Costa Rica: Integrating foreign direct investment data and extended supply and use tables into national accounts

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Conference on Research in Income and Wealth (CRIW): The Challenges of Globalization in the Measurement of National Accounts, March 9-10, 2018

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ABSTRACT

Daily economic transactions are increasingly influenced by globalization, and there is growing demand for a better understanding of the impact of globalization within the economic accounts, and in particular its increasingly interconnected nature. This of course matters in all countries but in Costa Rica, which is a very open economy, the need to provide better evidence in this regard is more pressing than in many countries.

This paper highlights recent work carried out in Costa Rica to develop a set of Extended Supply-Use tables (E-SUT), under the auspices of the OECD Expert Group on Extended Supply and Use Tables, that have breakdowns by ownership structures, which are able to respond to many of these demands. Results show that the export industries with more propensity to create upstream domestic value added are those engaged in the exports of food and beverages and some services such as financial management, computing activities and research and development.

Additionally, the paper goes further by describing efforts within the Costa Rican statistical information system, to develop fully integrated international economic accounts – in other words, mechanisms and frameworks to ensure coherent and consistent national accounts and balance of payments statistics as part of a strengthening of integrated economic accounts. The framework of the 2017 national accounts will incorporate in the integrated economic accounts the disaggregation necessary to explicitly show accounts associated with FDI.

Keywords: NA, BP, FDI, CES, VA, FTZ, IEA

CONTENT

1. BACKGROUND

Daily economic transactions are increasingly influenced by globalization, and there is growing demand for a better understanding of the impact of globalization within the economic accounts and in particular its increasingly interconnected nature. This of course matters in all countries but in Costa Rica, which is a very open economy, the need to provide better evidence in this regard is more pressing than in many countries. In 2015, for example, exports and imports represented 31% and 32% of GDP while in 2016, Foreign Direct Investment (FDI) amounted to 5% of GDP and foreign controlled companies produced nearly 23% of all non-financial private sector value added.

One of the most significant challenges for such an open economy is to better understand the role of foreign owned affiliates in the production process, both as creators of upstream supply chains within the domestic economy, and so as engines of spillovers and as channels that can spread the benefits more widely, and also as drivers of international competitiveness in their role as upstream suppliers to other firms. However, the demand for additional insights is not only restricted to these types of issues. Significant interest also exists in understanding how, and to what extent, income generated by these affiliates through exports is eventually repatriated to parent companies.

Recent new additions to the statistical landscape, such as Trade in Value-Added (TiVA) measures, have significantly advanced our current understanding of trade and production but, thus far, these initiatives say little about trade, production and investment, and, so, in their current form, they are not able to respond to demands for more information on the role played by FDI.

This paper highlights recent work carried out in Costa Rica to develop a set of Extended Supply-Use tables (E-SUT), under the auspices of the OECD Expert Group on Extended Supply and Use Tables, that have breakdowns by ownership structures, which are able to respond to many of these demands (see also Saborio 2015).

The paper goes further however by describing efforts within the Costa Rican statistical information system, to develop fully integrated international economic accounts – in other words, mechanisms and frameworks to ensure coherent and consistent National Accounts (NA) and Balance of Payments (BoP) statistics; drawing on many other recent initiatives that have been motivated by this trajectory: for example to better identify and characterize companies participating in cross-border trade (Chacón and Saborio, 2017); to measure foreign direct investment (FDI) by economic activity and partner

country; and to improve estimates of exports of services and their main destination markets (Pierce, Ramirez and Sandi, 2017).

All of these recent initiatives are part of an on-going effort to strengthen the links between international and NA, a task facilitated in Costa Rica by the fact that the compilation of statistics on the NA and BoP both take place within the Macroeconomic Statistics Department of the Central Bank of Costa Rica (BCCR), for example:

- The rest of the world account was constructed since 2012, incorporating aspects such as: Exports and imports of goods and services based on the Standard Classification of Products for Costa Rica (PNCR) following the United Nations Central Product Classification (CPC), as well as special needs of the country. In addition, estimates of purchases and sales of goods and services from and to non-residents using the PNCR have also been developed.
- Primary and secondary income: reconciliations are carried out by institutional sector based on transactions in the NA, integrating them into the standard components of the BoP.
- Capital and financial accounts: harmonization is carried out by sector and instrument based on transactions in the NA, which are included in the standard components of the BoP.

The paper discusses the process of disaggregating the central NA framework (integrated economic accounts, extended supply and use tables and cross-classification by industry and institutional sector), to obtain data on FDI, which makes it possible to integrate and improve consistency between NA and the BoP presenting these relationships starting from the concepts, definitions, classifications, questionnaires, surveys, sample design and estimation methods.

2. FDI: CONCEPTS, DEFINITIONS AND CLASSIFICATIONS

International accounts are an integral conceptual part of the overall System of National Accounts 2008 (SNA2008). The concepts of international accounts are harmonized with the SNA2008 to enable making comparisons with the BoP or aggregations to monetary, fiscal, and other macroeconomic statistics.

FDI is a category of cross-border investment characterized by the fact that an investor who is a resident in an economy (direct investor) decides to become an owner (totally or partially) of the equity of an organization (direct investment enterprise), seeking to control or have a significant degree of influence on the management of the company that is a resident in another economy. By convention, ownership of 10% or more of the share capital in the company gives an investor the ability to participate in and have an influence on the decisions of a company.

TABLE 1. DIRECT INVESTMENT RELATIONSHIPS

TYPE OF INVESTMENT	DETAILS
Direct investor (DI)	Entity or group of related entities with a significant degree of influence over another entity which is resident in another economy
Direct Investment Enterprises (DIE)	Institutional units subject to control or to a significant degree of influence by a Direct Investor (DI) from another economy

Source: Prepared by the authors based on BPM6

A DI has control over the DIE when its capital share is over 50%, while the degree of influence is activated when a DI has between 10% and 50% of the votes of an organization.

According to the Balance of Payments Manual (BPM6), direct investment relationships can be immediate or indirect. They are immediate direct investments when a DI owns 10% or more of the equity of a company. Indirect relationships take place when control and influence are exerted through a chain of direct investments; this means that in the entire chain of investments, capital shares must amount to at least 10%.

Both incorporated and non-incorporated entities may participate in FDI processes: subsidiaries, associates, related, and affiliated firms. See table 2.

TABLE 2. TYPES OF ENTITIES ASSOCIATED WITH DIRECT INVESTMENT

TYPE	CRITERIA FOR DIRECT INVESTMENT RELATIONS (MRID)
Subsidiaries	Over 50% of the company's capital
Associates	Between 10% and less than 50% of the company's capital
Related (fellow)	Have the same immediate or indirect investor, but none of them are direct or indirect investors in the other
Affiliated	Affiliated firms are always in a direct investment relationship with each other

Source: Prepared by the authors based on BPM6

In the context of relationships with other companies, under certain circumstances, an entity may act as a direct investor, a direct investment company, and as a related company simultaneously.

Direct investment includes reinvested earnings, direct investment flows in kind, mergers and acquisitions, funds in transit, among other modalities.

In the SNA2008, undistributed earnings are recorded as reinvested earnings in the distribution of primary income and as a reinvestment of earnings in the financial accounts – specifically, in the functional category of direct investment. Reinvestment of earnings increases the value of equity.

Direct investment data are recorded using two approaches: according to the directional principle and to the asset/liability principle. Both approaches are relevant and useful for analytical purposes:

- A) Directional principle: Direct investment (DI) transactions are recorded according to the direction of the direct investment relationship. This approach facilitates understanding of the motivation of direct investment flows and considers the degree of control and influence involved in direct investment transactions.
- B) Asset/liability principle: This approach emphasizes in determining whether the transaction constitutes an asset or a liability. Recording is made in gross terms and is consistent with monetary, financial and other balance sheet figures, which is useful for comparative purposes.

PRINCIPLE:ASSTS/LIABILITIES (NET)	-57
Total Assets	5
Capital	5
Reinvested earnings	0
Debt	0
Direct investor in direct investment company	0
Direct investment enterprise in direct investor	0
Between related companies/intercompany	0
Total liabilities	62
Capital	60
Reinvested earnings	-8
Debt	10
Direct investor in direct investment company	0
Direct investment enterprise in direct investor	0
Between related companies/intercompany	10
DIRECTIONAL PRINCIPLE:ASSTS/LIABILITIES (NET)	*-57*
Total Direct investment abroad	0
Capital	0
Reinvested earnings	0
Debt	0
Active direct investor in direct investment company	0
Passive Investment company in Direct Investor	0
Direct investment in the reporting economy	57
Capital	55
Reinvested earnings	-8
Debt	10
Active	0
Direct investment company in direct investor	0
Between related companies/intercompany	0
Passive	10
Direct investment company in direct investor	0
Between related companies/intercompany	10

Source: Prepared by the authors based on BPM6

Table 3 shows an example to better visualize the approaches mentioned before. Suppose that in 2017 a company resident in England (direct investor) acquires 100% of shares of a company resident in Costa Rica (Direct Investment Company). The amount of the transaction is US$60 million. Subsequently the Costa Rican subsidiary invests US$5 million in the company resident in England, which is equivalent to 4% of the capital of the British parent company. This case is an investment

transaction in the opposite direction (known as a reverse investment). Similarly, during the period of interest, the company resident in Costa Rica receives a US$10 million loan from another non-resident company whose direct investor is the same British company. At the end of 2017, the Costa Rican company recorded losses for US$8 million.

The compilation process for FDI is more complex than the example. The following table shows the data that firms must provide for the compilation and analysis of direct investment figures.

TABLE 4. INFORMATION REQUESTED FROM FDI COMPANIES

Assets and liabilities with non-residents
A. Direct investor in the direct investment company
1.Shares and other equity
2. Utilities or accumulated losses
3. Accounts, loans and other long-term receivables
4. Accounts, loans and other assets receivable in the short term
5. Preferred shares that do not constitute equity participation
B. Direct investment enterprises in direct investor (reverse investment)
1. Shares and other equity interests
2. Accounts, loans and other long-term receivables
3. Accounts, loans and other assets receivable in the short term
4. Preferred shares that do not constitute equity participation
C. Between fellow enterprises
1. Shares and other equity interests
2. Accounts, loans and other long-term receivables
3. Accounts, loans and other assets receivable in the short term
4. Preferred shares that do not constitute equity participation

Source: Prepared by the authors.

This data allows capturing the flows between related companies, including those involving equity, indebtedness and funds in transit (Pass-through funds). The latter, as indicated in paragraph 6.33 of BPM6, corresponds to resources that pass-through a company resident in an economy A to arrive at a subsidiary in another economy B, so that the funds do not remain in the economy of company A and, therefore, these flows have little impact on the economy they pass through.

Currently, these flows are included in the short term data reported by companies in the BCCR´s surveys and it is not feasible to separate or identify them, but it is possible to adjust the questioner in order to ask explicitly for this type of flows in the country.

Globalization is increasing the presence of multinational companies making it difficult to obtain FDI data for the entire population of companies. Therefore NA and BoP have used different sources and methods to estimate FDI giving different results. In order to solve this inconsistency, efforts are being made to improve the quality and harmonize the calculation of FDI.

3. COSTA RICA FDI: SOURCES AND METHODS

DATA SOURCES USED FOR THE COSTA RICAN NATIONAL ACCOUNTS AND BALANCE OF PAYMENTS

The primary information used for the compilation of NA in Costa Rica is a combination of administrative data and surveys. The BCCR has access to individual corporate income tax returns from the Ministry of Finance.

Since information for the NA has an annual basis, questionnaires address different topics in depth, making it possible to verify their consistency, while the survey on the BoP is conducted on a quarterly basis, focusing on detailed questions about FDI.[1]

3.1 BUSINESS REGISTRY (REVEC)

From 2017, the BCCR uses a single business registry called the Registry of Economic Variables (REVEC for the acronym in Spanish) in order to get harmonized sample designs and surveys for both NA and BoP purposes. REVEC uses different administrative records such as tax records, employment from the social security and real estate registries.

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[1] The Economics Surveys Unit of the BCCR coordinates all BCCR business surveys.

The REVEC is reviewed on an annual basis and adjusted if necessary to ensure its quality. As part of this process, the population of FDI companies has recently been thoroughly reviewed using historical information based on the Corporate Economic Study or CES (which investigates whether an entity is a foreign-controlled company and, if it is, establishes its respective participation), and national and international administrative data.

The REVEC records characteristics of enterprises such as location, sales, establishments and type of ownership (equity corresponding to non-residents). See Diagram 1.

DIAGRAM 1. SOURCE: REGISTRY OF ECONOMIC VARIABLES (REVEC)
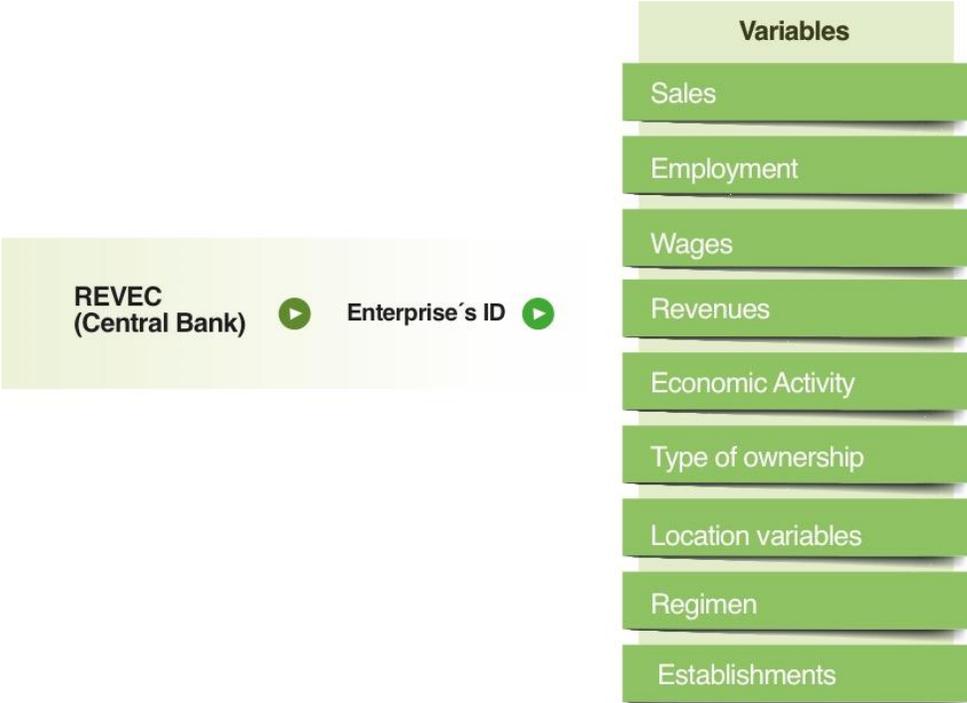
Source: Prepared by the authors.

Foreign controlled companies are concentrated in manufacture, other services (hotels, restaurants, and health), wholesale and retail and administrative services. (Graph 1)
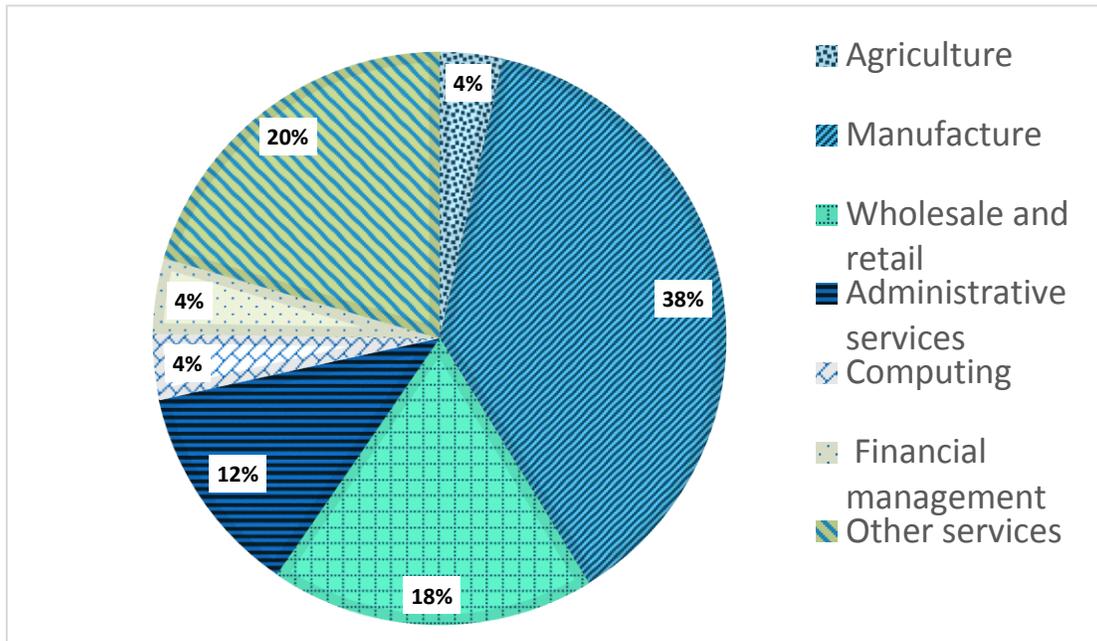
Source: Prepared by the authors based on data from the Banco Central de Costa Rica.

The population of **statistical units to be measured** to estimate FDI statistics is obtained from the REVEC. This is the population of companies of which non-resident units own more than 10%, which in Costa Rica are around 1,200.

3.2 SURVEYS

3.2.1 CORPORATE ECONOMIC STUDY (CES)

The objective of this survey is to collect data from non-financial private companies for NA. This sector is divided into two groups: "large companies", and the "rest of the private non-financial firms". The CES was applied on an annual basis to a group of firms always included called "large corporations" and to a random sample of companies that belong to the "rest of the private non-financial firms".

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[2] Direct investment enterprise (DIE). Those in which a nonresident has over 50% of the company's capital (Subsidiaries).

FDI estimations are based on information reported by firms that declare ownership of more than 10% of foreign equity participation. This data is complemented with information from the BoP.

The CES includes companies with more than five employees and an income percentile greater than 15%. Small companies are excluded, mainly for the following reasons:

- High instability due to openings and closures, changes in activity, and geographical relocation.
- High level of detail of the information requested and the low probability of small companies having this information.

The content of the survey, covers: identification of each firm, description of their activities and products, turnover per products, other revenues (non-financial and financial), detailed costs, surplus/deficit, income taxes and detailed taxes on production, employment and detailed balance sheet. Data for questionnaires are collected through a web system (called IEE), although interviews are conducted when necessary. The survey has two questioners one for "large companies "(CES extended form)[3] and other one for the "rest of the private non-financial firms".

Information is always subject to a validation procedure, during and after the collection process. A pre-programmed automatic procedure can identify incorrect data entries and create an error message for them to be revised. The system includes information about the status of enterprises, which helps analysts in the validation and management of information obtained through the study. After company information is sent by an information manager, analysts validate or reject the information.

There are different statuses for a company as part of the validation process:

- In process: the company information is entered into the system by the typist.
- Data transmission: the typist sends the information provided by the company to the analyst.
- Checked/Rejected: analysts check the information, and can return the inconsistent data.
- Approved/Rejected: coordinators approve or reject the information previously checked by the analysts.
- Completed: the company information is ready to be used in NA.

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[3] Includes detailed balance sheet which allows obtain FDI data and institutional accounts.

3.2.2 BALANCE OF PAYMENTS SURVEY (BOPS)

A quarterly and an annual survey are conducted to obtain the BoP, which contains a module to estimate FDI. This module collects information about assets and liabilities with non-residents, making it possible to know whether the transaction is with related companies, direct investor, direct investment company or others non-residents.   See Table 5

TABLE 5. FDI MODULE IN THE BALANCE OF PAYMENTS QUESTIONNAIRE

ASSETS WITH NON-RESIDENTS	LIABILITIES WITH NON-RESIDENTS
A. Direct investor with direct investment company	**A. Direct investor to direct investment company**
1. Stocks and capital shares 2. Accounts, loans and other assets receivable in the long-term 3. Accounts, loans and other assets receivable in the short term 4. Preferred shares other than equity	1. Stocks and capital shares 2. Accounts, loans and other liabilities payable in the long-term 3. Accounts, loans and other liabilities payable in the short term 4. Preferred shares other than equity
B. Direct investment company with direct investor	**B. Between related companies**
1. Stocks and capital shares 2. Accounts, loans and other assets receivable in the long-term 3. Accounts, loans and other assets receivable in the short term 4. Preferred shares other than equity.	1. Stocks and capital shares 2. Accounts, loans and other liabilities payable in the long-term 3. Accounts, loans and other liabilities payable in the short term 4. Preferred shares other than equity
C. Between related companies	**C. Direct investment company to direct investor**
1. Stocks and capital shares 2. Accounts, loans and other assets receivable in the long term 3. Accounts, loans and other assets receivable in the short term 4. Preferred shares other than equity.	1. Stocks and capital shares 2. Accounts, loans and other liabilities payable in the long term 3. Accounts, loans and other liabilities payable in the short term 4. Preferred shares other than equity
D. Other non-residents	**D. Other non-residents**
1. Non-tradable stocks and other capital shares 2. Accounts receivable from foreign buyers (long term) 3. Accounts receivable from foreign buyers (short term) 4.Advances for future imports 5. Long-term loans 6. Short-term loans	1. Non-tradable stocks and other capital shares 2. Accounts payable to suppliers for imports (long term) 3. Accounts payable to suppliers for imports (short term) 4. Advances for future exports 5. Long-term loans 6. Short-term loans

Source: Prepared by the authors based on information from the BoPS

3.3 ADMINISTRATIVE DATA

Administrative data reduces the burden of statistical operatives because in some cases substitutes modules of surveys and also is used during the process of validation and imputation.

3.3.1 FREE TRADE ZONE ANNUAL REPORTS

Free trade zone regime (FTZ) is granted to enterprises seeking to promote Foreign Direct Investment, trade exchange and employment generation for the country. As part of the obligations of the FTZ beneficiary, they must submit details of financial transactions with related companies to the Costa Rica Export Promotion Agency (PROCOMER) to which the BCCR has access. FTZ companies are excluded from the CES.

3.3.2 INFORMATION ABOUT GENERAL SUPERINTENDENCIES

Financial corporations: Data sources are the regulatory and supervisory entities.

Financial services, financial intermediation and financial auxiliaries: Financial intermediaries other than the Central Bank are state-owned commercial banks, private commercial banks, mutual savings and credit institutions, savings and credit cooperatives, solidarity associations, and other private financial corporations. The main sources of information on regulated financial entities are the accounting records generated by the General Superintendency of Financial Entities (SUGEF).

Other financial entities, such as insurance companies: Information is based on records kept by regulating authorities: the General Superintendency of Securities (whose acronym in Spanish is SUGEVAL), the General Superintendency of Pensions (whose acronym in Spanish is SUPEN), the General Superintendency of Insurance (whose acronym in Spanish is SUGESE), which is supplemented by direct surveys when necessary.

3.3.3 TAX RETURNS

The Income Tax Return (D-101) form of the Ministry of Finance (Annex 1), is another source of information. Accounts of shares and dividends are used for FDI estimations.

3.4 OTHER DATA SOURCES

3.4.1 INTERINSTITUTIONAL COMMITTEE

To strengthen coverage, quantification and analysis of FDI, an inter-institutional committee was created in 2000, with members representing the BCCR, the Export Promotion Agency of Costa Rica (PROCOMER), the Ministry of Commerce (COMEX), the Costa Rican Tourism Institute (ICT) and the Costa Rican Investment Promotion Agency (CINDE). This interinstitutional committee is coordinated by the Banco Central de Costa Rica and holds quarterly meetings to analyze the recent evolution and outlook for external savings flows in Costa Rica. In addition, CINDE provides information about new companies brought to the country and the ICT provides information on tourism companies.

3.4.2 NATIONAL REAL-ESTATE REGISTRY

The main source of information about real-estate investment in the country is the National Real-Estate Registry. Data on non-resident natural persons that make real-estate investments in the country are obtained based on passport numbers. Legal entities making real-estate acquisitions for non-resident companies are also considered, and it is possible to identify them in the National Real-Estate Registry. The final value of these transactions in the international accounts is adjusted with information of value per square meter from the Technical Standardization Agency (ONT) of the Ministry of Finance. In addition, real-estate agencies are consulted to investigate the value of a square meter of land with and without buildings in different parts of the country, to obtain better approximations of the market value of these transactions.

3.4.3 MEDIA

The team working on the BoP monitors the news to obtain additional data about direct investment enterprises (DIE) that in some cases complement data from surveys and administrative records.

3.5 DATA COLLECTION, WAREHOUSING AND RECONCILIATION OF DATA SOURCES

The design of questionnaires used in data collection processes is reviewed on an annual basis, and changes are made if necessary. In order to homologate concepts, definitions and classifications for NA and BoP changes in the questionnaires are made to obtain harmonized statistics. The design of

statistical questionnaires used in NA and BoP, as well in the process of imputation for missing or nonsensical information has been a joint effort of both teams.

From 2017 CES has a FDI module consistent with the questionnaire for the BoP as seen in Table 6. In Costa Rica, equity share disaggregation is not included in the survey, since in the country there are mainly cost centers. The questionnaire was modified since the collection of data in 2016 to test the modified module.

The software used to capture data of the CES, recently it is also being used for BoP surveys. This allow homologate and orchestrate data and share the same warehouse; facilitating visualization, analyses of both data sources and automating data comparison and other data sources are analyzed for both teams.

TABLE 6. CES: FDI MODULE

ASSETS WITH NON RESIDENTS		LIABILITIES WITH NON RESIDENTS	
8.1.4	**Trade accounts receivable (clients)**	**8.2.2**	**Accounts payable to suppliers**
8.1.4.2.1	Direct investor (parent Company)	8.2.2.2.1	Direct investor (parent Company)
8.1.4.2.2	Direct investment company (daughter companies)	8.2.2.2.2	Direct investment company (daughter companies)
8.1.4.2.3	Related companies (sister companies)	8.2.2.2.3	Related companies (sister companies)
8.1.4.2.4	Unrelated clients	8.2.2.2.4	Unrelated clients
8.1.8	**Short-term Loans**	**8.2.17**	**Short-term Loans**
8.1.8.2.1	Direct investor (parent Company)	8.2.17.2.1	Direct investor (parent Company)
8.1.8.2.2	Direct investment company (daughter companies)	8.2.17.2.2	Direct investment company (daughter companies)
8.1.8.2.3	Related companies (sister companies)	8.2.17.2.3	Related companies (sister companies)
8.1.8.2.4	Unrelated clients	8.2.17.2.4	Unrelated clients
8.1.11	**Other accounts receivable**	**8.2.16**	**Current portion of long-term debt**
8.1.11.2.1	Direct investor (parent Company)	8.2.16.2.1	Direct investor (parent Company)
8.1.11.2.2	Direct investment company (daughter companies)	8.2.16.2.2	Direct investment company (daughter companies)
8.1.11.2.3	Related companies (sister companies)	8.2.16.2.3	Related companies (sister companies)
8.1.11.2.4	Unrelated clients	8.2.16.2.4	Unrelated clients
8.1.20	**Long-term Loans**	**8.2.19**	**Long-term Loans**
8.1.20.2.1	Direct investor (parent Company)	8.2.19.2.1	Direct investor (parent Company)
8.1.20.2.2	Direct investment company (daughter companies)	8.2.19.2.2	Direct investment company (daughter companies)
8.1.20.2.3	Related companies (sister companies)	8.2.19.2.3	Related companies (sister companies)
8.1.20.2.4	Unrelated clients	8.2.19.2.4	Unrelated clients
8.1.29	**Stocks and capital shares**		
8.1.29.2.1	Direct investor (parent Company)		
8.1.29.2.2	Direct investment company (daughter companies)		
8.1.29.2.3	Related companies (sister companies)		
8.1.29.2.4	Unrelated clients		

Source: Authors' elaboration with information from CES survey

Among the actions required for strengthening reconciliation between international and NA are the synchronization of publication dates of BoP and NA statistics, and these are scheduled to be implemented. While the country subscribed to the special data dissemination standard (SDDS), which implies that the international BoP and investment position figures, together with NA are published with a delay of three months, it is necessary to achieve synchronization at higher levels of disaggregation.

3.6 SAMPLE DESIGN AND ESTIMATION METHODS

3.6.1 CURRENT SAMPLE DESIGN

CORPORATE ECONOMIC STUDY (CES)

This sample method uses companies' income based on their sales or revenues as estimators; FDI estimations are therefore obtained as a sub-product of the CES, but the sampling method was not designed to obtain results on these variables. Estimations are therefore made based on a sample whose representativeness in terms of FDI has not yet been evaluated. As mentioned earlier, FDI, relevant information is extracted from the balance sheets reported on the CES Extended Form (E-CES) corresponding to the "large companies" in the sample. A stratified sampling method has been used to define the sample since 2016. See table 7.

TABLE 7. CES: SAMPLING METHOD (2013-2016)

Characteristics	2013	2014	2015	2016
Variable of design	Incomes (tax income).	Income (tax income).	Income (tax income).	Income (ESE): information provided directly by companies
Sampling method	Minimum variance with two strata: random and self-reported (census).	Minimum variance with two strata: random and self-reported.	Minimum variance with two strata: random and self-reported.	Stratified Sampling. Size of strata is defined according to guidelines of the Costa Rican Ministry of Economy, Industry and Commerce (MEIC) and can vary by activity.

FDI BALANCE OF PAYMENTS SURVEY (BOPS)

The actual BoPS sample investigates 252 companies and it is not the product of a random selection of the current frame since it was selected according to the expert criteria.

3.6.2 PROPOSED SAMPLE DESIGN

Sample selection and estimation methods for NA and BoP are being revised with support from the IMF through CAPTAC, to make the necessary adjustments to obtain more accurate and consistent FDI results through a unique random sample specially designed to estimate FDI and selected from the appropriated sampling frame.

As shown on table 8, in Costa Rica there are about N=1226 companies with cross-border investment of more than 10% of which there are two groups of enterprises: N1=264 operating under FTZ and the remaining N2=962 correspond to private sector companies under the RR. Over half of the FDI is concentrated in free zones.

TABLE 8. 2016 COSTA RICA FDI: VALUE, TOTAL FIRMS AND SAMPLE

Customs Regime	FDI*	Total firms	Sample
Special regime: Free trade zones (FTZ)	1,217	264	140
Regular Regime (RR)	1,149	962	112
Total	2,366	1226	252

*In millions of dollars

A random sampling method is proposed in order to improve and integrate FDI calculations for the estimates of BoP and NA. The sample would be the same for CES and the BoPS but since BoPS is quarterly it would be a subsample of the CES. Ideally, the final sampling frame of companies would be established by adding the assets and liabilities of the parent company and of related companies to the REVEC for the companies with more than 10% of foreign capital participation. This data is available for FTZ companies but not for RR; collecting this data for RR is a very expensive and demanding task. When the sampling frame is completed, the proposed sample design can be fully applied to FTZ and to the RR enterprises. At this time, this proposal is being implemented with the available information therefore we must analyze the results and, if necessary, make changes. Sample size calculations, sample selection and estimations were elaborated for the companies in the FTZ

using the proposed method, for the RR enterprises estimations are accomplished using the current sample.

Correlations between FDI by company and some assets and liabilities were calculated. The results obtained are presented in the following table:

Year	Assets with		Contributions and other capital	Social capital	Declared dividends	Liabilities with		Profit (+) losses (-) for the period after tax	Accumulated profits and losses
	Sisters	Parent company				Sisters	Parent company		
2012	0.75	0.14	0.08	0.55	-0.25	0.68	0.06	0.59	0.67
2013	0.80	0.27	0.45	0.02	-0.38	0.83	0.05	-0.10	-0.08
2014	0.92	0.25	-0.74	0.28	-0.78	0.79	0.03	0.73	0.91
2015	0.71	0.00	0.11	0.20	-0.27	0.73	0.30	0.71	0.78

Source. Osorio, E. 2017. Draft of the final technical assistance mission for the Costa Rican national accounts statistics. IMF.

Significant correlations between assets and liabilities of sister companies with FDI were observed; these variables are therefore considered to be adequate for defining the sample of companies.

The enterprises operating under the FTZ are selected using stratified sampling with a stratum of leading corporations; the rest of the population consists of smaller companies, from which the businesses are randomly selected. The importance of leading corporations is determined using FDI data estimated in the BoP for the years 2012 through 2016. There are N_1=92 leading corporations that account for approximately 95% of FDI; the stratum from which the random sample will be selected consists of N_2=142 representing approximately 5% of total FDI. All firms in the population are represented in the estimations, but only 5% of FDI enterprises will be randomly selected. The following table illustrates sample size calculation by strata, and the estimation of FDI for the companies selected.

TABLE 10. COSTA RICA: FTZ SAMPLE SIZE PROPOSED BY STRATA

Stratum	ANNUAL FDI		e^2	$(NS)^2$	NS^2	N_h	n_h
	TOTAL (Dollars)	S^2					
1	36,023,250	3.76724E+14	1.40085E+12	4.55836E+16	4.14397E+15	22	13
2	17,480,329	1.44993E+13		4.54698E+16	8.1196E+14	40	7
3	-1,337,798	1.86859E+11		2.30229E+15	2.07414E+13	80	5(*)
Total	52,165,781	4.42058E+15		9.33557E+16	4.97667E+15	142	25
Auto	1,073,660,195	1,007,010,000				92	92
GRAND TOTAL	1,125,825,976					234	117

(*) The theoretical size is n=3, adjusted to n=5
- S^2= Variation of FDI in the stratum h
- e^2: Maximum permissible error level
- N_h: Number of companies in the population in stratum h
- n_h: Number of companies in the sample in stratum h

Source. Osorio, E. 2017. Draft of the final technical assistance mission for the Costa Rican national accounts statistics. IMF.

Theoretically, there should be exactly the same sampling design for FTZ and for the RR companies. in the case of RR companies, FDI is not a directly measurable variable and from which, in addition, there is no information for the entire population, so to get a sample for CES that requires data for 2017, it was used the flow of liabilities [4] reported between 2015 and 2016, as proxy variable that is associated with the FDI. With the observed values, the relative importance of each company within each economic activity studied was established. The sample design considered the total of this population, variability of the flows and the desired precision for the estimates.

The size of the sample was determined, using a stratified sampling method, where the strata were the economic activities of interest and in turn the group ("large companies" and "the rest of the firms". The selection methodology used is probability proportional to size (PPT). With this method, each company has a different probability of selection, according to its importance in the variable of interest (in this case the flows). That is, the most important companies in this area are more likely to be selected, which guarantees having a greater coverage in terms of totals. The sample size calculated with an error level of 15% was 208 companies.

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[4] Information about total liabilities is available for all companies by using income tax returns.

The estimation method would be the same for national accounts and BoP. Table 11 illustrates estimated and population values. The population values are obtained by adding the individual data of all the companies in the population in each stratum. The estimates refer to the data reported by the companies in the sample in each stratum multiplied by the respective expansion factor.

TABLE 11. COSTA RICA FDI: ESTIMATION BASED ON THE SELECTED SAMPLE

Stratum	Fh	FDI (Dollars)	
		Population Value	Estimated value
1	1.67	36,023,250	34,986,757
2	5.74	17,480,329	7,443,773
3	15.96	-1,337,798	1,231,606
Total		52,165,781	43,291,264
Auto	1.00	1,073,660,195	1,073,660,195
Total		1,125,825,976	1,117,322,331

Source. Osorio, E. 2017. Draft of the final technical assistance mission for the Costa Rican national accounts statistics. IMF.

The expansion factors were calculated according to the stratum for each company as follows:

$$F_h = \frac{N_h}{n_h}$$

Where:

F_h = expansion factor

N_h = number of enterprises in the h stratum.

n_h = calculated sample size in the h stratum.

The stratum of leading corporations includes the largest companies and has an expansion factor of 1.

The difference between the population data and the estimate obtained from the sample, both in absolute and relative terms, is lower for the companies that contribute the most to FDI. That is, the

sample has been designed to estimate more accurately the data reported by the leading corporations while still considering the information reported by the smaller companies.

Theoretical limits of the strata were defined based on the absolute value of FDI declared by the enterprises during the year 2016.

TABLE 12. COSTA RICA: THEORETICAL LIMITS OF THE STRATA

| Stratum | Limits | | Fh | Nh |
	Upper	Lower		
1	7,5000,000	2,000,001	1.69	13
2	2,000,000	500,000	5.74	7
3	Less than	500,000	16.00	5

Source. Osorio, E. 2017. Draft of the final technical assistance mission for the Costa Rican national accounts statistics. IMF.

If the data reported are not within the theoretical limits of this stratum at the time of the survey, businesses should be post-stratified into their appropriate stratum, and the expansion factor of the stratum should be adjusted.

4. INTEGRATING FOREIGN DIRECT INVESTMENT DATA AND EXTENDED SUPPLY AND USE TABLES INTO MACROECONOMIC STATISTICS

Harmonization of concepts, definitions, sources and methods makes it possible to explicitly show in the IEA the transactions that conform the FDI. Table 13 shows the modification that is carried out as of 2017´s IEA. These changes include compilation of who to whom matrices. This improves the quality of the primary distribution of income account and the financial account of private companies. It is expected that the extended supply and use tables (ESUT) would include FDI by economic activity.

F4	LOANS
F42	*Foreign currency*
F421	Debt securities with repurchase agreement
F422	Deferred liquidity operations
F429	Other loans
	RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
	NON-RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
F5	EQUITY INVESTMENTS AND MUTUAL FUND SHARES
F51	Capital shares
F512	*Foreign currency*
F5121	Quoted and non-quoted stocks
F5122	Deposits in trusts
F5129	Other capital shares
	RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
	NON RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)

	Related companies (fellow companies)
	Unrelated clients
F8	**OTHER ACCOUNTS RECEIVABLE/PAYABLE**
F81	Accounts receivable and trade advances
F812	*Foreign currency*
	RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
	NON RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
F82	Taxes receivable / payable
F89	Other accounts receivable/payable
F892	*Foreign currency*
	RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients
	NON RESIDENTS
	Direct investor (parent Company)
	Direct investment company (daughter companies)
	Related companies (fellow companies)
	Unrelated clients

Affiliated firms operating in FTZ manage a significant share of exports and imports, and agricultural activities (of which 80% of total production is oriented to international markets). In recent years, the increasing importance of firms that export services from FTZ is noticeable. While some enterprises operating under the FTZ have almost no connection with domestic companies, some carry out different stages of production, acquiring their inputs from domestic firms that are their main suppliers. This dynamic causes heterogeneity in terms of property income, export-sales ratios, production functions, and ratios of foreign content. To meet the challenge of heterogeneity, a separate set of extended supply and use tables (E-SUT) for FTZ for each economic activity has been compiled, following the accounting guidelines recommended in the SNA 2008.

Sources of data: Free trade annual reports, CES, REVEC and:

- **Trade Enterprises Characteristics (TEC):** It links data of trade and the business statistics registers using the importer´s and exporter´s identification. Matching the company profile and HS 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 import´s value is matched with importer's profile. Imports are classified by product in a manner consistent with that used for domestic production. In addition, it is possible to identify the exporter´s economic activity. All data is compiled into a software developed by the BCCR.

- **Ministry of Finance special report form "D151".** All companies must submit this declaration to the Ministry of Finance each year. This is a very detailed administrative record that shows who-to-whom transactions annually. It is provided by companies with information about their sales and purchases. Each company declares its sales and purchases by counterpart for amounts higher than the equivalent of 4.700 US dollars in a fiscal year. The firm that makes the declaration is called the "reporter". Each reporter must record the company's ID ("reported") and the value involved in the specific sale or purchase. This database is also matched with REVEC, which makes it possible to classify wholesaler's sales by economic activity and so reveals intercompany transactions, making it possible to identify free-zones firms' purchases in the domestic market and so it allows estimate flows of intermediate consumption between the different categories of firms (i.e.FTZ vs RR).

The breakdown in FTZ and RR makes it easier to conciliate and balance out supply and use by type of products. This improves the quality of the supply and use table and the consistency within the national accounting central framework. Furthermore, this breakdown could make it easier for some forecasts and economic analysis to be carried out through input-output tables. Given the above, it has been considered to make additional breakdowns by ownership category or by company size, which implies important challenges especially for sample design and for the software that is being developed for data processing.

Supply and use tables record how supplies of different kinds of goods and services originate from domestic industries, and how imports are allocated between intermediate and final uses (including exports). Total supplies and uses of individual types of goods and services must balance out.

The Costa Rican supply and use tables are compiled product by product including 183 products and 136 economic activities. From 2012, the new reference year, results are disaggregated between companies operating under the FTZ and those operating under the RR, in fifty economic activities including services. In addition, exports and imports by product are presented in a way that permits identifying those that come from companies in FTZ and from the RR. (For more information about the supply and use tables please refer to Saborio, G. (2015)).

TABLE 13. EXTENDED SUPPLY AND USE TABLE (E-SUT)

USE TABLE Industries / Products	Output by 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 MINUS DISPOSALS OF VALUABLES	TOTAL
	Free-trade regime	Regular regime	Free-trade regime	Regular regime	Free-trade regime	Regular regime												
Product 1																		
Product 2																		
Product 3																		
Total																		

SUPPLY TABLE

Industries / Products	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 regime	Regular regime	Free-trade regime	Regular regime	Free-trade regime	Regular regime e								
Product 1														
Product 2														
Product 3														
Total														

VALUE ADDED

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

Input-output tables can be implemented based on supply-use tables. For 2012 the Input-output table disaggregates economic activities into those that are carried out under the FTZ and those carried out under the RR. There is also an additional division of the symmetric input-output table into two tables: one containing only the use of domestically produced products and another that contains the use of imported products. For each of these symmetric matrices there is a breakdown of products coming from companies under the FTZ and under the RR, which is expressed in both columns and rows. An import matrix is constructed to improve consistency for the use of imported products.

In addition, input-output tables can be used to obtain some TiVA indicators, such as import content of exports and domestic services content of exports of goods.

4.1.1 IMPORT CONTENT OF EXPORTS

The total of imports directly and indirectly included in exports is calculated by considering the inverse matrix of Leontief to obtain direct and indirect requirements for each industry, the vector of exports by each industry, and the coefficients of the imports matrix thus:

Import content of exports $= m * (1 - A)^{-1} * e$ where:

m: is a 1*n vector with components m j (the ratio of imports to output in industry j)

e: is a n*1 vector of exports by industry.

$(1 - A)^{-1}$: inverse matrix of Leontief.

Graph 2 shows that the content of imports is higher for goods in FTZ and on the contrary the most important services (computing and office support services) present a lower foreign content in FTZ. This helps to explain that as services exports have grown steadily over the last years the current balance has improved in the last few years. See Annex 3.

GRAPH 2. COSTA RICA: IMPORT CONTENT OF EXPORTS, 2012
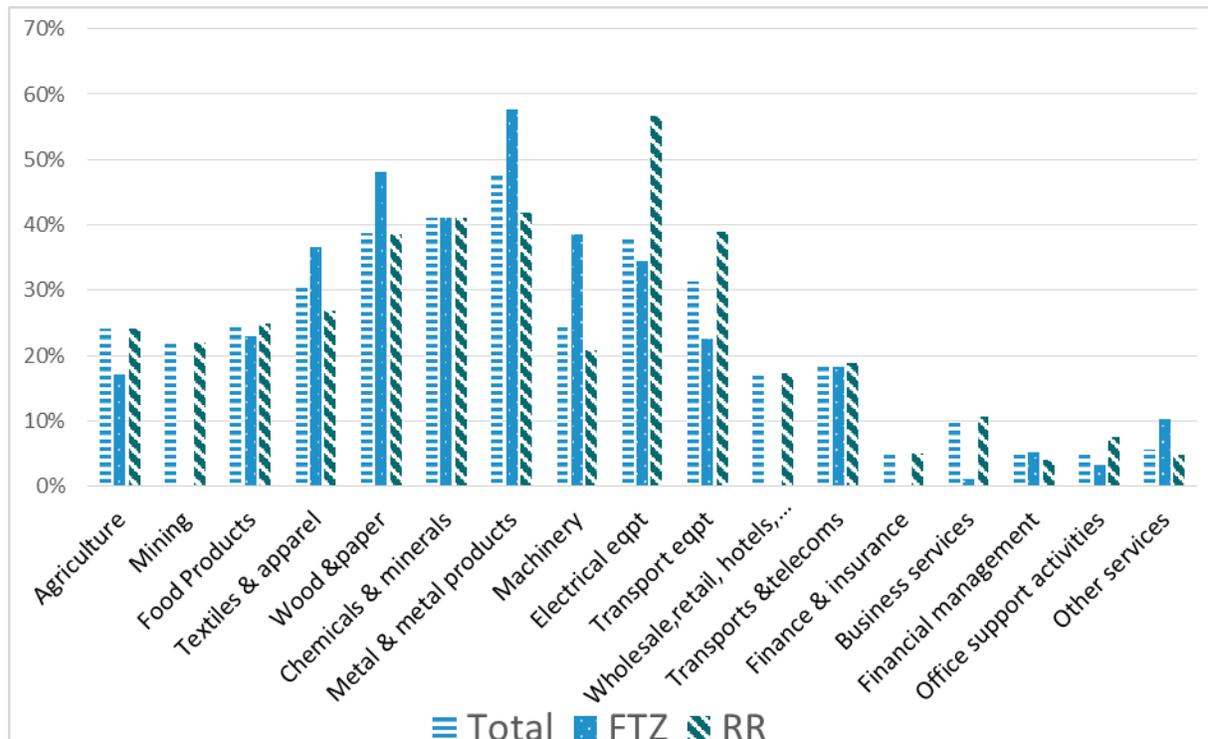
Source: Prepared with data from the Banco Central de Costa Rica.

The direct and indirect contribution of services to goods exports considers the value added of the industries, the Leontief inverse matrix (direct and indirect requirements), and the vector of exports for each industry. So, the domestic services content of goods exports is calculated as:

Domestic services content of goods exports: $v * (1 - A)^{-1} * e$ where:

v: is a ratio of value-added to output

e: is a vector of exports by industry

GRAPH 3: COSTA RICA: DOMESTIC SERVICES CONTENT OF GOODS EXPORTS, 2012
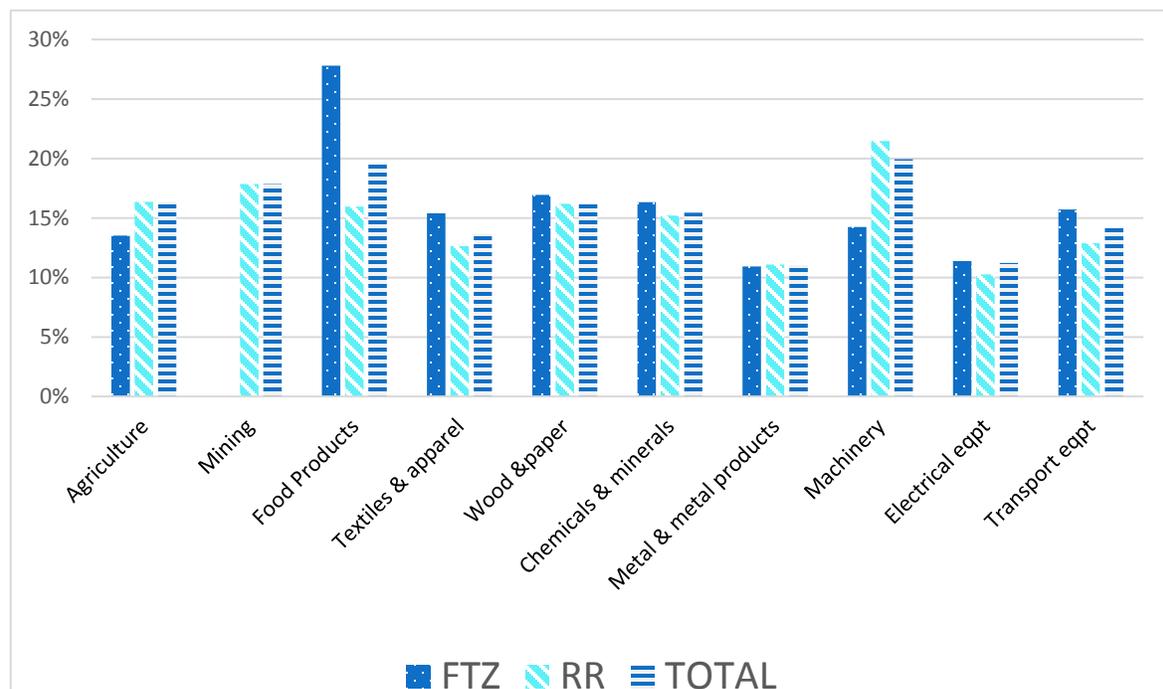
Source: Prepared with data from the Banco Central de Costa Rica.

In the most important manufacturing activities, the contribution of services to exports is higher in FTZ as Graph 3 illustrates. The domestic services that contribute the most in value added to the exports of goods are transport, advertising and market research, administrative and office support activities.

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4.1.3 INDIRECT CONTRIBUTIONS

For companies that are operating under FTZ, it is important to analyze information on the supply chains (links with other industries) and the position of the industry according to its contribution to the value added of other domestic industries. This is due to its intermediate consumption making a contribution to the value added of the other national industries. This calculation is obtained through the matrix of technical coefficients and Leontief inverse matrix (direct and indirect requirements).

In the case of Costa Rica, industries with more propensity to create upstream domestic value added are those engaged in the production of food and beverages and some services such as office support activities, research and development, financial management and computing activities. Also, others engaged in the manufacture of other goods such as leather and related products, pharmaceutical products, clothing and textile products and motor vehicles. While others that are very important in terms of direct value added such as manufacture of medical and dental instruments show a low propensity to create upstream domestic supply chains. See Annexes 4

5. CONCLUDING REMARKS AND CHALLENGES AHEAD

As part of a strengthening of IEA, this is an effort to improve the quality of financial accounts and harmonize national accounts with the BoP. FDI is being harmonized, with the same concepts, definitions, questioners, data sources, sample designs and estimation methods used for NA and BoP. External resources such as FDI are important for Costa Rica, both for productive chains and for financing the current account of the BoP, the relevance of these resources at both microeconomic and macroeconomic levels justifies all efforts to improve their measurement in the macro accounts.

International methodological best practices recommend that direct investment figures be published using both the asset-liability and the directional principles. In addition, it is of great analytical value not only to determine the flows and balances of foreign investment by countries of origin and destination, but also by economic activity and, to indicate the owner of the production activity associated with direct investment. FDI has previously been treated as a flow, one of the future objectives is record it as a stock. The BCCR is looking into these aspects in its plans for the immediate

future, as part of the harmonization agenda between the international and national accounts. When this is done, FDI data will be more reliable to the public and policy makers.

Analysis will be conducted in order to consider the possibility of eliminating the annual BoP survey, conducting only the quarterly surveys, and obtaining the annual data through the CES.

Additionally, ways of making more intensive use of tax returns and other sources of administrative data to supplement FDI statistics are being studied. There is a need for better design and better coordination of administrative data providers to make administrative data more suitable for the needs of macroeconomic statistics.

The incorporation of investment funds into FDI measurements is another challenge that must be met. The information required for this measurement is currently not available, and an effort is being made to coordinate with investment fund managers to have them provide the necessary information for their non-resident clients.

The extended of supply and use table (E-SUT) allows conclusions to be drawn which are important for economic and social development strategies. The contribution of services to exports of goods is greater in FTZ and the content of the imports is much higher for the goods under FTZ. Industries with more propensity to create upstream domestic value added are those engaged in the production of food and beverages and some services such as research and development, consulting in financial management and programming and computing activities while others with an important weight in direct value added for the country such as medical devices have a low propensity to create domestic value added in other industries.

ACRONYMS

BCCR	Central Bank of Costa Rica
Bop	Balance of Payments
CPC	Central Product Classification
CES	Corporate Economic Study
EACR	Standard Classification of Economic Activities for Costa Rica
E-SUT	Extended supply and use table
FTZ	Free Trade Zones
ISIC	International Standard Industrial Classification
NA	National Accounts
NPCR	Costa Rican Standard Product Classification
VA	Value Added

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ANNEXES

ANNEX 1. INCOME TAX RETURN DATA FROM THE MINISTRY OF FINANCE

D101

I. Assets and Liabilities:

a. Cash, banks, Investments, notes and accounts receivable
b. Shares and Contributions in companies
c. Inventories (raw material, in process and finished products)
d. Fixed assets
e. Total net assets
f. Total liabilities
g. Net capital

II. Income:

a. Sales of goods and services other than professional services
b. Professional fees and services
c. Commissions
d. Interests and financial returns
e. Dividends and shares
f. Rentals
g. Other types of income (not mentioned before)
h. Non taxable income
i. Total gross income

III. Costs, expenses and deductions:

a. Initial inventory
b. Purchase
c. Final inventory
d. Cost of goods sold
e. Interest and financial charges
f. Selling and administrative expenses
g. Depreciation, amortization and depletion
h. Voluntary Supplementary Pension Schemes
i. Other costs, expenses and deductions permitted by law
j. Total costs, expenses and deductions permitted by law

IV. Taxable base

a. Net Income
b. Income tax
c. Exoneration of the Free Zone
d. Exoneration Other Concepts
e. After income tax exemptions

V. Credits:

a. Other credits
b. Profit tax
c. Withholdings 2%
d. Other withholdings
e. Partial payments

EA	Economic Activity Description	Value added (%)			Domestic services content of goods (%)		
		Total	RE	RD	Total	RE	RD
EA003	Cultivation of other cereals, legumes and oil seeds (not previously classified)	0.60	0.60	0.60	0.14	0.14	0.14
EA010	Cultivation of other vegetables, roots and tubers (not previously classified)	0.53	0.48	0.53	0.12	0.11	0.12
EA020	Cultivation of other non-perennial and perennial plants	0.51	0.48	0.51	0.13	0.10	0.13
EA021	Plant propagation	0.57	0.59	0.57	0.15	0.14	0.15
EA025	Breeding of other animals	0.60	0.57	0.60	0.11	0.11	0.11
EA028	Marine and freshwater fishing	0.50	0.45	0.50	0.12	0.12	0.12
EA035	Processing and preservation of fish, crustaceans and shellfish	0.29	0.28	0.32	0.21	0.21	0.21
EA036	Processing and preservation of fruits and vegetables	0.36	0.32	0.42	0.20	0.19	0.20
EA037	Production of oils and fats of vegetable and animal origin	0.30	0.37	0.28	0.13	0.09	0.14
EA041	Production of bakery products and tortillas	0.35	0.33	0.35	0.23	0.22	0.23
EA043	Production of cocoa, chocolate and confectionery products	0.39	0.30	0.45	0.19	0.24	0.16
EA047	Production of foods, prepared meals, and other food products	0.38	0.34	0.43	0.33	0.42	0.20
EA048	Production of animal feed	0.31	0.32	0.31	0.15	0.14	0.15
EA049	Distillation, rectification and blending of alcoholic beverages and wines	0.47	0.43	0.47	0.17	0.14	0.17
EA050	Production of malt beverages, malt, non-alcoholic beverages, mineral waters, and other bottled waters	0.34	0.19	0.34	0.21	0.25	0.21
EA052	Manufacture of textile products	0.40	0.24	0.46	0.14	0.16	0.13
EA053	Manufacture of clothing	0.51	0.45	0.57	0.14	0.15	0.12

EA054	Manufacture of leather and related products, except footwear	0.38	0.41	0.38	0.13	0.17	0.12
EA056	Timber production and manufacture of timber and cork products, except furniture; manufacture of straw articles and of plaiting materials	0.47	0.38	0.47	0.14	0.20	0.14
EA057	Manufacture of paper and paper products	0.33	0.07	0.33	0.17	0.21	0.16
EA058	Printing, editing and reproduction of recordings, except for computer programs	0.55	0.59	0.55	0.18	0.09	0.18
EA060	Manufacture of basic chemical substances, fertilizers and nitrogen compounds	0.33	0.26	0.33	0.10	0.07	0.10
EA065	Manufacture of other chemical products (not previously classified) and manufactured fibers	0.33	0.30	0.34	0.15	0.12	0.16
EA066	Manufacture of pharmaceutical products, medicinal chemicals and botanical products	0.45	0.57	0.43	0.21	0.23	0.20
EA067	Manufacture of rubber products	0.34	0.32	0.36	0.17	0.17	0.16
EA068	Manufacture of plastic products	0.34	0.36	0.34	0.11	0.13	0.10
EA069	Manufacture of glass and glass products	0.34	0.68	0.34	0.22	0.18	0.22
EA071	Manufacture of cement, lime, plaster, and articles of concrete, cement and plaster, and other non-metallic minerals, (not previously classified)	0.46	0.39	0.46	0.21	0.26	0.21
EA072	Manufacture of common metals	0.31	0.25	0.36	0.10	0.10	0.10
EA073	Manufacture of metal products, except machinery and equipment	0.47	0.34	0.50	0.13	0.15	0.13
EA074	Manufacture of electronic components and circuit boards, computers and peripheral equipment	0.71	0.71	0.38	0.09	0.09	0.29
EA075	Manufacture of electronic and optical products	0.47	0.46	0.57	0.13	0.12	0.19
EA076	Manufacture of electrical equipment and machinery (not previously classified)	0.39	0.55	0.29	0.11	0.13	0.09
EA077	Manufacture of motor vehicles, trailers and semi-trailers	0.50	0.57	0.44	0.14	0.16	0.13
EA079	Manufacture of furniture	0.50	0.41	0.51	0.15	0.13	0.15
EA080	Manufacture of medical and dental instruments and supplies	0.41	0.41	0.40	0.12	0.12	0.24
EA081	Other manufacturing industries	0.47	0.33	0.51	0.20	0.14	0.21
EA082	Repair and installation of machinery and equipment	0.49	0.76	0.47	0.25	0.12	0.26

Code	Description					
EA095	Sea, air, and road freight transport	0.50	0.95	0.50	0.76	0.97	0.76
EA096	Warehousing and storage	0.47	0.63	0.47	0.85	0.93	0.85
EA097	Transportation-related services activities	0.60	0.63	0.60	0.80	0.84	0.80
EA098	Freight handling and other transportation support activities	0.41	0.35	0.42	0.83	0.71	0.84
EA102	Activities related to movie, video and television program production, sound recording; music editing, programming and transmission	0.50	0.42	0.50	0.81	0.85	0.81
EA103	Telecommunications activities	0.77	0.52	0.82	0.93	0.84	0.95
EA109	Real estate activities	0.80	0.48	0.80	0.93	0.86	0.94
EA112	Activities related to consulting in financial management, human resources, marketing, main offices, and related	0.68	0.61	0.79	0.92	0.91	0.94
EA113	Architecture and engineering-related activities; technical testing and analysis	0.66	0.65	0.66	0.88	0.92	0.88
EA114	Scientific research and development activities	0.65	0.61	0.66	0.87	0.84	0.88
EA115	Advertising and market research	0.58	0.78	0.58	0.86	0.95	0.86
EA116	Other professional, scientific and technical activities	0.77	0.94	0.70	0.91	0.99	0.87
EA118	Activities related to renting and leasing of tangible and intangible non-financial assets	0.75	0.26	0.75	0.89	0.82	0.89
EA122	General building, cleaning, and landscaping activities	0.85	0.78	0.86	0.93	0.87	0.93
EA123	Administrative and office support activities, and other business support activities	0.75	0.76	0.73	0.92	0.93	0.90
EA131	Repair of computers, personal belongings and household goods	0.59	0.62	0.59	0.82	0.82	0.82

EA	Economic Activity Description	Import content of Exports - Costa Rica 2012		
		Total	RE	RD
EA003	Cultivation of other cereals, legumes and oil seeds (not previously classified)	0.17	0.17	0.18
EA010	Cultivation of other vegetables, roots and tubers (not previously classified)	0.24	0.25	0.24
EA020	Cultivation of other non-perennial and perennial plants	0.22	0.31	0.22
EA021	Plant propagation	0.17	0.19	0.17
EA025	Breeding of other animals	0.15	0.14	0.15
EA028	Marine and freshwater fishing	0.30	0.32	0.30
EA035	Processing and preservation of fish, crustaceans and shellfish	0.32	0.33	0.26
EA036	Processing and preservation of fruits and vegetables	0.25	0.27	0.21
EA037	Production of oils and fats of vegetable and animal origin	0.32	0.11	0.38
EA041	Production of bakery products and tortillas	0.25	0.28	0.25
EA043	Production of cocoa, chocolate and confectionery products	0.25	0.23	0.27
EA047	Production of foods, prepared meals, and other food products	0.22	0.18	0.27
EA048	Production of animal feed	0.40	0.35	0.40
EA049	Distillation, rectification and blending of alcoholic beverages and wines	0.26	0.33	0.25
EA050	Production of malt beverages, malt, non-alcoholic beverages, mineral waters, and other bottled waters	0.34	0.37	0.34
EA052	Manufacture of textile products	0.38	0.50	0.32
EA053	Manufacture of clothing	0.29	0.34	0.25
EA054	Manufacture of leather and related products, except footwear	0.23	0.29	0.23
EA056	Timber production and manufacture of timber and cork products, except furniture; manufacture of straw articles and of plaiting materials	0.17	0.28	0.17
EA057	Manufacture of paper and paper products	0.47	0.70	0.47
EA058	Printing, editing and reproduction of recordings, except for computer programs	0.22	0.30	0.22
EA060	Manufacture of basic chemical substances, fertilizers and nitrogen compounds	0.55	0.66	0.55
EA065	Manufacture of other chemical products (not previously classified) and manufactured fibers	0.44	0.52	0.41

EA066	Manufacture of pharmaceutical products, medicinal chemicals and botanical products	0.27	0.14	0.29
EA067	Manufacture of rubber products	0.40	0.40	0.40
EA068	Manufacture of plastic products	0.50	0.47	0.51
EA069	Manufacture of glass and glass products	0.32	0.09	0.32
EA071	Manufacture of cement, lime, plaster, and articles of concrete, cement and plaster, and other non-metallic minerals, (not previously classified)	0.22	0.22	0.22
EA072	Manufacture of common metals	0.53	0.60	0.48
EA073	Manufacture of metal products, except machinery and equipment	0.35	0.47	0.32
EA074	Manufacture of electronic components and circuit boards, computers and peripheral equipment	0.16	0.16	0.31
EA075	Manufacture of electronic and optical products	0.32	0.34	0.22
EA076	Manufacture of electrical equipment and machinery (not previously classified)	0.47	0.28	0.59
EA077	Manufacture of motor vehicles, trailers and semi-trailers	0.31	0.23	0.39
EA079	Manufacture of furniture	0.25	0.37	0.25
EA080	Manufacture of medical and dental instruments and supplies	0.43	0.44	0.29
EA081	Other manufacturing industries	0.25	0.39	0.21
EA082	Repair and installation of machinery and equipment	0.22	0.08	0.23
EA095	Sea, air, and road freight transport	0.21	0.01	0.21
EA096	Warehousing and storage	0.08	0.04	0.09
EA097	Transportation-related services activities	0.14	0.12	0.14
EA098	Freight handling and other transportation support activities	0.14	0.22	0.13
EA102	Activities related to movie, video and television program production, sound recording; music editing, programming and transmission	0.14	0.10	0.14
EA103	Telecommunications activities	0.05	0.11	0.04
EA109	Real estate activities	0.04	0.08	0.04
EA112	Activities related to consulting in financial management, human resources, marketing, main offices, and related	0.05	0.05	0.04
EA113	Architecture and engineering-related activities; technical testing and analysis	0.08	0.04	0.08
EA114	Scientific research and development activities	0.08	0.08	0.08
EA115	Advertising and market research	0.10	0.03	0.10
EA116	Other professional, scientific and technical activities	0.07	0.01	0.09
EA118	Activities related to renting and leasing of tangible and intangible non-financial assets	0.09	0.12	0.09
EA122	General building, cleaning, and landscaping activities	0.05	0.07	0.05

EA				
EA123	Administrative and office support activities, and other business support activities	0.05	0.03	0.08
EA131	Repair of computers, personal belongings and household goods	0.14	0.13	0.14

ANNEX 4. COSTA RICA: INDIRECT CONTRIBUTIONS (FREE TRADE ZONES) 2012

EA	Economic Activity Description	Coefficients: Indirect input requirements
	Production of malt beverages, malt, non-alcoholic beverages, mineral waters, and other bottled waters	0.39
	Production of cocoa, chocolate and confectionery products	0.37
	Activities related to renting and leasing of tangible and intangible non-financial assets	0.33
	Processing and preservation of fish, crustaceans and shellfish	0.30
	Production of bakery products and tortillas	0.29
	Freight handling and other transportation support activities	0.26
	Manufacture of cement, lime, plaster, and articles of concrete, cement and plaster, and other non metallic minerals, (not previously classified)	0.26
	Real estate activities	0.26
	Production of animal feed	0.25
	Processing and preservation of fruits and vegetables	0.24
	Production of foods, prepared meals, and other food products	0.24
	Breeding of other animals	0.23
	Activities related to movie, video and television program production, sound recording; music editing, programming and transmission	0.20
	Timber production and manufacture of timber and cork products, except furniture; manufacture of straw articles and of plaiting materials	0.20
	Cultivation of other vegetables, roots and tubers (not previously classified)	0.18

Manufacture of leather and related products, except footwear	0.17
Distillation, rectification and blending of alcoholic beverages and wines	0.16
Manufacture of pharmaceutical products, medicinal chemicals and botanical products	0.16
Scientific research and development activities	0.16
Manufacture of rubber products	0.16
Other manufacturing industries	0.15
Activities related to consulting in financial management, human resources, marketing, main offices, and related	0.15
Production of oils and fats of vegetable and animal origin	0.15
Repair of computers, personal belongings and household goods	0.14
Architecture and engineering-related activities; technical testing and analysis	0.14
Information, programming and computing consulting activities, editing of computing and related programs	0.14
Manufacture of textile products	0.14
Cultivation of other cereals, legumes and oil seeds (not previously classified)	0.13
Marine and freshwater fishing	0.13
Warehousing and storage	0.13
Manufacture of clothing	0.13
Manufacture of motor vehicles, trailers and semi-trailers	0.12
Manufacture of paper and paper products	0.12
Manufacture of furniture	0.12
Plant propagation	0.12
Cultivation of other non-perennial and perennial plants	0.12
Transportation-related services activities	0.11
Manufacture of metal products, except machinery and equipment	0.10
Manufacture of electronic and optical products	0.10
Manufacture of electrical equipment and machinery (not previously classified)	0.09
Manufacture of other chemical products (not previously classified) and manufactured fibers	0.09
Manufacture of glass and glass products	0.09

Manufacture of common metals	0.09
Administrative and office support activities, and other business support activities	0.09
Manufacture of plastic products	0.09
Manufacture of medical and dental instruments and supplies	0.08
Advertising and market research	0.08
Repair and installation of machinery and equipment	0.07
General building cleaning and landscaping activities	0.07
Activities of printing, editing and reproduction of video recordings, except computing programs	0.07
Manufacture of electronic components and circuit boards, computers and peripheral equipment	0.06
Manufacture of basic chemical substances, fertilizers and nitrogen compounds	0.04
Other professional, scientific and technical activities	0.02
Sea, air, and road freight transport	0.02