AN ANALYSIS OF CENTRAL AMERICA AND EASTERN EUROPE REVEALED COMPARATIVE ADVANTAGES

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ABSTRACT

The present study applies the revealed comparative advantages through the Balassa Index to determine the comparative advantages, disadvantages, and intra-product commerce tendencies between Central America and Eastern Europe with the purpose of determining the possibility of a free trade agreement for Central America. The approach of the study is through the connection between the European Economic Union and the Central American Common market, which shares a common background and relates them to research of Bela Balassa (1965) to determine how commerce between Central America and Eastern Europe has performed and the possibilities of growth that this commerce has through a free trade agreement. The study demonstrates the importance of analyzing competitive advantages. This paper presents the difference in competitive advantage between Eastern Europe and Central American establishing the benefits when negotiating a free trade agreement between both economic blocks. Therefore, analyzing and negotiating between products of competitive advantages may lead to a more sustainable economic growth.

Keywords: Balassa Index, free trade, Central America, Eastern Europe, European Union, Central American Common Market

INTRODUCTION

The Central American region has a long history of international trade dating back to the 19th century (Behrman, 1974). Initially the region received foreign direct investment (FDI), mainly from the United States, which was primarily export-oriented and/or natural resource seeking. However, after WWII the region shifted toward manufacturing for local consumption (Biglaiser & De Rouen, 2006). Despite the attractiveness of the region, local governments had a detrimental influence on foreign businesses by exercising significant regulative powers and enforcing them randomly (Grosse, 1989). It was not until the 1980s that local governments began opening the region to foreign firms, fuelled by the need of local governments of foreign exchange (Trevino, et al., 2004).

Due to the prohibition of most imports and restriction of FDI to the region, many countries created an unattractive business climate to foreign firms. Exacerbating this problem, indigenous firms were not able to acquire the required resources and capabilities to compete outside the region. These policies led to closed economies that did not open to foreign commerce until the 1980s (Trevino, et al., 2004). Nevertheless, during the past three decades, the Central American countries have employed market-oriented reforms in order to make the countries more attractive to foreign investment and to make their companies more competitive overseas (Rodrik, 1996). These reforms included changes in tax laws, liberalization of trade, privatisation, financial reform, and the removal of barriers to international capital flows (Biglaiser & De Rouen, 2006).

While the Central American countries have signed several free trade agreements (FTAs) with different countries, the region as a whole might have more chances of economic growth with future FTAs if the agreements are signed as a

region (Kose & Rebucci, 2005). Nevertheless, such agreements have to be carefully evaluated in order to determine the possible benefits as well as possible drawbacks derived from them. For this reason, this study analyzed the comparative advantages of an FTA between Central America and the European Economic Union with the aid of the Balassa Model. This paper also expands our understanding of the comparative advantage theory by comparing two regions perceived as developing and by analyzing the agreement before it happens, instead of just studying past effects.

To analyze the comparative advantage of a FTA between Central America and Central Europe this paper firstly presents an overview of the existing literature. Secondly, the Balassa Model is utilized to analyze the data. Finally, a discussion, conclusion, and recommendations are provided.

LITERATURE REVIEW ON COMPARATIVE ADVANTAGE AND TRADE

David Ricardo proposed the model of commercial exchange in 1817 to understand the reasons of international commerce and the growth of the economies in a mercantilist society (Ricardo, 1951; Polanco, 2012). In the model, Ricardo explained that countries, when initializing commerce, had advantages that differentiated and motivated them to engage in commerce. This neoclassical theory explained that if advantages are taken into account, free commercial exchange between countries could only be constructive (Anchorena, 2009). David Ricardo´s theory added to the explanation of Adam Smith concerning advantages, since Smith thought that countries should only participate in commerce if they had absolute advantages (Sutherland, 2008). Absolute advantages can be defined as the ability of a country to produce more of a good or service than the other country he is trading with by using the same amount of resources (Lee, Rhee, & Lee, 2013). Smith proposed that if there was no government involved in trade and, if individuals could act in their best interest, then the welfare would increase.

According to David Ricardo, the optimal economic level, concerning commerce, is when countries export the goods and services on which they have a comparative advantage and import those goods and services on which they do not (Arias-Segura & Segura-Ruiz, 2004). Comparative advantage principle relied on the concept of specialization, considering that if a country is relatively better at producing a product or service this product or service should be favored for exportation. This relativeness will lead the country into specialization and therefore the country will be in a comparative advantage when engaging in trade (Samuelson, 1969). As a result, specialization will lead to a more precise competitiveness and a more prolific market.

The discussion took place between the “neoclassical theory” that centers in Smith’s contribution and the “neoclassicist” that supports David Ricardo’s theory of comparative advantage, which centers that such advantages promote a better setting for competition and economic growth (Hunt & Morgan, 1995). The search for a better setting for competition and economic growth leads to the analysis of competitive advantages centered on the principle that resources are limited but necessities are limitless. Therefore, the comparison between countries based on comparisons of economic costs, elasticity, production, capacity of exportation and the relation between exports and imports have guided free trade policies during the last century. The Balassa index bases the comparison of exports to the country or economic group and compares it to the exportations of the World with the purpose of determine if the effort of creating commerce to a certain country or economic group is worth the hassle. The Balassa index, also known as revealed comparative advantages or RCA, measures the comparative advantage at a point in time and between years to compare if important changes are being made concerning competitiveness (Cai, Leung, & Hishamunda, 2009).

Over the years, scholars have utilized the principles of comparative advantage to analyze the catching-up process of industrialization in latecomer economies, which is composed of: (a) a basic pattern (i.e., a single industry grows tracing out the three successive curves of production, import, and export) and (b) a divergent pattern in which industries are diversified and upgraded from consumer goods to capital goods and/or from simple to more sophisticated products (Kojima, 2000). Based on these patterns, Kojima (2000) predicted that the accumulation of human resources and capital causes economies to diversify to more capital-intensive industries and then to move to more efficient production methods. Those

diversification/rationalization patterns are repeated in moving an economy towards the higher stages of production and export. Based on the comparative advantage analysis, many scholars have argued that the emphasis on trade and foreign direct investment (FDI) has given certain geographical areas of the world the key for economic growth. This assertion is well-documented; firstly, for the European (Benedictis & Tajoli, 2007) and secondly, for the Asian exceptional transformation in the past decades (Kojima, 1985; Hobday, 1995).

Despite the popularity of the methods used to analyze the comparative advantage between regions, there are very few rigorous theoretical and empirical works analyzing the comparative advantages of regions outside the triad. Also, when analyzing the comparative advantage between regions the flows of trade have been analyzed from a developed region to a developing one. For this reason, it is important for the existing literature to analyze the comparative advantage of two developing regions in order to see if the theory is still valid, which is the motivation for this paper. Moreover, in this paper the comparative advantage theory is used in a novel manner, which is to predict possible outcomes rather than to analyze past events.

THE ECONOMIC UNION OF EUROPE AND CENTRAL AMERICA

Europe and Central America searched, at the same time, for an economic unity. In 1951, Central America created the Organization of Central American States (ODECA) as a forum for motivating communication between its members concerning economic aspects and cooperation. In 1958, Central America signed the Multilateral Treaty on Free Trade and Central American Integration, which established an area of free commerce for the next ten years (Kose & Rebucci, 2005).

In 1960, Guatemala, Honduras, Nicaragua and El Salvador signed the General Treaty of Central American Economic Integration, which created an economic framework that lead to establish the Central American Common Market to which Costa Rica adhered two years later. The purpose of the Common Market was to promote the comparative advantages of the countries so that, as a result, Central America had an accelerated economic growth. The inception of this treaties is attributed United Nations Economic Commission for Latin America (ECLAC) and was motivated by the necessity of creating small economies capable to substitute their imports (Soto-Acosta, 1986).

In 1957, Europe began its economic integration when the European Council was founded based on the Treaty of Rome. The process started by creating preferential trading areas followed by the free trade areas, customs unions, single market, economic and monetary union; this led to the complete economic integration (European Commission, 2013). The original members of the European Union were Belgium, France, Germany, Italy Luxemburg and the Netherlands. In 2004, Poland and Czech Republic, considered as part of Eastern Europe, were included in the European Union as part of the Fifth Enlargement (Summa, 2008). The purpose of the European Economic Community was in principle the same as the Central American Common Market because it sought to establish a single market in which goods, capital services, and people could move freely; therefore, enhancing the comparative advantages (Dinan, 2005).

On 2012, the Latin America meeting with Central and Eastern Europe in Vienna opened a stronger discussion concerning the benefits of trade between the two economic regions. From Central America, only Guatemala participated with the Guatemalan Exporters Association; this agribusiness company focused on cardamom AGROMERC, and the chia seed company APSA export and opened the trade to agriculture, a sector in Central America that has been known to have comparative advantage (WKO, 2012). Since the growth of the European Economic Union, different countries from Eastern Europe have joined the treaty; as a result, they were included in the European Union and Central America Association Agreement (AA) became a route to trade between the regions. The agreement includes the European Union countries and Central American countries, including: Guatemala, El Salvador, Costa Rica, Honduras, Nicaragua and Panamá. The negotiations came to an end in August 2013 with the imminent implementation of the commercial pillar of the Agreement (Approdev, 2013). Since the negotiation, the share of exports from Central America to Eastern Europe, compared to the total exportations from Central America to the World, grew from 17.3% in 2010 to 19.8% in 2013.

Given the growth in commerce between Central America and the European Union, a measurement for studying competitive advantages for trade between commerce could enlighten the reason for future agreements. Balassa (1965) studied the concept of comparative advantages searching for a better measurement concerning the patterns of commerce. In search of an improved solution to the understanding of comparative advantages, the proposal of reveal comparative advantages emerged. The reveling of comparative advantages are obtained through the comparison concerning the flow of goods and services that reflects a real exchange, thereby replicating the relative costs and identifying the differences between countries by other factors not necessary related to markets. (Arias & Segura, 2004) The comparison of real exchanged is based on the theory of Liesner (1958) that analyzed the export flows of the European Common Market to determine the strong sectors of the British industry. Balassa refined the proposal of Liesner by considering the actual export flows that lead to the revealing of the strong economic sectors and the comparative advantages between countries. The result of this indicator came to be known as the *Balassa Index* (Hinloopen & Marrewijk, 2006).

The Balassa Index became important for analyzing the economic unions and free trade agreements under the assumption that the country should export in the most productive industries (Leromain & Orefice, 2013). Therefore, the study of the actual export comparison concerning Eastern Europe and Central America could lead to conclusions of which industries should be negotiated by each country in a free trade agreement.

Therefore, the Balassa index can identify whether there is a competitive advantage between Central America and Eastern Europe when engaging commerce. The hypotheses are as follow:

H1: Central America has a stronger competitive advantage in comparison with Eastern Europe, consequently motivating a relation in commerce treaty within the nations

H2. Eastern Europe has a stronger competitive advantage in comparison with Central America enhancing their economy through trade.

H3: Neither Central America or Eastern Europe has a strong competitive advantage and the relation in commerce is sterile.

OLS REGRESSION ANALYSIS

In this study, the data was collected by observing 156 listed firms in the Hanoi and the HoChiMinh Stock Exchange Centers at the end of 2006. It included 780 firms' yearly observations during the period of 2008-2010. By considering the influences of other factors on firm performance, the OLS regression analysis was performed following Model (1). The coefficient estimations of the variables were reported in Table 2. The estimation showed that the percentage of independent directors on a board is negatively correlated to the performance of the firm. Further, the correlations were significant at the 0.01 level, which inversely supported hypothesis 1a. This finding was different from those of previous studies, which indicated a positive or no relationship between independent directors and a firm's performance. Independent directors are "isolated" and more likely to act as reporters to shareholders since they were less involved in the activities of the firm. Their own self-interest in the firm's performance was minimal Fredrickson et al. (1988). However, the effectiveness of these reporters was questioned when they lacked the ability to provide relevant reports to shareholders and had no incentive to improve the performance of their firms. These conditions were observed in developing countries where the qualification of directors was lacking and they might have a negative influence on the firm's performance.

METHODOLOGY FOR COMPARATIVE ADVANTAGES: THE BALASSA INDEX

The Balassa Index measures the normalized export shares of a group of countries comparing the same industries (Hinloopen & Marrewijk, 2006). The measurement reflects the degree of importance a certain product has based on the exports from one market to another and compares it to the exports from the market to the world (Durán Lima & Álvarez, 2008). The formal expression of the index is as follows:

Where:

= Exports of product *k* by country *i* to country *j*

= Total exports from country *i* to country *j*

= Exports of product *k* by country *i* to the world *(w)*

= Total exports from country *i* to the world *(w)*

The index has been adapted to compare two economic blocks such as Central America and Eastern Europe. The index can be calculated for different comparisons based on the information of the products and the market analysis. The Index can also be linked to the theory of competitive advantages as Hillman (1980), Bowen (1983), and Vollrath (1991) used it to demonstrate various combinations and transformations. For analyzing the Balassa Index with precision, it is necessary to normalize the result of the index with a maximum of 1 and a minimum of -1, the process is known as the index of comparative advantages (ICVR). The ICVR is as follows:

The values obtained through the normalization of the index will have a range of -1 and 1 and the results should be interpreted based on the following typology (Durán Lima & Álvarez, 2008) (See Table 1).

Table 1. Balassa Index clasification

Scale	Advantage/Disadvantage
0.33 <= IB <=1.00	Comparative advantage
-0.33 < IB <0.33	Tendency towards intra-product commerce
-1.00 <= IB <= -0.33	Comparative Disadvantage

A comparative disadvantage should be interpreted as a negative result that implies that the imports exceed the exports. Comparative advantage demonstrates that the exports from the country are superior to the imports. Intra-product commerce can also be referred as intra-industrial and reflect that there are industries that can exchange products between the same industry. Verdoorn (1960) and Kojima (1964) analyzed this exchange between industries where the Balassa Index takes into account that the measurement is focused on the sectors.

The usage of the Balassa index has to be guided by product categories and cannot be done by export to import analysis in general. For example, when country (A) is producing and exporting cars, the index is used to analyze if country (B)—the country that will receive the exportation—has a strong position in the car industry. Therefore, the Balassa index is the result of a normalized export share (Ballasa, 1965).

To explain the usage of the Balassa Index, the Netherlands Statistics Department (2013) utilizes the following example for the cereal production in 2009:

Export of cereals by the Netherlands: 397 million euro
Total export of the Netherlands: 309,359 million euro
Export of cereals by EU-15 excluding the Netherlands: 9,916 million euro
Total export by EU-15 excluding the Netherlands: 2,572634 million euro

The Balassa index equals

(397 million / 309,359 million)
----------divided by---------- = 0.3
(9,916 million / 2,572634 million)

The outcome is 0.3 so it is less than 1, which means that the Netherlands has no export specialisation for the export product cereals compared with the EU-15 member states.

Relative advantages of Eastern Europe and Central America

The analysis of the relative comparative advantage between Eastern Europe and Central America takes into account 22 different sections that represent a category of products that are exchanged by Eastern Europe and Central America. There are 22 different sections that include various products. These products are classified according to industry or final product and are based on the Central American Tariff System and the Uniform Customs Codes for Central America (SIECA, 2013). The sections are described in Table 2. For the analysis, the Eastern Europe the countries included were Russia, Czech Republic, Poland, Hungary, Romania, Croatia, Slovenia, Slovakia, Bulgaria, Ukraine, Serbia, Montenegro, Bosnia and Herzegovina, Albania, Kosovo and Macedonia. Concerning Central America, the countries considered were Guatemala, El Salvador, Honduras, Nicaragua Panamá and Costa Rica based on the circumstances of the AA agreement.

Table 2. Exchange Sections between Europe and Central America

Section 1 – Live animals or animal product	**Section 2 – Plant Kingdom product**	**Section 3 – Fats and oils from animals or plants**
Section 4 – Beverages, Tabaco, Vinegar, Alcohol and other derivatives	Section 5 – Mineral Products	Section 6 – Chemical Industry
Section 7 – Plastic and Rubber	Section 8 – Leather Products	Section 9 – Wood, Charcoal and related manufacturing
Section 10 – Paper or cardboard products	Section 11 – Textile	Section 12 – Hats, umbrellas, artificial flowers, footwear
Section 13 – Cement and stone products	Section 14 – Fine and precious stones and pears	Section 15 – Common Metals
Section 16 – Machinery, electric material, televisions and accessories	Section 17 – Transport material	Section 18 – Photography, cinematography products
Section 19 – ammunitions and weapons	Section 20 – Diverse products	Section 21 – Art and antiques
Section 22 – Contractors		

Note. Adapted by the authors with information from SIECA (2013)

The index is calculated taking into account these 22 sections and comparing the exports of Central America and Eastern Europe. The calculation of the index, as seen in Table 3, compares the exports of Central America to Eastern Europe and the world to understand the comparative advantages, disadvantages and the tendency towards intra-product commerce.

Table 3: Balasa Index for 2013

Section	Description	xkij	xkiw	rca	rca norm	results
	TOTAL	**1,996.0**	**10,065.1**	**1.000**	-	
01	Section 1 – Live animals or animal product	26.9	450.6	0.302	-0.537	Comparative Disadvantage
02	Section 2 – Plant Kingdom product	756.2	2,716.8	1.404	0.168	Tendency towards intra-product commerce
03	Section 3 – Fats and oils from animals or plants	25.0	284.9	0.443	-0.386	Comparative Disadvantage
04	Section 4 – Beverages, Tabaco, Vinegar, Alcohol and other derivatives	409.3	1,779.7	1.160	0.074	Tendency towards intra-product commerce
05	Section 5 – Mineral Products	25.9	223.1	0.585	-0.262	Tendency towards intra-product commerce
06	Section 6 – Chemical Industry	30.6	611.3	0.252	-0.597	Comparative Disadvantage
07	Section 7 – Plastic and Rubber	15.3	462.4	0.167	-0.714	Comparative Disadvantage
08	Section 8 – Leather Products	8.0	25.7	1.579	0.225	Tendency towards intra-product commerce
09	Section 9 –Wood, Charcoal and related manufacturing	13.5	57.0	1.198	0.090	Tendency towards intra-product commerce
10	Section 10 – Paper or cardboard products	5.1	247.5	0.105	-0.811	Comparative Disadvantage
11	Section 11 – Textile	9.4	603.1	0.078	-0.855	Comparative Disadvantage
12	Section 12 – Hats, umbrellas, artificial flowers, footwear	0.1	30.7	0.022	-0.957	Comparative Disadvantage
13	Section 13 – Cement and stone products	0.4	94.4	0.022	-0.957	Comparative Disadvantage

14	Section 14 – Fine and precious stones and pears	0.5	288.3	0.009	-0.982	Comparative Disadvantage
15	Section 15 – Common Metals	43.7	411.9	0.535	-0.303	Tendency towards intra-product commerce
16	Section 16 – Machinery, electric material, televisions and accessories	547.7	1,117.9	2.471	0.424	Comparative Advantage
17	Section 17 – Transport material	0.5	43.3	0.056	-0.893	Comparative Disadvantage
18	Section 18 – Photography, cinematography products	77.3	492.8	0.791	-0.117	Tendency towards intra-product commerce
19	Section 19 – ammunitions and weapons	0.0	0.0	0.090	-0.835	Comparative Disadvantage
20	Section 20 – Diverse products	0.3	123.3	0.012	-0.977	Comparative Disadvantage
21	Section 21 – Art and antiques	0.0	0.1	0.149	-0.741	Comparative Disadvantage
22	Section 22 – Contractors	0.0	0.4	0.335	-0.498	Comparative Disadvantage

When analyzing the different years for the comparative advantage by products, the competitive disadvantage is extremely high for Central America; therefore the relation of commerce between Eastern Europe and Central America behooves Eastern Europe. Table 4 demonstrates the percentage of comparative advantage that Central America has over Eastern Europe.

Table 4. Revealed Comparative Advantages- Central America to Eastern Europe

Revealed Comparative Advantages				
Central America to Eastern Europe				
IB result	2010	2011	2012	2013
Comparative Advantage	4.5%	4.5%	4.5%	4.5%
Comparative Disadvantage	63.3%	54.5%	59.1%	63.6%
Tendency towards intra-product commerce	31.8%	40.9%	36.4%	31.8%

Note. Adapted by the author with information from SIECA (2013)

In this case, the comparative advantage of Central America is minimum compared to Eastern Europe. Only one section has a comparative advantage and is the section 16 that refers to machinery, electric material, televisions and accessories. This comparative advantage is constant for the four years of analysis indicating that no other section has become a comparative

advantage through time.

The comparative disadvantages have shown certain fluctuation in the four years. For year 2010, Central America showed disadvantage in sections 1, 3, 6, 7, 10, 11, 12, 13, 14, 17, 19, 20, 21, 22. The difference for year 2011 was that sections 21 and 22 became a tendency towards intra-product commerce. Year 2012 presented a change in section 3 that went from comparative disadvantage to tendency towards intra-product commerce and for year 2013 section 14 became a comparative disadvantage that lead to a result of 63.6% of the sections in this category.

DISCUSSION

Analyzing the competitive advantages of two different geographic regions has been explored in economic theory since Ricardo proposed his model more than a century ago. However, most studies analyzing the competitive advantage of regions have been a 'reactive' process. In other words, studies dealing with competitive advantage have researched the results of trade after this has been carried out. Thus, the validity of analytical tools used to predict competitive advantages between two regions has not been fully covered in the relevant literature. For that reason, it is important to study the competitive advantage of a proposed FTA before it happens, which is the purpose of this paper. In order to fill this gap in the literature, this study offers a study regarding the possible outcomes of an FTA between two very different geographical regions.

The Balassa Index offers a context for a commerce relation between Central America and Eastern Europe. In the case of Central America, engaging in a trade agreement with Eastern Europe would not be a helpful strategy since there almost no competitive sector they can take advantage. As explained in the index analysis, only section 16, machinery and electric material, could offer a competitive advantage for Central America. As a result, the discussion of a free trade agreement with the Eastern Europe can only benefit Central America if it is settled for section 16 and if other sections are included in a free trade agreement, then Central America should engage in a strategy for intra-product commerce based on specific industries. This second aspect—the aspect of intra-product commerce—may be of interest to Eastern Europe since an average of approximately 52% of the sections portfolio leans toward intra-product commerce.

Even so, a free trade agreement for the 22 sections will benefit Eastern Europe greatly since Central America has competitive disadvantages and a low tendency to intra-product commerce. In terms of benefits of free trade and exchange, an agreement with Central America and Eastern Europe is of no urgency to the other since the comparative advantage is not significant. The Balassa Index indicates that, for Central America, there is no benefit in the trade unless they only focus on the section 16 because they have a low tendency for intra-product commerce and the benefit is not clear in terms of strategy. Therefore continuing with the AA program with the European Union seems as a better aspect to implement competitive advantages.

CONCLUSION

This study demonstrates the validity of the Balassa Index and the importance for analyzing commerce between economic blocks. This paper analyzed the exports of Central America to Eastern Europe and the World with the purpose of determining the possibility of a free trade agreement between the two economic groups. The index demonstrated that, for Central America, the only benefit is if they negotiate only the section 22 specific contracts between countries that are not included in the other sections. Taking into account that free trade agreements are not negotiated based on one section, the possibility of a free trade agreement that could benefit Central America is microscopic. As a result, there is no urgency for a free trade agreement between this to economic groups. Additionally, it may be expanded for a long-term strategy.

Concerning the long-run strategy: the best way to implement a free trade agreement is to expand the products of the two sections that have a competitive advantage and to diversify the exportations from Central America to Eastern Europe and vice versa. Establishing an agreement concerning trade between the sections in which Central America has competitive advantage will behoove the development of the region because of the sections' growth. If Central America negotiates in products that do not present competitive advantages the results will affect the economy because of the dependence on Eastern Europe and because of their competitive

advantages. The engagement in diversification will lead to a clearer indicator and a better analysis for a future economic strategy between Central America and Eastern Europe.

It is important to consider in further studies the analysis between Central America and other economic blocks to infer if treaties have been signed on competitive advantages on what modifications could be made when negotiating products. The analysis of the Balassa Model could lead to better negotiations and benefits when negotiating between countries.

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Appendix

Central America to Eastern Europe

Indicator Average (2010-2013)				
Section	rca norm (2010)	rca norm (2011)	rca norm (2012)	rca norm (2013)
1	-0.395	-0.399	-0.348	-0.537
2	0.234	0.231	0.211	0.168
3	-0.661	-0.404	-0.054	-0.386
4	-0.192	-0.142	-0.269	0.074
5	-0.256	-0.330	-0.309	-0.262
6	-0.912	-0.792	-0.662	-0.597
7	-0.779	-0.764	-0.771	-0.714
8	0.152	0.010	-0.087	0.225
9	-0.060	0.170	0.157	0.090
10	-0.929	-0.895	-0.852	-0.811
11	-0.892	-0.856	-0.821	-0.855
12	-0.962	-0.928	-0.936	-0.957
13	-0.970	-0.975	-0.978	-0.957
14	-0.951	-0.950	-0.974	-0.982
15	-0.097	-0.098	-0.195	-0.303
16	0.491	0.461	0.470	0.424
17	-0.851	-0.848	-0.790	-0.893
18	-0.157	-0.071	-0.025	-0.117
19	-0.959	-0.598	-0.986	-0.835
20	-0.694	-0.766	-0.965	-0.977
21	-0.717	-0.275	-0.466	-0.741
22	-0.438	-0.323	-0.439	-0.498

Note. Adapted by the authors with information from Sieca (2013)