Trade Patterns in Central America and the Dominican Republic: Is It Time for a Competitiveness Agenda?

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Abstract

This paper explores international trade data, classified by technology-intensiveness and type of products, to identify stylized facts, strengths, and weaknesses of the trade patterns in the region of Central America and the Dominican Republic, between 1975 and 2016. I focus the analysis not only on the total export of the region but on its exports to the United States (main trade partner). I examine export concentration, comparative advantages, trade specialization, and relative quality of the export basket (characterizing zones with high tax incentives in the region, free zones). The main findings suggest that the region has made little progress in improving trade accounts. The gains in diversification are being lost, the comparative advantages have historically remained in traditional exports, and the region does not appear to export quality to the world. The model of tax incentives is not generating local spillovers, and the relative quality of exports, as well as the specialization patterns, revive the idea of adjusting promotion schemes for local industry and direct investment. It is time for a competitiveness agenda.

Keywords: Comparative advantage, exports, free zones, non-traditional manufactures, quality.

Resumen

Este documento revisa datos de comercio internacional, clasificados por intensidad tecnológica y tipo de productos, para identificar hechos estilizados, fortalezas y debilidades de los patrones comerciales en la región de Centroamérica y la República Dominicana, entre 1975 y 2016. El análisis se enfoca en la exportación total de la región y su exportación a los Estados Unidos (principal socio comercial). Se examina la concentración de exportaciones, las ventajas comparativas, la especialización comercial y la calidad relativa de la canasta de exportaciones (caracterizando zonas con altos incentivos fiscales en la región, zonas francas). Se evidencia que la región ha progresado poco en la mejora de su intercambio comercial. Las ganancias en diversificación se están perdiendo, las ventajas comparativas se han mantenido históricamente en las exportaciones tradicionales, y la región no parece exportar calidad al mundo. El modelo de incentivos fiscales no está generando efectos locales, y la calidad relativa de las exportaciones y los patrones de especialización reviven la idea de ajustar los esquemas de promoción para la industria local y la inversión directa. Es hora de una agenda de competitividad.

Palabras claves: Ventaja comparativa, exportaciones, zonas francas, manufacturas no tradicionales, calidad.

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Introduction

The region of Central America and the Dominican Republic (CADR) is highly tied to the international dynamic. After the 2008-2009 crisis, the commodity prices declined, particularly the oil prices, leading to a relative improvement in the term of trade of the region and a reduction in the external deficit. Also, the gradual recovery of the United States (main trade partner), allowed to keep up the flow of remittances, investment, and trade to the region. These factors contributed to the strengthening of the region's external position, but the advantage was not fully exploited, the positive shock was mostly diverted to domestic consumption, and now the last years reveal a running out of tailwinds.[2]

CADR is facing challenges and international risks. On the one hand, CADR is mainly a net oil importer, and the reduction of the trade deficit was due to the fall in oil prices. Nevertheless, commodities exported from the region (cocoa, coffee, sugar, among others) also experienced a decline in prices, avoiding better external outcomes. On the other hand, the Federal Reserve of the United States was gradually leaving aside its accommodative policy, slightly increasing the interest rates, which could generate a short-term capital withdrawal in the region, reducing the import capacity. Moreover, the tariff reductions set out in the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR) are going ahead. This context could unveil a fragility of regional competitiveness, even in traditional products (primary products and basic manufactures), where the region has a significant international presence. In this new scenario, how could the region mitigate those risks? How could it take more advantage in good times?

This paper uses external trade data to expose stylized facts, strengths, and weaknesses of Central America and the Dominican Republic's trade, spanning the period 1975-2016. Since the United States is the main trade partner of the region, I focus the analysis on the total export of the region and its export to the United States. Based on Manzano and Maldonado (2016), I examine the results of export concentration, comparative advantages, trade specialization, and relative quality of the export basket (characterizing zones with high tax incentives in the region, free zones). Addressing the relevant factors to include in a competitiveness agenda requires a first approximation to identify what competitiveness means and how it is measured.

There is not a consensus about how to define and measure the competitiveness of a country.[3] In the broadest sense, it is defined through a country's ability to promote economic progress while improving the living standards of the inhabitants. In this approach, the productivity or optimal allocation of resources to increase the economic output plays the main role -often used as an interchangeable term of competitiveness.[4] In this case, Porter (1990) states that, at the national scale, the meaningful concept of competitiveness is productivity.

The World Economic Forum's Global Competitiveness Report 2016-2017 by Schwab and Sala-i-Martin (2017) defines it as "the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve." In this framework,

[2] For more details, see Manzano and Maldonado (2016).
[3] For example, Atkinson (2013) argues about the widespread confusion surrounding the concept of competitiveness. Also, see Krugman (1994), for an extended discussion about the dangers of misusing the term of competitiveness.
[4] See Choudhri and Schembri (2002).

measuring competitiveness is not easy. It involves analyzing components that are static or dynamic, local and aggregate, institutional, related to markets, and factors of production, among others.[5]

Another perspective focuses on methodologies based mainly on trade data. Some examples are Vollrath (1991), Lall (2000), Utkulu and Seymen (2004), García-Herrero et al. (2014), and Manzano y Maldonado (2016). In this case, a revealed competitiveness approach is adopted. In the simplest case, favorable trade indicators mean a trade gain, and vice-versa. Under this framework, Atkinson (2013) defines competitiveness as the ability of a region to export more in value-added terms than it imports. I follow this approach, assuming that trade indicators for CADR would shed some light on its position with respect to the rest of the world. Any positive result from an indicator is interpreted as a competitive gain.

The data comes from the United Nations Comtrade database, SITC Rev. 1. Based on Lall (2000), I classified the exports by technology: primary products, basic manufactures (resource-based manufactures), and non-basic manufactures (using low, middle, and high technology).[6] Also, I grouped the products by section to obtain more detailed results. These sections are: 1) animal and animal products, 2) vegetable products, 3) foodstuffs, 4) beverage and tobacco, 5) raw hides, skins, leather and furs, 6) rubber and its articles, 7) cork and wood and their manufactures, 8) textiles, 9) chemicals and related products, 10) mineral and non-metallic mineral manufactures (except fuels), 11) mineral fuels, lubricants, and related products, 12) plastic and its articles, 13) paper, paperboard and their articles, 14) metals, 15) machinery and electrical, 16) transport equipment, 17) articles of apparel and clothing accessories, 18) footwear, 19) miscellaneous.

To reduce the bias from analyzing non-local industries with high tax incentives, I homogenize and aggregate data excluding free trade zones components. Considering the availability of data, this is possible for six countries (CA-6): Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. Nevertheless, to preserve a significant sample, Belize and the Dominican Republic remain in the analysis, but not in the CA-6 aggregation.

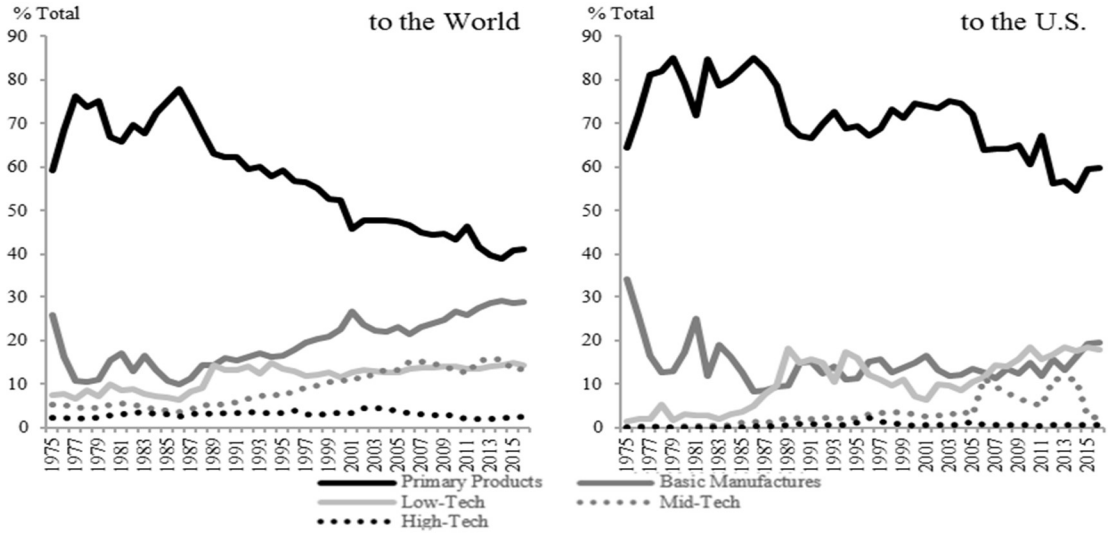
Export Concentration

Figure 1 shows the exports from CA-6 by technological classification. Since the mid-eighties, a gradual transition from primary products towards manufactures can be seen in its total exports, that is, a rearrangement favoring basic, low, and middle technology. In the eighties, primary products exported averaged 70% of the total and basic manufactures around 14%, while in the period 2011-2016, near 42% was primary product exports and almost 30% basic manufactures. This transition can be slightly noticeable in the exports to the United States but favoring low-technology manufactures.

[5] For more details, see Aiginger (1998) which presents a framework for evaluating the competitive position of nations based on welfare maximization, Kitson, Martin, and Tyler (2004) in which the discussion focuses on regional competitiveness, Snowdon and Stonehouse (2006) following Porter's interview on the microeconomic foundations of the competitiveness of nations, regions, and firms, and Durand and Giorno (1987) and Mann (1999) reviewing conceptual aspects and measures of international competitiveness.

[6] It was necessary to reclassify Lall's SITC Rev. 2 suggested codes to aggregate by technology-intensiveness.

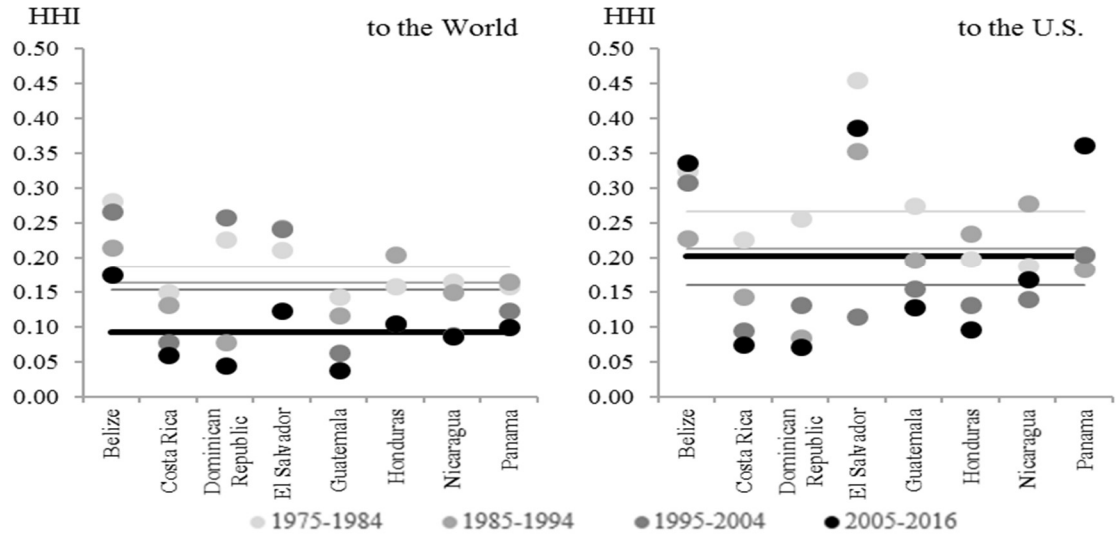
Figure 1: Exports from CA-6, by Technological Classification



Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: 4-digit codes are used following SITC Rev. 1.

Figure 2 depicts the results of the normalized Herfindahl-Hirschman Index (HHI) by country.[7] The gains in diversification are being lost. There is a historical trend where the total exports from CA-6 are less concentrated than the exports to the United States. Therefore, CADR may remain vulnerable to shocks from the United States if it does not reinvent its international trade. The total exports are slightly more diversified in recent years than before. However, that is not true for the exports to the United States. Contrasting the period 1995-2004 with 2005-2016, there is not an improvement of the diversification. In fact, there is more concentration.

Figure 2: Export Concentration



Source: Own calculations based on WITS-UN Comtrade. Note: 4-digit codes are used following SITC Rev. 1. The lines indicate the regional average. An index close to one indicates high export concentration.

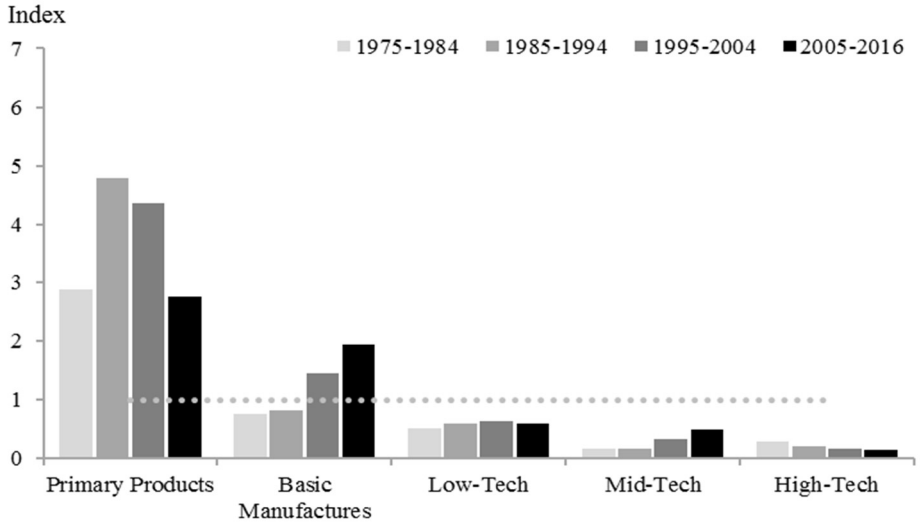
[7] These calculations include zones with fiscal incentives.

Revealed Comparative Advantages and Pattern of Specialization

CA-6 has not developed comparative advantages other than in primary products, basic manufactures and, partly, low-technology products. Based on Balassa (1965), I calculate an index of revealed comparative advantage (RCA) assuming that if a product has more weight in the exports of CA-6 relative to other countries/regions, then CA-6 would have a comparative advantage in that product. Figures 3 and 4 show the results contrasting CA-6 with the exports of the world as a whole.[8]

The exports of non-traditional goods are not relatively increasing. As mentioned in Manzano and Maldonado (2016), this might be a consequence of the persistent lag in the adoption of new technologies, the lack of technology transfer processes, and the presence of a public-private investment of limited impact in the region. Low-technology products exported to the United States are gradually gaining ground over the worldwide exports to the United States, but not revealing an advantage. On the other hand, CA-6 experienced an improvement in basic manufactures but losing ground in primary products. Independently of the market supplied, CA-6 still shows advantages over the world exporting primary products and basic manufactures. Nevertheless, comparing to other regions and detailing the categories, this might not always seem the case.

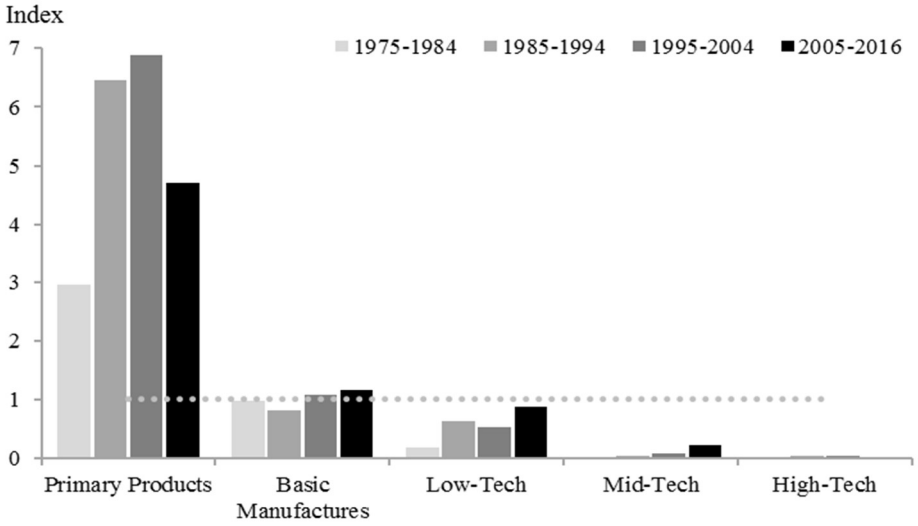
Figure 3: Revealed Advantages of CA-6 Compared with the World, by Technological Classification: Total Exports



Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: 4-digit codes are used following SITC Rev. 1. The line indicates the benchmark RCA=1.

[8] The results derive from choosing an export basket for a particular destination (k) and then dividing the share which represents the export of one product (i) in the total exports of the country or region (j) and the share that represents the export of i in the total exports of another country or region (w). Thus, $[RCA_{ijw}]_k = \left[\frac{X_{ij}}{X_j} \Big/ \frac{X_{iw}}{X_w} \right]_k$. If RCA>1, we can argue about an advantage for i, if RCA<1 there is a disadvantage, and if RCA=1 there is neither an advantage nor disadvantage.

Figure 4: Revealed Advantages of CA-6 Compared with the World, by Technological Classification: Exports to the United States



Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: 4-digit codes are used following SITC Rev. 1. The line indicates the benchmark RCA=1.

Tables 1 and 2 report the RCA index by section and technological classification across different economic zones. CA-6 leads the primary product exports to the United States over low and middle-income countries, but it has disadvantages over the Middle East and North Africa in the global market. On the other hand, CA-6 has recently revealed advantages in the total basic manufactures exported over all regions, but only over LAC-7[9], and some low and middle-income countries, in exports to the United States.

[9] Includes the seven countries more representative of Latin America and the Caribbean: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

Table 1: Revealed Advantages of CA-6 Compared with Other Regions, by Technological Classification: Total Exports

Category		World				LAC-7				High Income				Countries of Low and Middle Income by Region															
														East Asia and the Pacific				South Asia				Europe				Middle East and North Africa			
		1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016
Live Animals and Animal Products		2.9	3.2	4.6	4.3	2.6	2.8	3.5	2.3	2.7	3.3	4.7	3.9	4.4	2.4	4.7	7.6	1.8	2.1	2.8	3.3	1.7	2.8	9.0	8.1	27.4	4.6	6.8	7.6
Vegetable Products		8.4	12.9	13.7	11.4	3.0	4.4	5.2	4.2	10.1	16.2	16.9	13.9	3.3	6.3	10.7	11.9	2.1	4.5	4.9	5.5	1.9	4.5	12.8	9.9	21.7	15.8	10.9	11.0
Foodstuffs		3.4	3.5	5.2	5.5	1.0	1.1	2.2	2.2	4.7	4.3	5.9	5.8	1.9	2.2	4.7	6.8	2.2	3.9	5.6	6.9	3.2	2.5	6.9	7.9	15.8	6.4	10.0	9.3
Beverages and Tobacco		1.0	1.0	1.7	3.8	1.3	0.9	1.3	2.6	0.9	0.9	1.5	3.2	2.5	2.4	5.0	14.1	0.6	1.8	4.0	8.1	0.2	0.4	1.9	4.6	2.9	4.9	7.9	13.2
Raw Hides, Skins, Leather, and Furs		0.6	1.0	1.2	1.3	0.5	0.7	0.7	0.7	0.6	1.1	1.3	1.4	2.9	1.5	1.4	1.7	0.1	0.2	0.3	0.5	27.7	7.8	0.8	1.4	3.0	2.1	1.1	1.5
Rubber		0.7	1.2	1.0	0.9	3.9	2.3	1.6	1.6	0.8	1.2	1.0	1.0	0.1	0.5	0.7	0.6	0.5	1.3	1.4	1.1	40.6	1.6	1.1	1.1	117.1	20.7	6.8	11.2
Cork and Wood		0.3	0.8	1.1	1.1	0.5	0.7	0.9	0.7	0.4	0.8	1.2	1.1	0.1	0.3	0.8	1.2	3.6	9.6	16.4	10.6	3.4	1.9	0.6	0.6	3.9	4.1	7.5	10.8
Textiles		2.5	1.0	0.6	0.9	3.2	1.5	1.1	2.0	2.5	1.1	0.8	1.3	6.7	0.5	0.4	0.4	0.5	0.2	0.1	0.2	0.4	0.3	0.5	0.9	3.1	1.0	0.7	1.3
Chemicals and Related Products		0.9	0.8	1.0	0.8	2.3	1.4	2.1	1.8	0.8	0.8	0.9	0.6	8.6	1.8	2.2	1.7	2.4	1.3	1.2	0.8	3.1	1.2	1.5	1.5	1.6	0.6	1.5	1.3
Mineral and Non-Metallic Mineral Manufactures (Except Fuels)		0.4	0.3	0.8	1.1	0.3	0.2	0.5	0.5	0.5	0.4	0.8	1.2	0.4	0.3	0.9	1.7	0.1	0.1	0.2	0.4	0.2	0.2	0.6	1.2	2.7	1.2	1.8	2.8
Mineral Fuels, Lubricants and Related Materials		0.2	0.1	0.3	0.3	0.1	0.1	0.2	0.2	0.3	0.2	0.7	0.6	0.1	0.1	0.4	0.9	0.9	1.8	7.8	10.8	47.5	0.6	0.1	0.1	0.0	0.0	0.0	0.1
Plastics		0.1	0.3	0.7	1.4	0.3	0.5	1.5	2.9	0.0	0.3	0.6	1.2	1.0	1.9	1.7	2.6	3.5	4.0	1.9	2.2	7.1	0.5	2.0	4.0	6.9	4.9	7.6	5.6
Paper and Paperboard		0.7	0.7	1.3	2.2	2.2	1.3	2.2	3.7	0.6	0.6	1.1	1.9	19.1	3.9	2.9	3.0	4.9	8.6	7.4	7.4	13.2	2.7	2.4	3.9	24.5	8.3	9.2	7.9
Metals		0.2	0.3	0.6	0.7	0.2	0.2	0.5	0.6	0.2	0.3	0.7	0.7	0.3	0.6	0.9	0.7	0.7	0.9	0.8	0.7	0.5	0.2	0.2	0.4	2.9	1.3	2.5	2.5
Machinery and Electrical		0.1	0.1	0.1	0.2	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.5	0.1	0.1	0.1	0.5	0.5	0.7	0.6	1.5	0.2	0.4	0.6	10.2	1.5	1.3	1.2
Transport Equipment		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.8	0.4	1.0	0.9
Articles of Apparel and Clothing Accessories		0.7	0.7	0.7	1.8	2.2	2.0	0.9	5.0	0.6	0.9	1.2	3.9	0.9	0.2	0.2	0.6	1.3	0.1	0.1	0.4	0.2	0.1	0.3	1.6	1.4	0.4	0.3	1.2
Footwear		0.1	0.6	0.7	0.6	0.1	0.4	0.6	1.4	0.1	0.7	1.0	1.0	0.3	0.3	0.2	0.2	0.4	0.7	0.5	0.5	1.1	1.0	0.7	1.2	0.7	1.4	0.9	1.2
Miscellaneous		0.4	0.4	0.3	0.1	1.9	1.4	0.6	0.2	0.3	0.4	0.3	0.1	0.7	0.4	0.2	0.1	1.7	0.9	0.5	0.1	5.2	1.2	0.4	0.1	14.4	5.8	2.0	0.3
Primary Products		2.9	4.8	4.4	2.8	1.2	1.6	1.9	1.3	4.8	6.8	6.5	4.1	1.2	2.4	4.5	5.8	1.5	2.7	3.3	3.3	1.3	3.4	1.9	1.2	0.8	1.1	0.8	0.6
Basic Manufactures		0.8	0.8	1.5	1.9	0.6	0.6	1.4	1.7	0.8	0.8	1.4	1.8	0.6	0.8	1.7	2.4	0.9	0.8	1.2	1.5	1.3	0.9	1.2	1.9	1.8	0.7	2.7	3.8
Non-Basic Manufactures	Low-Tech	0.5	0.6	0.6	0.6	1.2	1.0	0.9	1.1	0.5	0.6	0.7	0.6	1.2	0.4	0.4	0.5	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.5	2.7	1.0	0.8	1.0
	Mid-Tech	0.2	0.2	0.3	0.5	0.6	0.3	0.4	0.6	0.1	0.1	0.3	0.4	1.9	0.5	0.6	0.6	0.7	0.7	1.0	0.9	1.3	0.3	0.5	0.8	5.4	1.0	2.2	2.0
	High-Tech	0.3	0.2	0.2	0.1	1.5	0.9	0.3	0.2	0.2	0.2	0.2	0.1	1.0	0.3	0.1	0.1	2.0	1.2	0.9	0.4	9.3	1.6	0.9	0.8	24.9	4.7	3.2	1.7

Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.

Note: 4-digit codes are used following SITC Rev. 1. The advantage (RCA>1) is highlighted in dark grey, neither an advantage nor disadvantage (RCA=1) in light grey, and the rest in white.

Table 2: Revealed Advantages of CA-6 Compared with Other Regions, by Technological Classification: Exports to the United States

Category		World				LAC-7				High Income				Countries of Low and Middle Income by Region															
														East Asia and the Pacific				South Asia				Europe				Middle East and North Africa			
		1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016
Live Animals and Animal Products		7.8	9.0	12.1	8.5	5.5	6.5	13.7	10.6	7.7	10.2	13.0	8.0	22.8	8.2	10.2	9.4	3.3	5.1	6.7	5.9	453.1	520.9	32.8	37.2	2153.0	499.8	728.9	245.1
Vegetable Products		18.3	28.9	32.7	23.5	4.8	6.9	13.3	10.2	98.1	91.1	67.0	40.2	5.8	16.3	44.5	39.6	3.2	9.0	12.2	16.2	5.0	10.7	32.4	38.7	373.8	53.5	66.2	35.9
Foodstuffs		6.6	5.7	7.0	4.5	2.3	2.3	6.3	3.9	13.6	9.9	9.0	5.3	3.0	1.9	3.8	3.9	68.9	26.0	24.0	11.2	11.3	4.2	10.7	5.9	422.7	16.6	9.9	10.0
Beverages and Tobacco		1.4	1.5	1.9	2.5	2.1	1.5	1.7	2.1	1.2	1.4	1.6	1.8	5.7	8.5	20.5	45.2	25.9	42.7	19.7	26.7	0.0	0.1	0.7	1.6	58.1	394.3	51.4	91.5
Raw Hides, Skins, Leather, and Furs		0.3	0.6	0.6	0.7	0.1	0.2	0.3	0.3	0.3	0.9	0.9	1.1	2.0	0.8	0.5	0.6	0.0	0.1	0.3	0.5	44.9	36.2	1.0	1.1	95.3	28.6	15.5	28.9
Rubber		0.1	0.9	0.5	0.4	0.4	2.0	1.1	0.7	0.1	1.0	0.5	0.4	0.0	0.3	0.3	0.3	0.1	1.0	0.7	0.5	255.2	1.8	1.0	0.3	164.1	297.8	1431.1	40.3
Cork and Wood		0.6	0.7	1.0	0.8	1.1	0.9	1.6	0.9	0.5	0.7	0.8	0.6	0.3	0.5	1.5	1.0	7.0	14.1	18.7	5.5	572.5	580.0	3.0	0.9	57.8	29.1	71.3	53.7
Textiles		0.3	1.1	1.0	0.7	0.3	1.1	1.1	1.4	0.4	1.4	1.4	1.3	0.5	0.6	0.8	0.4	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	1.4	0.9	0.6	0.9
Chemicals and Related Products		0.1	0.2	0.2	0.1	0.1	0.3	0.6	0.2	0.1	0.2	0.2	0.0	1.0	0.5	0.6	0.2	0.2	0.5	0.4	0.0	1.0	0.4	0.2	0.1	3.4	0.8	0.6	0.2
Mineral and Non-Metallic Mineral Manufactures (Except Fuels)		0.5	0.2	0.5	1.8	0.4	0.1	0.7	2.6	0.5	0.2	0.5	1.7	1.2	0.3	0.8	3.0	0.1	0.0	0.1	0.3	0.2	0.1	0.4	1.3	12.1	2.1	4.4	9.1
Mineral Fuels, Lubricants and Related Materials		0.1	0.2	0.6	0.5	0.1	0.1	0.3	0.3	0.2	0.3	0.8	0.5	0.1	0.2	3.8	8.9	3293.9	4064.5	705.5	433.2	4.3	1.1	4.9	0.5	0.0	0.0	0.1	0.1
Plastics		0.0	0.1	0.2	0.4	0.0	0.1	0.3	0.8	0.0	0.0	0.1	0.3	0.0	0.4	0.7	0.9	0.1	1.8	0.5	0.4	0.0	0.1	0.5	1.6	3.7	84.1	408.3	17.1
Paper and Paperboard		0.0	0.3	0.5	0.7	0.1	0.8	1.1	1.1	0.0	0.3	0.4	0.5	4.1	5.0	1.9	0.8	0.5	11.2	5.5	2.9	15.3	18.6	2.5	3.2	60.0	80.5	66.3	25.1
Metals		0.0	0.1	0.2	0.2	0.0	0.1	0.2	0.2	0.0	0.1	0.2	0.2	0.0	0.3	0.3	0.2	0.0	0.2	0.3	0.2	0.1	0.0	0.0	0.0	4.8	2.4	2.3	3.0
Machinery and Electrical		0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.7	0.4	0.7	3.0	0.8	0.3	0.6	27.7	14.7	10.3	12.8
Transport Equipment		0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.2	2.3	0.3	0.2	0.3	0.8	0.2	0.1	0.2	3.6	69.8	24.5	24.3
Articles of Apparel and Clothing Accessories		0.2	0.8	0.8	2.9	0.7	2.3	0.8	6.9	0.1	1.1	1.8	20.0	0.2	0.3	0.3	1.1	0.6	0.1	0.1	0.5	0.4	0.1	0.2	5.8	12.5	1.9	0.5	1.0
Footwear		0.0	0.3	0.2	0.3	0.0	0.1	0.3	1.2	0.0	0.4	0.7	1.5	0.0	0.2	0.0	0.1	0.1	0.4	0.3	0.5	1.9	26.4	1.3	5.7	1.5	85.6	27.6	9.4
Miscellaneous		0.2	0.5	0.3	0.2	1.5	1.5	0.5	0.2	0.2	0.5	0.3	0.2	0.2	0.3	0.2	0.1	1.6	0.9	0.4	0.2	4.3	4.4	0.9	0.2	47.9	8.9	5.0	1.8
Primary Products		3.0	6.5	6.9	4.7	1.4	2.2	3.6	3.1	6.8	12.0	10.6	5.3	1.4	4.7	15.5	20.1	3.2	7.3	10.4	12.9	0.9	2.4	10.8	4.7	0.9	1.3	1.0	1.5
Basic Manufactures		1.0	0.8	1.1	1.2	0.7	0.7	1.6	1.5	1.0	0.8	0.9	0.9	0.9	1.0	2.1	2.0	0.7	0.5	0.7	0.8	8.0	1.4	0.6	0.6	5.0	0.4	3.8	5.6
Non-Basic Manufactures	Low-Tech	0.2	0.6	0.5	0.9	0.4	0.9	0.7	1.4	0.2	0.7	0.7	1.3	0.2	0.3	0.3	0.4	0.1	0.2	0.2	0.3	0.4	0.2	0.2	0.8	8.4	2.4	1.0	1.0
	Mid-Tech	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.4	0.1	0.5	0.5	0.6	8.5	0.2	0.2	0.3	26.6	3.1	3.7	3.8
	High-Tech	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.4	0.1	2.9	12.2	0.4	0.1	4.9	12.4	11.8	5.2

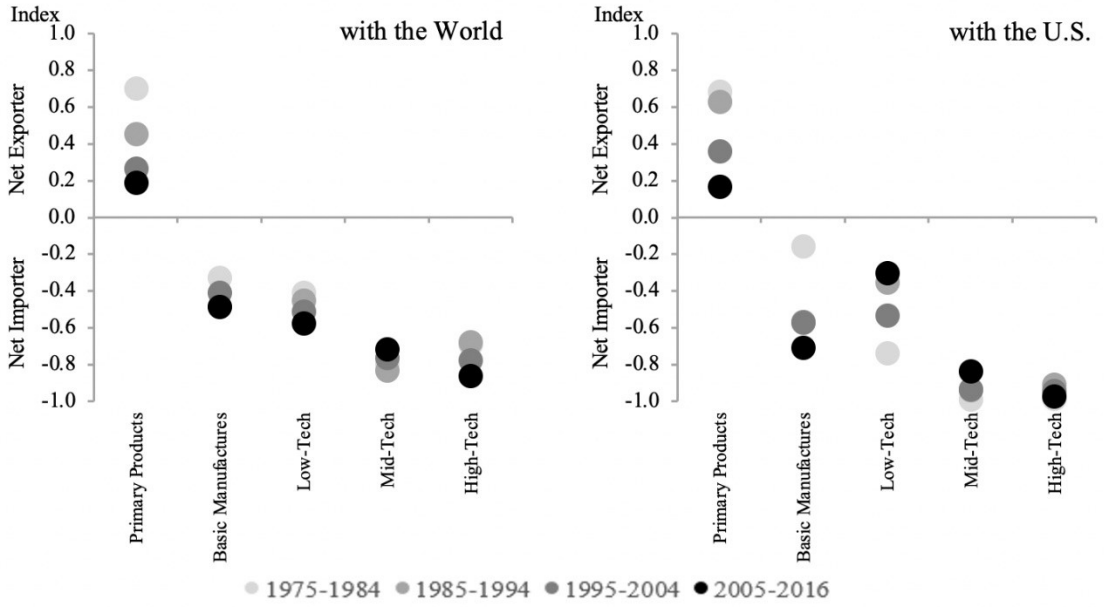
Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: 4-digit codes are used following SITC Rev. 1. The advantage (RCA>1) is highlighted in dark grey, neither an advantage nor disadvantage (RCA=1) in light grey, and the rest in white.

Other stylized facts can be highlighted. CA-6 has a clear advantage in exporting live animals and animal products, vegetable products, foodstuffs, and beverages and tobacco. Also, CA-6 shows advantages in non-traditional goods, but only over the low and middle-income countries in the Middle East and North Africa (for example, in metals, machinery and electrical, and transport equipment). Nevertheless, mineral fuel and lubricants -mostly associated with basic manufactures- do not reveal advantages, except over South Asia. Finally, there are advantages to exporting low-technology products over LAC-7 and high-income countries, being possible to capture eventual benefits by exporting more technologically developed goods.

Figure 5 reveals the results of trade specialization derived from the division of exports minus imports of a product by the total international trade (exports plus imports). Even though CA-6 reveals comparative advantages in traditional products, it is still a net importer of basic manufactures and significantly stepping back as a net exporter of primary products. This outcome is possible because CA-6 only maintains relevant net export participation with the United States in animals and animal products, beverages and

tobacco, minerals (excluding fuels), and vegetables. In contrast, the total net export is only revealed in animals and animal products, and vegetables.

Figure 5: CA-6's Trade Specialization, by Technological Classification



Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: Greater than zero means CA-6 is net exporter; below zero means net importer.

Since the data is partly excluding exports from areas of high tax incentives, the unfavorable trade position of CA-6 implies a high dependency of the trade balance on fiscal incentives (Manzano and Maldonado, 2016). It is vital to reinvigorate the scheme to attract foreign direct investment and to encourage the local industry to retain comparative advantages.[10] CA-6 has become less net importer of low-technology manufactures from the United States, which could be an entry-signal to promote non-traditional exports in the local competitiveness agenda. However, there are mixed results among Central American countries. By country, Tables 3 and 4 display the results of the RCA index considering the world and the United States as CA-6's partners, respectively.

[10] See Lall (2000), Anastassopoulos (2007), and Manzano et al. (2015), to better understand the role that attracting foreign direct investment has on international competitiveness, especially investments from non-traditional manufacturers.

Table 3: Revealed Advantages of Each Country Compared with CA-6 and Global's Exports, by Technological Classification: Total Exports

Category		Vs.	Belize				Costa Rica				El Salvador				Guatemala				Honduras				Nicaragua				Panama				Dominican Republic			
			1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016
Live Animals and Animal Products		CA-6	1.2	0.6	1.3	1.6	1.0	0.9	0.7	0.6	0.5	0.5	0.4	0.2	0.5	0.4	0.1	0.1	1.3	1.2	1.0	1.1	1.8	2.3	3.3	4.5	2.3	3.0	3.9	4.3	0.1	0.2	0.0	0.1
		World	3.4	1.8	6.1	7.0	2.8	2.8	3.4	2.5	1.5	1.6	1.8	0.8	1.4	1.2	0.6	0.4	3.8	3.9	4.3	4.4	5.4	7.7	15.2	19.0	6.7	9.2	18.7	19.0	0.4	0.5	0.2	0.2
Vegetable Products		CA-6	0.1	0.2	0.3	0.5	1.2	1.0	1.3	1.4	1.0	0.9	0.6	0.3	0.9	0.9	0.9	1.0	1.3	1.3	1.3	1.3	0.8	0.7	0.8	1.0	0.6	0.8	0.7	0.8	0.3	0.2	0.1	0.2
		World	0.8	2.9	4.7	5.4	9.9	13.5	17.4	16.5	8.0	12.2	8.0	3.2	7.9	11.6	12.9	11.3	10.4	16.7	17.3	14.4	6.4	9.5	11.7	10.9	5.2	10.7	10.2	9.8	2.9	2.1	1.7	1.9
Foodstuffs		CA-6	6.7	7.4	3.7	3.2	0.8	0.6	0.8	0.7	0.7	0.8	1.2	1.2	1.3	1.7	1.4	1.5	0.6	0.5	0.6	0.5	1.2	1.3	0.9	1.0	1.9	1.4	0.6	0.6	5.5	2.4	0.7	0.6
		World	22.0	25.1	18.0	17.8	2.6	2.3	4.3	3.7	2.4	2.9	6.0	6.7	4.4	5.9	7.2	8.4	1.9	1.6	3.5	2.6	3.9	4.5	4.8	5.3	6.2	4.7	3.0	3.6	17.9	7.7	3.7	3.3
Beverages and Tobacco		CA-6	0.5	0.0	0.2	0.0	0.2	0.2	0.4	0.5	0.3	0.5	1.2	1.2	1.3	1.8	1.4	1.3	2.3	1.5	0.7	1.1	1.2	1.1	2.2	1.1	1.2	1.5	1.5	0.7	5.0	5.6	2.8	2.8
		World	0.5	0.0	0.3	0.1	0.2	0.2	0.8	1.9	0.3	0.5	2.1	4.5	1.3	1.8	2.2	4.9	2.3	1.5	1.3	4.4	1.2	1.0	3.5	4.3	1.3	1.5	2.3	2.7	4.9	4.8	4.8	10.6
Raw Hides, Skins, Leather, and Furs		CA-6	0.5	0.1	0.0	0.0	1.7	1.4	1.2	0.9	0.9	0.6	0.7	0.8	0.7	0.3	0.7	0.6	1.0	0.3	0.3	0.4	0.9	1.2	1.7	2.5	0.4	3.4	2.1	4.3	0.5	7.1	2.7	1.4
		World	0.3	0.1	0.0	0.0	1.0	1.4	1.4	1.1	0.5	0.6	0.8	1.0	0.4	0.3	0.9	0.8	0.6	0.3	0.3	0.5	0.5	1.4	2.0	3.3	0.3	3.1	2.4	5.7	0.3	7.0	2.9	1.9
Rubber		CA-6	0.7	0.1	0.0	0.0	1.3	1.5	1.4	1.7	0.1	0.1	0.1	0.0	2.4	1.8	2.0	2.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.2
		World	0.5	0.1	0.0	0.0	1.0	1.8	1.4	1.5	0.1	0.1	0.1	0.0	1.7	2.2	2.1	2.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.2
Cork and Wood		CA-6	4.0	2.1	0.8	1.1	1.1	0.7	0.7	1.2	0.1	0.1	0.1	0.3	0.3	0.8	0.5	0.9	3.7	3.4	3.6	1.7	0.8	0.5	1.8	0.7	0.3	0.3	0.5	2.6	0.0	0.0	0.1	0.2
		World	1.5	1.6	0.8	1.3	0.4	0.5	0.8	1.3	0.0	0.1	0.1	0.3	0.1	0.6	0.5	0.9	1.3	2.7	4.2	1.9	0.3	0.4	1.9	0.8	0.1	0.2	0.6	2.9	0.0	0.0	0.1	0.2
Textiles		CA-6	0.0	0.0	0.0	0.0	0.2	0.4	0.5	0.3	1.5	2.0	3.5	3.7	1.3	1.4	1.0	0.7	0.2	0.3	0.5	0.3	2.6	3.7	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.5	0.5	2.9
		World	0.0	0.0	0.0	0.0	0.4	0.4	0.3	0.2	3.9	1.8	2.2	3.2	3.4	1.3	0.6	0.6	0.5	0.2	0.3	0.3	6.6	3.9	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.4	0.3	2.5
Chemicals and Related Products		CA-6	0.2	0.0	0.1	0.2	1.1	0.8	0.8	1.1	1.0	1.4	1.5	0.9	1.5	1.7	1.5	1.5	0.6	0.2	0.6	0.7	0.6	0.4	0.2	0.2	0.2	0.8	0.5	0.4	0.7	0.6	0.2	0.6
		World	0.2	0.0	0.1	0.1	1.0	0.7	0.9	0.9	0.9	1.2	1.5	0.8	1.4	1.4	1.5	1.2	0.5	0.2	0.6	0.5	0.6	0.3	0.2	0.2	0.2	0.6	0.5	0.4	0.7	0.4	0.2	0.5
Mineral and Non-Metallic Mineral Manufactures (Except Fuels)		CA-6	0.1	0.0	1.8	0.0	0.2	0.9	1.0	0.8	0.6	0.4	0.4	0.6	0.5	1.5	1.1	0.7	4.7	1.1	2.0	1.6	0.3	0.6	0.4	1.8	0.1	0.8	0.9	1.6	1.8	0.6	0.3	0.9
		World	0.0	0.0	1.3	0.0	0.1	0.3	0.8	0.9	0.3	0.1	0.3	0.6	0.2	0.5	0.7	0.8	1.9	0.4	1.6	1.7	0.1	0.2	0.3	2.3	0.0	0.3	0.6	1.8	0.7	0.2	0.3	1.0
Mineral Fuels, Lubricants and Related Materials		CA-6	0.4	0.0	1.9	6.2	0.3	0.9	0.4	0.2	0.5	0.6	1.4	1.2	0.4	1.8	2.0	2.1	0.2	0.4	0.1	0.7	0.1	0.8	0.2	0.2	10.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0
		World	0.1	0.0	0.7	2.1	0.0	0.1	0.1	0.1	0.1	0.1	0.5	0.4	0.1	0.3	0.7	0.7	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.1	1.4	0.1	0.4	0.0	0.0	0.0	0.0	0.0
Plastics		CA-6	0.0	0.0	0.0	0.0	2.5	1.2	1.6	1.2	1.5	1.6	2.1	2.1	0.8	1.4	0.6	1.0	0.0	0.1	0.2	0.2	0.1	0.8	0.3	0.1	0.0	0.0	0.2	0.1	0.2	0.4	0.2	0.3
		World	0.0	0.0	0.0	0.0	0.1	0.3	1.2	1.6	0.1	0.5	1.5	3.0	0.1	0.3	0.4	1.5	0.0	0.0	0.1	0.4	0.0	0.2	0.2	0.2	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.5
Paper and Paperboard		CA-6	0.1	0.0	0.1	0.1	0.9	0.9	1.0	1.0	3.0	3.3	2.6	2.1	0.9	0.6	0.7	0.7	0.3	0.5	0.5	0.8	0.1	0.1	0.1	0.1	0.7	0.9	0.7	0.9	0.1	0.6	0.3	0.6
		World	0.1	0.0	0.1	0.2	0.6	0.6	1.3	2.2	2.2	2.3	3.4	4.7	0.7	0.4	0.9	1.5	0.2	0.4	0.6	1.7	0.0	0.1	0.1	0.3	0.5	0.5	0.9	2.0	0.1	0.3	0.4	1.3
Metals		CA-6	0.4	0.0	0.0	0.0	0.7	0.9	0.8	1.0	1.8	1.8	2.0	1.5	1.2	1.0	1.1	1.1	0.7	0.7	0.9	0.6	0.8	1.3	0.3	0.2	0.5	0.6	0.5	1.4	9.7	6.4	2.1	1.6
		World	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.7	0.3	0.6	1.3	1.0	0.2	0.3	0.7	0.7	0.1	0.3	0.6	0.4	0.1	0.4	0.2	0.2	0.1	0.2	0.3	1.0	1.5	1.9	1.3	1.1
Machinery and Electrical		CA-6	1.3	0.0	0.0	0.0	2.2	2.0	1.5	1.5	1.6	1.3	1.4	0.7	0.8	0.6	0.8	0.6	0.0	0.1	0.6	2.0	0.2	0.1	0.6	0.2	0.3	0.1	0.0	0.0	1.0	5.1	1.5	2.7
		World	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.5
Transport Equipment		CA-6	2.7	0.3	0.3	0.0	1.5	1.3	0.8	0.6	1.0	0.6	0.5	0.5	1.3	1.3	1.6	1.3	0.3	0.2	1.0	2.1	0.0	0.6	1.2	0.4	1.5	1.5	0.3	0.0	3.3	0.1	0.2	0.5
		World	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articles of Apparel and Clothing Accessories		CA-6	8.0	10.4	3.2	0.3	0.9	1.5	0.5	0.0	2.3	1.0	2.0	4.9	1.0	0.8	1.1	0.2	0.4	0.4	1.1	0.1	0.3	0.2	0.0	0.0	1.3	1.6	1.3	0.1	0.7	9.6	5.6	3.3
		World	5.5	6.1	2.3	0.4	0.6	1.0	0.4	0.1	1.6	0.7	1.5	9.1	0.6	0.5	0.8	0.3	0.3	0.3	0.9	0.2	0.2	0.1	0.0	0.0	0.8	1.0	0.9	0.3	0.3	6.3	4.7	5.4
Footwear		CA-6	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.1	1.2	3.4	3.2	2.9	2.9	1.4	1.3	1.4	0.0	0.1	0.1	0.3	0.0	0.3	0.8	0.4	0.0	0.4	0.0	0.0	0.7	1.9	2.0	10.4
		World	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.2	2.3	2.2	1.8	0.4	0.7	0.9	0.9	0.0	0.0	0.1	0.1	0.0	0.2	0.6	0.2	0.0	0.2	0.0	0.0	0.2	1.0	1.4	6.3
Miscellaneous		CA-6	0.8	0.0	5.1	3.2	2.3	2.0	0.5	0.7	1.3	0.6	0.9	1.1	0.6	0.6	1.2	0.9	0.4	0.4	0.8	2.1	0.4	0.5	1.9	0.7	0.3	0.5	1.4	0.4	0.5	2.4	13.8	12.4
		World	0.3	0.0	1.1	0.3	0.9	0.8	0.2	0.1	0.4	0.2	0.3	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.2	0.3	0.1	0.2	0.7	0.1	0.1	0.2	0.4	0.0	0.2	0.9	4.0	1.4
Primary Products		CA-6	0.2	0.3	0.5	1.2	1.0	1.0	1.1	1.2	0.9	0.9	0.5	0.2	0.9	0.9	0.9	0.9	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.5	0.7	1.1	1.3	1.5	0.5	0.3	0.2	0.2
		World	0.6	1.6	2.2	3.2	2.8	4.6	4.8	3.4	2.6	4.1	2.4	0.6	2.7	4.3	3.9	2.6	3.4	5.9	5.2	3.4	3.4	5.8	5.5	4.0	2.2	5.2	5.7	4.1	1.4	1.3	1.0	0.6
Basic Manufactures			CA-6	4.8	4.2	2.5	1.6	0.7	0.8	0.9	0.8	0.7	0.9	1.2	1.2	1.1	1.3	1.1	1.1	0.7	0.9	1.0	0.8	0.9	0.9	0.9	1.1	2.9	1.2	0.8	1.0	3.3	1.4	0.6	0.7
			World	3.5	3.3	3.3	3.1	0.5	0.6	1.2	1.5	0.6	0.8	1.8	2.3	0.9	1.1	1.6	2.2	0.5	0.7	1.5	1.6	0.7	0.8	1.4	2.2	2.2	0.9	1.2	1.9	2.4	1.0	0.9	1.4
Non-Basic Manufactures	Low-Tech		CA-6	1.6	2.1	1.8	0.5	1.4	1.4	0.8	0.5	2.0	1.4	1.8	2.8	0.9	0.9	1.1	0.7	0.4	0.3	0.7	0.7	0.4	0.4	0.6	0.2	0.5	0.8	0.9	0.4	0.3	3.2	4.4	3.0
			World	0.8	1.1	1.1	0.3	0.7	0.9	0.5	0.3	1.0	0.8	1.2	1.7	0.5	0.5	0.7	0.4	0.2	0.2	0.5	0.4	0.2	0.3	0.4	0.1	0.2	0.5	0.6	0.3	0.2	1.9	2.8	1.8
	Mid-Tech		CA-6	0.8	0.0	0.0	0.0	1.4	1.2	1.1	1.2	1.3	1.6	1.5	1.1	1.1	1.3	1.2	1.2	0.6	0.2	0.6	1.0	0.4	0.4	0.4	0.2	0.3	0.4	0.2	0.1	3.1	4.3	1.7	1.7
			World	0.1	0.0	0.0	0.0	0.2	0.2	0.4	0.6	0.2	0.3	0.5	0.5	0.2	0.2	0.4	0.6	0.1	0.0	0.2	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.5	0.7	0.5	0.8
	High-Tech		CA-6	0.4	0.0	0.0	0.0	1.4	1.0	1.0	1.1	0.9	1.4	1.6	1.7	1.8	1.7	1.3	1.1	0.1	0.1	0.2	0.4	0.3	0.1	0.7	0.2	0.2	0.6	0.6	0.9	0.2	1.2	0.7	2.6
			World	0.1	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.5	0.4	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.4

Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.

Note: 4-digit codes are used following SITC Rev. 1. The advantage (RCA>1) is highlighted in dark grey, neither an advantage nor disadvantage (RCA=1) in light grey, and the rest in white.

Table 4: Revealed Advantages of Each Country Compared with CA-6 and Global's Exports, by Technological Classification: Exports to the U.S.

Category		Vs.	Belize				Costa Rica				El Salvador				Guatemala				Honduras				Nicaragua				Panama				Dominican Republic			
			1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016	1975-1984	1985-1994	1995-2004	2005-2016
Live Animals and Animal Products		CA-6	0.9	0.8	1.4	1.7	1.0	0.9	0.5	0.4	0.7	0.6	0.7	0.1	0.5	0.4	0.1	0.0	1.0	1.2	0.9	1.1	2.4	1.7	2.8	3.6	1.7	2.7	3.3	6.3	0.1	0.1	0.0	0.0
		World	6.6	7.2	17.5	13.3	7.5	7.7	6.4	3.5	5.4	5.8	7.6	1.0	3.6	4.0	1.3	0.4	7.5	11.1	11.4	8.5	18.8	16.4	33.4	29.6	13.2	23.6	40.7	50.5	0.6	1.0	0.1	0.1
Vegetable Products		CA-6	0.0	0.0	0.1	0.2	1.1	0.9	1.3	1.8	1.2	1.1	0.6	0.2	1.2	1.2	1.2	1.4	1.1	1.1	1.0	0.8	0.5	0.4	0.5	0.7	0.4	0.5	0.4	0.4	0.4	0.2	0.2	0.1
		World	0.3	0.9	2.7	5.4	20.4	26.8	44.3	41.6	21.9	33.0	20.0	5.1	20.9	34.5	38.1	32.1	20.3	33.1	33.3	19.4	8.6	13.4	16.7	17.3	7.2	13.7	11.5	8.2	7.6	4.6	5.9	1.3
Foodstuffs		CA-6	3.5	6.1	3.6	4.3	0.8	0.6	0.8	0.6	1.1	1.1	1.7	1.3	1.3	1.3	1.1	1.4	0.4	0.6	0.9	0.6	1.3	2.2	1.0	1.2	1.8	1.9	1.1	2.0	3.6	2.6	3.2	0.9
		World	22.7	33.6	24.9	18.9	5.1	3.5	5.4	2.7	6.9	6.6	11.8	5.9	8.5	7.5	7.6	6.2	2.8	3.6	7.0	2.6	8.8	15.7	6.9	5.3	12.1	10.7	7.4	8.4	23.2	13.1	23.3	3.8
Beverages and Tobacco		CA-6	0.0	0.0	3.1	0.0	0.2	0.2	0.7	0.2	0.2	0.2	1.3	1.2	1.1	2.1	0.7	0.6	2.1	1.8	0.9	2.3	2.0	0.7	3.0	1.4	0.5	1.1	1.6	0.5	0.9	2.9	6.1	5.6
		World	0.0	0.0	5.3	0.1	0.3	0.2	1.5	0.4	0.3	0.3	2.5	4.4	1.6	3.4	1.2	1.3	2.9	2.7	1.4	5.3	2.8	1.2	5.4	3.2	0.8	1.9	3.0	0.9	1.3	3.7	10.9	11.3
Raw Hides, Skins, Leather, and Furs		CA-6	0.0	0.0	0.0	0.0	1.7	1.9	1.5	0.3	0.2	1.2	4.4	3.2	1.4	0.1	0.4	1.1	0.8	0.1	0.1	0.3	0.8	0.7	0.2	0.1	0.4	1.1	0.1	0.5	3.8	37.7	29.5	16.8
		World	0.0	0.0	0.0	0.0	0.5	1.1	0.9	0.2	0.0	0.8	2.7	2.9	0.3	0.1	0.1	0.4	0.2	0.0	0.1	0.0	0.3	0.3	0.1	0.0	0.1	0.6	0.1	0.2	0.9	20.0	13.9	4.2
Rubber		CA-6	1248.1	0.0	0.0	0.0	1.5	2.5	2.0	1.7	1.1	0.0	0.1	0.0	1.0	0.6	1.4	2.5	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.6	0.0	0.3	0.7
		World	0.8	0.0	0.0	0.0	0.1	2.2	1.2	1.2	0.0	0.0	0.0	0.0	0.1	0.5	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Cork and Wood		CA-6	1.0	1.0	0.8	2.3	0.6	0.9	0.8	1.2	0.0	0.1	0.2	0.1	0.4	0.9	0.4	1.2	3.1	2.2	3.1	1.9	0.5	0.2	0.7	0.4	0.3	0.4	0.6	0.5	0.0	0.0	0.1	0.1
		World	0.6	0.8	0.8	1.8	0.3	0.7	0.8	0.9	0.0	0.1	0.2	0.1	0.2	0.7	0.4	0.9	1.7	1.6	3.3	1.4	0.2	0.1	0.6	0.3	0.2	0.3	0.5	0.4	0.0	0.0	0.1	0.1
Textiles		CA-6	0.1	0.0	0.0	0.0	0.3	1.0	0.6	0.4	5.1	3.5	7.3	3.9	0.6	0.9	0.5	0.2	0.3	0.4	0.6	0.6	1.1	0.0	0.2	0.1	0.4	0.4	0.0	0.0	0.1	0.9	0.5	1.3
		World	0.0	0.0	0.0	0.0	0.2	1.0	0.6	0.3	1.8	3.9	7.7	2.7	0.2	1.0	0.5	0.1	0.1	0.5	0.6	0.5	0.3	0.0	0.2	0.0	0.1	0.4	0.0	0.0	0.0	1.1	0.5	0.9
Chemicals and Related Products		CA-6	3.0	0.3	0.5	3.9	0.6	1.4	0.6	0.4	0.4	0.7	2.5	1.2	1.8	1.1	1.6	1.2	0.7	0.2	0.5	1.5	2.1	0.1	0.5	0.7	0.0	1.8	0.8	0.4	3.7	2.3	1.1	7.3
		World	0.2	0.1	0.1	0.2	0.0	0.3	0.1	0.0	0.0	0.2	0.5	0.1	0.1	0.2	0.4	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.2	0.0	0.2	0.4	0.2	0.4
Mineral and Non-Metallic Mineral Manufactures (Except Fuels)		CA-6	0.0	0.0	1.1	0.0	0.1	0.7	0.7	0.8	0.0	0.5	0.4	1.1	0.1	0.7	0.3	0.4	4.1	1.7	2.5	1.1	0.4	13.8	1.0	2.7	0.1	2.5	1.8	0.3	2.0	1.2	1.2	0.2
		World	0.0	0.0	0.5	0.0	0.0	0.1	0.4	1.2	0.0	0.1	0.2	1.7	0.0	0.1	0.1	0.6	2.0	0.2	1.5	1.8	0.2	2.4	0.4	6.0	0.0	0.3	0.7	0.5	0.9	0.2	0.5	0.3
Mineral Fuels, Lubricants and Related Materials		CA-6	0.0	0.0	0.0	7.8	0.0	0.3	0.3	0.1	0.0	0.1	0.6	0.4	1.0	3.4	3.1	3.5	0.1	0.3	0.0	0.4	0.0	0.2	0.0	0.0	7.6	0.5	0.8	0.0	0.0	0.0	0.0	0.0
		World	0.0	0.0	0.0	3.7	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.2	0.1	0.5	1.7	1.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6	0.1	0.3	0.0	0.0	0.0	0.0	0.0
Plastics		CA-6	0.0	0.0	0.0	0.0	2.7	1.9	1.9	1.1	1.3	2.6	2.2	1.7	1.1	0.1	0.3	0.4	0.0	0.3	0.9	1.4	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	17.7	10.4	2.1	1.1
		World	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.0	0.1	0.2	0.7	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.5
Paper and Paperboard		CA-6	6.8	0.0	0.3	0.4	0.9	1.6	0.4	0.4	3.6	1.7	4.2	0.8	0.3	0.2	1.0	0.3	0.2	0.8	0.8	2.2	0.0	0.0	0.1	1.7	2.6	1.0	0.8	0.9	6.1	4.0	1.0	4.8
		World	0.0	0.0	0.1	0.2	0.0	0.4	0.2	0.2	0.1	0.5	2.4	0.4	0.0	0.1	0.4	0.1	0.0	0.4	0.4	1.9	0.0	0.0	0.1	0.9	0.1	0.3	0.4	0.4	0.1	0.5	0.6	2.2
Metals		CA-6	8.0	0.0	1.0	0.0	0.8	1.3	0.9	1.5	2.3	1.0	3.2	1.1	2.3	0.3	0.6	0.7	0.0	0.4	0.7	0.7	0.1	1.6	0.7	0.7	0.7	2.4	1.0	3.6	111.6	8.9	8.0	3.4
		World	0.0	0.0	0.2	0.0	0.0	0.1	0.2	0.3	0.0	0.1	0.7	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.2	0.2	0.5	0.9	0.8	1.3	0.6
Machinery and Electrical		CA-6	8.4	0.0	0.6	0.0	3.7	2.7	1.2	0.4	0.7	0.2	1.9	0.6	0.2	0.1	0.5	0.3	0.0	0.0	1.4	3.5	0.1	0.1	0.9	0.2	0.9	0.2	0.0	0.0	8.7	11.2	6.0	4.6
		World	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.6
Transport Equipment		CA-6	4.7	1.2	1.2	0.0	4.0	2.4	1.3	0.7	0.0	0.3	0.8	0.3	0.0	0.2	0.5	0.4	0.4	0.3	1.7	3.1	0.0	0.9	1.1	0.4	0.5	0.5	0.0	0.0	2.8	0.1	0.4	0.6
		World	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Articles of Apparel and Clothing Accessories		CA-6	60.8	11.9	4.6	0.3	0.4	1.7	0.5	0.0	0.4	1.0	2.7	5.0	1.9	0.9	1.2	0.1	1.0	0.3	1.2	0.1	0.9	1.8	0.0	0.0	1.3	1.0	0.6	0.0	1.3	7.6	4.4	1.9
		World	8.6	7.8	3.7	0.6	0.1	1.3	0.4	0.0	0.1	0.8	2.1	14.5	0.3	0.7	1.1	0.2	0.2	0.3	1.1	0.2	0.2	0.9	0.0	0.0	0.2	0.8	0.5	0.1	0.3	5.7	4.3	4.7
Footwear		CA-6	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	2.5	4.1	8.1	5.1	3.0	1.0	0.2	0.1	0.0	0.1	0.1	0.0	0.0	14.6	0.1	0.1	0.0	0.0	0.0	0.0	4.3	3.8	4.1	17.5
		World	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	1.1	2.1	1.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.0	5.0
Miscellaneous		CA-6	0.3	0.0	8.7	0.8	3.6	2.2	0.5	0.3	0.2	0.3	0.8	0.7	0.2	0.2	1.0	0.2	0.7	0.5	0.9	3.2	0.1	0.7	2.3	0.6	0.1	0.5	1.3	0.3	1.3	2.5	5.3	19.7
		World	0.1	0.0	1.3	0.1	0.8	1.0	0.3	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.3	0.0	0.1	0.2	0.2	0.6	0.0	0.2	0.9	0.1	0.0	0.2	0.3	0.0	0.2	1.0	1.0	2.2
Primary Products		CA-6	0.2	0.2	0.4	1.1	1.0	0.9	1.1	1.4	1.0	1.0	0.6	0.2	1.0	1.1	1.1	1.4	1.1	1.1	1.0	0.9	1.0	0.7	1.0	1.1	0.7	1.0	1.0	1.3	0.5	0.2	0.3	0.1
		World	0.7	1.4	2.6	4.8	3.1	5.7	7.3	6.5	3.0	6.5	4.1	0.9	2.9	7.0	7.4	6.4	3.3	7.4	6.9	4.2	2.9	4.5	6.7	5.0	2.2	6.4	7.0	6.0	1.5	1.6	1.8	0.4
Basic Manufactures		CA-6	3.2	4.2	2.7	2.1	0.6	0.8	0.8	0.7	0.9	0.9	1.6	1.0	1.2	1.1	0.8	0.9	0.6	0.9	1.1	1.0	1.2	1.8	1.2	2.0	2.3	1.5	1.3	1.3	2.6	1.7	2.0	1.2
		World	2.9	3.3	2.9	2.5	0.6	0.7	0.8	0.8	0.8	0.8	1.7	1.1	1.1	0.9	0.9	1.0	0.5	0.7	1.3	1.1	1.2	1.8	1.3	2.4	2.2	1.3	1.4	1.5	2.4	1.2	2.3	1.3
Non-Basic Manufactures	Low-Tech	CA-6	10.0	4.1	3.8	0.4	2.4	1.8	0.6	0.1	1.2	1.1	3.2	4.2	0.6	0.5	0.9	0.1	0.6	0.4	0.9	0.6	0.3	3.2	0.6	0.1	0.4	0.7	0.7	0.1	1.2	4.2	3.5	2.8
		World	1.7	2.0	1.8	0.2	0.5	1.1	0.4	0.1	0.2	0.7	1.6	3.6	0.1	0.3	0.4	0.1	0.1	0.3	0.5	0.5	0.0	1.4	0.4	0.1	0.1	0.4	0.4	0.1	0.2	2.4	1.8	2.3
	Mid-Tech	CA-6	7.2	0.0	0.2	0.0	3.0	2.2	1.5	0.4	0.5	0.6	1.5	1.1	0.5	0.6	1.0	0.3	0.3	0.2	0.7	2.9	0.3	0.1	0.9	0.3	0.7	0.2	0.0	0.0	30.0	8.4	5.2	5.5
		World	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.9
	High-Tech	CA-6	15.9	0.0	0.4	0.1	2.0	1.8	0.9	1.4	1.1	0.3	2.0	1.0	1.1	0.3	0.5	0.9	0.0	0.1	0.6	1.0	2.0	0.2	2.3	1.1	0.0	2.4	1.2	0.2	12.9	8.1	3.6	15.9
		World	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.4

Source: Own calculations based on Central Banks, National Ministries, WITS-UN Comtrade.
Note: 4-digit codes are used following SITC Rev. 1. The advantage (RCA>1) is highlighted in dark grey, neither an advantage nor disadvantage (RCA=1) in light grey, and the rest in white.

In recent years, El Salvador and the Dominican Republic have not had an advantage in primary products. Meanwhile, there is no substantial difference among countries with advantages in those products. In CA-6, the countries have similar productivity (see Cuevas, Manzano, and Rodríguez, 2014, and Manzano et al., 2015), and similar RCAs among the categories. Therefore, rather than competing for markets, a better option would be to continue the technical and administrative efforts to promote an economically integrated Central America (for example, throughout the Secretary of Economic Integration of Central America, SIECA in Spanish), and to intensify intra-regional coordination seeking complementarities.[11]

Regarding the total exports, all countries show an advantage in basic manufactures. Costa Rica, El Salvador, Guatemala, and the Dominican Republic stand out in non-traditional exports (in particular, in middle and high technology manufactures). El Salvador and the Dominican Republic also have an advantage in low-technology exports over the world. Regarding the exports to the United States, there

[11] See SIECA (2019) for a recent compilation of studies addressing how to integrate Central America within international markets.

are similar patterns among the categories; however, Costa Rica and Guatemala lose their advantages exporting basic and low, and middle technology manufactures.

Is the Region Exporting Quality?

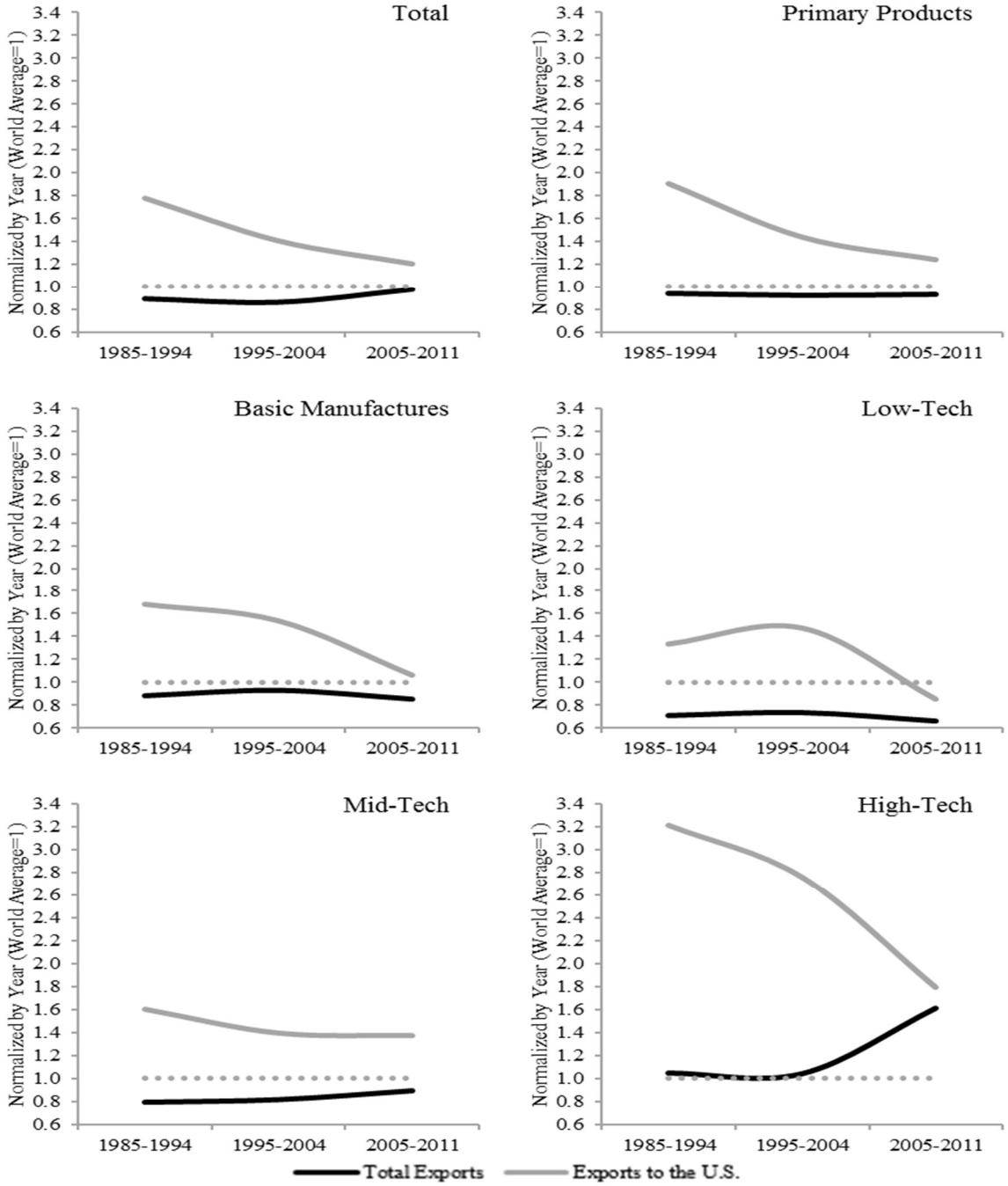
The comparative advantage for the region has had a meager development. This context goes hand-by-hand with a reduction in the relative quality of exports or the average "particularity" of exports. This decrease is confirmed in an estimation exercise using data available from Feenstra and Romalis (2014) between 1985 and 2011.

I evaluate the relative prices of similar exported products among countries assuming that any difference in values is attributed to the "particularity" of the exported product, that is, an indicator of quality based on relative prices (ratio between an index of market unit value of the product and an index of the price adjusted by quality).[12] Figure 6 shows the results for CA-6 comparing the quality of the exports to the United States with the quality of CA-6's total exports. The region does not appear to export quality.

On the one hand, CA-6 stands out for its comparative advantage in primary products and basic manufactures, but the relative quality of its total exports remains below the global supply. This scenario has been shadowing the perception of the competitiveness of Central America, warning us about the new challenges in productivity and growth once overcome. The relative quality of the traditional exports to the United States is above the world average, but it is decreasing. On the other hand, regarding non-traditional exports, low-technology products tend to decrease in relative quality being below the global supply. For middle-technology exports, it remains steady. The United States and the world receive high-technology products of relative better quality from CA-6 than from the rest of the world. These findings reflect the regional potential to attract long-term capital investments in mid-high technology industries (in 2016, representing together around 16% of the total exports from CA-6), as well as the importance of moving forward on policies promoting the market expansion and improving competitiveness to increase the unit value of these products.

[12] These calculations require the reclassification of the dataset from Feenstra and Romalis (2014), converting SITC rev. 2 codes to SITC rev. 1. Then, the data is normalized year by year, equaling the global average to one. Subsequently, the results are aggregated using a weighted average, using the categories of this paper. After the aggregation, the data are renormalized. The results could differ depending on the value of the exports sent to the United States, and the set of products exported.

Figure 6: Average Relative Quality of CA-6's Exports, by Technological Classification

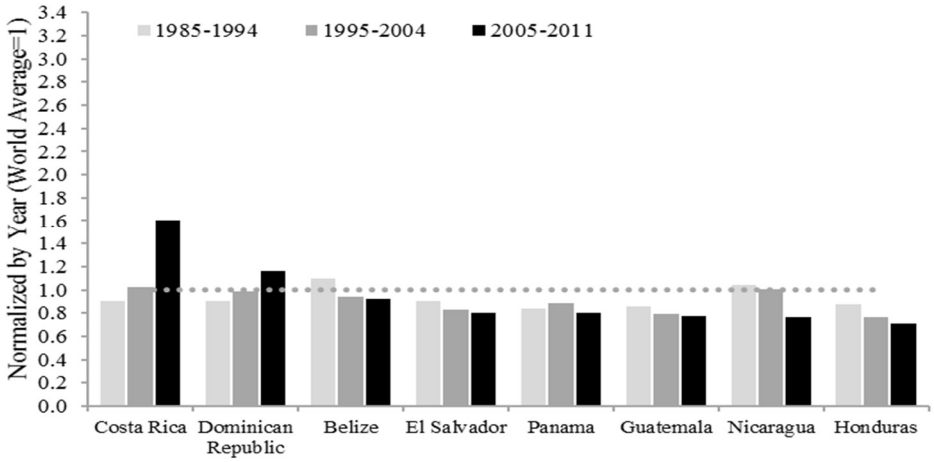


Source: Own calculations based on Feenstra and Romalis (2014), and WITS-UN Comtrade.
Note: A result greater than one indicates a higher level of quality relative to global supply. If it is one, the quality of the product is integrally represented in its unit value.

Figures 7 and 8 show the quality index by country (from left to right, with higher to lower index in the last period available, respectively). At least three facts can be highlighted. First, the countries do not export products of similar quality than the global supply. Second, there is a non-steady path in each country throughout the period 1985-2011. Finally, although with a downward trend, each country exports to the United States a set of products with a relative quality above the exported from the average world.

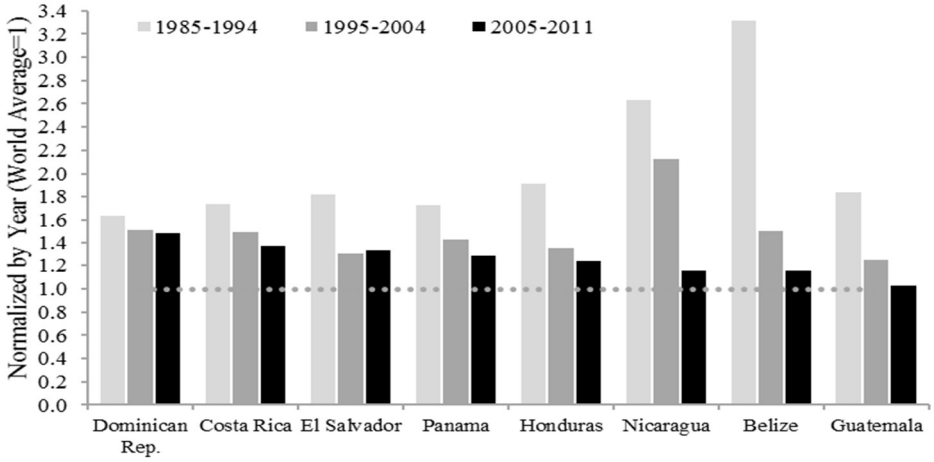
Moreover, only Costa Rica and the Dominican Republic export more quality than the world and have an upward trend in relative quality in their total exports.

Figure 7: Average Relative Quality of CA-6's Total Exports, by Technological Classification



Source: Own calculations based on Feenstra and Romalis (2014), and WITS-UN Comtrade.
Note: A result greater than one indicates a higher level of quality relative to global supply. If it is one, the quality of the product is integrally represented in its unit value.

Figure 8: Average Relative Quality of CA-6's Exports to the United States, by Technological Classification



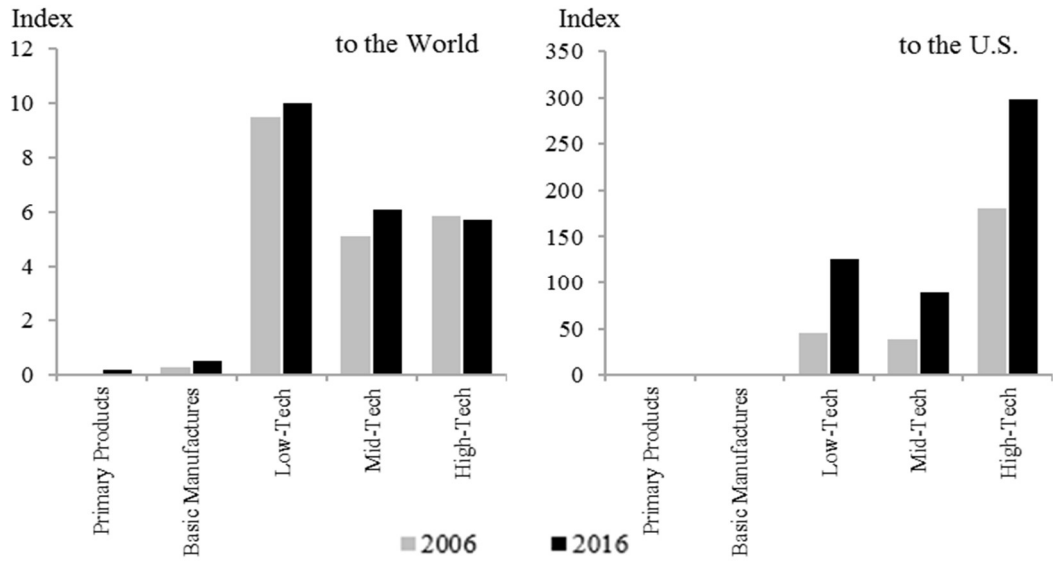
Source: Own calculations based on Feenstra and Romalis (2014), and WITS-UN Comtrade.
Note: A result greater than one indicates a higher level of quality relative to global supply. If it is one, the quality of the product is integrally represented in its unit value.

The attraction of long-term investment in zones with high tax incentives (free zones) seems to disfavor local industries in non-free zones. I obtained and processed yearly data of total exports and exports to the United States for the period 2006-2016, distinguishing non-free/free zones. Considering the availability of data, I estimate a revealed comparative advantage between those zones and the relative quality of products exported (see Figures 9 and 10, respectively). Due to data limitations, this application

is carried out for five countries of the region (CA-5): Costa Rica, El Salvador, Guatemala, Nicaragua, and Panama.

Figure 9 confirms the copious advantage that the free zones have over the non-free zones in non-traditional manufactures. Moreover, this advantage vastly increased from 2006 to 2016. In the case of low and middle technology products, more than doubled. Meanwhile, the non-free zones have a "monopoly" of advantages over free zones exporting traditional products. This disparity is a strong signal of the current dependency of the free zone model and the international vulnerability of CA-5.

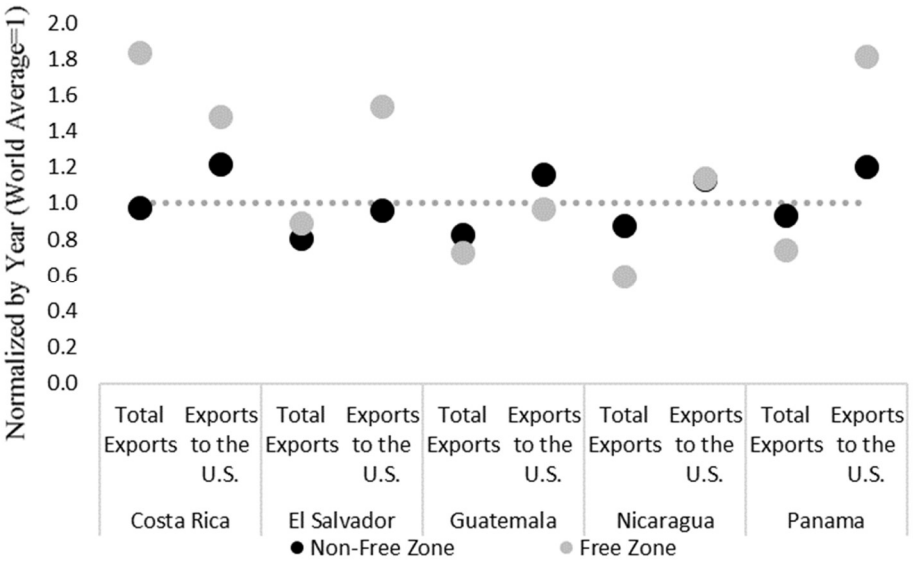
Figure 9: Revealed Advantages of CA-5's Free Zones Compared with Non-Free Zones, by Technological Classification



Source: Own calculations based on Central Banks and National Ministries.
Note: The RCA index is calculated as the export share of a category for the free zone divided by the export share of the same category for the non-free zone. If RCA>1 there is an advantage from the free zone.

Figure 10 expresses the relative quality of the whole set of products exported between 2006-2011 from the non-free zones and the free zones. There are heterogeneities. Costa Rica and El Salvador are the only countries in which the free zone exports products with higher relative quality than non-free zones. In particular, the total exports and exports to the United States from the free zones of Costa Rica have more relative quality than the world's exports. Guatemala is the only country in which the non-free zone is exporting quality. The non-free and free zones in Nicaragua and Panama are exporting products to the United States with relative more quality than the exported from the rest of the world; however, while Nicaragua is exporting similar quality independently from the zones of origin, Panama has the higher disparity in quality favoring free zones products.

Figure 10: Average Relative Quality of CA-5's Countries Comparing Non-Free and Free Zones Exports, 2006-2011



Source: Own calculations based on Feenstra and Romalis (2014), Central Banks and National Ministries.
Note: A result greater than one indicates a higher level of quality relative to global supply. If it is one, the quality of the product is integrally represented in its unit value.

Non-free zones in all countries have been showing a relative quality below the average global exports. That confirms the expressed in Manzano and Maldonado (2016). There is a current vulnerability of these zones, mostly focused on exporting traditional products, and the region must set a competitiveness agenda to reinvent trade incentives, leading to horizontal spillovers and intra-regional benefits. Also, incentives to attract capital must be reconsidered. The trade model has not generated local spillovers to reduce dependency from external factors. Moreover, local disparities seem to arise, and the dependency of tax incentives schemes has been reinforced. These results complement the conclusions from other studies.

The compact geographic zone in which the region is located plays a role. Cuevas, Manzano, and Rodríguez (2014) remind us how the internal conditions of the countries might create productive scenarios in which competition among them would not necessarily lead to trade improvements. In this case, the trade gains from complementarities must be a priority. Better regional coordination (for example, through a harmonized tax system) might enable a "win-win" intra-regional scenario. Also, Izquierdo y Manzano (2012) suggest that the capacity to stimulate trade in the region does not depend only on the ability to expand the extensive margin of trade, but also on how to complement it with policies in the intensive margin (for example, through improvements in infrastructure and in connectivity between countries or regions).

Giordano (2012), and Portugal-Pérez and Wilson (2012) recommend the adoption or improvement in software and hardware policies to stimulate trade.[13] Given the feedback among these policies, spillovers might arise impacting positively on CADR. Central America mostly depends on overland transportation

[13] The main components of software policies are trade regulations, trade facilitation, and export promotion. In contrast, hardware policies seek to close infrastructure gaps and increase connectivity to gain competitiveness.

to convey its goods; hence, reallocating resources to expand and improve road infrastructure might be a helpful step to address the competitiveness lag. In this context, the development of physical infrastructure in the countries could stimulate the expansive impacts of trade agreements, which in turn motivate the investment in infrastructure to ease the trade.

Finally, there are factors associated with macroeconomic aspects that might be acting as constraints on trade. Manzano and Maldonado (2016) review this aspect for CADR. They conclude about the presence of a relative rigidity observed in the labor market and the need to include workforce and gender equality policies to promote the competitiveness of these countries. Also, they found evidence of a relative improvement in technological innovation and product sophistication, which are vital pillars to boost non-traditional exports. If this progress does not complement with growth strategies and substantial development in education and training in countries of the region, the low relative quality, and the current competitive challenges will remain in place.

Conclusions

The region has made little progress in improving its position in trade patterns. In the past decades, there has been a redistribution of the export basket of the region favoring basic and low-technology manufactures in detriment to primary products. However, it is losing ground in diversification, and the comparative advantages have remained in the traditional exports for 30 years.

The behavior of the relative quality of exports and specialization patterns revives the idea of adjusting promotion schemes for local industry and direct investment, leaving aside the use of tax breaks to compensate for competitive weaknesses. The model of tax incentives is not generating local spillovers. On the contrary, it deepens the dependency on free zones. The region must develop non-traditional exports -diversifying trade risk and generating local horizontal spillovers- to draw more benefits from an eventual recovery of the United States. Nevertheless, it is essential not to neglect competitiveness in primary products and basic manufactures, categories in which the region has advantages but in which the relative decline in quality is an adverse factor.

The region has the pending task to promote the competitiveness of non-traditional products, and mostly to base the international dynamic on regional complementarities. That should have medium and long-term effects and must be a key point on the immediate agenda. In the short-term, the countries must maintain their market gains in traditional products. If this is the case, the net trade will expand, allowing a structural improvement of the external balance.

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