

# Costa Rica: Extended supply and use tables and non-financial private sector accounts to address globalization

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## **Abstract**

Costa Rica is a highly open economy. In recent years, exports and imports accounted for 34% and 33% of GDP, respectively, while Foreign Share firms (FSFs) accounted for approximately 64% of exports and Direct Investment (DI) that amounted to 4% of GDP.

FSFs include multinational corporations that primarily target foreign markets and are connected to different stages within global value chains, resulting in dissimilar levels of interaction with domestic markets; some of these firms have no connection with domestic markets, while others have Domestic Control Firms (DCFs) as their main suppliers. FSFs complement domestic savings, transfer technology and knowledge, and generate employment and spillover effects that contribute to economic growth.

This dynamic causes heterogeneity within the economy in many areas, such as income payments to the rest of the world, production functions, and foreign content ratios. In order to deal with these particularities, the Central Bank of Costa Rica compiles extended institutional sector accounts, a supply and use table, and an input-output table to provide enhanced tools for economic analysis, research and projections: the supply and use table provides a breakdown between DCFs and FSFs for each economic activity, the institutional sector accounts explicitly show DI data, and private non-financial sector accounts are sub-sectorized between DCFs and FSFs. This paper highlights recent work carried out in Costa Rica to develop these products, and some results obtained from analysis of this data.

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## Acronyms

<b>BCCR</b>	Central Bank of Costa Rica
<b>BoP</b>	Balance of Payments
<b>CES</b>	Corporate Economic Study
<b>CPC</b>	Central Product Classification
<b>DCFs</b>	Domestic Control Controlled Firms
<b>DI</b>	Direct Investment
<b>DR</b>	Definitive Regime
<b>ESUT</b>	Extended supply and use table
<b>FSFs</b>	Foreign Share Firms
<b>FTZs</b>	Free Trade Zones
<b>GVCs</b>	Global Value Chains
<b>IOT</b>	Input-output Table
<b>ISAs</b>	Institutional Sector Accounts
<b>ISIC</b>	International Standard Industrial Classification of all Economic Activities
<b>NAs</b>	National Accounts
<b>NPCR</b>	Costa Rican Standard Product Classification
<b>NPISHs</b>	Non-Profit Institutions Serving Households
<b>OECD</b>	Organization for Economic Co-operation and Development
<b>REVEC</b>	Registry of Economic Variables

## 1. Background

Costa Rica is a highly open economy. In recent years, exports and imports accounted for 34% and 33% of GDP, respectively, while Foreign Share firms (FSF) accounted for approximately 64% of exports and Direct Investment (DI) that amounted to 4% of GDP.

A firm is classified as an FSF if a foreign investor has a capital participation in the firm equal to or greater than 10% of its total capital (International Monetary Fund, 2010, 362). There are around 1,300 FSFs in Costa Rica, carrying out nearly 93 economic activities. These companies are primarily 100% owned by foreign direct investors and differ from DCFs in features such as employment of skilled workers, wages, investment, and income paid abroad. Moreover, FSFs are linked to diverse stages within global value chains and their relations with the domestic economy vary widely. For instance, medical device industries depend on imported inputs, and therefore have a limited connection with the domestic economy, while companies that produce preserved foods have a strong connection with the domestic economy due to their dependence on domestic agriculture.

The dynamics of FSFs lead to heterogeneity within the economy that affects the statistical landscape, creating a need for more granular data about income, employment, supply and demand relationships, and the linkages between export and domestic firms. To meet the needs of policymakers and researchers, the Central Bank of Costa Rica has created an extended supply and use table (ESUT), an input-output table (IOT) and institutional sector accounts (ISAs) that present data about FSFs.

FSFs are located predominately in free zones. The supply and use table, from 2012 to 2016, distinguishes between free zones and the definitive regime (DR) <sup>1</sup> for each economic activity under the auspices of the OECD Expert Group on Extended Supply and Use Tables

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<sup>1</sup> Costa Rica has two customs regimes: Free Zones (FZs), whose occupants are predominantly FSFs which receive more than half of the country's DI and generate more than half of its cross-border exports; and the Definitive Regime (DR), in which FSFs are located outside FTZs and operate mostly in the lodging, health, retail, restaurant, food products and beverages sectors.

(Saborío, G. 2015). Based on this scheme, a switch to FSFs and DCFs was implemented in the new rebase year national accounts for 2017<sup>2</sup> (Figure 1).

**Figure 1. Costa Rica. Extended supply and use table**



A firm is classified as an FSF if a foreign investor has a capital participation in the firm equal to or greater than 10% of its total capital (International Monetary Fund, 2010, 362).

## 2. Data sources and estimation methods

Free zone firms represent 26% of FSFs, and data from financial statements which are available for each firm on an annual basis are used in BoP, ESUT and ISA calculations (Appendix 1).

For the new reference year 2017, a census that collected detailed data for income, expenses, DI flows and positions was carried out for FSFs operating under the definitive regime, which not only provided DI data but also National Accounts (NAs) data for the ESUT and ISAs (Figure 2).

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<sup>2</sup> Process of replacing 2012 price structure (base year) to compile volume measures of GDP with a new base year (2017).

**Figure 2. Costa Rica: DI data sources (2017)**



SOURCE: MACROECONOMIC STATISTICS DEPARTMENT

Administrative reports are a significant source of DI data for firms operating under the definitive regime, which can be divided into two groups – A and B. Group A contains large firms which provide detailed information about assets, liabilities and equity. Group B contains small firms that report only totals of assets, liabilities and equity and therefore these totals are distributed with data surveys for related companies (Figure 3).

**Figure 3. Costa Rica: Use of administrative data**



The census provided a sample frame which could be used in the sample designs for balance of payments and national accounts surveys of firms operating under the definitive regime. The NAs survey, referred to as the Corporate Economic Study (CES), is applied on an

annual basis and the results are modified by applying expansion factors for use in the ESUT and ISAs (Appendix 1). The CES annual sample is regularly revised to consider FSFs in each economic activity (Saborío, G., & Torres, R. 2018, March 9–10).

In order to homologate concepts, definitions, and classifications, the NA and BoP teams modified the NA questionnaires to obtain harmonized statistics.

### **3. Deriving extended national accounts**

Costa Rica's ESUT follows the accounting standards recommended by the SNA 2008.

#### **3.1 Production and generation of income accounts**

The production account shows the output and the inputs used in the production process. The generation of income account presents the value added generated by labor in the form of employee compensation, payments to government in taxes less subsidies on products, and the contribution of capital. The production and generation of income account is represented by a breakdown between foreign share and domestic control using financial statements of free zones and the CES (Figure 4).

The industry classification used for compiling the production and generation accounts is based on the International Standard Industrial Classification of all Economic Activities, revision 4 (ISIC Rev. 4).



**Figure 4. 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					
			Foreign Share	Domestic Control				
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								

**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

\* NPISHs - non-profit institution serving households

### 3.2 Product balances

The amount of each product available within the economy is supplied either by domestic producers or through imports, and is used for intermediate consumption, final consumption, capital formation (including change in inventories) or exports. The use of each product is valued at purchase prices, but the output is valued at basic prices, which makes it necessary to add trade, transport margins, and net taxes (taxes minus subsidies) to each product's output (Figures 5 and 6).

There is a distinction in each product balance between DCFs and FSFs. The main source of import and export statistics comes from the customs trade. Linking customs data and the Registry of Economic Variables (REVEC) using the importer's and exporter's identification code makes it possible to identify imports and exports of DCFs and FSFs (Annex 1). Imports and exports are coded according to the Central Product Classification (CPC 2.1) and then aggregated in terms of the International Standard Industrial

Classification of all Economic Activities, revision 4 (ISIC Rev. 4) in order to incorporate them into the products balance.

**Figure 5. Product balances: Supply**

	TOTAL			IMPORTED COMPONENT			DOMESTIC COMPONENT		
	Foreign Share	Domestic Control	Total	Foreign Share	Domestic Control	Total	Foreign Share	Domestic Control	Total
<b>OUTPUT</b>									
Market output									
Output for own final use									
Non-market output									
<b>IMPORTS</b>									
<b>TAXES ON PRODUCTS</b>									
<b>SUBSIDIES ON PRODUCTS</b>									
<b>TRADE AND TRANSPORT</b>									
<b>MARGINS</b>									
<b>TOTAL OF THE SUPPLY</b>									

**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

**Figure 6. Product balances: Use**

	TOTAL			IMPORTED COMPONENT			DOMESTIC COMPONENT		
	Foreign Share	Domestic Control	Total	Foreign Share	Domestic Control	Total	Foreign Share	Domestic Control	Total
<b>INTERMEDIATE CONSUMPTION OF INDUSTRIES</b>									
<b>FINAL CONSUMPTION EXPENDITURE</b>									
Households									
<b>NPISHS</b>									
General government									
<b>GROSS CAPITAL FORMATION</b>									
Gross fixed capital formation									
Changes in inventories									
Acquisition less disposals of valuables									
<b>EXPORT FOB</b>									
<b>TOTAL OF THE USES</b>									

**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

Detailed information collected for tax purposes reveals intercompany transactions, allowing identification of DCF and FSF purchases in the domestic market. These data and products balances make it possible to estimate domestic and imported inputs.

### 3.3 Extended supply and use tables

Creation of the supply and use tables is a necessary first step in the construction of input-output tables. Supply and use tables record how supplies of different kinds of goods and services originating 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 must balance out.

The Costa Rican supply and use table is compiled product by product with reference to 184 products and 144 economic activities. Since 2017, the new national accounts reference year, the data for fifty economic activities including services may be disaggregated into DCFs and FSFs (Figure 7).

**Figure 7. Supply and Use Table (SUT)**

SUPPLY	INDUSTRIES	OUTPUT BY INDUSTRY						IMPORTS				G/FOS BALANCE*	TAXES ON PRODUCTS	SUBSIDIES ON PRODUCTS	TRADE AND TRANSPORT MARGINS
		Industry 1		Industry 2		Total		GOODS	SERVICES	TOTAL					
		Foreign Shared	Domestic Control	Foreign Shared	Domestic Control	Foreign Shared	Domestic Control								
PRODUCTS															
Product 1															
Product 2															
Product 3															
TOTAL															

USE	INDUSTRIES	INTERMEDIATE CONSUMPTION BY INDUSTRY						EXPORTS FOB			FINAL CONSUMPTION EXPENDITURE				GROSS CAPITAL FORMATION				
		Industry 1		Industry 2		Total		GOODS	SERVICES	TOTAL	HOUSEHOLDS	BUSINESS	GOVERNMENT	TOTAL	GROSS FIXED CAPITAL FORMATION	CHANGES IN INVENTORIES	ACQUISITION OF FINANCIAL ASSETS	DISPOSAL OF FINANCIAL ASSETS	TOTAL
		Foreign Shared	Domestic Control	Foreign Shared	Domestic Control	Foreign Shared	Domestic Control												
PRODUCTS																			
Product 1																			
Product 2																			
Product 3																			
TOTAL																			

VALUE ADDED	INDUSTRIES														
	Industry 1	Industry 2	Total	Industry 1	Industry 2	Total	Industry 1	Industry 2	Total	Industry 1	Industry 2	Total	Industry 1	Industry 2	Total
TOTAL GROSS VALUE ADDED/GDP															
Compensation of employees															
Taxes less subsidies on products and imports															
Mixed income, gross															
Operating surplus, gross															
Consumption of fixed capital - mixed															
Consumption of fixed capital - other															
LABOUR INPUTS															

SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

### 3.4 Input-output table

The input-output table data on economic activities is broken down into DCFs and FSFs. There is also an additional split of the symmetric input-output table into two tables: one containing only the use of domestically produced products and the other containing only

the use of imported products.<sup>3</sup> In each of these symmetric matrices the division mentioned above – between DCFs and FSFs is implemented in both columns and rows.

This breakdown was 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 product balances and the import matrix.

### 3.5 Integrated economic accounts

This table is distributed by non-financial corporations, financial corporations, general government, households, non-profit organizations serving households (NPOSHs), and the Rest of the World account. Private non-financial corporations are divided between DCFs and FSFs (Figure 8).

**Figure 8. Integrated Economic Accounts**

CURRENT ACCOUNTS											
ACCOUNTS	TRANSACTIONS AND ACCOUNTING BALANCES	S11	S11001	S110021	S110022	S12	S13	S14	S15	S1	S2
		Non-Financial Corporations	Public Corporations	Domestic Control	Foreign Share	Financial Corporations	General Government	Households	Non Profit Institutions	Economy	Rest of the world
I. PRODUCTION ACCOUNT / GOODS AND SERVICES WITH THE REST OF THE WORLD.											
II. 1.1. INCOME GENERATION ACCOUNT											
II. 1.2. PRIMARY INCOME ALLOCATION ACCOUNT											
II. 2 SECONDARY INCOME DISTRIBUTION ACCOUNT											
II. 3. REDISTRIBUTION OF INCOME IN KIND ACCOUNT											
II. 4 DISPOSABLE INCOME UTILIZATION ACCOUNT											
II. 4 ADJUSTED DISPOSABLE INCOME UTILIZATION ACCOUNT											

ACCUMULATION ACCOUNTS											
ACCOUNTS	TRANSACTIONS AND ACCOUNTING BALANCES	S11	S11001	S110021	S110022	S12	S13	S14	S15	S1	S2
		Non-Financial Corporations	Public Corporations	Domestic Control	Foreign Share	Financial Corporations	General Government	Households	Non Profit Institutions	Economy	Rest of the world
III.1 CAPITAL ACCOUNT											
III.2 FINANCIAL ACCOUNT											

**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

The sequence of accounts begins with the current accounts that record the production of goods and services, generation, distribution and redistribution of income among institutional units, and their use for consumption or savings. Saving is a significant indicator in FSF and DCF companies. According to the System of National Accounts 2008

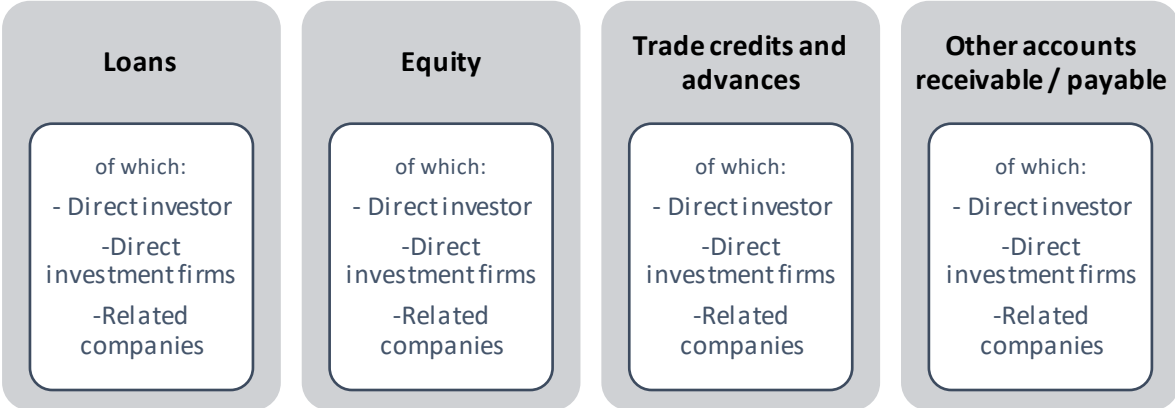
<sup>3</sup> An import matrix is prepared to provide greater consistency for the use of imported products

(7.139): “If the foreign direct investment enterprise is wholly owned by a single foreign direct investor (for example, a branch of a foreign enterprise), the whole of the retained earnings is deemed to be remitted to that investor and then reinvested, in which case the saving of the enterprise must be zero. When a foreign direct investor owns only part of the equity of the direct investment enterprise, the amount that is deemed to be remitted to, and reinvested by, the foreign investor is proportional to the share of the equity owned.”

The treatment of retained earnings and the importance of FSFs in the country required a sub-sectorization of private companies into FSFs AND DCFs to improve the analysis and quality of private sector accounts.

Additionally, the following financial instruments are shown according to the relationships between companies (Figure 9). This process was necessary to obtain figures for direct investment from the ISA data.

**Figure 9. Direct Investment Financial Instruments**



**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

## 4. Results

### 4.1 Extended input-output table: Results and applications

The results of analysis show that FSFs account for 26% of value added, 17% of employment and 66% of the country's exports (Figures 10 and 11) and are concentrated specially in manufacture and services products.

**Figure 10. Costa Rica. Contribution of the output value by share of participation (2018)**



SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

**Figure 11. Costa Rica. Exports by share of participation (2018)**

(In percentages)

Exports	DCFs	FSFs
Agricultural goods	53%	47%
Manufactured goods	18%	82%
Services	21%	79%

SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

FSFs are primarily focused on activities oriented towards external markets, such as medical devices, foods, drinks, and professional and scientific services, but also include some industries oriented to the local market, such as wholesale and retail trade. (Figure 12).

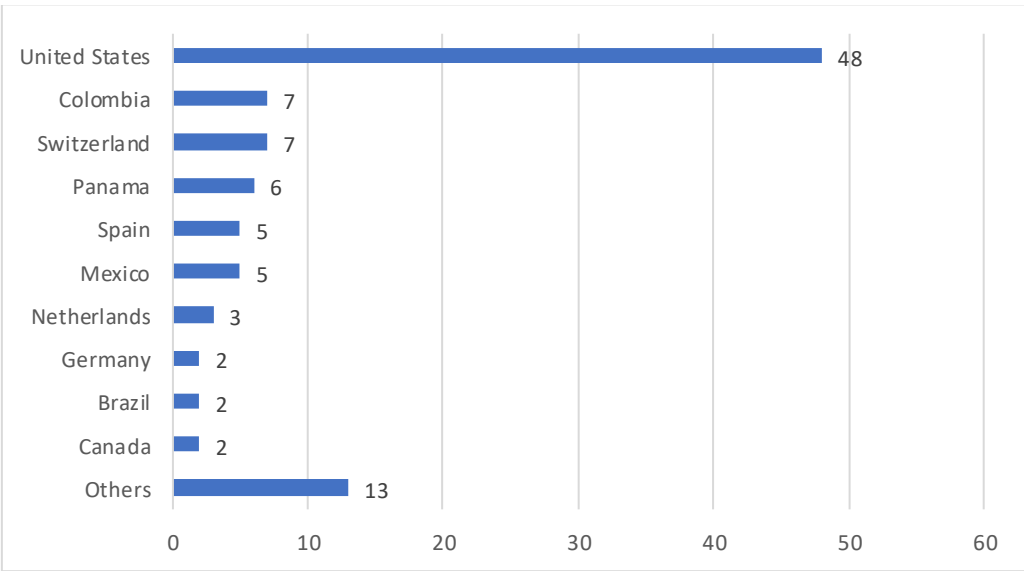
**Figure 12. Costa Rica: Distribution of output value by Foreign Share Companies, according to economic activity (2018)**



**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

Almost half of the output of FSFs (48.1%) comes from firms whose main investor is in the United States. Ownership of the other FSFs is distributed among a wide range of countries, with none of these countries representing more than 7.3% of the total (Figure 13).

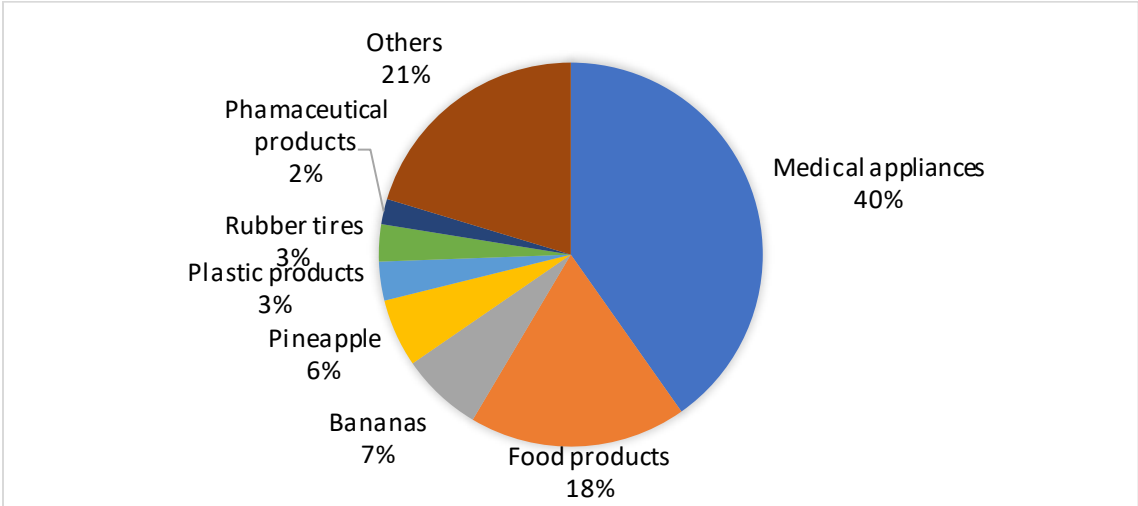
**Figure 13. Costa Rica: Distribution of output value by foreign share firms, by country of origin (in percentages).**



**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

As shown in figure 14, FSFs produce a diverse range of products, such as medical appliances, bananas, pineapple, food products, tires, and plastic products. The main markets of these exports are the United States and the European Union.

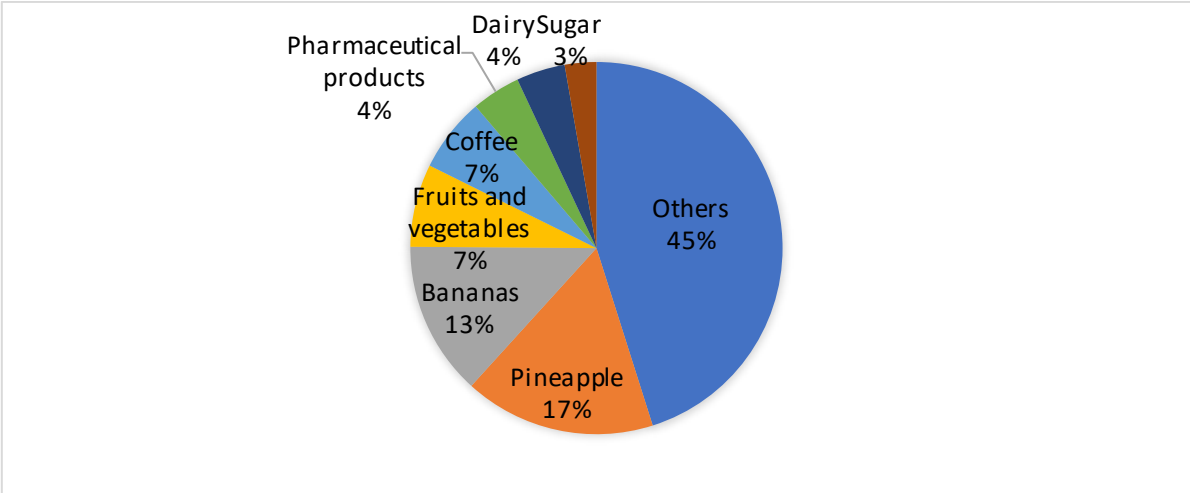
**Figure 14. Costa Rica: Composition of FSF goods exports (2018)**



SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

Exports of goods carried out by DCFs are more diverse, nonetheless, highlights bananas, pineapples, food products (coffee, dairy, fruits, sugar) and pharmaceutical products (Figure 15). These products are sold mainly to Central American partners. The group “Others” encompass an extremely diversity of products.

**Figure 15. Costa Rica: Composition of goods exports of DCF (2018)**

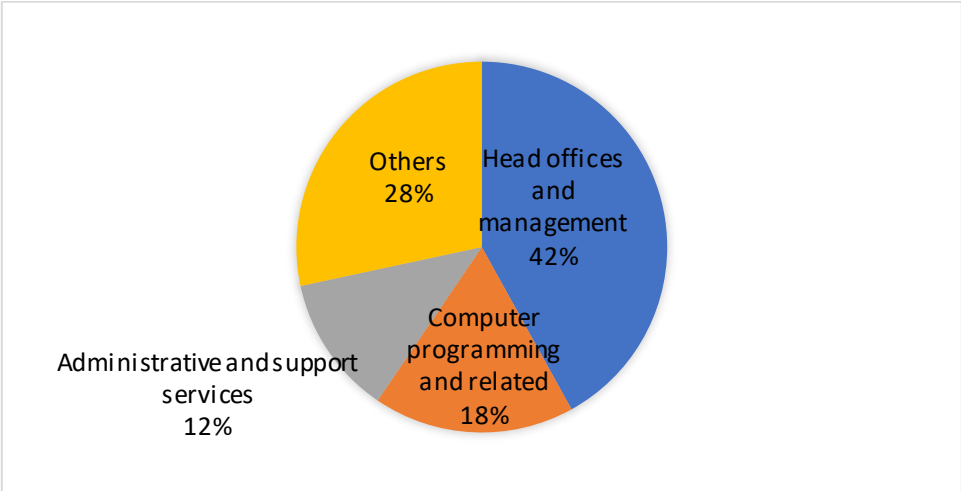


SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT



Services make up over 43% of exports from Costa Rica. As shown in Figure 16, almost half of the services exported by FSFs consist of *head offices and management services*, followed by *computer programming services* and *administrative and support services*.

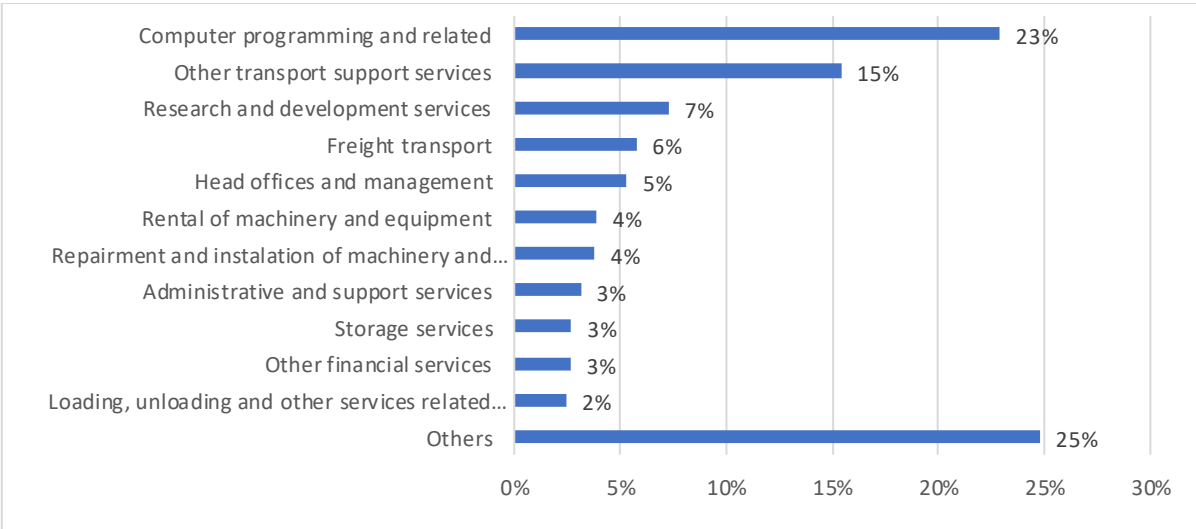
**Figure 16. Composition of FSF service exports (2018).**



**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

Service exports from DCFs are more diverse than those from FSFs. However, *Computer programming* is the most frequently exported service (23%) followed by *Other transport support services* (15%). The *Others* category (25%) encompasses a wide range of services (Figure 17).

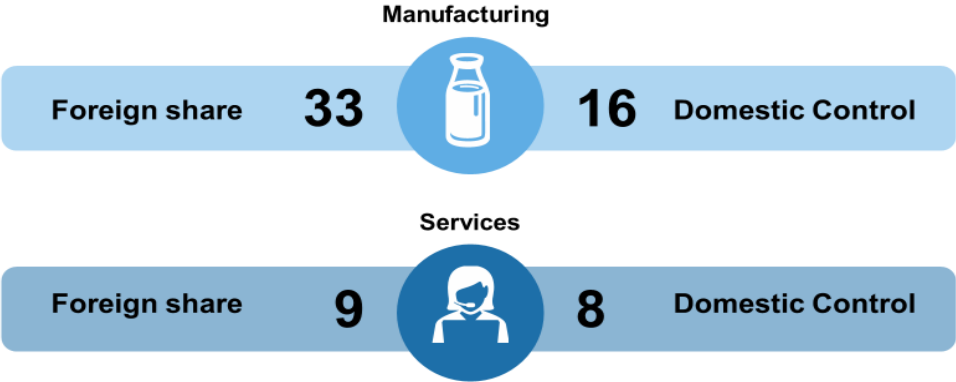
**Figure 17. Costa Rica: Composition of DCF service exports (2018)**



**SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT**

The imported component in manufacturing FSFs is double that of DCFs, while in services it is quite similar (Figure 18). At a more disaggregated level, the economic activities of manufacturing and services show behaviors similar to those of the aggregates (Figure 19).

**Figure 18. Costa Rica: Import/production (2017)**



SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

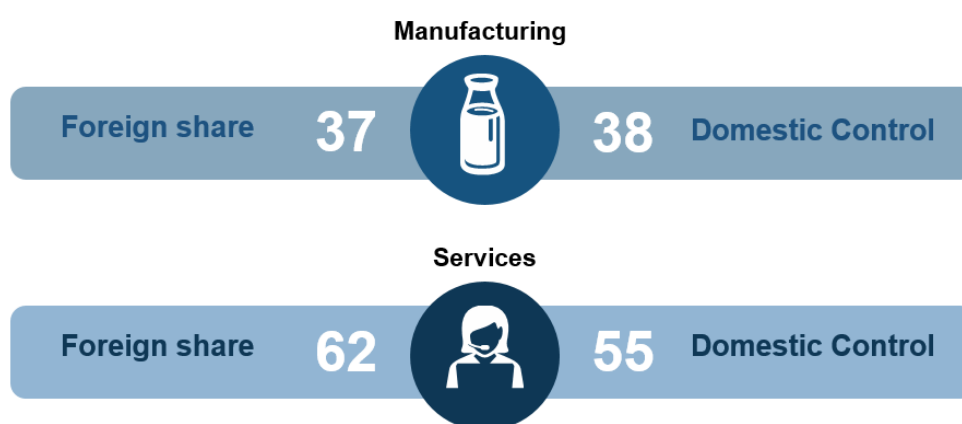
**Figure 19. Costa Rica: Main economic activities Import/production**

<b>Manufacturing</b>		FS	DC
	Medical and dental supplies	39%	18%
	Processed fruit and vegetables	18%	11%
	Plastics products	50%	39%
<b>Services</b>		FS	DC
	Computer programming and related	4%	4%
	Head offices and management	8%	3%
	Administrative and support service	7%	3%

SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT



Manufacturing FSFs have a slightly lower value added/output ratio than the DCFs, but the ratio for FSFs in the case of services exceeds that of DCFs by 7 percentage points. Differences in these ratios are especially notable in the cases of medical devices and processed fruit and vegetables, where the ratios for DCFs are substantially higher than those of FSFs, and in administrative and support services, where the ratio for FSFs is much higher than that for DCFs (Figures 20 and 21).

**Figure 20. Costa Rica: Value added/production (2018)**



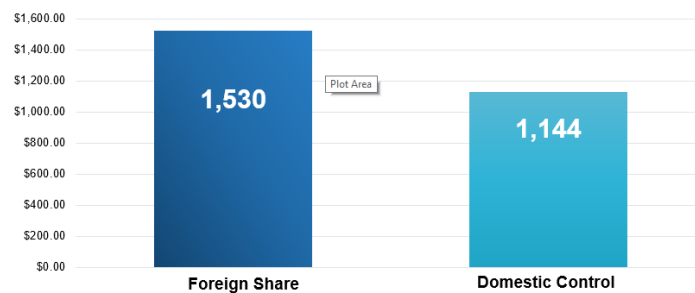
SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

**Figure 21. Costa Rica: Main economic activities, value added/production**

<b>Manufacturing</b>		FS	DC
	Medical and dental supplies	48%	56%
	Processed fruit and vegetables	31%	47%
	Plastics products	27%	30%
<b>Services</b>		FS	DC
	Computer programming and related	79%	77%
	Head offices and management	72%	62%
	Administrative and support service	75%	60%

Salaries in FSFs are 35% higher than those in the rest of the economy (Figure 22), and account for 17% of all salaries paid in the economy.

**Figure 22. Costa Rica: Average monthly compensation  
(in dollars)**



SOURCE: REBASE OF THE NATIONAL ACCOUNTS PROJECT, MACROECONOMIC STATISTICS DEPARTMENT

## 4.2 Extended input-output table: Some applications

Rasmussen-Hirschman coefficients were calculated using the extended input-output table to determine the impact that changes in a given economic activity's output have on other economic activities. In some cases, the results of these analyses change when disaggregating data between FSFs and DCFs.

For example, without such disaggregation, "Legal Services" is categorized as generally independent from the rest of the economy, but when using disaggregated data FSFs are categorized as independent, while DCFs are considered to be dependent on Interindustry Supply. Similarly, "Accounting activities" for both FSFs and DCFs are classified as dependent on Interindustry Supply when considered separately, while they are classified as independent when considered in the aggregate.

Extended tables enhance analysis by providing a more precise specification of the relationship between economic activities. Inputs used in an economic activity differ according to the ownership of capital, and if this factor is not taken into account during analysis any conclusions reached can be biased.

Extended tables have contributed to a better perspective on how the economy works and how its activities interact. The ESUT has also made it possible to implement innovative analytical tools which provide valuable input for policy-making and decision planning.

### 4.3 Institutional sector accounts: Results

The results of compiling ISAs for 2018 show the heterogeneity that exists between DCFs and FSFs. This highlights the importance of having detailed information which will allow exhaustive analysis of characteristics, behavior, sources of financing, and interaction with other sectors and the rest of the world.

**Figure 23. Costa Rica: Non-financial private sector (2018)**

(expressed in percentages of respective outputs)

	<i>DCFs</i>	<i>FSFs</i>
Value added	49.6%	49.2%
Compensation of employees	22.8%	23.5%
Operating surplus, gross	24.8%	24.0%
Distributed income of companies	11.9%	8.3%
Reinvested earnings on foreign direct investment	0.0%	5.4%
Primary income, gross	13.4%	7.2%
Disposable income, gross	9.0%	4.6%
Net savings / Current balance	5.9%	0.5%
Gross capital formation	8.2%	12.3%
Net loan (+) / Net debt (-)	0.5%	-7.8%

**Source: Central Bank of Costa Rica**

As shown in Table 23, DCFs and FSFs exhibit similar behavior in terms of value added as a share of output. The value for FSFs is higher than that of DCFs for employee compensation and lower than the DCF value for operating surplus, and the DCF value for income distribution per unit of production is also higher than that for FSFs.

Gross primary income is lower for FSFs than for DCFs since that reinvested earnings on foreign direct investment are treated as if they are paid abroad and return to the economy as equity.

Gross capital formation was higher in relative terms than FSF, producing a negative Net loan (+) / Net debt (-) that indicates the need of the country for financing from the rest of the world.

## **5. Concluding remarks and challenges**

Abrupt changes in imports, exports, or in the production of FSFs cause abrupt changes in aggregates. If the equilibria at the product level of the supply and use table are analyzed without distinguishing between FSFs and DCFs, in the balancing process it will be necessary to investigate in which group these abrupt changes originated. Working on balances by product with information that identifies FSFs and DCFs, the reason for abrupt changes can be clearly identified, which facilitates decision-making. In turn, the quality of the supply and use table improves and streamlines the process.

Analyzing global value chains and trade in value added requires new products and improvements in statistics on global production. Use of the ESUT facilitates the process of compiling a satellite account for Global Chains of Value, which allows a more in-depth analysis of how Costa Rica interacts with the rest of the world and improves policy making.

The ESUT also makes it easier for some forecasts and economic analysis to be carried out through input-output tables and provides a better understanding of the relationships that occur within an economy.

FSF as sub-sector and detailing in financial instruments of direct investment into ISA improved reconciliation with balance of payments.

The main challenge is to break down the allocation of primary income by economic activity (interest, reinvested earnings of foreign direct investment and other investment income).

## 6. References

- Aguero, D. & Chaverri, C. (2017). Encadenamientos productivos en Costa Rica: caracterización del régimen definitivo y de regímenes especiales. Departamento de Investigación Económica. BCCR
- Fetzer, J., Howells, T., Jones, L., Strassner, E., Wang, Z. 2016. Estimating Extended Supply-Use Tables in Basic Prices with Firm Heterogeneity for the United States: A Proof of Concept. The Fourth World KLEMS Conference. Bureau of Economic Analysis, U.S. Department of Commerce.
- International Monetary Fund. (2010). Balance of Payments Manual, Sixth Edition (6.a ed.) INTERNATIONAL MONETARY FUND.  
<https://doi.org/10.5089/9781589068124.069>
- International Monetary Fund. (2009). System of National Accounts 2008. INTERNATIONAL MONETARY FUND.  
<https://doi.org/10.5089/9789211615227.071>
- Miller, R. E., & Blair, P. D. (2009). Input Output Analysis. Cambridge University Press.
- Saborio, G. (2015). Costa Rica: An Extended Supply-Use Table. 23rd International Input-Output Association Conference, Mexico DF, Mexico.
- Saborio, G., & Torres, R. (2018, March 9–10). Costa Rica: Integrating foreign direct investment data and extended supply and use tables into national accounts [Paper Presentation]. Conference on Research in Income and Wealth (CRIW): The Challenges of Globalization in the Measurement of National Accounts, Washington DC, United States.
- Saborio, G. and Ramírez, F. 2015. Costa Rica Import Matrices Compilation: Proportionality Assumption and Tracking Imported Inputs. Rebase of the National Accounts Project, Macroeconomic Statistics Department. Banco Central de Costa Rica
- OECD (2015), Expert group on extended Supply-Use Tables. Terms of reference. OECD.
- OECD (2007), "The input-output table and integrated economic accounts", in Understanding National Accounts, OECD Publishing, Paris,  
<https://doi.org/10.1787/9789264027657-10-en>
- Aguero, D. & Chaverri, C. (2017). Encadenamientos productivos en Costa Rica: caracterización del régimen definitivo y de regímenes especiales. Departamento de Investigación Económica. BCCR

## 7. Appendix

### 7.1 Appendix 1. Data sources

<b>Table 1. Data sources</b>	
<b>Registry of Economic Variables (REVEC)</b>	Records characteristics of enterprises such as location, sales, establishments and type of ownership (equity corresponding to non-residents).
<b>Free trade zone regime (FTZs) reports</b>	FTZ residence is granted to enterprises seeking to promote Direct Investment, trade exchange and employment for the country. As part of the obligations of FTZ beneficiaries, they must submit detailed financial statements to the Costa Rica Export Promotion Agency (PROCOMER), to which the BCCR has access.
<b>Balance of payments survey (BoPs).</b>	A quarterly survey to obtain BoP information, which contains a module to aid in the estimation of DI that collects information about assets and liabilities with non-residents, making it possible to know whether a transaction is with related companies, a direct investor, a direct investment company or other non-residents.
<b>Information about Superintendencies</b>	Data about the financial sector.
	This is a very detailed administrative record that shows the from whom to whom transactions take place on an annual basis. Each company reports its sales and counterpart purchases for amounts greater than the equivalent of US \$ 4,700 in a fiscal year. This database is also compared with the REVEC, which permits classifying wholesale sales by economic activity and thus reveals intercompany transactions, which in turn



<p><b>Ministry of Finance special report form D151</b></p>	<p>makes it possible to identify the purchases of free zone companies in the domestic market and thus estimate intermediate consumption flows between the different categories of companies (that is, Free Zones vs Definitive Regime) (Chacón et al, G. 2017).</p>
<p><b>Trade Enterprise Characteristics (TEC)</b></p>	<p>This links trade data and the REVEC using the importer’s and exporter’s identification codes. Matching company profiles and Harmonized System categories at the most detailed level allows identifying the users of specific imported products and determines if the product is used for intermediate consumption, final consumption or gross capital formation. Over 90% of an import’s value can be determined based on the importer’s profile. In addition, it is possible to identify the exporter’s economic activity (Chacón et al, G. 2017).</p>
<p><b>Corporate Economic Study (CES)</b></p>	<p>The objective of this survey is to collect data from non-financial private companies for National Accounts. The CES is applied on an annual basis to a fixed group of firms called “large corporations” and to a random sample of companies that belong to the “rest of private non-financial firms”. The content of the survey includes: identification of each firm, description of their activities and products, turnover per product, other revenues (non-financial and financial), detailed costs, surplus/deficit, income taxes and detailed taxes on production, employment, a detailed balance sheet, and a DI module. The unit of selection is the company and the analysis unit is the establishment, the first is used for the institutional account, and the second for the economic activity.</p>
<p><b>National real estate</b></p>	<p>This is the main source of information about real estate investment, and is based on passport numbers; it contains data</p>

**registry** on non-resident natural persons that make real estate investments in the country.

Source: Prepared by the authors.