially designed in 1995 to analyse the competitiveness of imports entering the United States market. Originally, MAGIC contained only US trade data, which is why it was called Module for United States Import Consultation (MUSIC) in its first incarnation. Later, it became clear that the module could also be expanded to include more markets. This transition led to its current name, Module for the Analysis of Growth in International Commerce (MAGIC).

MAGIC's initial version was built on a disk operating system (DOS) but later migrated to a MS-Windows system. With support from the Canadian International Development Agency (CIDA), the first version of MAGIC software on a web platform with an Acrobat Flash, known as MAGIC Plus, was launched in 2009. This version incorporated foreign trade information from Central American countries thanks to an agreement between ECLAC and the Secretariat for Central American Economic Integration (SIECA).

This updated version of MAGIC was built on a web platform that employs the latest HTML (Hyper-Text Markup Language) version with responsive CSS (Cascading Style Sheets) that allow users to view the program on almost all electronic devices without any need to install additional programs or modify your browser's configuration. The new MAGIC also incorporates JavaScript visual tools that generate friendly graphics and animated maps. Lastly, MAGIC communicates with its database through an API (Application Programming Interface), making it easier for other applications and databases to share data with MAGIC.

This updated version of MAGIC contains new trade data from Mexico and European Union countries and two new modules of foreign trade analysis, one on trade profiles and the other regarding trade charges, in addition to the module on competitiveness analysis. It also incorporates the possibility of choosing the report by year or three-year averages to reduce the effect of choosing an atypical year for competitiveness analysis.

The information contained in MAGIC is grouped by year and reported on the basis of the Harmonized Commodity Description and Coding Systems (Harmonized System or HS) using 2, 4 and 6-digit HS codes or a 10-digit code in the case of the United States. The data is reported by year dating back to 1990 in the case of the United States, Mexico and the European Union countries, and since 1994 for Central America.

MAGIC draws on three different sources for the information it provides:

(i)   United States Census Bureau for that same market.

(ii)   The Secretariat for Central American Economic Integration (SIECA) for Central American countries.

(iii) United Nations International Trade Statistics Database (UN Comtrade) for Mexico and the European Union countries.

The program contains value and volume data with which to analyse the evolution of trade and competitiveness for all products traded on the included markets and with all trading partners. Based on that data, MAGIC generates trade indicators such as product contribution, product share, volume share, country share, market share, unit value and effective duty rate, among others. It also analyses the evolution of markets and products through two powerful competitiveness analysis tools: product classification and decomposition of change. Furthermore, the new MAGIC incorporates new indicators such as cost, insurance and freight (CIF), the *ad valorem* equivalent rate and the cost per kilogram per type of transport. Those new indicators make it possible to identify additional charges on trade in goods within some markets for which information is available.

This new MAGIC user guide is designed to help all interested individuals with everything from signing up and acquiring a username and password, descriptions of the program's main characteristics and showing how to interpret indicators through a series of exercises conducted for each module. The first part of the guide describes the software's initial requirements, emphasising the process for obtaining and configuring a user account. It later describes the start map of the new MAGIC to help users access all program modules.

The third section explains each of the modules and submodules the new MAGIC comprises. Each of these sections begins by describing the steps needed to conduct a search. They then explain the organization and elements comprising search results and, lastly, interpret each report's indicators using a hypothetical example starting from the parameter selection process. While each of these parts can be consulted independently, it is recommended they be consulted by module.

Four Annexes can be found at the end of the guide containing tools that should help the user better employ and interpret the new MAGIC. Those tools include: (i) a Glossary that describes the program's main indicators and terms; (ii) a list for interpreting the indicated MAGIC volume units in relation to the reporter country; (iii) a table for identifying technical problems and their solutions and (iv) a section that describes the mathematical indicator formulas used in MAGIC for those users who desire to better understand and delve deeper into them.

The new MAGIC is designed to provide easy and friendly information access. This guide aims to help the user better employ and interpret this powerful ex-post competitiveness analysis tool that ECLAC offers.

Chapter I
Requirements

MAGIC can be accessed through any operating system, whether from a computer, tablet, or mobile phone on which a web browser, such as Chrome, Edge, Safari or Firefox, is installed. It is recommended to choose from the first browsers in this list and make sure they are updated with their latest versions to optimize MAGIC's performance. No other software is needed.

MAGIC is a free access program. To access the new MAGIC, it is only necessary to sign up and register to acquire a username and a password. To enter MAGIC, the user must go to the web page www.cepal.org/magic and click on the top right link "Go to MAGIC" (see image 1).

Image 1
MAGIC home page
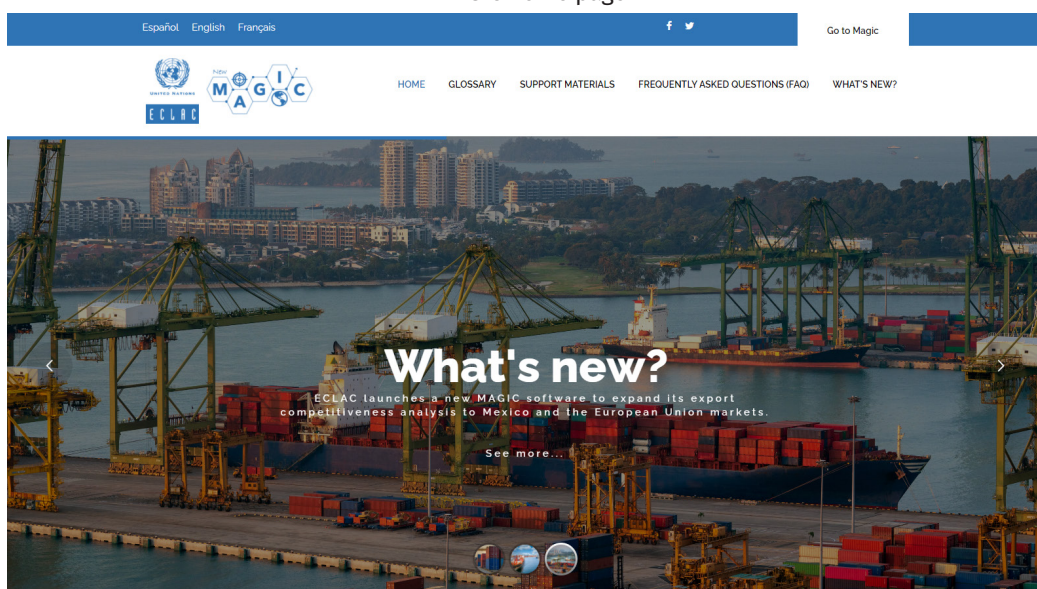
Source: New MAGIC [online] www.cepal.org/magic.

After clicking on "Go to MAGIC," the system displays a screen from which to sign in to access the software, sign up for a new account or recover your password in the event that it has been forgotten. In order to register for the first time, it is necessary to click on "Sign up" near the bottom of the window. At the very bottom of the window, users can choose the language in which they wish to register for the new MAGIC. The options are Spanish, English or French (see image 2).

Image 2
MAGIC: login window

Source: New MAGIC [online] www.cepal.org/magic.

Upon clicking to sign up, MAGIC displays a screen where users can register their personal information. Next, it is necessary to complete all fields except the box accepting to receive the MAGIC news newsletter, which is optional. The newsletter periodically informs users of updates on new trade-related charges, data updates and materials added to the MAGIC web page or other relevant program news. If users wish to receive the newsletter, they need only check the box next to "I want to receive the MAGIC newsletter" (see image 3). If, at some point, they should decide to unsubscribe, untick this option in the user module.

Image 3
MAGIC: sign up window
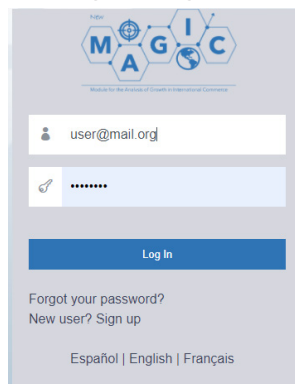
Source: New MAGIC [online] www.cepal.org/magic.

After filling in all the sign-up fields, users must click on the "Register" button. If the registration was successful, the words "User has successfully registered" appear. In addition, the message "A temporary password has been sent to the email account provided" appears at the bottom of the screen.

A "New MAGIC account" message from magic@un.org is sent to the email account provided. The message contains a new password along with the confidential answer the user supplied for the secret question. This question allows the user to recover the password in the event that they had forgotten it. After receiving the MAGIC email, the user can return to the start page to fill in the corresponding fields with the username and temporary password sent. Then click on the "Login" button (see image 4).
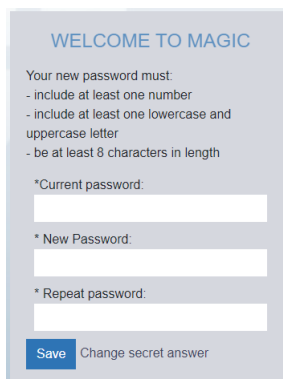
Image 4
MAGIC: login to begin a session

Source: New MAGIC [online] www.cepal.org/magic.

A "Welcome to MAGIC" screen then appears (see image 5) in which the user is asked to change the password and secret question. It is recommended to change the password and secret question first and then save them in a secure location because both will be needed in the event that the password for signing into the new MAGIC is forgotten. If the user should opt not to change the password and secret question at this stage, they can be changed at any time on the user module. To change the password and secret question at this stage, it is necessary to click on the phrase "Change secret answer" at the bottom of the window (see image 5).
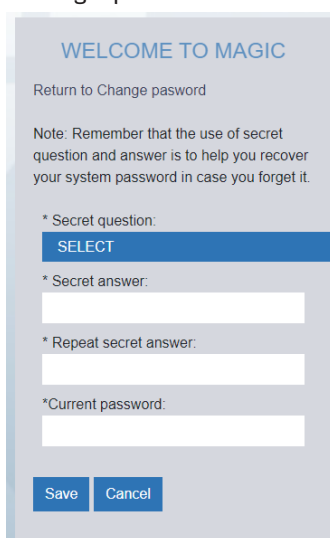
Image 5
MAGIC: Welcome to MAGIC

Source: New MAGIC [online] www.cepal.org/magic.

When the user has chosen to change the question and secret answer, MAGIC displays a screen containing a form on which to choose from a list of nine secret questions (see image 6). Once users have filled out all the fields, they must click on "Save," and MAGIC shows the initial change-password window (see image 5). In that window, users should enter the password sent to their email accounts and then choose a new one. The new password should contain at least one number, a lowercase and an uppercase letter and be at least eight characters in length. Once the new password has been configured, the user must click on the "Save" button and the system returns to the new MAGIC start page. Thereafter, when visiting MAGIC, it will only be necessary to sign in with the username and password, as indicated in image 2, and click on the blue "Log in" button.

Image 6
MAGIC: change question and secret answer

Source: New MAGIC [online] www.cepal.org/magic.

Chapter II
MAGIC start map

Once the user has begun a session, the new MAGIC displays the window that appears in image 7.

Image 7
MAGIC: start page

Source: New MAGIC [online] www.cepal.org/magic.

This start page contains the following components:

1. It allows choosing from the three available languages (Spanish, English and French) in the top left-hand corner.

2. The user's name appears in the top-right hand of the page. This section is the "User module" from which it is possible to consult and modify user information, including the password, create groups of countries and products and sign out of the session.

3. The text that appears below "Welcome to new MAGIC" summarizes the new platform's main components.

4. "Please select a module" allows the user to consult any of the three modules: i) trade profiles, ii) competitiveness analysis or iii) trade charges.

5. The start map randomly shows a reporter country's trade data for the most recent year available.

6. The blue bar at the bottom of the page offers MAGIC-related legal terms and conditions and a link to access contact information.

Chapter III
MAGIC search modules

The new MAGIC comprises three modules (coloured green) followed by their respective submodules (coloured orange) (see diagram 1). The first of the modules is that of "Trade profiles," providing trade information for either a reporter country or group of countries ("Bilateral trade"), or the trade activity a reporter country conducts in relation to a single product or group of products ("Product").

Diagram 1
New MAGIC modules and submodules

```
                          ┌─────────────┐
                          │    MAGIC    │
                          └─────────────┘
         ┌───────────────────────┼───────────────────────┐
   ┌───────────┐         ┌─────────────────┐        ┌───────────────┐
   │   Trade   │         │ Competitiveness │        │ Trade charges │
   │  profiles │         │    analysis     │        │               │
   └───────────┘         └─────────────────┘        └───────────────┘
         │                       │                        │
   ┌───────────┐         ┌─────────────────┐        ┌───────────────┐
   │ Bilateral │         │   By country    │        │  By country   │
   └───────────┘         └─────────────────┘        └───────────────┘
         │                       │                        │
   ┌───────────┐         ┌─────────────────┐        ┌───────────────┐
   │  Product  │         │   By product    │        │  By product   │
   └───────────┘         └─────────────────┘        └───────────────┘
                                 │
                         ┌─────────────────┐
                         │   By indicator  │
                         └─────────────────┘
```
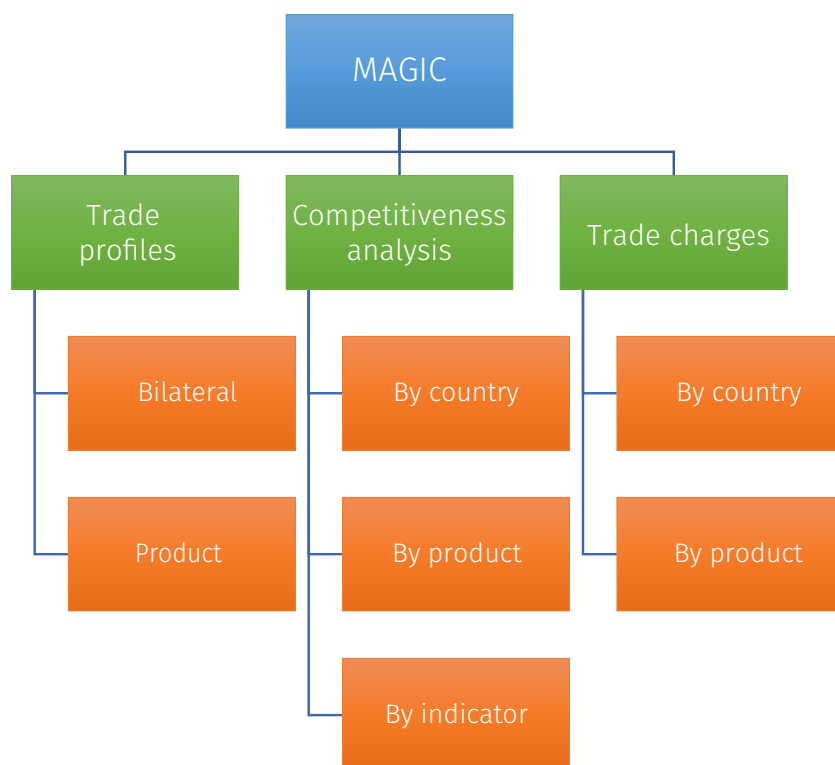
Source: Prepared by the author.

The second module, "Competitiveness analysis," reports indicators related to the export competitiveness of a country or group of countries in relation to one of the reporting markets available in MAGIC. This competitiveness analysis can be about all of a country's imports or exports at different aggregation levels of the Harmonized System ("Competitive analysis by country"). It can be about a single product or group of products, comparing the trade profiles of countries ("By product"). Or, it can analyse the evolution of a competitiveness indicator over several years in relation to a specific trading partner and a product ("By indicator").

The third and last module offers information on the means of transport used in goods trading (for the United States and Mexico), their approximate costs and the *ad valorem* duties rate applied (for the United States). It is possible to search for all traded goods with a partner country ("Trade charges by country") or a specific traded product with all its partners ("Trade charges by product").

A. Trade profile module

By clicking on the trade profiles bar, MAGIC displays a window that allows choosing between "Bilateral" or "Product" (see image 8). Bilateral trade profiles offer information on the value and share of a reporter country's exports, imports and trade balance with a partner country or group of partner countries and display the ten main exported and imported products for each year with that trading partner or group of partners. The trade profile by product shows the value and share of exports, imports and trade balance of a reporter country in relation to a product or group of products. It also identifies the reporter country's major import markets (buyers) and export markets (suppliers) for that product.

Image 8
MAGIC: trade profile module

Please select a module

| TRADE PROFILES | COMPETITIVENESS ANALYSIS | TRADE CHARGES |

Bilateral

Product

)E PARTNERS, 2020
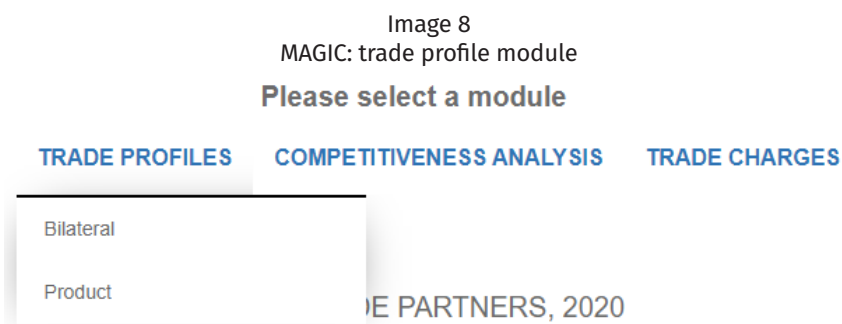
Source: New MAGIC [online] www.cepal.org/magic.

1. Trade profiles by bilateral trade submodule

The bilateral profile provides trade information for a reporter country with a partner or group of trading partners. To access this submodule, it is necessary to go to "Trade profiles" in the upper right-hand side of the MAGIC page and just below it, select "Bilateral."

Once the submodule has been selected, MAGIC displays a new window with additional parameter selection options (see image 9).

Image 9
MAGIC: parameter selection in the submodule trade profiles by bilateral trade

Source: New MAGIC [online] www.cepal.org/magic.

The parameters to select are numbered from one to six in image 9 and correspond to the following:

1. First, it is necessary to select the reporter country for which the user wishes to obtain information on its trade in goods. The tab located on the upper left-hand side of this Bilateral Trade window lists all the countries for which MAGIC provides information on their international trade in goods. By clicking on the tab under "Reporter country," the program displays all the available reporting countries and groups of countries (Central America and European Union). For this example, Costa Rica has been chosen (see image 10).

Image 10
MAGIC: choice of a reporter country in the submodule trade profiles by bilateral trade

Source: New MAGIC [online] www.cepal.org/magic.

2. Once the reporter country has been selected, the *Year(s) box displays a list of the years for which information is available by reporter country or group of countries. In the case of Costa Rica, the box provides the option of choosing one or more years from 1994 up to the latest available year. In this example, the years 1994, 2010 and 2019 have been selected by ticking each one of them. The program also allows for deselecting the years by clicking on "Unselect all" (see image 11). This option is advantageous when various or all years have been selected.

Image 11
MAGIC: year selection in the trade profiles by bilateral trade submodule

Source: New MAGIC [online] www.cepal.org/magic.

3. A third required step is to select the trading partner about which the user wishes to obtain trade in goods information with the reporter country or group. The trading partner can be a country or group of countries. In this case, the *Country field has been chosen, prompting MAGIC to display a dropdown menu with the list of countries available to choose from (see image 12). It is possible to look for a country from the list by moving the cursor or scrolling on the lateral scrollbar on the left. Another way to quickly look for the partner of interest is to write in the first letter of the country's name. For example, if the letter "n" is clicked, MAGIC displays Namibia, the first country that begins with the letter "n." In this example, Norway has been chosen as the trading partner by clicking on its name. Once the country is selected, it appears as active in the trading partner bar (see image 13).

Image 12
MAGIC: trading partners in the trade profiles by bilateral trade submodule

Source: New MAGIC [online] www.cepal.org/magic.

Image 13
MAGIC: choice of product aggregation level in the trade profiles by bilateral trade submodule

Source: New MAGIC [online] www.cepal.org/magic.

4. After choosing the trading partner, the next step is to select the duty aggregation level at which the user wishes to display the main products traded with that country. MAGIC uses a preselected 2-digit aggregation level (chapter level). Still, the user can choose 4 (heading level), 6 (subheading level), or 10 digits (national level) by clicking on the circle for the desired disaggregation option. It is important to remember that the 10-digit option is only available when the United States has been chosen as the reporter country. In this example, the 2-digit level (chapter) option was selected.

5. Another option that MAGIC allows is to select the currency unit in which the user desires to display the trade values reported. The possibilities are in dollars, thousands of dollars or millions of dollars. It is important to note that all trade value data available in MAGIC are reported in current US dollars. In this example, "Dollars" has been left as the desired unit value.

6. Lastly, to conduct the search, the user must click on the "Process" button. In case the user wishes to adjust or add any parameter other than the reporter country, just make the necessary adjustment and click once again on "Process" (see image 14). However, in the event that the user wants to change the choice of reporter country, it is recommended to start all over by clicking on the "Clear all" button.

Image 14
MAGIC: selecting unit values in the trade profiles by bilateral trade submodule

Source: New MAGIC [online] www.cepal.org/magic.

Once the search terms have been processed, MAGIC displays the bilateral trade report in the lower half of the parameters section. This report is divided into three parts. The first one (highlighted with a green border in image 15) shows the total value of the reporter country's imports, exports and trade balance with the trading partner for the selected years. The bar graphs below (highlighted with an orange border in image 15) provide a graphic look corresponding to the above trade amounts. These graphs can be downloaded with a right-click of the mouse by selecting save or copy on the image. In addition, the MS-Excel icons (highlighted by yellow circles in image 15) just above the box showing total trade flow values, allow the user to download the data as it appears in each of the sections comprising this part of the report.

Image 15
MAGIC: first part of the report in the trade profiles by bilateral trade submodule

COSTA RICA: TRADE IN GOODS WITH NORWAY (IN DOLLARS)

Year	Imports
1994	3,249,604.00
2010	8,238,788.86
2019	11,379,430.44

Year	Exports
1994	4,247,742.00
2010	226,478.26
2019	21,171,549.11

Year	Trade balance
1994	998,138.00
2010	-8,012,310.60
2019	9,792,118.67
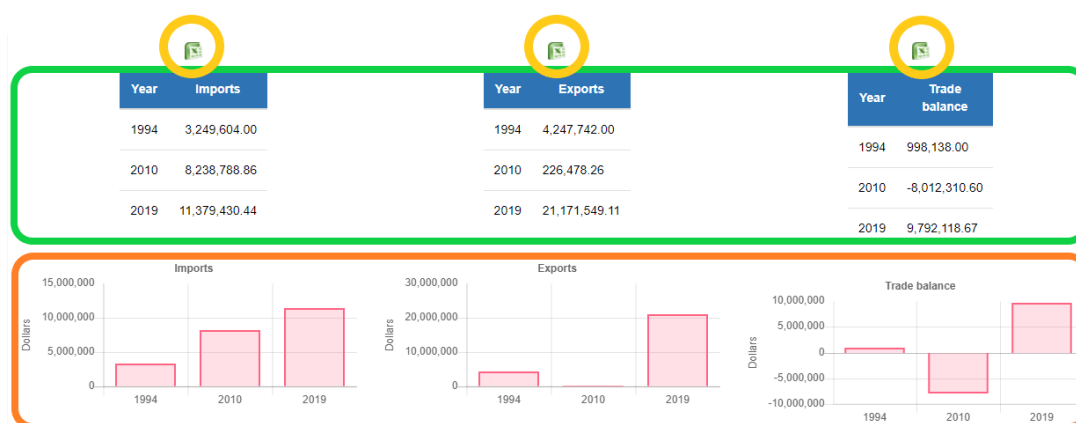
Source: New MAGIC [online] www.cepal.org/magic.

In this example, the tables show how the value of Costa Rican imports from Norway has risen in each of the three selected years ranging from more than 3 million dollars in 1994 to over 11 million in 2019. This evolution is confirmed in the graphics that appear at the bottom of image 15. Of particular note is the reduction of Costa Rican exports to Norway, as shown for 2010 in the and the graph. That decrease appears again both in the trade balance table and graph. As the image shows, Costa Rica achieved a trade surplus (selling more than it acquired) with Norway in 1994 and 2019, but recorded a trade deficit exceeding 8 million dollars in 2010.

The second part of the "bilateral trade profile" shows the trading partner's share of the reporter country's imports and exports (see image 16), referred to as the country share in MAGIC terminology. This indicator shows the percentage of the total value of exports or imports of a partner in the global value of the imports or exports of the chosen reporter market in a specific year. It is also referred to as market share in some ECLAC texts.

Image 16
MAGIC: a second part of the report in the trade profiles by bilateral trade submodule

Year	Share of total imports
1994	0.10743 %
2010	0.06130 %
2019	0.07114 %

Year	Share in total exports
1994	0.18940 %
2010	0.00244 %
2019	0.18724 %

Source: New MAGIC [online] www.cepal.org/magic.

Image 16 shows that Norway accounted for less than 1% of Costa Rica's global imports in the selected years and that in recent years its share has also declined relative to 1994. It also reports that in 1994 imports from Norway accounted for 0.10% of all of the goods Costa Rica acquired from the rest of the world, a percentage that decreased in 2010. In the case of exports, Norway shows a greater share in Costa Rica's global sales, but it never reached as high as 1% and accounted for only 0.18% of all the goods Costa Rica sold to the world during 2019.

The third part of the report lists the top traded goods between the reporter country and the trading partner (see image 17). The first section lists the top products imported by the reporter country in terms of value and by year with the corresponding pie chart just to the right. The table with top imported products is divided into four columns. The first column lists the products' HS codes at the previously selected aggregation level. The second displays the name of the corresponding good or group of goods. The third shows the product's value in the previously specified unit value. And the fourth and last column shows the product contribution, which is to say each product's percentage share of the value of all imports from the selected partner country.

MAGIC automatically displays the products in the most recent year chosen. However, in the event that several years have been activated, the user has the option of choosing to have a different year appear, in which case MAGIC displays the top-ten product list for the other year along with the corresponding pie chart. The user can also adjust which products to hide or reappear on the chart by clicking on each product's legend. When the product is deselected, a strike-through line appears on the corresponding product code, as shown in the case of product 03 in image 17.

The top products exported by the reporter country to the chosen trading partner appear in a second section (see image 18). This part has the same characteristics described for the imports section. The only difference is the sense of product contribution, which in this case refers to the percentage each product represents as a share of the total value of all goods exported to the selected trade partner.

Image 17
MAGIC: Imports in the third part of the report in the trade profiles by bilateral trade submodule

Top imported products in: 2019

HS Code	Product description	Value	Product Contribution
31	Fertilizers	7,733,195.05	67.95800 %
30	Pharmaceutical products	1,134,527.28	9.97000 %
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instrum	974,595.10	8.56500 %
03	Fish and crustaceans, molluscs and other aquatic invertebrates	690,738.27	6.07000 %
84	Nuclear reactors, boilers, machinery and mechanical appliances	360,800.10	3.17100 %
23	Residues and waste from the food industries	114,274.65	1.00400 %
85	Electrical machinery and equipment and parts thereof	107,106.57	0.94100 %
48	Paper and paperboard	58,255.02	0.51200 %
22	Beverages, spirits and vinegar	44,016.47	0.38700 %
73	Articles of iron or steel	42,989.70	0.37800 %
0	Other Products	118,932.23	1.04400 %

Top suppliers

31 30 90 03 84 23 85 48 22 73 0

Source: New MAGIC [online] www.cepal.org/magic.

Image 18
MAGIC: exports in the third part of the report in the trade profiles by bilateral trade submodule

Top exported products in: 1994

HS Code	Product description	Value	Product Contribution
09	Coffee, tea, maté and spices	4,149,180.00	97.68000 %
06	Live trees and other plants	61,704.00	1.45300 %
27	Mineral fuels, mineral oils and products of their distillation	16,398.00	0.38600 %
08	Edible fruit and nuts	16,280.00	0.38300 %
65	Headgear and parts thereof	4,180.00	0.09800 %
0	Other Products	0.00	0.00000 %

Top buyers

09 06 27 08 65 0
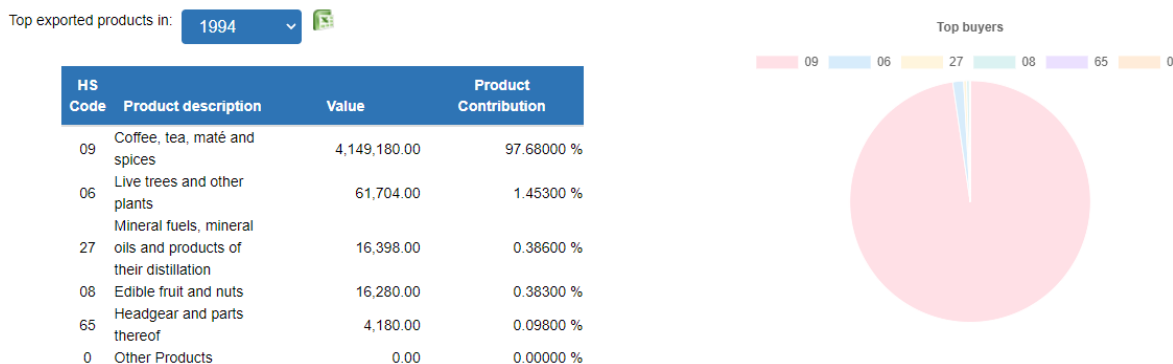
Source: New MAGIC [online] www.cepal.org/magic.

Costa Rica's top import product from Norway was fertilizers, at the charter level. The product contribution of this product was 67.9% in 2019, which is to say that in 2019 67.9% of all the products that Costa Rica imported from Norway were fertilizers. Other top products Costa Rica has imported from Norway include pharmaceutical products with a contribution ranging between 5% and 10% in 1994, 2010 and 2019.

Costa Rica's exports to Norway show a greater degree of product diversification across the selected years. In 1994 Costa Rica only exported products from five chapters, but by 2010 the country had diversified its product offering to more than 10 Chapters. However, over

time there has been a greater concentration in the chapter of edible fruits and nuts, even with that degree of diversification. That chapter had a mere 0.38% product concentration in 1994 and in 2019 represented 85% of Costa Rica's exports to Norway. The charts for 1994 and 2019 confirm that concentration both in exports and imports.

2.   Trade profile by product submodule

Please select a module

TRADE PROFILES   COMPETITIVENESS ANALYSIS   TRADE CHARGES

Bilateral

Product   DE PARTNERS, 2020
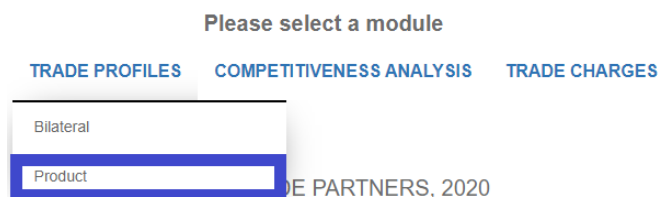
The trade profile by product offers the trade information of a reporter country with regard to a product or group of products. This submodule makes it possible to discover the importance of a product in the reporter country's exports and imports and identify its top export markets and suppliers during the selected years. In order to access this submodule, it is necessary to go to "Trade profiles" in the upper right-hand of MAGIC and click on the "Product" option. Once the submodule has been selected, MAGIC displays a new window with the parameter selection for that consultation (see image 19).

Image 19
MAGIC: parameter selection in the trade profile by product submodule

PROFILE BY PRODUCT

1 * Reporter country
SELECT

2 * Select an option:
○ By product   ○ By product group   ○ By product search

3 * Year(s)
Unselect all

4 Unit:
Dollars

Process   Clear all
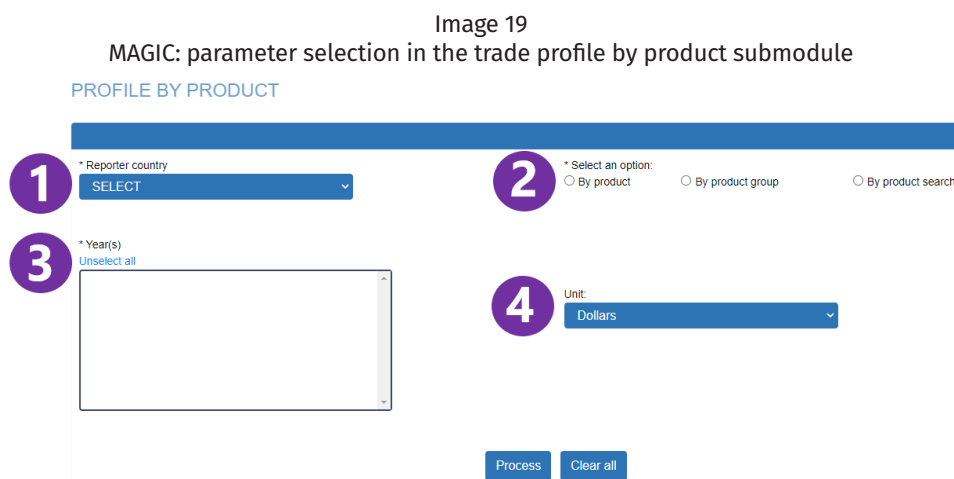
Source: New MAGIC [online] www.cepal.org/magic.

Those parameters, numbered 1 to 4 in image 19, are as follows:

1.   To generate a search, it is recommended to start by selecting the reporter country for which the user wishes to see information on trade in goods. As in the previous submodule, the tab located in the upper left-hand of the bilateral trade window contains all the countries for which information about international goods trade is available in MAGIC. Clicking that tab displays all available reporter countries and groups of countries (Central America and European Union). For this example, Spain has been chosen, as it appears in the reporter country tab (see image 20).

2. The next step is to choose the product either individually or as a group of products. At this point, the program offers three options. The first is to select "Product," and MAGIC automatically shows the list of 2, 4, 6 and 10-digit HS system product code levels from which to choose. However, it is important to remember that the 10-digit option is only available when the United States has been chosen as the reporter country. In this example, the 6-digit option was selected, thereby prompting MAGIC to display three product levels to choose from.

In the example, the objective is to obtain information on Spain and its trade in tomatoes so the first step is to choose Chapter 07, corresponding to "Edible vegetables and certain roots and tubers." Once that selection is made, MAGIC displays in product level "4" all the corresponding Chapter 07 products. At that level, product 0702 is selected, corresponding to "Tomatoes, fresh or chilled." Once that product is chosen, the program shows in product level "6" all the products corresponding to 0702. Lastly, product sublevel 070200 is chosen, corresponding to "Tomatoes, fresh or refrigerated," for which the desired information is shown (see image 20).

Image 20
MAGIC: choice of reporter country and product in the trade profiles by product submodule

Source: New MAGIC [online] www.cepal.org/magic.

A second way to select the product is to search for it directly by its HS product code or a keyword under the search by product option. In this case, the program shows a blue product search link ("Search a product") on which the user should right-click in order that MAGIC opens a pop-up window. If the window fails to appear, it is necessary to verify the upper browser bar to grant permission for pop-up windows to appear. Once the "Search by keyword or product code" window is open, MAGIC allows the user to choose between searching for the product by name, in this instance the keyword, or by its HS product code. To select either option, it is necessary to activate the circle that appears in front of the preferred alternative (see image 21).

Image 21
MAGIC: Search by product window in the trade profiles by product submodule
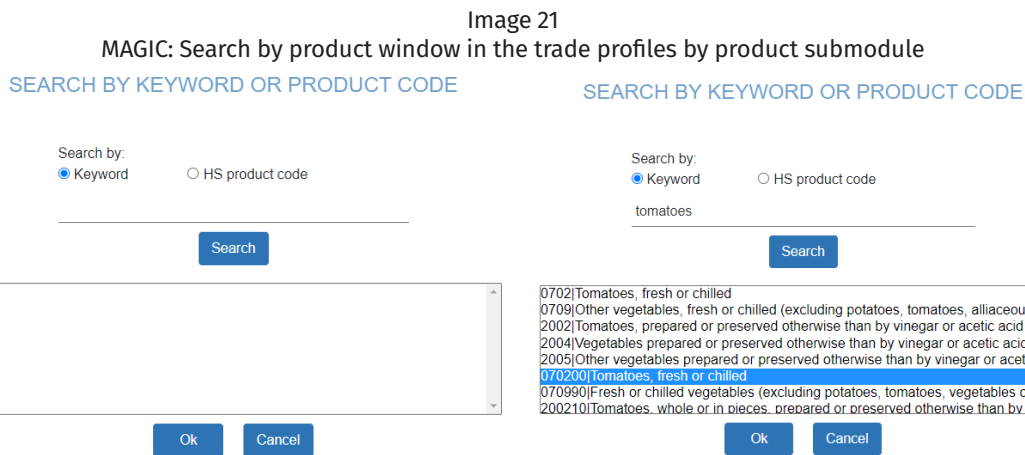
Source: New MAGIC [online] www.cepal.org/magic.

In this example, in which the keyword option was chosen, the word "tomato" was written in and the "Search" button clicked, allowing MAGIC to display all the customs lines on which the word tomato appears. Scrolling down the cursor, the choice of line 070200, Tomatoes, fresh or chilled, was identified and chosen. Once the product is highlighted with a blue bar, it is necessary to click on the OK button at the bottom of the pop-up window. Then, later on, the screen that appears in image 22, in which the chosen product level and product appear together on the same line. Alternatively, if the user knows the customs code, they can choose the option of searching by the HS product code, which would be 070200 in this instance.

Image 22
MAGIC: choice of reporter country and product in the trade profiles by product submodule
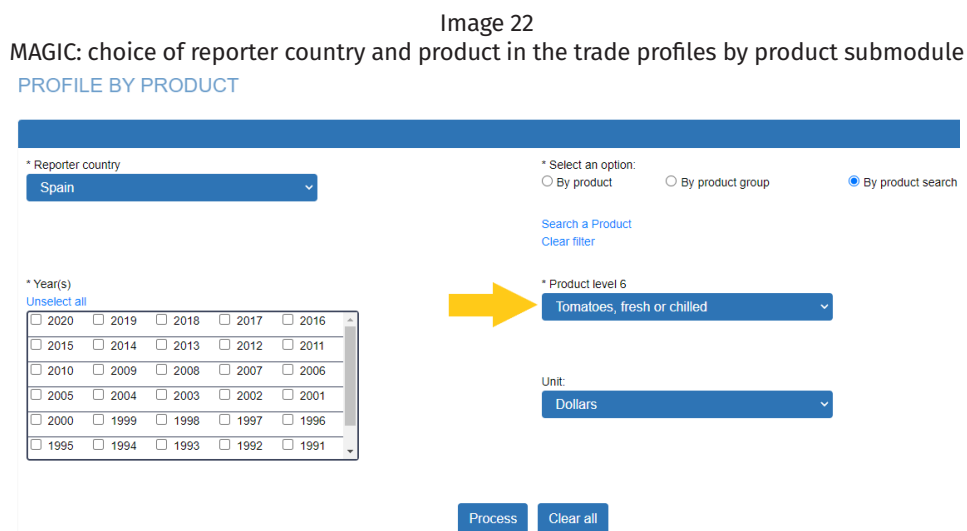
Source: New MAGIC [online] www.cepal.org/magic.

A third option is to select a group of products available in MAGIC. This option can be activated by clicking on the circle that appears before the phrase "By product group." Once it is activated, a list of available groups to choose from appears. To select one, it is only necessary to click on the group's name and it will appear on a blue background. If a product group is chosen instead, MAGIC displays the trade information for the entire group rather than by each one of the products that it include.

3. Once the product has been selected, the user should choose the years for which they wish to obtain additional information about the product. The *Year(s) box displays the years for which data is available, by reporter country or group. In the case of Spain, MAGIC provides the option of selecting one or more years since 1989 and until the latest available year. In this example, the choice was made from 2015 to 2019 to learn how trade in tomatoes has evolved in Spain (see image 23).

Image 23
MAGIC: year selection in the trade profiles by product submodule

Source: New MAGIC [online] www.cepal.org/magic.

4. Another option that MAGIC offers is to select the unit of measurement for trade values. The possibilities are in dollars, thousands of dollars, or millions of dollars. It is important to note that all the trade value data in MAGIC are reported in current US dollars. In this example, the option of thousands of dollars has been chosen.

5. Lastly, it is necessary to click on the "Process" button in order to conduct the search. In case that the user wishes to adjust or add a parameter other than the reporter country, it is only necessary to follow such adjustments with another click on "Process." However, in the event that the user wants to change reporter country, it is recommended to erase the entire selection by clicking on the "Clear all" button.

Once the consultation has been processed, MAGIC shows the trade profile report by product in the lower portion of the parameters section. This report is similar to that of trade profile by bilateral trade and is also divided into three parts. First, MAGIC shows in the upper portion the total value for the chosen years of imports, exports and trade balance of the reporter country for the selected product (surrounded by a green frame in image 24). Then, MAGIC displays bar graphs corresponding to each trade flow to see, at a glance, how the trade of the product has evolved (surrounded by an orange frame in image 24). These graphs can be downloaded with a right-click of the mouse and selecting the option to save or copy. The flow tables are also downloadable by clicking on the MS-Excel icons (circled in yellow in image 24).

Image 24
MAGIC: first part of the report in the trade profiles by product submodule

SPAIN: TRADE IN TOMATOES, FRESH OR CHILLED IN 2019,2018,2017,2016,2015
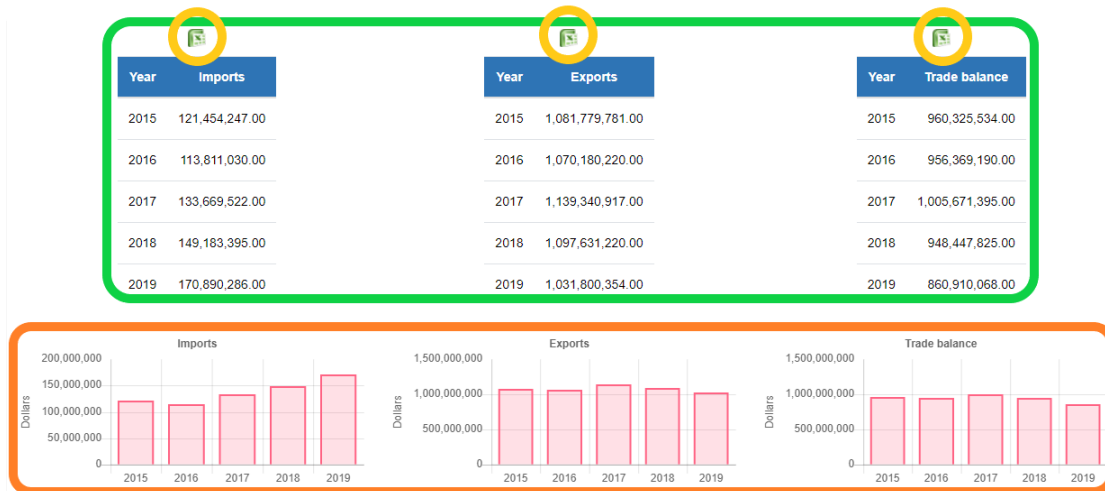
Source: New MAGIC [online] www.cepal.org/magic.

The data in image 24 show that Spain is a net exporter of tomatoes. In 2019, Spain's exports (1,031 million dollars) were six times greater than its tomato imports (170,000 dollars). As a result, Spain ran a tomato trade surplus in every year. As the corresponding graph shows, the trade surplus has been sustained at around 1,000 million dollars.

The second part of the "trade profiles by product" report shows what percentage of the reporter country's imports and exports the product accounts for (see image 25). In MAGIC terminology, this is the product share: the value of a given product as a percentage of the reporter country's total global value of exports or imports each year.

Image 25
MAGIC: second part of the report in the trade profiles by product submodule

Source: New MAGIC [online] www.cepal.org/magic.

Image 25 shows that Spain's imports of fresh or refrigerated tomatoes accounted for around 0.04% of the country's total global imports, while its tomato exports constituted more than 0.30% of all the products Spain shipped to the world. However, tomato exports have been declining its product share in Spain's global total exports, as shown in the graph on the right side of image 25. While tomatoes accounted for 0.39% in 2015, by 2019, they had fallen almost nine-tenths of a percentage point to 0.31%.

The third part of the report shows the country's main trading partners. A table lists the top suppliers of the selected product to the reporter country by year, with an accompanying pie chart located just to its right (see image 26). The table of top suppliers is divided into four columns. The first shows the ISO code of the exporting country, used to identify the trading partners in the corresponding pie chart. The second column shows the name of the trading partner. The third column lists the value imported from each partner country in the chosen unit value. Lastly, the fourth column shows each country's market share of the importing country's overall purchases for the selected product.

Image 26
MAGIC: third part of the report, main suppliers in the trade profiles by product submodule
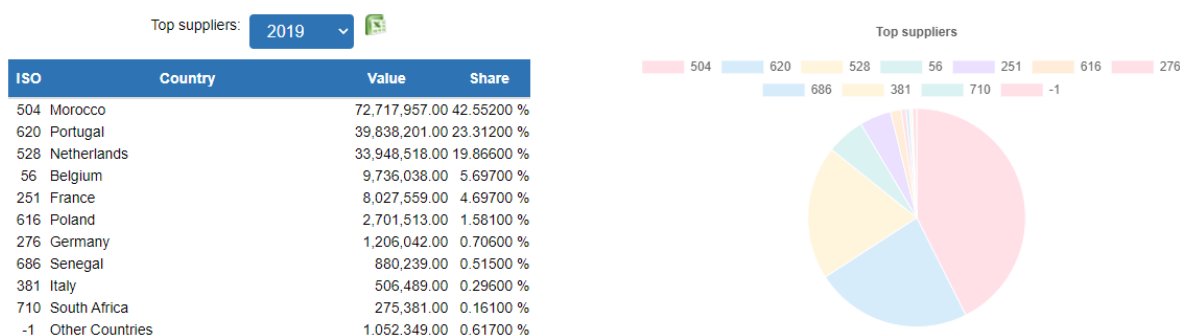
Source: New MAGIC [online] www.cepal.org/magic.

MAGIC automatically shows the top suppliers in the latest selected year. However, in case several years have been selected, the user can choose another year for MAGIC to display automatically. If such a change is made, the data in the graph also changes. The user can also select which suppliers appear or disappear in the chart by clicking on the ISO number of each partner country. When the country is deselected, a strike-through of the country product code appears as shown in image 26 in the "Other countries" icon (-1).

Below the table of top suppliers is one listing the leading countries that import the reporter country's products. This table has the same characteristics as that of the country's suppliers except that the market share, in this case, refers to the percentage each importing country accounted for in all the reporter country's exports of the product in question in a specific year.

Image 27
MAGIC: third part of the report, top export markets in the trade profiles by product submodule
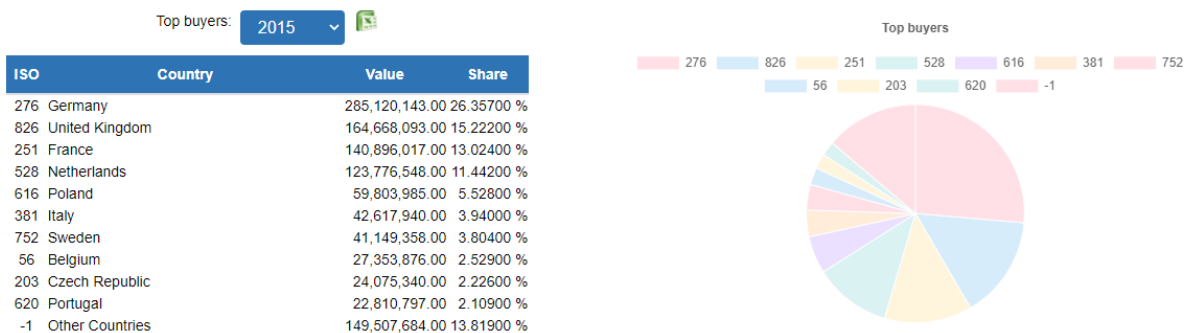
Source: New MAGIC [online] www.cepal.org/magic.

In the example of Spain's trade in fresh or refrigerated tomatoes, Morocco appears as Spain's leading supplier of tomatoes. In 2019, 42% of all of Spain's tomato imports came from Morocco. In the process, Morocco displaced Portugal, which in 2015 had been the reporter country's main source, accounting for almost 28% of Spain's total tomato imports.

Germany has remained the principal buyer of Spanish tomatoes. Between 2015 and 2019, Spain sent around 30% of all of its export tomatoes to Germany. Other European Union countries are also among Spain's main export markets, especially the United Kingdom, France and the Netherlands. These four European countries account for more than 50% of Spain's export tomatoes, as indicated in the pie chart located on the right side of image 27.

B. Competitiveness analysis module

The second module of the new MAGIC corresponds to competitiveness analysis. It provides three types of reports or submodules: by country, product and indicator. The competitiveness analysis module displays those three options, as shown in image 28.

Image 28
MAGIC: three competitiveness analysis submodules
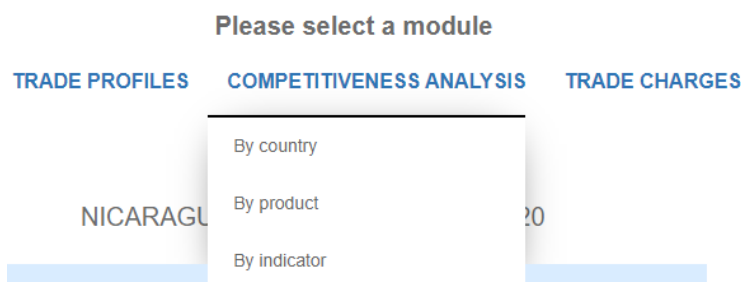
Source: New MAGIC [online] www.cepal.org/magic.

1.   Competitiveness analysis by country submodule

MAGIC's competitiveness analysis by country measures all the products traded by a reporter country with a specified trading partner in two different years. In order to generate this type of report, it is necessary to begin by choosing the competitiveness analysis module and clicking on the "Country" option. Once the country submodule has been selected, the system displays the screen that appears in image 29.

Image 29
MAGIC: parameter selection in the competitiveness analysis by country submodule

Source: New MAGIC [online] www.cepal.org/magic.

There are five parameters in this consultation that should be selected before clicking on "Process."

1.   It is necessary first to select the reporter country about which to conduct an ex-post competitiveness analysis. Just as in the trade profile module, the tab located in the upper left hand of the competitiveness analysis window contains all the countries for which MAGIC provides information on international goods trade. Upon clicking on that tab, the program displays all the available reporter countries and groups of countries (Central America and European Union). Central America has been chosen as the reporter country for this example, an option that provides the combined trade results of the six member countries of the Central American Common Market (CACM): Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.

2.   It is recommended that the user then choose the trading partner for which they want to conduct a competitiveness analysis of the reporter country. The trading partner can be either a country or group of countries. In this case, the *Group of countries field has been chosen, prompting MAGIC to display a tab with the list of groups available to choose from. It is possible to search for a group of countries by dragging the cursor or scrolling down the scrollbar to the left of the list. Another way to quickly locate a group of countries of interest is by writing in the first word of the group's name. Another option is to write the first letter of the group (that would be "c" in the case of CACM, for example), and it displays immediately any group of countries that starts with that letter; this approach also works in the case of individual countries. It is important to take into account that if a group of countries is chosen, MAGIC reports the combined trade numbers for the group but not for any of the countries separately.

For this example, the aforementioned CACM group of the six Central American countries has been chosen (see image 30) to analyse inter-regional trade among those countries.

Image 30
MAGIC: choosing a group of countries in the competitiveness analysis by country submodule

Source: New MAGIC [online] www.cepal.org/magic.

3. The third recommendable step is to select the trade flow to be analysed. Whether that be an analysis of exports from a reporter country to a trading partner or the goods a reporter country imports from a trading partner. While export flows are the preselected MAGIC option, in this example, import flow has been chosen by clicking on the circle just before the word "imports," as shown in image 31.

4. Once the trade flow has been chosen, the next step should be to select the duty aggregation level at which the user wishes to analyse the imports or exports of the reporter country. MAGIC uses the 2-digit aggregation level as its default setting, but the user can select instead a 4, 6, or 10-digit option by clicking on the circle in front of one of those disaggregation options. It is important to take into account that the HS 10-digit choice is only possible when the United States is chosen as the reporter country. In this example, the 4-digit aggregation level has been selected to analyse by the heading level (see image 31).

Image 31
MAGIC: choice of product aggregation level in the competitiveness analysis by country submodule

Source: New MAGIC [online] www.cepal.org/magic.

5. The fifth step is to select the two years for which the user wishes to compare the corresponding competitiveness indicators. One might say this would constitute the period to be analysed, but by choosing two different years, the data compares information from an initial year, referred to as the base year, against that of a later year, called the final year, without considering data from intervening years. For example, if the user were to select 2000 as the base year and 2010 as the final year, MAGIC would make trade comparisons exclusively between those two years without reference to how trade evolved during the intervening years.

    Considering that one year may be atypical due to specific national or international events, the new MAGIC offers the possibility of requesting competitiveness analyses using an average. With this option, MAGIC smooths the fluctuations yearly by averaging the base and final years with its previous and its posterior year, respectively. For example, when using this option, if 2000 is chosen as the base year, MAGIC averages the data from 1999 to 2001 and reports it as the value for 2000.

    In this example, an annual report has been chosen with 2000 as the base year and 2010 as the final year. Therefore, the "Annual" option has been activated, as seen in Images 29 to 32. If the user requires the report to provide an average, it would be necessary to activate the button that precedes the phrase "Average (3 years)." It is essential to keep in mind that the base year must predate the final year.

6. Lastly, the user can select the unit value in which results are to be reported. MAGIC's preselected unit value is dollars, but it is possible to opt for thousand dollars or million dollars. There was no need to change the dollar on this occasion, so it is now possible to click on the "Process" button to obtain the report results.

Image 32
MAGIC: choice of base and final year in the competitiveness analysis by country submodule

Source: New MAGIC [online] www.cepal.org/magic.

Once processed, MAGIC displays the competitiveness analysis report by country. This report consists of three sections: i) the buttons for selecting the choice of indicators and the indicator of country share (highlighted with a yellow border in image 33); ii) the report table of indicators by product, including its "Rows per page" selector (green border), and iii) the additional information resources and options for downloading data (pink border).

Image 33
MAGIC: competitiveness analysis report by country submodule

Source: New MAGIC [online] www.cepal.org/magic.

The first section corresponds to the indicators. The first of these appears just below the report heading as "country share." This indicator is reported separately because it refers to the partner country's total trade with the reporter country. Therefore, it does not change with each listed product. In this case, the 16.2% country share in the base year signifies that in 2000 Central America acquired from CACM 16% of all its goods imports. This percentage decreased to 13.6% in 2010 (the final year).

The rest of the indicators are listed under the indicator tab beginning with Value, followed by Product contribution, Market share, Specialization, Volume, Volume share, Unit value, Relative unit value and Unit of volume, as shown in the left-hand column in image 34. This list of indicators is available for the Central American countries, Mexico and the European Union countries. In addition to the aforementioned indicator options, a search for the United States also includes information on Actual duty and Duty rate, as seen on the right side of image 34.

Image 34
MAGIC: indicators available in the competitiveness analysis by country submodule
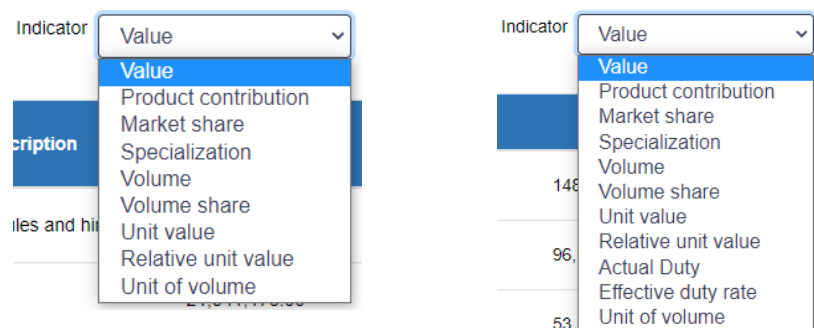
Source: New MAGIC [online] www.cepal.org/magic.

The report's second section includes the report table, which shows the values of each of the indicators selected in the previous tab by product. The table consists of eight columns. The HS codes of all the goods traded for the chosen years between the reporter country and the trading partner appear in the first column from left to right. In this case, they are shown in descending order and at heading level, as specified in the consultation parameters. The second column shows the product description concerning its HS code. In this example, code 0101 corresponds to live horses, asses, mules and hinnies. The third and fourth columns show information for the base year and the final year for each indicator selected by product.

In the example of image 33, the chosen indicator is "Value." Hence, the base year column indicates that in 2000 Central America imported 221,132.42 dollars of product 0101. In 2010, that value increased to 268,960.87 dollars. The fifth and sixth columns contain a link to open a pop-up window and see the product classification and decomposition of change indicators, respectively. In the seventh column, there is also a pop-up window link leading to information regarding the top partners of the reporter country for each one of the listed products. Given that the selected flow was imports, the pop-up window shows Central America's leading suppliers for each product. Lastly, the eighth column shows a graph image to open another pop-up window that displays graphics corresponding to all the listed annual indicators by product.

The first four columns allow one to rearrange the information in descending order or vice versa. The last four columns offer additional information through pop-up windows by clicking on the blue link in the product classification column, clicking on the plus sign (in the decomposition of change and trading partners columns), or by clicking on the graph image. Reviewing the default settings in the browsers is recommended to ensure that the system can display the pop-up windows.

An additional component of this table is the "lines per page" option highlighted in green in image 33. This component allows the user to decide whether to display 10, 20, or 50 rows per page. This element is related to the last part of the report, located just below the spread table. The numbers in the lower part of the table indicate the number of pages available for each consultation. The greater the product disaggregation and fewer the lines per page, the greater the available pages.

The third section of the competitiveness report by country contains links for downloading data, charts with general information and additional information on product classification and decomposition of change. The MS-Excel icon, located beside the row tab, allows the user to download all the requested information in keeping with the chosen indicator. For example, if the user has selected Value, the MS-Excel file downloads information regarding the value of all the products in the base and final years plus the product classification column. In case it is necessary to download information regarding another indicator, the user should first select the desired indicator and then download the MS-Excel file. There is a chart-icon to the right of the MS-Excel icon, which only depicts the total trade value and volume of the reporter country and the trading partner in the selected years. These graphics can be downloaded with a right-click of the mouse to save or copy the image.

The third icon, located to the right of the graph, corresponds to the "Complete product classification report." Clicking on that icon opens a pop-up window with disaggregated information regarding each product's classification that appears as three separate columns. The first shows the product classification, the second its change in market share and the third the shift in product share, with both of these two latter changes being between the base year and the final year. The user can organize the classification table by column, making it possible to identify the most dynamic products or those experiencing the least or most demand in the reporting market. The MS-Excel icon located to the right of the "Rows per page" box allows the user to download all the information contained in the pop-up table.

The fourth icon, located to the right of the product classification report, is the "Complete decomposition of change report." As in product classification, clicking on this icon displays a report containing calculations of all the products' decomposition of change components. In addition, the columns can be ordered to identify the products by specific decomposition analysis components.

Lastly, the "Competitiveness matrix" icon, located to the extreme right of the report's third section, shows the location of all the traded goods in the matrix by their product classification. At the 2-digit level, the matrix lists all traded goods. However, beginning from the 4-digit level, the user can select the chapter of interest and the number of products to be shown. It is possible to download the matrix as an image with a right-click of the mouse and select to either copy or save image.

Image 35 shows the change in value and volume of the intra-Central American imports in the selected years and indicators. In terms of value, its intra-imports grew from 3,581 million dollars to 7,306 million dollars between 2000 and 2010. This same trend was observed in terms of volume. However, the intra-regional import share of Central America declined between 2000 and 2010, from 16.2% to 13.6% between those two years. This change could be explained by a higher increase in the value of imports from other trading partners that diminished the growth of its intra-regional imports in relative terms.

If the value indicator is chosen and the final year column is sorted in descending order, MAGIC showed the top five intraregional import products in 2010. Those products were: medicaments consisting of mixed or unmixed products (3004), articles for the conveyance or packaging of goods, of plastics (3923), bread, pastry, cakes biscuits and other bakers' wares (1905), food preparations (2106) and waters including added sugar or other sweetening matter (2202).

The product contribution indicator has been chosen to determine the relative weight of those products in CACM inter-regional imports. This indicator shows, in image 36, that those five top products accounted for 17.64% of total inter-regional imports in 2010, a more significant percentage than in 2000. That change resulted from the product contribution increases of the top products except for medicines, whose product contribution of inter-regional imports decreased from 9.2% in 2000 to almost 6.7% in 2010.

Image 35
MAGIC: indicators available in the competitiveness analysis by country submodule
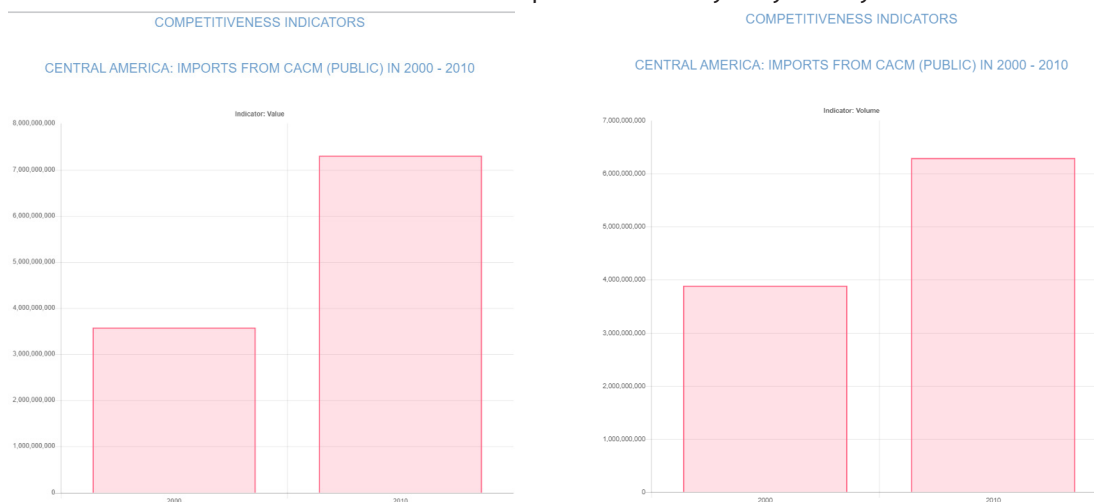
Source: New MAGIC [online] www.cepal.org/magic.

Image 36
MAGIC: indicators available in the competitiveness analysis by country submodule

CENTRAL AMERICA: COMPETITIVENESS ANALYSIS OF IMPORTS FROM CACM (PUBLIC) BETWEEN 2000-2010

Country share   Base year: 16.20240%   Final year: 13.60557%

Indicator   Product contribution   Rows per page   10

HS Code	Product description	Base year indicator	Final year indicator	Product classification	Decomposition of change	Trade partners	
3004	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses "incl. those in the form of transdermal administration" or in forms or packings for retail sale (excluding goods of heading 3002, 3005 or 3006)	9.24117	6.68092	Missed opportunity	⊕	⊕	▮▮
3923	Articles for the conveyance or packaging of goods, of plastics; stoppers, lids, caps and other closures, of plastics	1.47814	3.10131	Rising Star	⊕	⊕	▮▮
1905	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty cachets of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products	1.52106	2.74455	Rising Star	⊕	⊕	▮▮
2106	Food preparations, n.e.s.	2.23440	2.71925	Declining star	⊕	⊕	▮▮
2202	Waters, incl. mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured, and other non-alcoholic beverages (excluding fruit or vegetable juices and milk)	0.72617	2.39832	Rising Star	⊕	⊕	▮▮

Source: New MAGIC [online] www.cepal.org/magic.

Another of the indicators the competitiveness analysis displays is market share. This indicator refers to the percentage each country supplies of a country's total imports of a given product; reviewed in the trade profile by product example. In this exercise, Central America acquired 24% of its imported medicines from the intraregional market and 76% from countries outside the region. Conversely, Central America bought more than 82% of its imported water purchases from CACM and 18% from non-CACM partners. When the

market share is arranged in descending order in 2010, MAGIC shows at the top the product "pigs' hogs' or boars' bristles and hair (0502)," imported exclusively from the intraregional market. The market share of the same product was 15% in 2000. When the list is inverted to ascending order (i.e., from lowest to highest totals), MAGIC shows iron or non-alloy steel (7207) at the top. In 2010 Central America imported only 0.00017% of that product from within the CACM. In 2000, the market share was more significant (0.6%).

The market share indicator is vital in competitiveness analysis. According to this methodology, each country is interested in expanding its share of export destination markets regardless of its export specialization pattern. Such a share increase is related to the country's capacity to compete internationally and, therefore, it measures its export competitiveness. Based on that assumption, MAGIC considers that when a country's market share declines, it means that the exporter is losing competitiveness in the market in question.[1]

To deepen the competitiveness analysis, MAGIC provides other indicators that could explain the competitiveness loss or gains. These indicators are the price of the product (unit value), its value relative to the average world price (relative unit value), the comparison between product contribution and product share in the destination market (specialization), and changes in product demand (product share). MAGIC also includes other indicators like tariff trade barriers (duties collected, effective duties rate, and *Ad Valorem* Equivalent rate) and other trade-related costs (transport cost[2]).

However, the user should keep in mind that ex-post analysis doesn't consider other factors such as foreign exchange policies, trading channel efficiency, financial systems, international accords, or business strategies that might stimulate or depress export growth. Neither does it consider ex-ante factors linked to efficiency and production conditions that could affect export performance.[3] Nor does it regard whether the market share decrease might have resulted from a business or country strategy focusing on other products rather than any erosion of competitiveness.

Product classification is linked to the change in market share experienced between the base year and the final year. For example, total medicines CACM's market share imports diminished from 43.8% to 24% between 2000 and 2010, marked a 19.76 percentage point reduction that entails designating the CACM product in the Central American market as uncompetitive. Conversely, food preparations experienced a positive change in market share, rising from 32.6% to 38.2% in the same period. This change signified a more than 5 percentage point increase, thereby rating the CACM product as competitive. These two examples show that a product can only be classified as competitive or uncompetitive depending on its change in market share (see diagram 2). This difference can also be perceived as the exporting country increasing or decreasing product supply.

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[1] For more information on the methodology employed in MAGIC, consult Hernández and Romero, *Module for the analysis of growth in international commerce (MAGIC Plus): user guide (updated)* (LC/L.3633), Canadian International Development Agency/Economic Commission for Latin America and the Caribbean (ECLAC), October, 2009.

[2] The *ad valorem* equivalent rate and other trade-related costs indicators can be found in the new MAGIC's trade charges module.

[3] V. Madeiros, L. Gonçalves Godoi and E. Camargos Teixeira, "La competitividad y sus factores determinantes: un análisis sistémico para los países en desarrollo," *Revista de la CEPAL*, N° 129, Santiago, December, 2019.

Diagram 2
Product classification: change in market share

Uncompetitive		Competitive
Market share decrease		Market share increase

Source: Prepared by the author.

The second product classification component is the change in product share. This indicator is the percentage of the value of global imports of a product (such as medicines or baked goods) as a share of the value of total global imports by the chosen market (like Central America). Unfortunately, it is not possible to view the product share indicator in this module. However, with information from the submodule of competitiveness by product, it is possible to see that the product share of medicines in Central American imports increased from 1.13% to 1.26% between 2000 and 2010. That was a change of 0.13 percentage points through the analysed period. Conversely, the product share of food preparations imports in Central America's total imports decreased from 0.37% to 0.32%, slipping at least 0.05 percentage points.

When the share of a product increases, it is regarded in MAGIC terms as a dynamic sector. When it decreases, it is classified as a stagnant sector. The examples on medicines and food preparations show that a product (or sector) can only be classified as dynamic or stagnant depending on the change of its product share (see diagram 3). In terms of demand, the dynamic sector would be a product for which demand increases in the market under study (such as medicines). The opposite would be a stagnant sector with declining demand in the market (such as food preparations).

Diagram 3
Product classification: change in the product share

Stagnant		Dynamic
Product share decrease		Product share increase

Source: Prepared by the author.

Combining both changes makes it possible to build a competitiveness matrix (see diagram 4) that classifies a product into four categories, depending on changes in their market and product shares in the two chosen years. If a product increased its market share between the base year and the final year, it would appear in the competitive sector, on the right side of the competitiveness matrix, whether as a rising star or declining star. This is the case of bakers' wares and food preparations in CACM inter-regional imports. Conversely, if a product's market share decreased between both years, it would appear in the uncompetitive sector on the left side of the matrix, whether as a missed opportunity or retreat. This is the case of medicines or toilet paper (4818).

Diagram 4
Product classification: competitiveness matrix

Source: Prepared by the author.
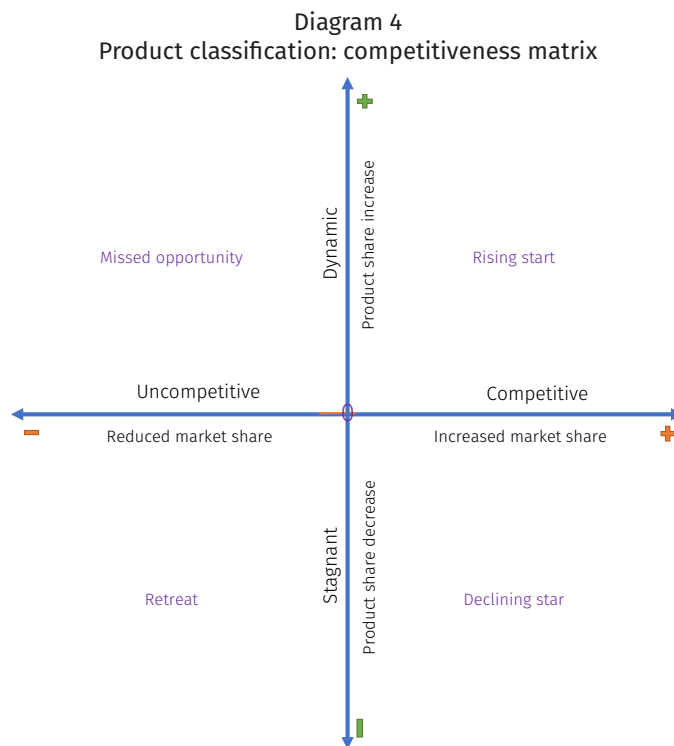
The final product location or rating depends on the change in each product's share. If the share increased in the period studied, the product would be found in the upper portion of the matrix in the dynamic sector, whether it be a rising star or missed opportunity. This is the case of baker's wares or medicines. If, on the contrary, the product share declined between the base year and final year, the product would appear in the bottom half of the matrix as a stagnant sector, whether as a retreat or declining star. This is the case with toilet paper and food preparations.

Each product share classification in the new MAGIC appears in column five of the "Product classification" report table. In this example, image 37 shows that medicines have been classified as a missed opportunity, bakers' wares a rising star, food preparations a declining star and toilet paper a retreat. A click on these classifications, which appear in blue letters, prompts MAGIC to open a window with information for each product showing changes in each share. Image 37 provides an example of this window for food preparations that are shown as having a positive market share (right side of the matrix), and a negative product share (lower part of the matrix), thus classifying the product as a declining star: a competitive product in a stagnant sector.

Image 37
MAGIC: classification by product window in the competitiveness analysis by country submodule

PRODUCT SHARE

COMPETITIVENESS INDICATORS FOR THE PRODUCT FOOD PREPARATIONS, N.E.S.
(2106)

CENTRAL AMERICA: IMPORTS FROM CACM (PUBLIC) IN 2000 - 2010

Rows per page 10 ∨

HS Code	Product description	Typology	Market share change	Product share change
2106	Food preparations, n.e.s.	Declining star	5.59	-0.14

Source: New MAGIC [online] www.cepal.org/magic.

Changes in the share of each of the four products in inter-regional trade appear by way of example in table 1. This table shows the four possible product classifications that could result according to the increase or decrease in product demand in the market (product share) and the increase or decrease in market supply (market share) in response to change in demand. New MAGIC's decomposition of change and annual indicators help to explain the reasons for each product's classification. It is important to note that this reading works predominantly in import flows, while its interpretation could prove different in exports flows.

Table 1
Central America: product classification of selected products in imports from CACM, 2000 and 2010

Product code and description	Classification	Change in market share	Change in product share
1905 – Bakers' wares	Rising star	9.39 (+)	0.12 (+)
2106 – Food preparations	Declining star	5.59 (+)	-0.14 (-)
3004 – Medicines consisting of mixed or unmixed products	Lost opportunity	-19.76 (-)	0.36 (+)
4418 – Toilet paper	Retreat	-4.59 (-)	-0.06 (-)

Source: Prepared by the author, on the basis of new MAGIC information.

Other product classification tools included in the new MAGIC that help to analyse the partner country's competitiveness in the reporter country's market are the global competitiveness matrix and global classification report, which are located above the report table. For example, image 38 shows Central America's competitiveness matrix for the 100 top products imported from CACM, which in 2010 accounted for 73.6% of total inter-regional imports. The matrix initially shows that the share of goods traded within the region varied

little between 2000 and 2010, with most changes being less than 0.2 percentage points. Thereby, the matrix reflects a minimum change in the basket of products Central America demands. Conversely, market share changes have exceeded 80 percentage points in some cases, implying a CACM adjustment as a supplier of traded goods. In addition, the greater concentration of the top 100 products is depicted on the left side of the matrix, which implies a loss of competitiveness on CACM's part as a goods supplier. However, products like pigs, yerba mate and edible fish (identified by dragging the mouse over the circles) show an increase in their market share in the Central American market by more than 40 percentage points.

Image 38
MAGIC: competitiveness matrix in the competitiveness analysis by country submodule
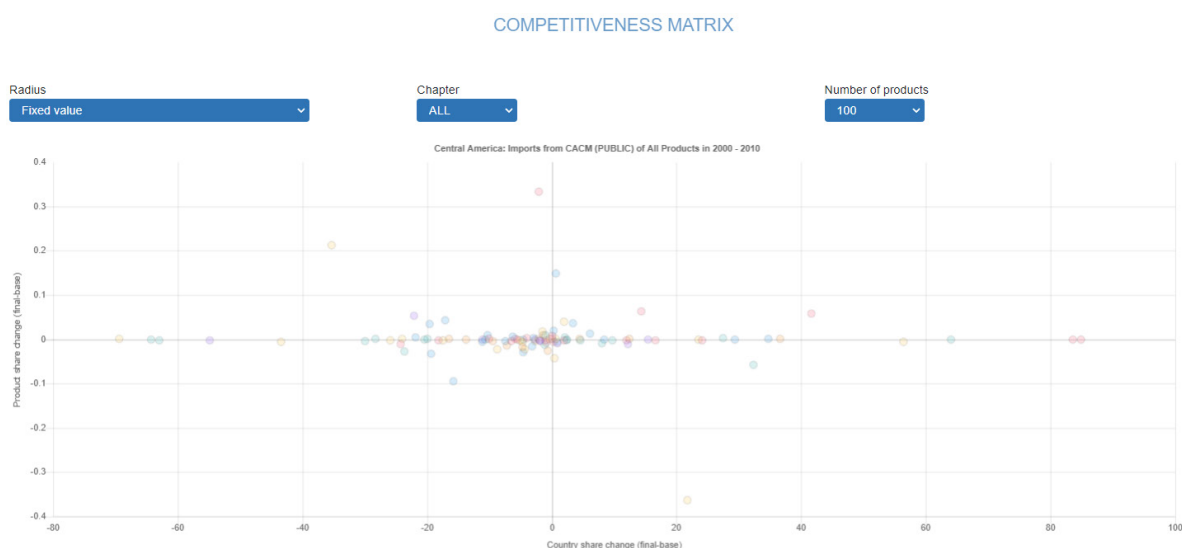
Source: New MAGIC [online] www.cepal.org/magic.

The general product classification report, located in the upper portion of the table, helps determine which products experienced the most pronounced change in product share (increased or lessened demand) or market share (improved or decreased competitiveness). By opting to display the product share change column in descending order, for example, fuel oils of petroleum appear as the product for which demand increased the most (7.81 percentage points) in the Central American market between 2000 and 2010, even as the Central American countries lost market share (6.11 percentage points), which would denote a missed opportunity. On the other hand, this same exercise, arranged by the market share column, identifies pigs' hogs' or boars' bristles and hair as the product for which the Central American countries gained more market share than other competitors, going so far as to satisfy all demand for the product in the Central American region.

Other MAGIC tools like the decomposition of change and other annual indicators (specialization, volume, volume share, unit value and relative unit value) that complement the product classification analysis are explained in sections III.B.2 and III.B.3, respectively.

2. Competitiveness analysis by product submodule

Competitiveness analysis by product allows for a comparison across two years of supplier performance or destination markets in relation to the import or export of a specific product or group of products. To choose this type of report, it is necessary to select from the "competitiveness analysis" module the "product" option. Once the product submodule has been selected, the system displays the screen that appears in image 39.

Image 39
MAGIC: parameter selection in the competitiveness analysis by product submodule

Source: New MAGIC [online] www.cepal.org/magic.

In this case, four parameters should be chosen before clicking on the process button.

1. The first step is to select the reporter country for which the ex-post competitiveness analysis is to be conducted. Just as in the previous modules and submodules, the tab in the upper left-hand of the competitiveness analysis window contains all the countries for which international goods trade information is available in MAGIC. Clicking on that tab causes the program to display all the available countries and groups of reporter countries (Central America and European Union). For this example, the United States has been chosen as the reporter country.

2. Once the reporter country has been selected, the next step is to choose the product or group of products for which information is needed. As in the "trade

profile by product" module, the program offers three selection approaches that involve searching by: (i) a single product using its HS code and aggregation level; (ii) a keyword or the product's HS code, or iii) a pre-established group of products whether one readily available in MAGIC or one created by the user.

For this example, the product "clinical thermometers" has been chosen by its HS code and aggregation level. The 10-digit HS code option has been chosen to analyse the product at its greatest available detail by clicking on the circle that appears before the number ** 10. Given that this is a national line, its description always appears in English no matter the language chosen by the user in the MAGIC system. Of the four available national lines, line number 9025198040 corresponding to "Clinical thermometers, not combined with other instruments" has been selected. At this point, the product selection appears as shown in image 39.

3. The next advisable step is to select the trade flow to be analysed. Two possibilities are available: the reporter country's exports of a product to its trading partners or the reporter country's imports of the product from all of its supplier countries. For this example, the import flow has been chosen to analyse the performance of thermometer suppliers in the US market by clicking on the circle next to the word "imports," as shown in image 39.

4. The fourth obligatory parameter is to select the two years to be compared. The option is either on a single-year basis or by three-year averages, as observed in the "competitiveness analysis by country" submodule. In this example, 2015 has been chosen as the base year and 2018 as the final year. To reduce the effect of atypical years or errors in trade statistics, the average option has been chosen by clicking on the circle to the left of the phrase "Average (3 years)," as shown in image 39. Once all the required parameters have been chosen, the user must click on the "Process' button to conduct the search and obtain the results that will be displayed below the "Choice of parameters" window.

The "competitiveness by product" report contains almost the same elements described in the "competitiveness by country" report, except that instead of listing the traded goods, it lists the partners with which the reporter country traded the product in question. This example shows the countries from which the United States imported clinical thermometers between 2014 and 2016 (with 2015 as the average base year) and between 2017 and 2019 (with 2018 as the final average year), which means the 2014-2019 period is effectively covered, but as two averages.

In the first section corresponding to the indicators, the principal difference is in the indicator located below the report heading. Instead of reporting country share, as in the competitiveness analysis by country submodule, it reports product share because the search involves a single product. This share corresponds to the percentage of a good –on this occasion thermometers– in the global imports of a reporter country -the United States. In this example, US imports of clinical thermometers accounted for 0.0038% of total goods imports from all of the United States' trading partners, on average, in 2015. This percentage increased in 2018 to close to 0.0047% of its purchases from abroad. The rest of the indicators grouped in the indicator tab are the same as those seen in the competitiveness by country submodule (see image 40).

Image 40
MAGIC: report elements in the competitiveness analysis by product submodule

UNITED STATES OF AMERICA: COMPETITIVENESS ANALYSIS OF IMPORTS OF - CLINICAL THERMOMETERS, NOT... (9025198040), BETWEEN 2015-2018

Country	Base year indicator	Final year indicator	Product classification	Decomposition of change
Germany	148,584.33	462,353.00	Rising Star	⊕
Canada	96,994.67	254,169.33	Rising Star	⊕
China	53,465,482.33	59,012,213.33	Missed opportunity	⊕
Costa Rica	1,062,496.00	2,262,739.00	Rising Star	⊕
Taiwan (Province of China)	2,346,515.00	1,878,278.00	Missed opportunity	⊕
France	11,210.67	8,277.00	Missed opportunity	⊕
Finland	28,221.33	4,482.33	Missed opportunity	⊕
Hong Kong	1,491,171.00	1,052,551.67	Missed opportunity	⊕
India	15,511.67	4,992.00	Missed opportunity	⊕

Source: New MAGIC [online] www.cepal.org/magic.

The second section corresponds to the report table, comprising five columns and a tab to select the number of rows per page. Instead of listing the product, the first column shows the name of the partner country with which the previously selected product was traded. The second and third columns show indicator data for the base and final years. Lastly, the fourth and fifth columns contain links for viewing complementary information on product classification and the decomposition of change report, respectively. The data from the second and third columns and the MS-Excel data download change depending on the indicator selected on the "indicator" tab.

The third section of the report contains links for downloading the data, displaying general information graphics and general product classification and decomposition of change reports. The principal difference with regard to the competitiveness by country submodule is the inclusion of a map providing a geographical view of the trading partners with which the reporter country traded the selected product. For example, if the value indicator is chosen, the map displays the leading suppliers to the reporter country by its traded value in the final year. In image 41, China and Mexico, the top suppliers, are coloured in a deep shade of blue. In contrast, Canada and France, with fewer exports, are coloured in light green. The map only makes this distinction between the highest and lowest value suppliers.

Image 41
MAGIC: map of trading partners in the competitiveness analysis by product submodule
UNITED STATES OF AMERICA: IMPORTS OF - CLINICAL THERMOMETERS, NOT...
(9025198040) BY TRADE PARTNER, 2018 (MARKET SHARE)

TRADE PARTNERS
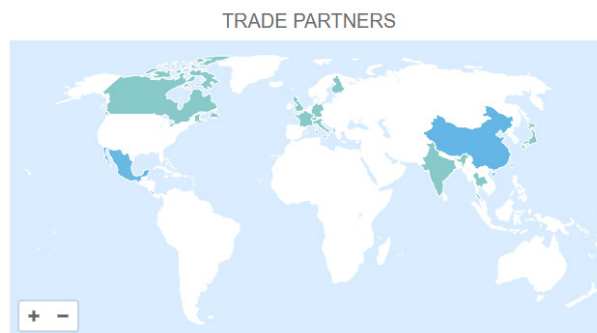
Source: New MAGIC [online] www.cepal.org/magic.

As in the competitiveness by country submodule, the MS-Excel icon authorizes the downloading of data from the table corresponding to the chosen indicator. The graph provides a view of changes in the total value and volume of the traded product. Lastly, the product classification and decomposition of change reports, located on the right side of the map, offer a deeper analysis of competitiveness and compare the suppliers' performance.

The results MAGIC displayed for this request show that the Unites States[4] imported clinical thermometers from 17 different countries between 2015 and 2018. By observing the data by value and in descending order for the final year (2018) China appears as the top supplier. In that year, China sold, on average, 27 million thermometers at a value of 59 million dollars. The other major suppliers, in descending order, were Mexico, Costa Rica, the Taiwan Province of China, and Hong Kong (China).

When the market share indicator is selected, MAGIC shows that the United States' thermometer market has been concentrated in two suppliers, China and Mexico. Both exporters account for more than 94.5% of the US market. The map in image 41 illustrates that dominance. The following five suppliers accounted for 4.5% of thermometers the US acquires from abroad, with the other listed countries shipping the remaining 1%.

The market share table also shows that China's market share has declined by more than 11 percentage points in the period studied, falling from 62.7% in 2015 to 51.3% in 2018. In contrast, as the second leading US supplier of thermometers, Mexico saw its share of

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[4]   In the United States import value report, the term "value" covers the cost of the good but no other trade charges. That means that MAGIC data for the United States are not CIF as they do not extend to insurance and freight costs. For that reason, the United States import values reported in MAGIC do not always coincide with those of other trade databases that more commonly report in CIF terms.

the US market grow by more than 12 percentage points in the same period. The product classification column shows both exporting countries' performance rating. While China appears as a missed opportunity, Mexico is a rising star for that dynamic product in the US market.[5] Mexico's export competitiveness relative to other partners is corroborated in the general product classification report, which shows Mexico as the US thermometer supplier to gain the most market share during the period studied. Conversely, China was the country that lost the most market share in the same period.

To analyse both countries' export performance in greater depth, it is recommendable to use the decomposition of change components of both countries for that product and market. This calculation tool helps to explain the extent to which the dynamism of the market (demand effect), its structure (interaction effect), and the exporter's competitiveness (share effect) influenced the change in the value of imports during a given period. To access this tool, click on the plus sign (+) in the report table's decomposition of change column.

The decomposition of change pop-up window displays 10 columns. The first two offer country data and the other eight are from the decomposition component. The first of these is the change that indicates the increase or decrease in the value of imports of the product between the base year and the final year.[6] For example, China's exports of clinical thermometers to the United States went from 53.5 million dollars in 2015 to 59 million dollars in 2018, with the 5.5 million dollar difference considered the change. Mexico's corresponding change was also positive, but at 23.5 million dollars was four times greater than that of China. MAGIC's decomposition of change analysis is used to determine what part of the change in both countries resulted from a demand or market share effect or the interaction of both.

The demand effect in the decomposition of change window runs from the fourth to the sixth column. The first of these, that of demand effect, shows the change in the value of thermometer imports that would have resulted if each country's market share for the product had remained constant throughout the period, in this instance at 62.7% for China and 30.6% for Mexico. In that event, both suppliers would have only experienced a change from the effect of demand in the US market and not from any increased export competitiveness. In this scenario, MAGIC shows that China's thermometer exports would have increased by more than 18 million (see image 42). In the case of Mexico, that change would have been more than 9 million. This difference shows that the increase in demand for thermometers in the United States had less of an effect on the change in Mexico's exports than on those of China.

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[5]   For a further explanation of market classification, see section III.B.3 and this manual's annex.
[6]   For more information on the formulas employed, see annex 4 of this document.

Image 42
MAGIC: decomposition of change in the competitiveness analysis by product submodule

Code	Country	Change	Total demand effect	Structural effect of demand	Global effect of demand	Total participation effect	Total interaction effect	Structural effect of the interaction	Global effect of the interaction
5700	China	5,546,731.00	18,599,818.73	14,011,307.05	4,588,511.42	-9,684,128.20	-3,368,959.25	-2,537,848.49	-831,110.67

Code	Country	Change	Total demand effect	Structural effect of demand	Global effect of demand	Total participation effect	Total interaction effect	Structural effect of the interaction	Global effect of the interaction
2010	Mexico	23,543,970.00	9,074,279.45	6,835,685.75	2,238,593.59	10,735,110.20	3,734,579.72	2,813,271.64	921,307.98

Source: New MAGIC [online] www.cepal.org/magic.

The effect on demand is divided into two parts: the structural and overall demand effects. The first of these only takes into account the impact of change in product demand, while the second considers the effect of change in overall demand, which is to say demand for all the products imported by the United States. The sum of both effects is the total demand effect. In China, the structural demand effect totalled more than 14 million dollars, while Mexico's was close to 7 million dollars. The global effect result was 4.6 million dollars in China and 2.2 million dollars in Mexico. These results indicate that demand for clinical thermometers (structural effect) was more preponderant in both countries than the increase in US global demand for imports.

A second component of the change is the share effect, reported in the seventh column of the decomposition of change window. This effect shows how much the country's export competitiveness impacted the total change in its exports. The value of the share effect shows the change in the value of imports that would have resulted if the product share —in this case of clinical thermometers— had remained constant at the same base year value (0.0019%), which would imply that no increase in demand occurred. In this case, MAGIC reports that China's thermometer exports would have decreased by 9.7 million dollars and those of Mexico would have increased by 10.7 million dollars.

The last three columns of the decomposition of change window show the interaction effect, which refers to the effect that the interaction between the dynamism of the destination market (demand effect) and the exporter's competitiveness (share effect) had on the change in imports from each supplier country. When the total interaction effect is positive, it signifies the same trajectory in both market dynamism and export competitiveness, with both increasing or decreasing. Both effects trended in the same direction in Mexico's case but showed opposing trends in the case of China (a negative share effect and positive demand effect).

Just as in the demand effect, the interaction effect is divided into two components: the structural interaction effect and the overall interaction effect. The first gauges the interaction between product demand and the country's market share. The second measures the interaction between product demand and global demand with market share. In this example, the results show that the greater change impact came from the interaction between product demand and market share rather than between United States global demand and market share.

Figure 1 depicts the comparison and provides a graphic summary of the decomposition of change in clinical thermometer exports to the United States market from China and Mexico. The bars show the degree of change in the value of exports among both countries between 2015 and 2018. China experienced a 5.5 million dollar change, 59% of which is attributed to the demand effect, 32% to the share effect and 11% to the interaction between both effects. At the same time, structural demand had the most significant impact on the change in demand and interaction effects. Conversely, for Mexico the market share effect explained 46% of the total change in its thermometer exports, demand another 38% and their combined interaction 16%. And just as with China, the effect of structural demand weighed heaviest on both the total demand and interaction effects.

Figure 1
United States: decomposition of change in clinical thermometer imports from China and Mexico, 2015 and 2018 (moving average)
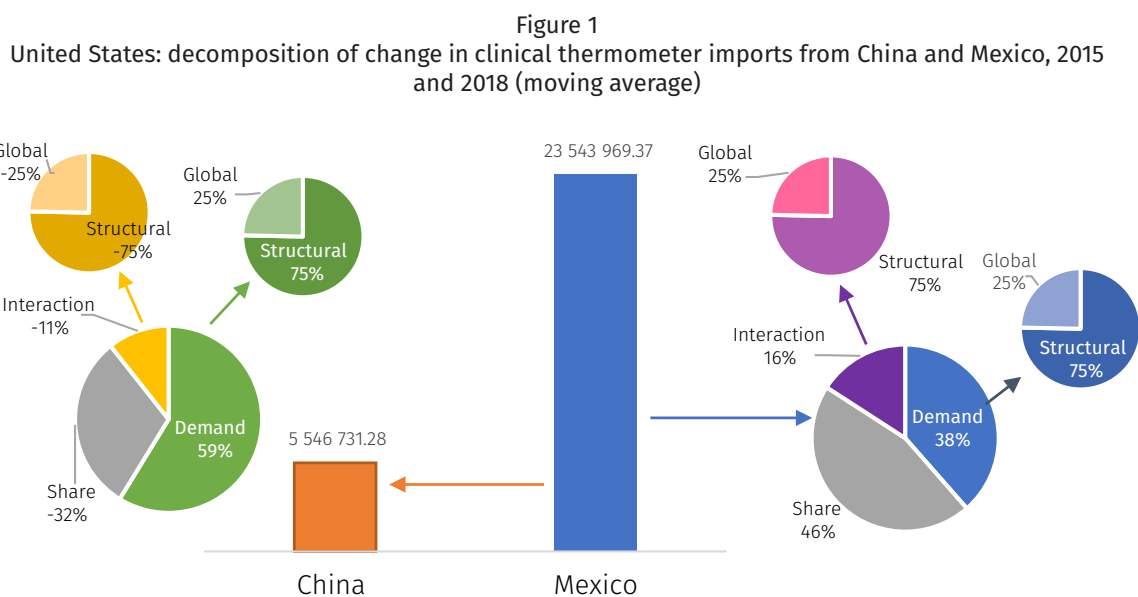
Source: Prepared by the author, on the basis of new MAGIC information.

One of the indicators that can help explain the differences between China and Mexico's export performances in this exercise is the duty collected and the effective duty rate. The first of these refers to the monetary value collected by the US customs system for the import duties applied to the clinical thermometers. For example, US customs collected 2.4 million dollars on China's thermometers in 2018, three times more than in 2015. On the other hand, the duty US customs levied from Mexico declined from 16,514 dollars to 7,803 dollars. Those changes suggest that the product from China is being affected much harder by tariff barriers, giving an edge to Mexican thermometers.

The effective duty rate indicator is helpful to determine in what proportion the products imported to the US market were affected by duties. This indicator shows the duty collected as a share of the value of total imports of the product. When dealing with this ratio, the user should consider that the value of imports entering the United States that MAGIC reports does not include duty payments, so this ratio is only indicative of the importance of duties collected relative to the total product cost. In this example, China's effective duty rate went from 1.7 to 4.1 between the initial and final years and Mexico's from

0.06 to 0.15, respectively. This confirms the different degree to which tariff barriers affected thermometers coming from China compared to Mexican ones with China paying 27 times more in duties than Mexico.

In order to determine the *ad valorem* duty rate applied to clinical thermometer imports from each country, the trade charges module is recommended. For a more thorough explanation of product classification and other annual indicators, it is recommended to consult sections III.B.1 and III.B.3, respectively, of this guide.

3.   Competitiveness analysis by indicator submodule

Competitiveness analysis by indicator shows annual indicators for a single product (or group of products) and a single trading partner (or group of countries) for all available years, allowing the user to observe how indicators have evolved over time. Select the option "By indicator" in the competitiveness analysis module to choose from this type of report. Once this submodule has been selected, the system displays the screen that appears in image 43.

Image 43
MAGIC: parameter selection in the competitiveness analysis by indicator submodule

Source: New MAGIC [online] www.cepal.org/magic.

Five parameters have to be chosen in this search before clicking on the process button.

1.   The first is to select the reporter country. Just as in previous submodules, the user should choose the country for which trade information is needed by using the "reporter country" tab. Mexico has been chosen as the reporter country in this example.

2.   It is recommended that the user then proceed to choose the relevant partner country or group of countries about which international trade in goods with the reporter country is needed. In this example, China has been chosen as the partner

country for Mexico by activating the circle located before the word "Country." Once activated, the user can select the country from the partner list. The chosen country will appear inside the blue box (see image 44).

3. A third obligatory parameter is to select the product or group of products about which information is desired. Just as in the "trade profile by product" and "competitiveness analysis by product" modules, the program offers three selection approaches: (i) searching for a single product using its HS code and aggregation level; (ii) by keyword or the product's HS code, or (iii) by a pre-established group of products by MAGIC or one created by the user.

    In this example, the first method —product code and disaggregation level— has been employed to select copper ores and minerals. To select this method, the user must click on the circle to the left of the word "Product." Then, the 6-digit disaggregation level was chosen and, finally, the 260300 product code for "Ores, slag, and ash." At this point, the window should appear as image 44.

Image 44
MAGIC: select parameters in the competitiveness analysis by indicator submodule

COMPETITIVENESS ANALYSIS INDICATORS

Source: New MAGIC [online] www.cepal.org/magic.

4. The trade flow to be analysed is the fourth parameter to verify. In this example, the user has sought to learn about Mexico's performance as an exporter of copper to China, thereby opting to see export flows by clicking on the circle located before the word "Exports" (see image 44).

5. Lastly, it is necessary to choose the timeframe for the analysis and the type of report needed, whether by year or three-year average. The particularity of this module is that it offers the option to choose more than two years, in contrast to the "competitiveness by country" and "competitiveness by product" submodules. This peculiarity is linked to the program's desire to afford the user information about the annual evolution of competitiveness indicators. Because of this same characteristic, MAGIC does not display product classification or decomposition of change information in this submodule because it does not establish a base year

or final year for which to apply the corresponding formulas. In this example, all the available years for Mexico have been chosen by clicking on each one in the corresponding box (see image 44). The "Annual" option has also been chosen rather than the three-year average.

There are only three elements to the "competitiveness by indicator" report: (i) the indicators tab; (ii) the table with information by indicator; and (iii) the data and graphics download icons (see image 45). The first element works similarly to the previous competitiveness modules with the only difference being that this module displays all the annual indicators: value, product contribution, market share, specialization, product share, country share, volume, volume share, unit value, relative unit value and volume unit. In addition, when the United States is the reporter country, the duty collected and effective duty rate indicators also appear.

Image 45
MAGIC: a report in the competitiveness analysis by indicator submodule

Source: New MAGIC [online] www.cepal.org/magic.

The report table only contains two columns. The first indicates the year and the second the corresponding data for the indicator selected in the indicators tab. Both columns can be ordered in ascending or descending order. For example, in image 45, the value indicator was selected and the table was ordered for the years in ascending order. The value column shows that it was not until 1996 that Mexico reported its first exports to China as the country sold more than 8 million dollars of copper. The hypothetical user has chosen to display 10 lines per page, so the table shows only the first ten years from 1996 to 2007. If the user wants to see the rest of the years, it is necessary to click on the numbers that appear in blue at the bottom of the report table, which refer to the number of pages available. In this example, by clicking on the number 2, MAGIC shows the subsequent years starting with 2008. Another way to see all the years on a single page is by selecting in the "Lines per page" box the number 20 or 50, which would allow for the corresponding number of results to be displayed per window. In this case, it would be best to select 50 as the user has already chosen to see the 30 years available although only years for which trade information is available are displayed.

The third and last report element corresponds to the MS-Excel and chart icons located in the far upper right-hand corner above the report table. The MS-Excel file makes it possible to download a report of all indicators for all the selected years. The graph icon displays the evolution of trade in the chosen product through various bar charts. This information appears as a pop-up window so it is necessary to authorize the browser to display pop-up windows. Images 46, 47 and 48 show all the graphics displayed in the pop-up window, making it possible to quickly analyse the evolution of each and every one of the indicators.

Image 46
MAGIC: the first part of graphs in the competitiveness analysis submodule

Source: New MAGIC [online] www.cepal.org/magic.

Image 47
MAGIC: the second part of graphs in the competitiveness analysis submodule

Source: New MAGIC [online] www.cepal.org/magic.

Image 48
MAGIC: the third part of graphs in the competitiveness analysis submodule
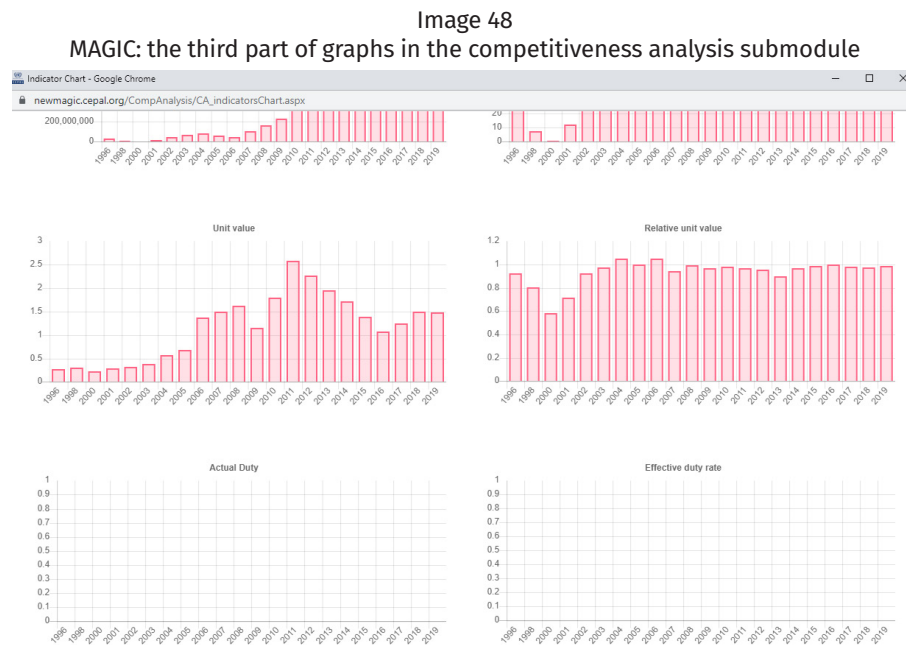
Source: New MAGIC [online] www.cepal.org/magic.

Given that exports are the flow to be analysed, the interpretation of some indicators may be slightly different in this example than in the corresponding import analyses. As reflected in the country share indicator, China's share of Mexico's total exports has generally trended higher. A mere 0.29% of Mexican exports were bound for the Chinese market in 1990. By 2019 that percentage had climbed to 1.5%, and in 2011 and 2013 it had reached as high as 1.7%. Copper's production position in total Mexican exports to China was almost 30% in 2019. This percentage has been trending higher since 2000 even as exports of this product to China appear highly volatile. However, China has become a significant trade destination market for Mexico's copper exports. In 2009, for example, China's market share of that product reached almost 92%, which signifies that country received all but about 8 percentage points of all the copper Mexico shipped abroad that year.

The value and volume of Mexico's sales of copper ores and concentrates to China trended higher beginning in 2000, although there is a record of two previous shipments that occurred in 1996 and 1998. While it is true that the value had been greater than the volume shipped in the first years MAGIC shows a greater increase in the price of copper starting in 2006. The most pronounced change was seen in 2011 when Mexico exported almost 388 kilograms of copper for 1.001 million dollars for a unit value of 2.6 dollars per kilogram of copper. The highest unit value with China was also registered in 2011, a year in which the average world price of copper peaked.

Given that the price of metals such as copper is defined at the international level, the change in unit value was not determined directly by supply and demand factors between Mexico and China. This fact is shown by observing the relative unit value, which refers to how the value at which Mexico sold each kilogram of copper to China compares to the average unit value at which the country sold the product to all its partners (global unit value). In almost all years, the unit value of copper exports to China is close to 1, which signifies

that the unit price of exports to China was similar to Mexico's global unit value. However, only in 2000 or 2001 was the relative unit value of copper sales to China 0.58 and 0.71, respectively, which means that the unit value at which this product was sold to China was below the global unit value by 42% and 29%, in that same order. These years coincide with those in which the international price of copper fell significantly.

The importance of copper to Mexico's global exports is relatively low. Copper's product share has averaged 0.18%, which signifies that between 1990 and 2019, 0.18% of Mexican exports consisted of copper on average. However, copper's product share has been trending higher and in 2018 and 2019 reached 0.5%, a percentage similar to what was recorded for 1991. The difference between the product share and product contribution can be seen in the specialization indicator, which breaks above 100 and shows the importance of copper in Mexican goods exports to China.

C.　Trade charges module

The third new MAGIC module corresponds to the trade charge analysis. It covers two submodules or types of report: by country and by product. The two options can be chosen in the trade charges module (see image 49).

Image 49
MAGIC: trade charges module
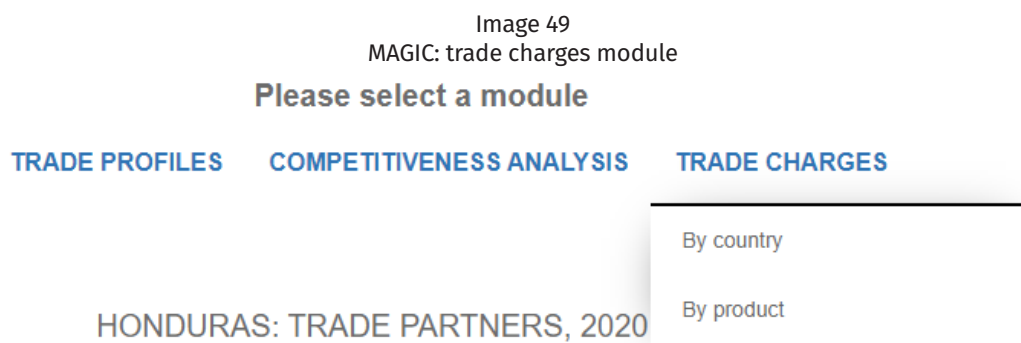
Source: New MAGIC [online] www.cepal.org/magic.

1.　Trade charges by country submodule

The trade charges by country module reports how goods were transported from the last port of the exporting country to the importing country's point of entry. It also provides information on the transport cost and other import charges when the United States is the reporting country. Click on the "Country" option in the "trade charges" module to choose from this type of report. Once the submodule "Country" is chosen, MAGIC shows the screen that appears in image 50. In this submodule the user should select the five parameters available before clicking on the process button.

Image 50
MAGIC: parameter selection in the trade charges by country module

Source: New MAGIC [online] www.cepal.org/magic.

1. The first of five parameters corresponds to the reporter country. Just as in the previous modules, the user should select under the "reporter country" tab for the market about which international trade information is needed. For the time being, information is only available in this module for the Mexico and United States markets, so those are the only two options that appear. In this example, the user has chosen the United States as the reporter country.

2. Once the country has been chosen, MAGIC displays the years for which information is available. In the case of the United States, the program offers the option of selecting one or more years between 1990 and 2020 (the most recent year for which data is available). In this example, only the year 2019 was activated by ticking the field next to that year. If the user wishes to change years, MAGIC offers the option to "unselect all."

3. A third obligatory parameter is to choose the partner country or group of countries for information about the transport used and trade-related charges. In this example, El Salvador has been chosen as the partner country for the United States by activating the circle located before the word "country." Once it is activated, the user can select a country from the "partner" list.

4. The next step is to select the duty aggregation level in which to display the top traded products with that country. MAGIC defaults to the 2-digit aggregation level, but the user has the option of opting for 4, 6, or 10 digits by clicking on the corresponding choice under "Product aggregation level." It is important to take into account that the 10-digit choice is only possible when the United States is selected as the reporter country. In this example, the 10-digit option has been chosen.

5. Next, it is necessary to indicate the trade flow to be analysed, whether exports or imports. Export flow is the option preselected in MAGIC. In this example, import flow has been chosen by clicking on the circle just before the word "imports." If the user prefers to revert to exports, the circle marked in blue before the word "exports" should be activated.

6. A last, non-obligatory step is to select the unit value in which to display the report. Again, the options are in dollars, thousands of dollars, or million dollars.

Once all the parameters have been established and the process button pressed, a report will appear similar to the one in image 51. There are only two elements to the "Trade charges by country" report: i) the report table with information on transport and trade charges listed by product code and ii) the MS-Excel icon to download the data. Just as in the previous modules, the user can decide whether the table should display 10, 20, or 50 rows per page using the tab "lines per page," located above the table.

There are five main sections to the report table. The first of these, highlighted in green in image 51, contains information on each of the products included in the search. The first column displays the reference year, the second the product code and the third the product description. It is important to note that product descriptions at HS levels two, four and six can be displayed in Spanish, English, or French, depending on the language selected by the user. However, given that the 10-digit level is specific to the United States as the reporter country, product descriptions always appear in English.

Image 51
MAGIC: data report in the trade charges by country module
UNITED STATES OF AMERICA: TRADE CHARGES IN THE IMPORTS WITH EL SALVADOR IN 2019

Source: New MAGIC [online] www.cepal.org/magic.

The second section of the report table encompasses columns 3 to 7. These five columns show the mode of transport used to carriage the exporting country's product to the importing country. The four transport possibilities are by air, sea, road or rail. When the reporter country does not report the mode of transport, the corresponding percentage by product appears in the column as "unspecified." The same product may have been transported by different means. In this case, each column would register the percentage of exports or imports of the chosen product for each one of the available means of transport. Air and sea are the only transport modes for which data is available in the case of the United States.

The third section of the report table shows the average price per kilogram transported for each traded product. This table is only available for import flows and when the United States has been chosen as the reporter country. The columns show the approximate cost per kilogram paid for transporting the product by air or sea.

The fourth section, "import charges," shows only values incurred in import flows and only for the United States as the reporter country. The first column on transport and insurance shows the percentage of the total value of the product that corresponded to transport, insurance and other expenses incurred when moving (exporting) the product from the port of departure to the first port of entry of the importing country. This percentage is calculated based on the import's CIF value, which includes the product cost plus the insurance, freight and other charges paid to import it, but not import duties. Finally, the fifth and last part of the report table contains a graphics icon to open a pop-up window with graphics for each of the indicators available.

According to the data reported in this exercise and exported to an MS-Excel file, MAGIC shows that the United States imported 1,371 products from El Salvador in 2019 at a 10-digit HS disaggregation level. A total of 35% of those products were transported exclusively by air and 43% by sea, considering only the shipment between the last point of departure in El Salvador and the first port of entry into the United States. Another 4% of the products were transported both by air or sea. US statistics did not report the means of transport for the remaining 17% of the products shipped (see figure 2).

Figure 2
United States: means of transport used in imports from El Salvador, 2019
(Percentages)
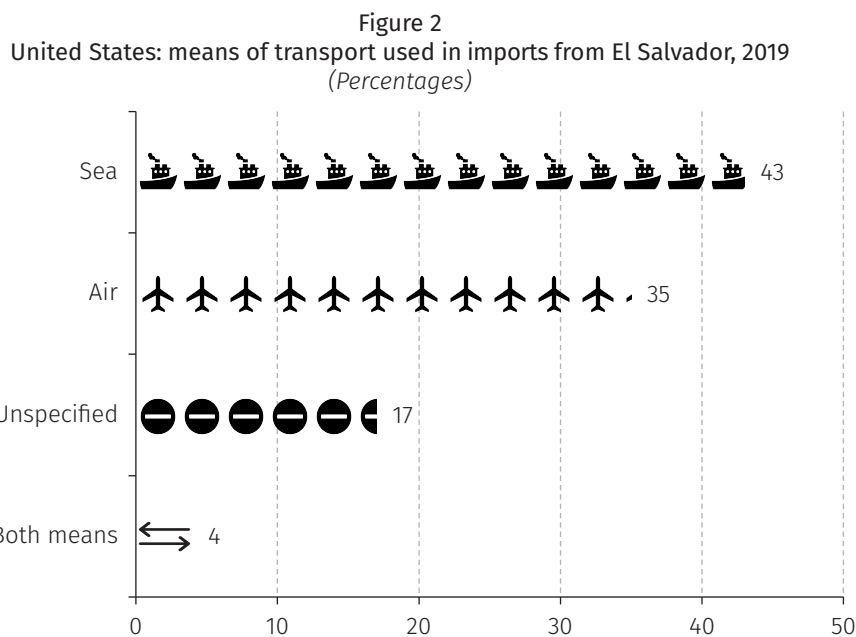
Source: Prepared by the author, on the basis of new MAGIC information.

The products the US imported exclusively by air in 2019 from El Salvador are included in the chapters of live animals (01), tobacco (24), hides and skins (41), wadding (56), ceramic products (69), weapons and munitions (93), and art and collectible objects (97). All of these are delicate or high-value products. The products transported by sea from El Salvador to

the United States were listed in the chapters of other products of animal origin (5), cereals (10), substances of vegetable origin (14), food industry residues and waste (23), inorganic chemical products (28) and organic chemical products (29), tanning or dyeing extracts (32), items of plastic (38), carpets and other floor coverings (57), items of stone (68), glass and glassware (70), and aircraft vessels and parts (89). These products tend to be shipped by sea given their weight and volume, as indicated by the average price per kilogram shipped. The average per kilogram price for all products imported from El Salvador was 4.45 dollars by air and 0.47 dollars by sea, almost four times less than the price by air.

If the "average price per kilogram transported" data under the "by air" column is ordered, MAGIC shows that the product that was most costly to transport by air was 7108121020, which corresponds to "yellow gold with no monetary value." On average, the product paid 853 dollars per kilo shipped. On average, Salvadoran products sent to the US market paid for transport, insurance and other charges around 5.5% of their CIF value in addition to the cost of the product. It is necessary to add duties paid to this amount. On average, the Salvadoran products paid a 4.8% *ad valorem* equivalent duty, which is an approximation of the *ad valorem* equivalent rate.

Using the "country profile" module, the user has identified men's or boys' pullovers (6110303053) as El Salvador's top export product to the United States. The trade charges report shows that 90% of that product was shipped to the United States by sea and 10% by air, with another 0.4% unspecified (see image 52). The decision to send the bulk of the product by sea was linked to the lower price of transport, at 0.35 dollars per kilogram, on average. On the other hand, when sent by air the price was higher at 2.3 dollars per kilo. Probably, this option was chosen when a just-in-time delivery was needed. Overall, transport, insurance and other costs accounted for 2.2% of the total cost of the pullovers to which must be added the payment for entering the United States market that was applied to some pullovers, along with an *ad valorem* equivalent rate of almost 15.9% over the product's value. However, using the competitiveness module by indicator and searching for the effective duty rate, MAGIC shows that only 0.41% of pullovers coming from El Salvador to the United States paid the *ad valorem* equivalent rate.

2. Trade charges by product submodule

The "trade charges by product" submodule reports the means of transport used to ship the goods, the per kilogram price transported and the additional charges (these last two are only available for the United States). But, in this submodule, the report table is listed by importing or exporting country and not by product, like in the "trade charges by country" submodule. Click on the "product" option in the "trade charges" module to choose from this submodule. Once the "product" submodule is selected, MAGIC shows the screen that appears in image 53.

Image 52
MAGIC: graphics by product in the trade charges by country module

UNITED STATES OF AMERICA: TRADE CHARGES ON THE IMPORTS OF MEN'S OR BOYS' PULLOVERS AND...
(6110303053) IN 2019

MODE OF TRANSPORT USED (EL SALVADOR)

AVERAGE COST PER KILOGRAM TRANSPORTED (EL SALVADOR)
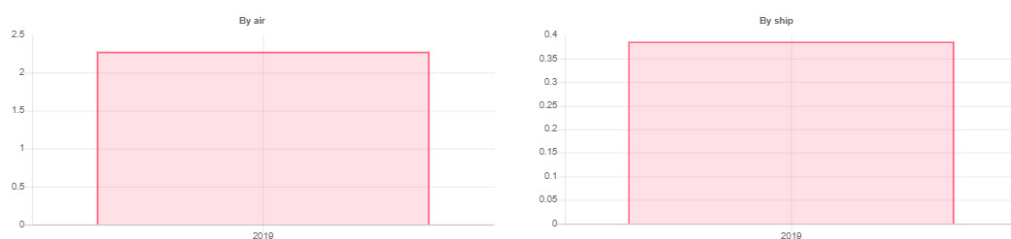
IMPORT CHARGES (EL SALVADOR)
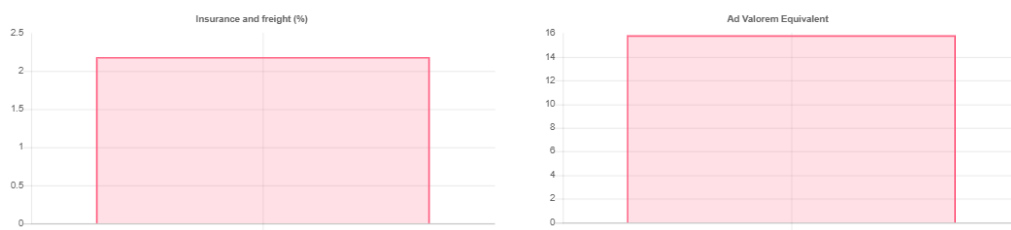
Source: New MAGIC [online] www.cepal.org/magic.

Image 53
MAGIC: parameter selection in the trade charges by product module

Source: New MAGIC [online] www.cepal.org/magic.

Five parameters have to be selected in this search before clicking on the process button.

1. The first of these corresponds to the reporter country. Just as in the previous modules, the user should choose under the "reporter country" tab the market for which international trade information is required. As noted in the section above regarding the previous submodule, in this "trade charges" module, only the United States and Mexico markets are available as reporters. In this example, the latter of the two was chosen.

2. Once the country has been selected, a list of the available years is displayed. For example, for Mexico, the first available year is 2014. For this exercise, 2019 has been selected by clicking on the field next to 2019.

3. A third obligatory parameter is the choice of the product or group of products about which information is needed. Just as in other submodules, MAGIC provides three means for selecting the product: searching for (i) a single product using its HS code and aggregation level; (ii) a keyword or by the product's HS code, or (iii) either a group of products preselected by MAGIC or one created by the user. This exercise has chosen product 901831, corresponding to syringes, using the "product" option and the 6-digit aggregation level.

4. It is important to select thereafter the trade flow to be analysed, whether Mexico exports or imports. Export flow is the preselected MAGIC option. In this example, the user has left that default option as the circle before the word "exports" has been activated.

5. A last optional step is to select the unit value you wish the report to show. The options are in dollars, or either thousands or millions of dollars. The preselected option is dollars.

Once the user has clicked on the process button, a report will appear, as shown in image 54. The "trade charges by product" report is the same as that of "trade charges by country." It contains just two elements: (i) the report table with information on transport and trade charges listed by the partner countries and

(ii) the MS-Excel icon for downloading the data. Just as in the previous modules, the user can choose to display the information at 10, 20, or 50 table rows per page by using the "lines per page" tab located just above the table.

The report table consists of five main sections. The first of these sections, highlighted in green in image 54, lists information on each of the countries with which Mexico trades the selected product and in line with the trade flow direction and other chosen parameters. The first column displays the reference year and the second the name of the trading partner.

Image 54
MAGIC: a report in the trade charges by product module
MEXICO: TRADE CHARGES IN THE EXPORTS OF SYRINGES, WITH OR WITHOUT... (901831) IN 2019

Years	Country	Air (%)	Sea (%)	Road (%)	Railway (%)	Unspecified (%)	By air	By ship	Insurance and freight (%)	Ad Valorem Equivalent	
2019	Germany	16.7714 %	83.2285 %	0 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	Brazil	4.2441 %	95.7558 %	0 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	Costa Rica	10.7885 %	79.7911 %	9.4203 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	El Salvador	0.0003 %	0 %	99.9996 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	United States of America	0.0436 %	0.0007 %	99.9555 %	0 %	0.0002 %	0.00	0.00	0 %	0.00	
2019	Guatemala	5.4095 %	0.0855 %	94.5048 %	0 %	0.0002 %	0.00	0.00	0 %	0.00	
2019	Dominican Republic	4.6584 %	95.3415 %	0 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	Panama	4.8716 %	95.0993 %	0.029 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	
2019	ALL	0.2086 %	2.0965 %	97.6948 %	0 %	0.0001 %	0.00	0.00	0 %	0.00	

Source: New MAGIC [online] www.cepal.org/magic.

The second section of the report table includes columns 3 to 7. These five columns show the mode of transport used to move the product from the supply country to the country of purchase or vice versa. The four transport possibilities are by air, sea, road or rail. When the reporter country does not report the transport mode, the corresponding percentage by product appears under "the "unspecified" column. The same product may have been transported by different means. In this case, each column would register the percentage of exports or imports of the chosen product for each one of the available means of transport. Air and sea are the only transport modes for which data is available in the case of the United States.

The third section of the report table shows the average price per kilogram transported of each traded product. This table is only available in the case of import flows and when the United States has been chosen as the reporter country, which is why all results appear as zeros in this Mexico export-focused exercise. The columns showing the average transport price by air and ship display the approximate cost per kilogram paid for transport and insurance to import the product by those modes.

The fourth section, "import charges," shows values only for import flows of the United States. So, once again, all the listings are in zeros as export flows and Mexico have been chosen. Had the user chosen instead import flows and the United States, the first column in the fourth section referring to "Insurance and freight" would have displayed the percentage of the total value of the imported product that corresponded to payment for transport, insurance and other expenses incurred in moving the product from its port of departure through to the first port of entry. This percentage is calculated based on the CIF import value, which consists of the product cost plus the insurance, freight and other charges paid to import it, excluding import duties. The fifth and last section of the report table contains a graphics icon that can open a pop-up window with graphics for each of the available indicators.

According to the data reported in this exercise, MAGIC shows that Mexico exported syringes to eight different markets; it is also apparent that the chosen principal means of transport correlates with the geographic location of the partner country. In the cases of El Salvador, the United States and Guatemala, more than 94% of syringe exports were hauled by truck. It should be noted that the last two countries in this list share a common border with Mexico. This product tends to be shipped by sea to more distant countries such as Brazil, Panama, Germany, Costa Rica and island nations such as the Dominican Republic. Air transport is another alternative for shipping to such countries. Still, the much higher freight charges explain why that option never exceeded 17% of Mexico's syringes shipped to any given country.

Using the "trade profiles" module, MAGIC shows that 97.5% of all syringes exported by Mexico were bound for the United States, followed by Brazil (1.7%), Panama (0.21%), El Salvador (0.2%), and Germany (0.12%). Image 55 shows the bar charts for the transport mode to deliver the product to Germany.

Image 55
MAGIC: parameter selection in the trade charges by product module

MEXICO: TRADE CHARGES ON THE EXPORTS OF SYRINGES, WITH OR WITHOUT...
(901831) IN 2019

MODE OF TRANSPORT USED (GERMANY)

Source: New MAGIC [online] www.cepal.org/magic.

Annexes

Annex 1
Glossary

Term	Definition
Actual duty	The monetary value collected by United States customs for import duties applied to a specific product in a specific year.
Ad Valorem Equivalent (AVE)	An estimate of the *ad valorem* equivalent rate paid on products imported to the United States subject to duties. It is calculated by dividing the duties collected on a country product by the imports value of the same country product that paid the duties to enter the US market.
Cost, insurance and freight (CIF)	The CIF value represents the landed value of the merchandise at the first port of arrival in the United States. The value includes the cost of the product, insurance and freight paid but not the corresponding import duties.
Country share	The total value of the exports or imports of a partner country as a percentage of the overall total value of imports or exports of the reporter country in a specific year. Also known as market share.
Declining star	Denotes a product with an increased market share (export competitiveness), whose product share (demand) decreased in the reporting market during the chosen period. This suggests a competitive product in a stagnant market.
Decomposition of change	A calculation tool that explains the extent to which the dynamism of the destination market (demand effect), its structure (interaction effect), and the exporter's competitiveness (share effect) influenced the change in the value of imports during a given period.
Effective duty rate	The value of duties collected on a product as a percentage of the total value of imports of that product being exported from a partner country to the US market in a specific year.
Global product exports	Value of a reporter country's total exports of a single product to all of that country's trading partners in a specific year.
Global product imports	Value of a product imported to the reporter country from all of its trading partners in a specific year. When the United States is the reporter country, the reported value excludes duties, insurance and freight costs, and any import-related charge.
Global unit value	The quotient of the total global value of exports or imports of a given product and the total global export or import volume of the same product. The result approximates the average price per unit of measurement at which the product was sold or acquired by the reporter country in a specific year.
Harmonized System (HS)	An international nomenclature developed by the World Customs Organization, which is arranged in six-digit codes allowing all participating countries to classify traded goods on a common basis. Beyond the six-digit level, countries are free to introduce national distinctions for tariffs and many other purposes.
Interaction effect	Change in the value of imports explained by the interaction between the change in the country's competitiveness and the change in global demand and product demand in the reporter country's market during a chosen period. Its value is zero when there is no change in product share or global imports of the product. A positive value results when the changes in both product-country share and global imports of the product were positive or negative. Its value is negative when the change in market share is either positive or negative, and the change in global imports of the product is the opposite.

Term	Definition
Market share	The value of exports or imports of a product exchanged with a partner country as a percentage of the reporter country's total global exports or imports of said product in a specific year.
Missed opportunity	Denotes a good whose product share (demand) increased in the reporting market simultaneously as its market share (export competitiveness) decreased during the same period, thereby revealing an uncompetitive product in a dynamic market.
Overall demand effect	The part of the change in imports arising from the change in global demand in the reporter country, without considering product demand during the period selected.
Overall interaction effect	The part of the change in imports arising from the interaction effect between the competitiveness of the exporting country and global demand in the reporter country during the period selected.
Product classification	A calculation tool for classifying the products according to two indicators: the change in market share (export competitiveness) and change in product share (demand), during the selected period. The four possible classifications are rising star, declining star, missed opportunity and retreat.
Product contribution	The value of exports or imports of a specific good exchanged with a trading partner as a percentage of the total value of all exports or imports of the reporter country or group with the same trading partner in a specific year.
Product share	The value of a product's total global exports or imports as a percentage of the reporter country's total global exports or imports in a specific year.
Products subject to duties	Products on which an import tax had to be paid to enter the destination market as they fail to appear on the list of duty-free products or fail to comply with requirements established by the importing country for duty-free entry to its market.
Relative price for transporting the product by air	Approximate cost per kilogram that was paid for insurance and freight to import the product by air.
Relative price for transporting the product by sea	Approximate cost per kilogram that was paid for insurance and freight to import the product by sea.
Relative unit value	Quotient between the unit value of a product imported or exported from a partner country and the global unit value of that same product in a specific year.
	When the unit value of the product of the trading partner is equal to the global unit value, the result is 1.
	When the unit value of the product of the trading partner is greater than the global unit value, the result is greater than 1.
	When the unit value of the product of the trading partner is less than the global unit value, the result is less than 1.
Reporter country	The country that provides the database on its total exports and imports merchandise.
Retreat	Denotes a good for which product share (demand) increased in the reporting market at the same time as its market share (export competitiveness) decreased, thereby revealing an uncompetitive product in a stagnant market.

Term	Definition
Revealed competitive advantage	The Balassa index compares a country's share of exports of a product or sector with the share of that product or sector in world trade or the market of reference. The denominator represents the export product or sector share as a share of the chosen market's exports. The Balasa index compares a country's export structure (numerator) with the export structure of one market (denominator). When the index of a sector or product of a specific country is equal to 1, it says that the country specializes in that sector or product and vice versa when the index is less than 1.
Rising star	Denotes a product that has increased both its market share (export competitiveness) and product share (demand) in the reporting market during the same period. This suggests a competitive product in a dynamic market.
Share effect	Change in the value of imports into the reporter country's market that would have resulted if product share (demand) had remained constant since the base year. Hence, the change in the value of imports results from the change in the partner country's market share (export competitiveness).
Specialization	Quotient between a product's contribution in trade with the partner country and that product's share of the reporter country's market in a specific year. In the case of import statistics, product specialization is the competitive advantage the trading partner has for that product in the chosen market. A result greater than 1 indicates that the product contribution is greater than the product share in the chosen market, meaning that the country specializes in that product. A result less than 1 indicates the product contribution is less than the share the product enjoys in the chosen market, meaning that the country does not specialize in that product.
Structural demand effect	The part of the change in imports arising from the effect on demand for the traded product (differentiating it from global demand in the reporter country) during the period selected.
Structural interaction effect	The part of the change in imports arising from the interaction effect between the exporter's competitiveness and the dynamism of demand for the traded good (differentiating it from global demand in the reporter country) during the period selected.
Total country exports	Value of a reporter country's total exports to a single trading partner in a specific year.
Total country imports	Value of imports of all the products imported by the reporter country from a trading partner in a specific year. When the United Statesis the reporter country, the reported value excludes duties, insurance, freight costs and any other import-related charges.
Total demand effect	Change in the value of imports that would have resulted if the trading partner's market share remained constant at base-year levels. In this sense, the change is the result of the variation in demand for the traded product.
Total global exports	Value of all the products a reporter country exports to all the country's trading partners in a specific year.
Total global imports	Value of all the products the reporter country imported from all of its trading partners in a specific year. When the United States is the reporter country, the reported value excludes duties, insurance and freight costs and any import-related charge.
Total product exports by country	Value of all of a reporter country's exports of a specific product to a single trading partner in a specific year.

Term	Definition
Total product imports by country	Value of imports of a product imported by the reporter country from a trading partner in a specific year. When the United States is the reporter country, the reported value excludes duties, insurance and freight costs and any import-related charge.
Trade charges	Value in addition to the product cost that is paid to transport and insurance the product and other expenses to transport the product from the port of departure to the first port of entry of the importing country. It excludes import duties.
Trading partner	Country or group of countries that exports or imports products with the reporter country.
Unit value	The quotient of the value of exports or imports of a product of a partner country and the volume of that same product that the reporter country exports or imports. The result is an approximation of the product price per unit of measurement in a specific year.
Value	The monetary value expressed in US dollars is used to report trade flows between trading partners and the reporter country in a specific year.
Volume	Quantity of products exported or imported. The products' unit of measurement is related to the nature of the product. The quantity is often reported in tons.
Volume share	The volume of exports or imports of a product from a trade partner exchanged as a percentage of the reporter country's total global export or import volume in a specific year.
Volume unit	The unit in which the trade of a good is quantified. These units may be in kilograms, pieces, numbers, dozens, thousands of items and liter volumes, among others. The volume unit is related to the nature of the product.

Annex 2
Volume unit interpretation

1. United States

Abbreviation	Description	Abbreviation	Description
A	Amperes	GKG	Gross kilograms
AC	Alternating current	GKG	Gross yield kilograms
BBL	Barrel	GLB	Gross pounds
BFT	Board feet	GM	Grams
BRU	Mechanical brushes	GRL	Gross lines
BU	Bushels	GPR	Gross pair
C	Celsius	GRS	Gross
CAR	Carets	GTN	Cubic metric ton
CBM	Cubic meter	GTN	Gross ton
CC	Cubic centimetres	GVW	Gross vehicle weight
CFT	Cubic feet	HND	Hundred
CG	Centigrams	HSP	Horsepower
CGR	Content grams	IN	Inches
CKG	Content kilograms	JWL	Dutiable jewels
CLB	Content pounds	KDR	Kilogram dry rubber content
CMS	Centimetres	KG	Kilograms
CMT	Content metric tons	KGS	Kilogram total sugars
CST	Content short tons	KW	Kilowatts
CTN	Content tons	KWH	Kilowatt hour
CUR	Curie	LBS	Pounds
CWT	Hundred weight	LNM	Lineal meter
CYD	Cubic yards	LT	Long tons
CYK	Clean yield kilograms	LTR	Liters
CYP	Clean yield pounds	MBF	Thousand board feet
DC	Direct current	MBQ	Megabecquerels
DOZ	Dozen	MC	Millicuries
DPC	Dozen pieces	MCF	Thousand cubic feet
DPR	Dozen pairs	MCU	Micro-Curie
FBM	Fibber meter	ML	Millilitres
FT	Feet	MLF	Thousand linear feet
GAL	Gallons	MM	Millimetres
GBQ	Gigabecquerels	MSF	Thousand square feet
GBX	Gross boxes	MTN	Metric tons
GCN	Gross containers	MTR	Meters

Abbreviation	Description
MUN	Million units
MYD	Thousand linear yards
NESOI	Not elsewhere specified or included
NO	Number
ODE	Ozone depletion equivalent
OZ	Ounces
PCS	Pieces
PFG	Proof gallons
PFL	Proof litres
PKS	Packs
PRS	Pairs
RBA	Running bales
RPM	Revolutions per minute
SCM	Square centimetres
SET	Set
SFT	Square feet
SQ	Square
SQM	Square meters
SSG	Single-strength gallon
STN	Short tons
SYD	Square yards
TCM	Thousand cubic meters
THM	Thousand meters
THS	Thousands
TNV	Ton raw value (metric)
TOZ	Troy ounces
VA	Voltampere
VOL	Volume
WG	Wine gallons
WT	Weight
X	No unit of quantity required
YDS	Yards

2. UN Comtrade

Abbreviation	Description
-1	Unavailable/unspecified or no quantity
-2	All
2	Area in square meters
3	Electric energy in thousand kilowatts hours
4	Length in meters
5	Number of items
6	Number of pairs
7	Volume in litres
8	Weight in kilograms
9	Thousands of items
10	Number of packages
11	Dozens of items
12	Volume in cubic meters
13	Weight in carats
14	Length in kilometres
15	Weight in grams
16	Beehive
17	Volume in thousands of cubic meters
18	Terajoule (gross calorific value)
19	Barrels
20	Volume in thousands of litres
21	Weight in thousands of kilograms
22	Electric energy in kilowatt-hours
23	Litre pure (100 %) alcohol - l alc. 100%
24	Head
25	Kilogram drained net weight
26	Kilogram of choline chloride
27	Kilogram of diphosphorus pentaoxide
28	Kilogram of hydrogen peroxide
29	Kilogram of methylamines
30	Kilogram of nitrogen
31	Kilogram of potassium hydroxide (caustic potash)
32	Kilogram of potassium oxide

Abbreviation	Description
33	Kilogram of sodium hydroxide (caustic soda)
34	Kilogram of substance 90 % dry
35	Kilogram of uranium
36	Carrying capacity in tons
37	Becquerels
38	Gram of fissile isotopes
39	Gross register ton
40	Gross tonnage
41	Number of cells/elements

Annex 3
Identifying and solving technical problems

Problem	Possible solution
MAGIC displays the message: Data missing!	Verify that you have selected all the necessary parameters before hitting the Process button again.
I want to select a product at more than 2 digits, yet the tabs at other levels don't display information	Choose another chapter or product in the level preceding the one for which no information was displayed. Then try once again to select the chapter or product at the level for which you were seeking information.
I have chosen Spanish, but MAGIC displays the product description in English	MAGIC provides the product description in the language of the reporter country. If you were conducting a 10-digit (national level) search, it corresponds only to the United States, so the results always appear in English.

If you are searching at less than 10 digits and MAGIC fails to display the product description in the chosen language, try returning to the MAGIC start page, indicate your choice of language and conduct a new search. |
| When clicking on links marked by blue letters, MAGIC displays nothing | MAGIC links in blue letters open pop-up windows showing information related to each link. Most web browsers include a feature to block such windows, in which case it is necessary to authorize your browser permanently to allow MAGIC pop-ups.

One way to do this is by clicking on the icon in your browser bar's upper right-hand corner and choosing the option always to allow pop-up windows.

Another approach is to go to your browser's privacy and security settings and deactivate the block pop-up setting in the case of MAGIC. |
| MAGIC shut down and ended the session on its own | If MAGIC detects that 15 minutes have passed since the user conducted a search, it will automatically close the session. In that case, the user should reinitiate their session.

If a search takes longer than 15 minutes, MAGIC shuts down automatically. In that case, you should either reduce the amount of data requested or send an email to magic@cepal.org with a description of your search parameters. |
| I have created or selected a group of countries (or products), and MAGIC isn't displaying trade information for each one of the countries (or products) included in the group | When you generate a group of countries or products in MAGIC, the system adds up the values for each one of the elements the group comprises and reports them as a single partner or traded product.

To obtain individual results for each element, conduct a separate search for each group product, whether it be a trading partner or product. |

Annex 4
Indicator formulas included in MAGIC

M = imports

X = exports

j = country from which it is imported or exported

i = product that is imported or exported

t = year in which the import or export occurs

t_b = base year or start year

t_f = final year

v = volume

M_{it}^o = Imports of product *i* from all the countries in year *t* or global imports of the product *i*

M_{ot}^o = Imports of *all* the products from all the countries in year *t* or total global imports

M_{it}^j = Imports of product *i* from country *j* in year *t* or total imports product or country

M_{ot}^j = Imports of all products from country *j* in year *t* or total country imports

X_{it}^o = Exports of product *i* to *all* the countries in the year *t* or global exports of the product

X_{ot}^j = Exports of all the products to country *j* in year *t* or total country exports

X_{it}^j = Exports of product *i* from country *j* in year *t* or total country-product exports

X_{ot}^o = Exports of all products toward *all* the countries in year *t or* total global exports

Product contribution

Percentage expression of the value of exports or imports of a product or country in the total value of exports or imports from that country or group of countries to the chosen market in a specific year.

Exports

$$\left(X_{it}^j/X_{ot}^j\right)*100 =$$

Imports

$$\left(M_{it}^j/M_{ot}^j\right)*100 =$$

Product share

Percentage that represents the value of global exports or imports of a product in the value of total global exports or imports of the chosen market in a specific year.

Exports

Imports

$$\left(X_{it}^{o}/X_{ot}^{o}\right)*100=\qquad\left(M_{it}^{o}/M_{ot}^{o}\right)*100=$$

Country share

Value of a country or group of countries' exports or imports as a percentage of the total value of exports or imports in the chosen market in a specific year.

Exports

Imports

$$\left(X_{ot}^{j}/X_{ot}^{o}\right)*100=\qquad\left(M_{ot}^{j}/M_{ot}^{o}\right)*100=$$

Market share

Value of the exports or imports of a product or country as a percentage of total imports or exports of that product in the chosen market in a specific year.

Exports

Imports

$$\left(X_{it}^{j}/X_{it}^{o}\right)*100=\qquad\left(M_{it}^{j}/M_{it}^{o}\right)*100=$$

Volume share

Volume of exports or imports of a product or country as a percentage of the total volume of imports or exports of that product in the chosen market in a specific year.

Exports

Imports

$$\left(Xv_{it}^{j}/Xv_{it}^{o}\right)*100=\qquad\left(Mv_{it}^{j}/Mv_{it}^{o}\right)*100=$$

Specialization

Quotient between a product's contribution in trade with the partner country and that product's share of the reporter country's market in a specific year.

In the case of import statistics, product specialization is the competitive advantage the trading partner has for that product in the chosen market.

A result greater than 1 indicates that the product contribution is greater than the product share in the chosen market, meaning that the country specializes in that product.

A result less than 1 indicates the product contribution is less than the share the product enjoys in the chosen market, meaning that the country does not specialize in that product.

Exports

Imports

$$\left[\left(X_{it}^j/X_{ot}^j\right)*100\right)\div\left(\left(X_{it}^o/X_{ot}^o\right)*100\right]= \left[\left(M_{it}^j/M_{ot}^j\right)*100\right)\div\left(\left(M_{it}^o/M_{ot}^o\right)*100\right]=$$

Unit value

Quotient between the value of exports or imports of the product or country and the volume of exports or imports of the same product or country. The result is the approximate price of the product per unit of measurement in a specific year.

Exports

Imports

$$\left(X_{it}^j/Xv_{it}^j\right)= \qquad \left(M_{it}^j/Mv_{it}^j\right)=$$

Relative unit value

Quotient between the unit value of a product or country and the global unit value of that same product in a specific year.

When the unit value product or country is equal to the global unit value, the result is 1.
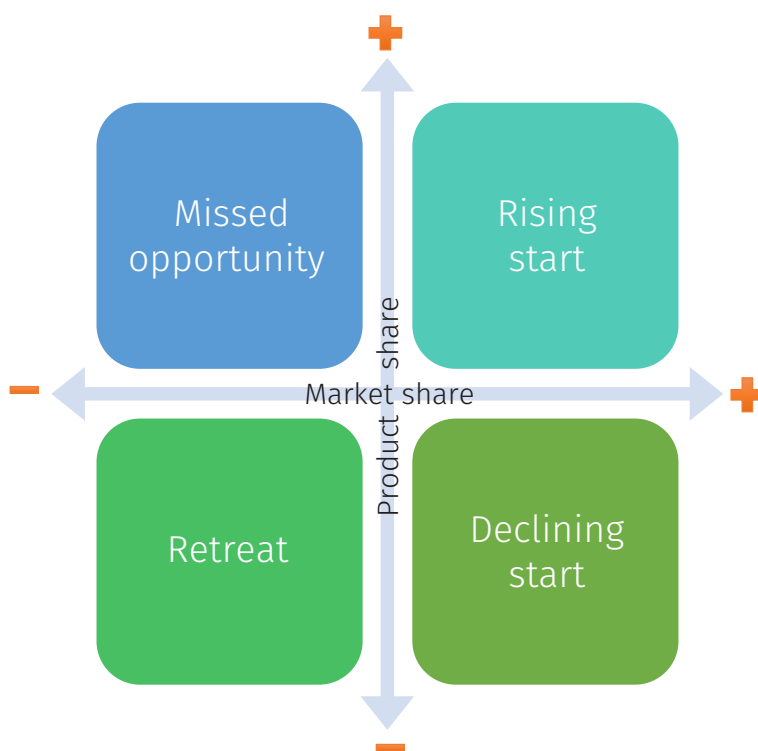
When the unit value product or country is greater than the global unit value, the result is greater than 1.

When the unit value product or country is less than the global unit value, the result is less than 1.

Exports

Imports

$$\left(X_{it}^j/Xv_{it}^j\right)\div\left(X_{it}^o/Xv_{it}^o\right)= \qquad \left(M_{it}^j/Mv_{it}^j\right)\div\left(M_{it}^o/Mv_{it}^o\right)=$$

Product classification

A tool for classifying the products according to two indicators: change in market share (export competitiveness) and change in product share (demand) during the chosen period. The four possible classifications are rising star, declining star, missed opportunity and retreat.

Rising star

Denotes a product that has increased both its market share (export competitiveness) and product share (demand) in the reporting market, during the same period. This suggests a competitive product in a dynamic market.

$$\text{Imports}$$
$$\left[\left(M_{it_f}^j/M_{it_f}^o\right)*100\right)-\left(\left(M_{it_b}^j/M_{it_b}^o\right)*100\right)\right]=>0$$
$$y$$
$$\left[\left(M_{it_f}^o/M_{ot_f}^o\right)*100\right)-\left(\left(M_{it_b}^o/M_{ot_b}^o\right)*100\right)\right]=>0$$

Declining star

Denotes a product with an increased market share (export competitiveness), whose product share (demand) decreased in the reporting market during the same period. This suggests a competitive product in a stagnant market.

$$\text{Imports}$$
$$\left[\left(M_{it_f}^j/M_{it_f}^o\right)*100\right)-\left(\left(M_{it_b}^j/M_{it_b}^o\right)*100\right)\right]=>0$$
$$y$$
$$\left[\left(M_{it_f}^o/M_{ot_f}^o\right)*100\right)-\left(\left(M_{it_b}^o/M_{ot_b}^o\right)*100\right)\right]=<0$$

Missed opportunity

Denotes a good whose product share (demand) increased in the reporting market simultaneously as its market share (export competitiveness) decreased during the same period, thereby revealing an uncompetitive product in a dynamic market.

Imports

$$\left[\left(M^{j}_{it_f}/M^{o}_{it_f}\right)*100\right)-\left(\left(M^{j}_{it_b}/M^{o}_{it_b}\right)*100\right)\right]=<0$$

y

$$\left[\left(M^{o}_{it_f}/M^{o}_{ot_f}\right)*100\right)-\left(\left(M^{o}_{it_b}/M^{o}_{ot_b}\right)*100\right)\right]=>0$$

Retreat

Denotes a good for which product share (demand) increased in the reporting market at the same time as its market share (export competitiveness) decreased, thereby revealing an uncompetitive product in a stagnant market.

Imports

$$\left[\left(M^{j}_{it_f}/M^{o}_{it_f}\right)*100\right)-\left(\left(M^{j}_{it_b}/M^{o}_{it_b}\right)*100\right)\right]=<0$$

y

$$\left[\left(M^{o}_{it_f}/M^{o}_{ot_f}\right)*100\right)-\left(\left(M^{o}_{it_b}/M^{o}_{ot_b}\right)*100\right)\right]=<0$$

Decomposition of change

Calculation tool that explains the extent to which the dynamism of the destination market (demand effect), its structure (interaction effect), and the exporter's competitiveness (share effect) influenced the change in the value of imports during a given period.

Change
├─ Demand effect
│ ├─ Structural
│ └─ Global
├─ Share effect
└─ Interaction effect
   ├─ Structural
   └─ Global
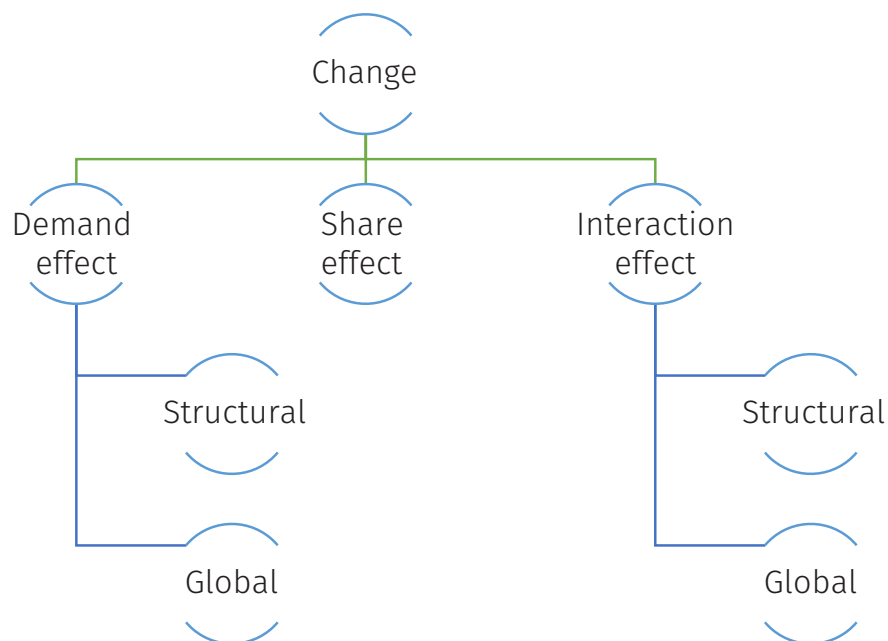
Change

The real difference observed between the value of the partner country's total imports in the final year and the value of those same imports in the base year.

Imports

$$M_{it_f}^{j} - M_{it_b}^{j} =$$

Demand effect

The change in the value of imports that would have occurred if market share in the reporter country's market had remained constant from the base year. Hence, the change results from the variation in global imports of the product.

Imports

$$\left(M_{it_b}^{j}/M_{it_b}^{o}\right) * \left(M_{it_f}^{o} - M_{it_b}^{o}\right) =$$

Structural demand effect

The part of the change in imports arising from the interaction effect between the exporter's competitiveness and the dynamism of demand for the traded good (differentiating it from global demand in the reporter country) during the period selected. The value of imports of the country product (the trading partner's market share) in the base year is left constant.

Imports

$$M_{it_b}^{j} * \left[\left(M_{it_f}^{o} \div M_{it_b}^{o}\right) - \left(M_{ot_f}^{o} \div M_{ot_b}^{o}\right)\right] =$$

Overall demand effect

The part of the change in imports arising from the effect of the change in global demand in the reporter country taking into account only the increase in total global imports during the period selected. The value of imports of the country product (the trading partner's market share) in the base year is left constant.

Imports

$$M_{it_b}^{j} * \left[\left(M_{it_f}^{o} \div M_{ot_b}^{o}\right) - 1\right] =$$

Share effect

The change in the value of imports into the reporter country's market that would have resulted if product share (demand) had remained constant since the base year. Hence, the change in the value of imports results from the change in the partner country's market share (export competitiveness).

Imports

$$M_{it_b}^o * \left[\left(M_{it_f}^j \div M_{it_f}^o \right) - \left(M_{it_b}^j \div M_{it_b}^o \right) \right] =$$

Interaction effect

Change in the value of imports explained by the interaction between the change in the country's competitiveness and the change in global demand and product demand in the reporter country's market during a chosen period.

Its value is zero when there is no change in product share or global imports of the product.

A positive value results when the changes in both product-country share and global imports of the product were positive or negative.

Its value is negative when the change in product-country share is either positive or negative and the change in global imports of the product was just the opposite.

Imports

$$\left[\left(M_{it_f}^j \div M_{it_f}^o \right) - \left(M_{it_b}^j \div M_{it_b}^o \right) \right] * \left(M_{it_f}^o - M_{it_b}^o \right) =$$

Structural interaction effect

The part of the change in imports arising from the interaction effect between the exporter's competitiveness and the dynamism of demand for the traded good (differentiating it from global demand in the reporter country) during the period selected. The value of imports of the country product (the trading partner's market share) in the base year is left constant.

Imports

$$\left[\left(M_{it_f}^j \div M_{it_f}^o \right) - \left(M_{it_b}^j \div M_{it_b}^o \right) \right] * \left(M_{it_b}^o \right) * \left[\left(M_{it_f}^o \div M_{it_b}^o \right) - \left(M_{ot_f}^o \div M_{ot_b}^o \right) \right] =$$

Global effect of the interaction

The part of the change in imports arising from the interaction effect between the competitiveness of the exporting country and global demand in the reporter country during the period selected. The value of imports of the country product (the trading partner's market share) in the base year is left constant.

Imports

$$\left[\left(M_{it_f}^{j} \div M_{it_f}^{o}\right) - \left(M_{it_b}^{j} \div M_{it_b}^{o}\right)\right] * \left(M_{it_b}^{o}\right) * \left[\left(M_{ot_f}^{o} \div M_{ot_b}^{o}\right) - 1\right] =$$

This guide describes the main characteristics of the new Module for the Analysis of Growth in International Commerce (MAGIC), developed by the subregional headquarters of the Economic Commission for Latin America and the Caribbean (ECLAC) in Mexico City. The first part describes MAGIC's development and its main characteristics, as well as the technical requirements for using the software. A second part describes each of the new modules the MAGIC comprises, its functions and the parameters required before consulting it. It also includes an exercise for interpreting the data and indicators in each module. Lastly, the annexes section provides the user with tools that should assist in understanding and analysing the data contained in MAGIC. The annexes include a glossary, a volume unit reference, another for identifying and solving technical errors and a section providing breakdowns of the mathematical formulas underpinning MAGIC's indicators.