

Costa Rica: An Extended Supply-Use Table

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The ideas expressed in this document are those of the authors and do not necessarily represent views of the Central Bank of Costa Rica.

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Abstract

The use of the data contained in the supply and use tables and input-output tables for economic analyses as well as for trade in value added, research and projections has grown steadily. Costa Rica has traditionally been a very open economy: exports and imports represent 32% and 36% of GDP, respectively. A significant share of these exports and imports are driven by foreign affiliates allocated in free zones and other agricultural economic activities in which production is mainly oriented to the international market (80% of its total production). In recent years, the increasing importance of export services firms from free zones is noticeable. Companies in free zones are connected up to different stages within global value chains, resulting in different levels of relation between each firm and the inputs from domestic firms. Most industries have practically no connection with domestic markets while others have some domestic firms as their main suppliers. This dynamic causes heterogeneity in terms of income payments from abroad, production functions and foreign content ratios. In order to face this heterogeneity, the Costa Rican national accounting system has decided to use an extended supply and use table and input-output table that separate free zones within each economic activity; therefore following the accounting guidelines recommended by the System of National Accounts 2008 (SNA 2008).

Content

1. Overview	4
2. Background.....	4
2.1 Goods matter	4
2.1.1 Manufacturing services on physical inputs owned by others	5
2.2 Services matter	7
3. Deriving an extended supply and use table	8
3.1 Production account and generation of income account	8
3.2 Product Balances	9
3.3 Extended Supply and Use table	10
3.4 Input-Output table	11
4. Final considerations	12
5. Bibliography	13

1. Overview

The supply and use table records how supplies of different kinds of goods and services from domestic industries and imports are allocated in intermediate or final uses, including exports. This table is a necessary first step in order to prepare input-output tables.

Over the last years policy-makers and researchers have shown interest on investigations related to the impact of exports and external shocks on the domestic economy. This kind of analyses have been limited because of missing information from the supply and use table due to an existing need to identify the major exports groups. Consequently, there is a need to provide relevant information about supply and demand relationships as well as the linkages between export industries and domestic firms to high-level policy makers. The aim of this project is obtain an extended supply and use table and input-output table capable of explicitly showing the industry information of free zones and other economic activities whose production is mainly oriented to the international market.

Costa Rica has traditionally been an exporting and importing country: exports and imports represent 32% and 36% of GDP, respectively. Firms in free zones and other agricultural economic activities whose production is mainly oriented to the external market (82% of its total production) are accountable for around 66% of net exports of Costa Rican goods. Evidence leads to a difference in production functions and foreign content ratios of companies in free zones and non-free zones ones.

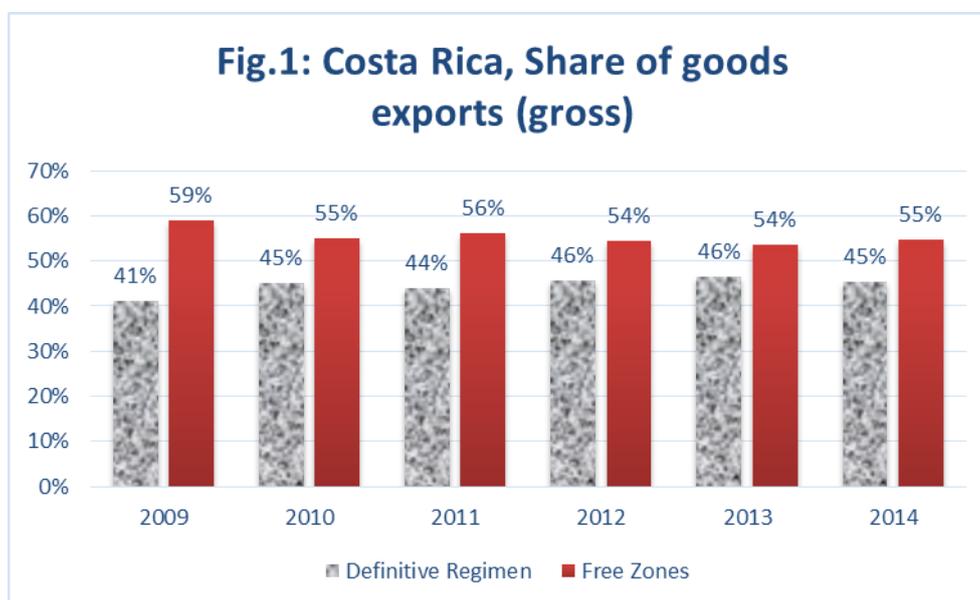
Additionally, this project also aims to improve the quality of Trade in Value Added (TIVA) estimates. The extended supply and use table of 2012 and input-output table of 2012 are expected to be released on December 2015.

2. Background

2.1 Goods matter

Free-zone exports from Costa Rica count for almost 55% of all exports of goods (Figure 1) and 67% of overall manufactured commodities. These exporting firms belong basically to industries such as electronic components (batteries, cables, motors), medical appliances, orange and pineapple juices, fruit provisionally preserved not for immediate consumption, rubber tires and others. These exports go mainly to United States and European Union markets. Exports carried

out by non-free zones (also known as definitive regime) are basically food and electric products and are destined mainly to Central America.



Some agricultural industries (pineapple, bananas, melon, coffee beans, plants, flowers) do not export under free zones and account for 25% of total Costa Rican exports. These are particular industries because most of the production is exported (United States) and they are dominated by foreign controlled firms. Each one of these products is shown explicitly in the extended supply and use table.

2.1.1 Manufacturing services on physical inputs owned by others

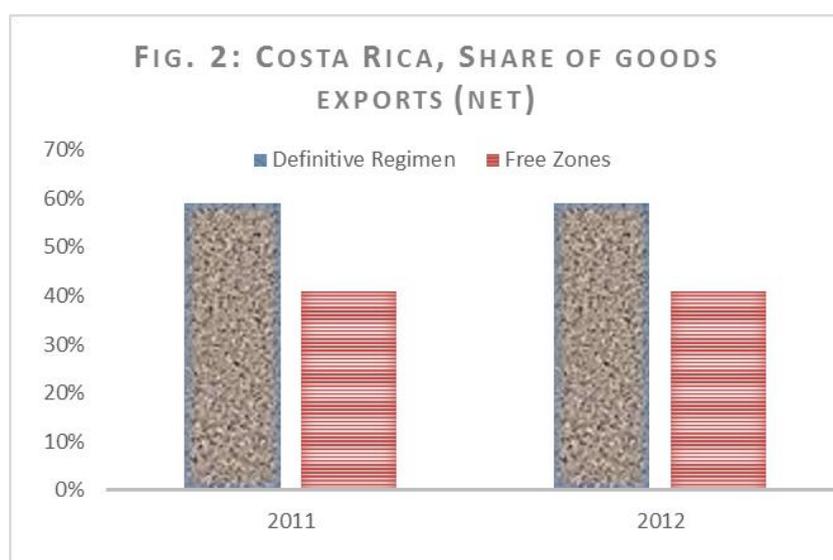
In recent years, globalized production processes have acquired more relevance. In this context, some companies in free zones received goods, without changing economic ownership, for transformation purposes. According to the Sixth Edition Balance of Payments Manual (BPM6), these goods for processing, whose ownership remain to be of non-residents, should be excluded from the goods account and the value of service is accounted as an export of manufacturing services. The recommended treatment in BPM6 for the processing of goods on behalf of others has an impact on the level of trade flows which are ultimately recorded in the balance of payments.

Given that Costa Rica follows the recommended treatment in BPM6 for the registration for these particular cases of manufacturing services, the extended supply and use table rules out exports

and imports of commodities for processing firms and instead records an export of a manufacturing service¹.

In Costa Rica, exports of companies involved in manufacturing services represent about 23% of total exports and 15% of total imports. These exporting firms are import-intensive and due to transfer pricing some top exporting companies show higher imports than exports.

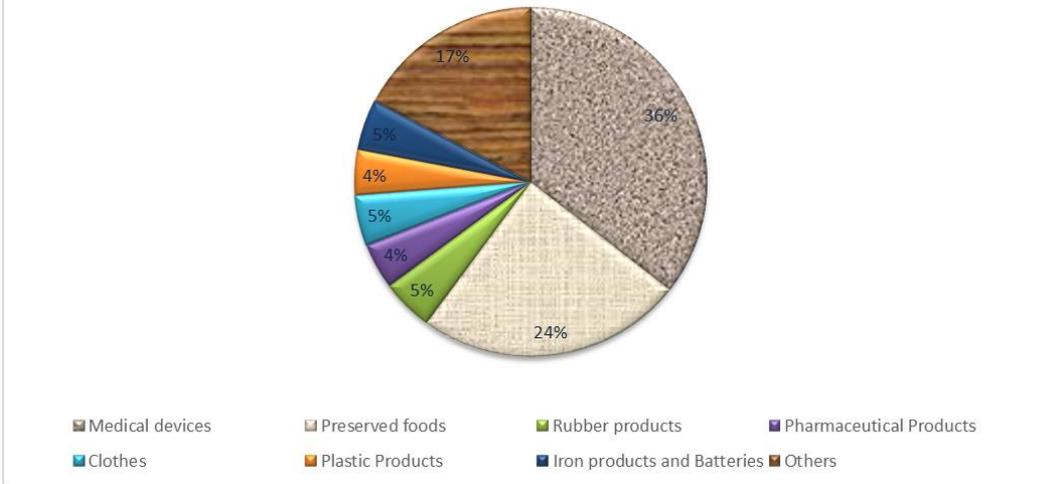
Processing firms are located mainly in electronic industries and once processing firm's trade flows have been shutting out, free-zone exports account for 41% of goods exports on a net basis (see Figure 2).



Around fifty economic activities are carried out in free zones. Companies in free zones are linked up to different stages within global value chains and because of it, the relation of each firm in terms of inputs with the domestic economy is different. For example, on one hand, medical supplies inputs are mainly imported. On the other hand, over the past years foreign controlled firms producing preserved foods (for immediate or not immediate consumption) have been located in Costa Rica and they have a strong relation with the domestic economy in terms of agricultural inputs.

¹ Administrative records available to the country make it easier to implement this recommendation because companies directly report the rate charged by the prosecution. Therefore, breaking down industries between free zones and non-free zones does not require additional data collection.

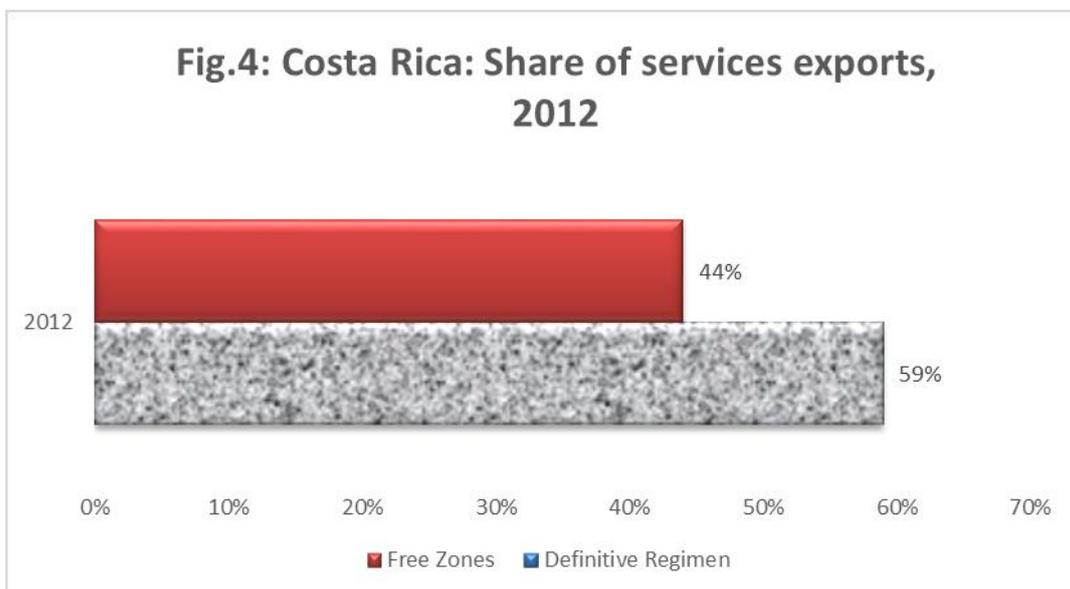
Fig 3: Costa Rica, free zones exports by product



2.2 Services matter

Services comprise over 40% of all exports in Costa Rica and around 60% of GDP. As shown on Figure 4, export services represent 44% of free zone exports and 59% of definitive regimen exports. Free-zones services exports are concentrated in management consulting, telephone call centers, shared services, packaged software and manufacturing services. Excluding tourism related activities, free-zone services exports can explain around 65% of the total exports of services.

Fig.4: Costa Rica: Share of services exports, 2012



3. Deriving an extended supply and use table

Costa Rica's supply and use table follows the accounting standards recommended by the SNA 2008. The supply and use table involves the compilation of a set of integrated production and generation of income accounts by drawing upon detailed data from surveys and census. Furthermore, with a complete set of product balances, supply and use tables can be generated.

3.1 Production account and generation of income account

The production account shows the output of production and the various inputs to it. The generation of income account shows how much of value added is generated by labor in the form of compensation of employees, how much is payable to government in taxes less subsidies on products, and how much goes to the contribution of capital.

Currently in Costa Rica there are almost four hundred companies in free zones. These firms differ in many aspects from firms that mainly produce for the domestic market in terms of employment of skilled workers, wages, ownership and investment.

The production account and the generation of income account for free zones and by industry are compiled using detailed data from a census². Non Non-free zones data is collected from a survey. Detailed data is obtained about wages, employment, sales (external and domestic), investment and inputs by product.

Each company is classified according to their main activity. The industry classification used for compiling the production and generation account is based on the International Standard Industrial Classification of all Economic Activities, revision 4 (ISIC Rev. 4).

² Financial information is submitted to the Costa Rican Export Promotion Agency by firms operating under the free-trade zone special regime. The system of National Accounts has access to this information. Data from all firms are processed.

Table 1.

THE PRODUCTION AND GENERATION OF INCOME ACCOUNT

Transactions and balancing items	Total economy	Non-financial corporations			Financial corporations	General government	Households	NPISHs
		Public non-financial corporations	Private non-financial corporations					
			Free Trade Zone	Definitive regime				
OUTPUT								
Market output								
Output for own final use								
Non-market output								
INTERMEDIATE CONSUMPTION								
TOTAL GROSS VALUE ADDED/GDP								
Compensation of employees								
Taxes less subsidies on production and imports								
Mixed income, gross								
Operating surplus, gross								
Consumption of fixed capital -mixed								
Consumption of fixed capital - other								

Detailed information collected for tax purposes reveals intercompany transactions, making it possible to identify free-zones firms' purchases in the domestic market. These data and products balances allow to estimate domestic and imported inputs.

3.2 Product Balances

The amount of product available for use within the economy must have been supplied either by domestic producers or by imports. The same amount of a product coming into the economy within an accounting period must be used for intermediate consumption, final consumption, capital formation (including change in inventories) or exports.

Output + imports = intermediate consumption + final consumption + capital formations + exports.

The use of product is usually valued at purchase prices but production at basic prices is necessary to add trade, transport margins, and net taxes (taxes minus subsidies) to products.

There is a distinction in each product balance between free zones and definitive regime. Furthermore, there is a distinction between the imported and the domestic component. The main source of import and export values for goods is the customs trade data, where imports and exports are identified by firm. Imported and exported products are aggregated according to the Central Product Classification, rev 2.0 (CPC 2.0) and then aggregated by the Costa Rican Standard Products in order to incorporate them in the products balance. Free zones' output data comes

from financial reports, as well as the use of the products (local sales or exports). Except for some isolated cases, local sales represent a low share from total sales.

Table 2

THE PRODUCT BALANCES

		TOTAL			IMPORTED COMPONENT			DOMESTIC COMPONENT			
		Definitive regime	Free Trade Zone	Total	Definitive regime	Free Trade Zone	Total	Definitive regime	Free Trade Zone	Total	
SUPPLY	OUTPUT										
	Market output										
	Output for own final use										
	Non-market output										
	IMPORTS										
	TAXES ON PRODUCTS										
	SUBSIDIES ON PRODUCTS										
	TRADE AND TRANSPORT MARGINS										
	TOTAL OF THE SUPPLY										
	USES	INTERMEDIATE CONSUMPTION OF INDUSTRIES									
		FINAL CONSUMPTION EXPENDITURE									
Households											
NPISHS											
General government											
GROSS CAPITAL FORMATION											
Gross fixed capital formation											
Changes in inventories											
Acquisition less disposals of valuables											
EXPORT FOB											
TOTAL OF THE USES											

3.3 Extended Supply and Use table

The supply and use table is a necessary first step in order to make input-output tables. Supply and use tables record how supplies of different kinds of goods and services originated from domestic industries and imports are allocated between intermediate or final uses (including exports) . Total supplies and uses of individual types of goods and services have to balance out.

The Costa Rican supply and use table is compiled product by product at the level of 183 products and 136 economic activities. For 2012, the new reference year, there is a breakdown (free zones and definitive regime) in fifty economic activities including services. Also, exports and imports by product will be released identifying free zones and definitive regime separately.

There is a separate estimate of re-exports, which are any imports recorded in the import trade statistics (column of the supply table) that are subsequently exported without any further transformations. Also, non-residents' expenditures in the domestic economy and residents' expenditures abroad are recorded.

Table 3

THE SUPPLY AND USE TABLES (SUT)

SUPPLY TABLE	INDUSTRIES	OUTPUT BY INDUSTRIES						TOTAL ECONOMY	IMPORTS			CIF/FOB ADJUSTMENTS ON IMPORTS	TAXES ON PRODUCTS	SUBSIDIES ON PRODUCTS	TRADE AND TRANSPORT MARGINS
		Industry 1		Industry 2		Total			GOODS	SERVICES	TOTAL				
		Free Trade Zone	Definitive regime	Free Trade Zone	Definitive regime	Free Trade Zone	Definitive regime								
		PRODUCTS													
Product 1															
Product 2															
Product 3															
Total															

USE TABLES	INDUSTRIES	INTERMEDIATE CONSUMPTION OF INDUSTRIES						TOTAL ECONOMY	EXPORT FOB			FINAL CONSUMPTION EXPENDITURE				GROSS CAPITAL FORMATION			
		Industry 1		Industry 2		Total			GOODS	SERVICES	TOTAL	HOUSEHOLDS	NPISHS	GENERAL GOVERNMENT	TOTAL	GROSS FIXED CAPITAL FORMATION	CHANGES IN INVENTORIES	ACQUISITION LESS DISPOSAL OF VALUABLES	TOTAL
		Free Trade Zone	Definitive regime	Free Trade Zone	Definitive regime	Free Trade Zone	Definitive regime												
		PRODUCTS																	
Product 1																			
Product 2																			
Product 3																			
Total																			

VALUE ADDED	TOTAL GROSS VALUE ADDED/GDP						
	Compensation of employees						
	Taxes less subsidies on production and imports						
	Mixed income, gross						
	Operating surplus, gross						
	Consumption of fixed capital - mixed						
	Consumption of fixed capital - other						
	LABOUR INPUTS						

3.4 Input-Output table

Currently the Costa Rica National Accounting office is working on an input-output table that breaks down economic activities into free zones and definitive regime. There is also an additional split of the symmetric input-output table in two tables: one containing only the use of domestically produced products and another one containing the use of imported products. In each one of these symmetric matrices the breakdown into free zones and definitive regime will be implemented. This breakdown will be held both at the level of columns and rows. An import matrix is being prepared in order to give more consistency to the use of imported products.

This breakdown will be implemented for both intermediate consumption and the components of final demand (final consumption, capital formation and exports). The information for this breakdown is based on the used components from products balances. Moreover, there will also be a breakdown by employment category.

4. Final considerations

The breakdown in free zones and definitive regime makes it easier to conciliate and detail analyses of production and flows of goods and services by type of products. This allows a higher consistency within the national accounting central framework and improves the quality of the supply and use table. Furthermore, this breakdown could make it easier for some forecasts and economic analysis to be carried out through input-output tables.

Preliminary data shows a share in value added of free zones of 7.3%, accounting for 13% of non-financial private sector value added. Free-zone exports are focused on medical devices, preserved foods, manufacturing services produced by manufacturing companies and other services such as management consulting. These activities are in the top seven market economic activities of the country in terms of value added. The importance of preserved foods across all free-zone exports is noticeable because of its strong link to agricultural industry.

Furthermore, 4% of employment is generated directly in free zones and salaries and gross value added per person employed are 60% and 200% higher than rest of the economy, respectively. Salaries paid in free zones account for 15% across all salaries paid in the non-financial private sector.

Employment in exporters' activities increased from 6% to 8%, taking into account other economic activities mainly oriented to international markets such as producing agricultural commodities.

In the midterm we expect to develop a procedure that allows the record of property income payments both paid abroad as well as received from abroad by economic activities in free zones.

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