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Mercosur – a Comparison of Four Member Countries on the Basis of Selected Economic Indicators

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Abstract

The aim of this paper is to present how countries can be compared on the basis of the development of selected macroeconomic indicators. The economic similarity of the four founding Mercosur countries (i.e., Argentina, Brazil, Paraguay, and Uruguay), based on the development of five selected macroeconomic indicators in the period 1991–2016, is investigated. The following indicators were analyzed: current account balance, GDP per capita, trade-to-GDP ratio, unemployment rate, and the GDP deflator, using data from the World Bank database. Using hierarchical cluster analysis of changes in time series (differences and growth rates), it was found that the obtained clusters of countries are different. For this reason, cluster analysis was carried out for two different groups of indicators on the basis of the averages of the Euclidean distances obtained for the individual indicators.

Keywords: Mercosur, cluster analysis, country comparison, regional integration

JEL: F10, F19, A10, C38

Introduction

Comparing the economic development of selected countries can be a useful tool to better understand changes in the evolution of some economic indicators and the relationships between certain economic cycles (this can later be reflected in political decisions, for example). Knowledge of some reactions in a certain group of countries can also be useful for other countries that may find themselves in similar situations. Moreover, the comparison of economic development might serve as the basis for further research aimed at learning whether some similarities in the development of the economies of certain countries may be a reason for choosing to enter into a form of regional grouping. In this article, we focus on the four founding Mercosur countries, i.e., Argentina, Brazil, Paraguay, and Uruguay.

The aim of this article is to investigate the economic similarity of these four countries based on the development of five selected macroeconomic indicators in the period 1991–2016. Section 2 explains why this goal was chosen, the applied methods will be introduced in Section 3, and Section 4 will address the issue. The results are discussed in Section 5.

Problem formulation

Regional integration is a process through which various national economies increase their complementarity, thereby striving to increase mutual benefits (CEPAL 2009). However, pooling countries into certain regional clusters is not an easy process from either a political or social point of view. Apart from the expected benefits, it can also bring disadvantages (Kritzinger 2015).

If a regional grouping has already been established, its functioning may not be completely seamless, e.g., as demonstrated on the case of Mercosur presented in Porta's paper (2008), and such functioning is thus usually accompanied by various open and behind-the-scenes disagreements. The very establishment of a regional grouping typically involves "logrolling": "I'll vote for your issue if you vote for mine" (Schiff and Winters 2003). Moreover, some regional associations overlap territorially and, in some cases, multiple memberships can cause considerable complications (Khan 2008).

Even the subsequent comparison of different regional processes is not a simple task because, as stated by Kugiel et al. (2013), a number of political, geographic, and social factors make the solutions developed in one region unique and hardly transferable to other regions. However, it is certain that the activity of all regional groupings across the whole world is unequal, and while some of them can be considered successful, or at least that they work well enough, others are rather passive. This is because states are principal actors, and their interests and preferences determine the course of the process (Mukhametdinov 2018). Mercosur could be ranked among the associations with relatively high activity.

However, it is to be expected that states that decide to cooperate and give up at least part of their sovereignty may not be incentivized only by the expected benefits but also because they can share similar attributes. The authors of this article decided to analyze how the economies of the four Mercosur member countries, co-operating in an economic area (irrespective of the short-term suspension of Paraguayan membership) for more than 25 years, are similar in terms of selected macroeconomic indicators.

This curiosity is motivated by the fact that expert texts that dedicate at least some of their attention to partial economic comparisons of the Mercosur member countries are scarce, and the authors focus more on comparing Mercosur with other regional or supraregional groupings.

Economic comparisons of the Mercosur countries were dealt with, for example, by da Silva and Batista (2015), who performed an evolutionary analysis of the structure of exports of the Southern Cone countries (Mercosur members and Chile) in the period 2000–2011, in order to determine the export performance of these countries. One of their conclusions, formulated through the use of the export similarity index, was that during the examined period, Brazilian exports were most similar to those of Argentina and Paraguay. However, at the same time, it was said that the similarity index in the analyzed period did not evolve and that all observed countries continued to be dependent on the export of primary and agricultural products. However, no other similarity than that of exports was investigated.

Certain facts were also provided by a study presented by the intergovernmental regional organization SELA (2014). In its study, several macroeconomic indicators of the Mercosur countries (including Venezuela) were presented for the period 2000–2012. However, these indicators were treated separately and, therefore, the study does not offer a comprehensive view of the economic similarity of the countries within the region. It would also be worth mentioning one of Arias's works (2008), which analyzed the levels of economic convergence before and after the adoption of the Asunción Treaty, not only between the Mercosur member countries but also between different sub-regions of Mercosur. The period under review was 1985–2003, but only one indicator, GDP per capita, was analyzed. Even in this case, we cannot talk about creating a complex picture of the economic similarity between particular Mercosur countries. One of the conclusions of Arias's study was that Paraguay, on the basis of the analysis of asymmetries of Mercosur, appeared to lag the most when it comes to economic convergence and revenue dispersion, and it was the weakest member of Mercosur.

Basnet and Pradhan (2017) explored economic interdependence in Mercosur by examining common trends and common cycles among key macro-variables (real output, investment, intraregional trade, exchange rate, and interest rate) that represent both the real and financial sectors of the economy. Their findings provide consistent evidence that, with respect to these sectors, economic interdependence among the Mercosur countries is strong.

Methods

In order to meet our established goal, the economies of the four Mercosur countries, namely Argentina, Brazil, Paraguay, and Uruguay, were compared based on the development of selected macroeconomic indicators. These indicators are the current account balance (in current prices), the gross domestic product (hereinafter referred to as GDP) per capita (in current prices), the trade-to-GDP ratio (in %), the unemployment rate (in %) and the GDP deflator (in %). For all of these indicators, annual data for the period 1991–2016 were traced, i.e., from the beginning of Mercosur's existence until 2016, for which data are already available for all four countries.

This paper stems from World Bank statistics. The primary intention was to work with national institutions' statistics (in the case of Paraguay and Uruguay, it was the central banks of these countries; in the case of Argentina and Brazil, it was statistical offices there). However, the data did not always cover our set period beginning in 1991, when the Asunción Treaty de facto established Mercosur, through 2016, for which definite data already exist. The incomplete data for our time series was an obstacle for introducing other relevant indicators (e.g., other balances of the balance of payments).

In the following text, there is a graphical presentation of the development of the five monitored indicators for all the selected countries, and on the basis of year-on-year changes (differences and percentage changes), the similarity of these countries is examined. The Euclidean distance was used to express the relationships between countries.

Based on the obtained proximity matrix for all pairs of countries, hierarchical cluster analysis is applied using three linkage methods: single, complete, and average. The linkage of two clusters is made on the basis of the minimum distance between clusters, during the use of the single linkage method, this inter-cluster distance is the smallest distance indicated for two countries that are in different clusters, for the complete linkage method, it is the largest distance, and for the average linkage method, it is the average distance. The results of the hierarchical clustering of countries can be graphically represented by dendrograms.

Cluster analysis is used both for each indicator separately and for two groups of indicators. The statistical analysis was carried out in the STATISTICA program system.

The application of cluster analysis to time series is described in a number of publications. Liao (2005) summarizes selected applications while specifying the application area, the used distance measures, cluster analysis methods, original sources, and other characteristics. We cluster only four countries; therefore, a hierarchical approach can be used. The clustering of countries is based on changes (differences and percentage changes) in time series.

Analysis of data

In this section, the comparison of countries based on annual time series analysis of five selected macroeconomic indicators in the period 1991–2016 will be presented. The following indicators were analyzed: current account balance, GDP per capita, trade-to-GDP ratio, unemployment rate, and the GDP deflator, using data from the World Bank database (see The World Bank 2018). The basic characteristics of the analyzed time series are presented in Table 1. In the first part of the table, the mean values of the time series are included – the averages for the first four indicators and the geometric mean for the GDP deflator. For this indicator, the mean is computed for the period 1996–2016 because of the extreme changes in Brazil before this period. In the second and the third parts of the table, the mean changes (average differences and mean growth rates) are presented. The GDP deflator contains changes by itself; therefore, the values are not presented. Due to negative values in the indicator of the current account balance, only the average first differences were computed. For three other indicators, the mean growth rates were calculated using the geometric mean.

Table 1. Characteristics of the analyzed time series for the period 1991–2016

Country	CAB	GDP	Trade/GDP	Unemp. rate	GDP defl.*
	Mean values				
Argentina	−3868.4	8211.0	28.605	11.242	1.1497
Brazil	−26110.5	6410.0	22.948	10.838	1.0833
Paraguay	74.0	2394.3	97.555	6.208	1.0757
Uruguay	−498.1	8444.4	46.632	10.008	1.0966
	Average differences				
Argentina	−555.4	269.0	0.5005	0.120	×
Brazil	−883.2	187.3	0.3209	0.056	×
Paraguay	13.2	98.5	−0.3147	−0.040	×
Uruguay	33.8	465.7	0.1189	−0.048	×
	Mean growth rates				
Argentina	×	1.0316	1.0262	1.0168	×
Brazil	×	1.0317	1.0159	1.0052	×
Paraguay	×	1.0377	0.9963	0.9932	×
Uruguay	×	1.0596	1.0030	0.9943	×

Notes: CAB – current account balance (in million USD), GDP – GDP per capita (in USD)
Trade/GDP – trade-to-GDP ratio (in %), Unemp. rate – unemployment rate (in %)
GDP defl. – GDP deflator (indices)
* geometric mean (for 1996–2016)
Source: own elaboration based on The World Bank (2018).

For the pairs of countries, the Euclidean distances based on year-on-year changes of the mentioned indicators were calculated. In Table 2, these distances are shown both for the differences and the percentage changes. We can see that based on the differences, Paraguay and Uruguay are the most similar (according to the smallest value for a certain

indicator) in the case of three indicators, and Brazil and Uruguay in the case of the trade-to-GDP indicator (in the case of the unemployment rate, the difference of the distances is only one hundredth between the two pairs of countries mentioned above). Based on the percentage changes, Paraguay and Uruguay are the most similar twice, and Brazil and Uruguay also twice (however, as already stated above, for the GDP deflator, only the period 1996–2016 was considered). The most dissimilar countries are Argentina and Brazil in the case of three indicator differences and two indicator percentage changes.

Table 2. Euclidean distances for pairs of countries based on values for the period 1991–2016

Pair of countries	CAB	GDP	Trade/GDP	Unemp. Rate	GDP defl.*
Euclidean distances based on differences					
Argentina × Brazil	95,284	7,207	25.0	13.20	×
Argentina × Paraguay	25,693	5,932	43.9	13.10	×
Argentina × Uruguay	25,513	4,590	28.1	9.22	×
Brazil × Paraguay	93,315	4,832	48.3	9.10	×
Brazil × Uruguay	92,357	4,828	21.5	8.18	
Paraguay × Uruguay	2,894	4,448	46.5	8.17	
Euclidean distances based on percentage changes					
Argentina × Brazil	×	104.0	113.0	114.0	69.1
Argentina × Paraguay	×	69.7	93.6	202.0	77.5
Argentina × Uruguay	×	63.4	99.4	88.0	76.8
Brazil × Paraguay	×	69.2	74.9	165.0	19.6
Brazil × Uruguay		81.1	60.5	73.0	26.0
Paraguay × Uruguay		52.2	58.6	162.0	35.5

Notes: CAB – current account balance (in million USD), GDP – GDP per capita (in USD)
Trade/GDP – trade-to-GDP ratio (in %), Unemp. rate – unemployment rate (in %)
GDP defl. – GDP deflator (indices)
* for 1996–2016
Source: own elaboration based on The World Bank (2018).

Current account balance

Our first focus is on the balance of payments, namely on the current account balance, which is the sum of net exports of goods and services, net primary income, and net secondary income (see The World Bank 2018).

It is clear from Figure 1 that since 2009, Brazil has diverged significantly from other countries in the first indicator, mainly due to negative results in the balance of services and balance of primary income (Ministério da Fazenda 2017). The surpluses of the commercial balance have also gradually decreased since 2007, partly as a result of the world economic crisis (Cardoso Ferraz 2013). Despite certain improvements around 2012, the surpluses later turned into slight deficits (Gomes and Silva da Cruz 2017). This contrasts with the positive evolution registered after 2000, when the coun-

try benefited from a large amount of exports, especially of primary goods, and capital inflows, temporarily alleviating the balance of payments pressures on growth (Zanchetta Borghi 2017). Only in the second half of 2015 did Brazil manage to correct the negative state of its current account balance at least partially, mainly thanks to the improving surpluses of the commercial balances (Ministério da Fazenda 2017).

From Figure 1, it is also evident that the developments of the current account balance in the period 1991–2016 were the most similar for Paraguay and Uruguay. However, the average value for Paraguay is positive, in contrast with the negative average values of the other three countries (see Table 1). The relationships of the four countries according to the Euclidean distances, based on the differences of annual data of the studied indicator displayed in Table 2, correspond to similarities and dissimilarities of the graphically displayed time series in Figure 1. Brazil differs the most from the other countries (the highest Euclidean distances were obtained), and then Argentina differs from Paraguay and Uruguay. The latter two countries are the most similar also from the point of view of the average differences, which are positive, in contrast with the negative average differences between the other two countries.
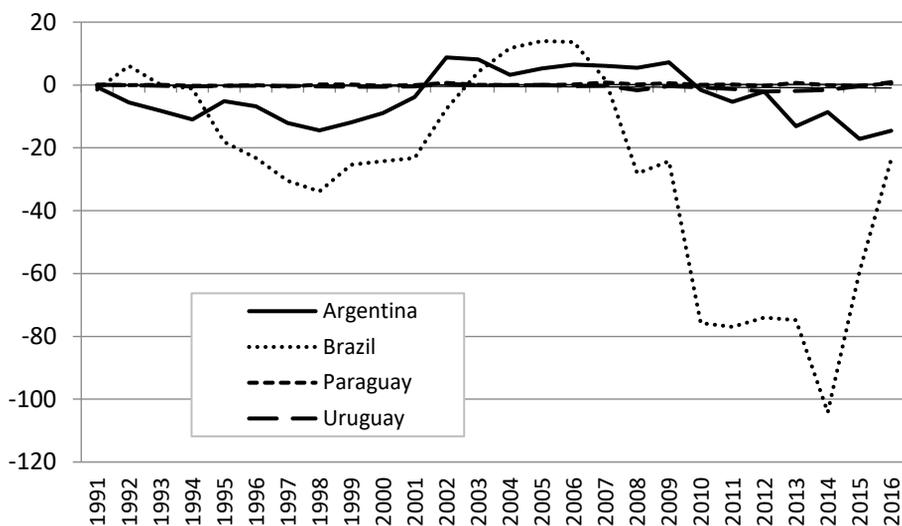
Figure 1. Development of current account balance for Mercosur countries in 1991–2016 (current prices in USD billions)
Source: own elaboration based on The World Bank (2018).

Using hierarchical cluster analysis for the creation of two clusters (groups), there are two possibilities for the number of countries in the clusters: two and two countries or one and three countries. In the case of the year-on-year differences of the current account balance, the result, when using all the three linkage methods, corresponded to the second possibility that was obtained – Paraguay, Uruguay, and Argentina were assigned to the first cluster, and Brazil was assigned to the second.

GDP per capita

GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for the depreciation of fabricated assets or for the depletion and degradation of natural resources (see The World Bank 2018). In this paper, we use GDP per capita expressed at current prices.

Comparing the last and the first values by the fixed base index, the greatest growth is in the case of Uruguay (by 325.4%), followed by Paraguay (by 152.41%), Brazil (by 118.06%), and Argentina (by 117.66%). Despite the second-highest relative growth registered by Paraguay, this country's values of GDP per capita remained the lowest among the Mercosur members for the whole period under review (see Figure 2). It can be seen that in the 1990s, the results indeed improved the least in Paraguay. On the other hand, after the arrival of the new millennium, Paraguay was not affected by the turbulence created by the South American economic crisis that culminated in 2002, in contrast to the other Mercosur member countries, i.e., Argentina, Brazil, and Uruguay, which were impacted. However, after the culmination of this crisis, previous developments began to recur when Paraguayan GDP per capita again grew the slowest. In recent times, Brazil registered perceivable drops in its GDP per capita; this is because of eight consecutive recessions in the country (Secretaria de Planejamento e Assuntos Econômicos 2017), the latest recession lasting longer than any other recession in the past thirty years.
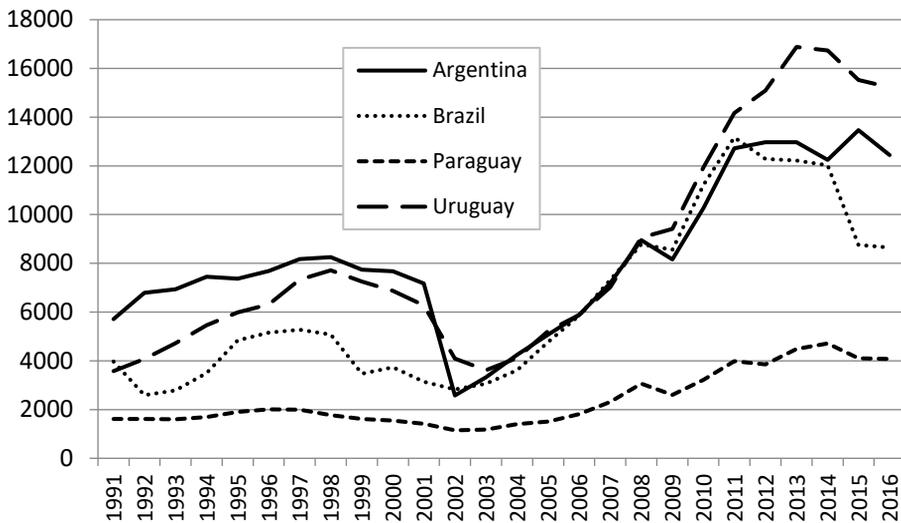
Figure 2. Development of GDP per capita for Mercosur countries in 1991–2016
(current prices in USD)
Source: own elaboration based on The World Bank (2018).

It emerges from Table 2 that according to the Euclidean distances based on the percentage changes of annual data of the indicator GDP per capita, the economic developments of Paraguay and Uruguay were the most similar in the monitored period 1991–2016. The economic developments of these two countries can also be characterized as the most similar based on the differences of values.

Using hierarchical cluster analysis for the creation of two clusters based on the year-on-year percentage changes, for all three linkage methods, we obtained Paraguay, Uruguay, and Argentina in the first cluster, and Brazil in the second, as in the case of the current account balance. The analyses based on the year-on-year differences differ depending on the applied linkage method. Paraguay and Uruguay are obviously in the same cluster because they are the most similar. The number of countries in the two clusters are always three and one. By the single linkage method, we obtain Brazil as the one-element cluster, and by the other two methods, Argentina is alone in the cluster. This difference of the results consists of the principle of the single linkage method in which the distance between two clusters is defined as the smallest distance between elements from different clusters.

Trade-to-GDP ratio

The trade-to-GDP ratio is the sum of exports and imports of goods and services measured as a share of gross domestic product (see The World Bank 2018). Comparing the last and first values by the fixed base index, the greatest growth is in the case of Argentina (by 90.98%); the second growth is for Brazil (by 48.36%), following by Uruguay (by 7.71%). In the case of Paraguay, the value of this indicator decreased (by 8.83%).

Figure 3 shows that the largest share of trade turnover on GDP is reported by Paraguay over the long-term (despite the overall relative decrease of the trade-to-GDP indicator, see above, and despite the negative average difference and decrease from the point of the mean growth rate of this indicator, see Table 1), while Brazil usually has the lowest share in the long run (despite having the second-highest relative growth of trade-to-GDP in the period under review, see Table 1).

From Table 2, it emerges that, according to the Euclidean distances based on the percentage changes of annual data of the indicator trade-to-GDP ratio, the economic developments of Paraguay and Uruguay were the most similar in the monitored period 1991–2016. The economic developments of Brazil and Uruguay can be characterized as the most similar based on the differences of values (expressed in percentage points).

Using hierarchical cluster analysis for the creation of two clusters based on the year-on-year percentage changes, we obtained Paraguay, Uruguay, and Argentina in the first cluster and Brazil in the second one by applying all three linkage methods. Based on the year-on-year differences, we obtained Brazil, Uruguay and Argentina in one cluster, and Paraguay in the second one (for all the three linkage methods).
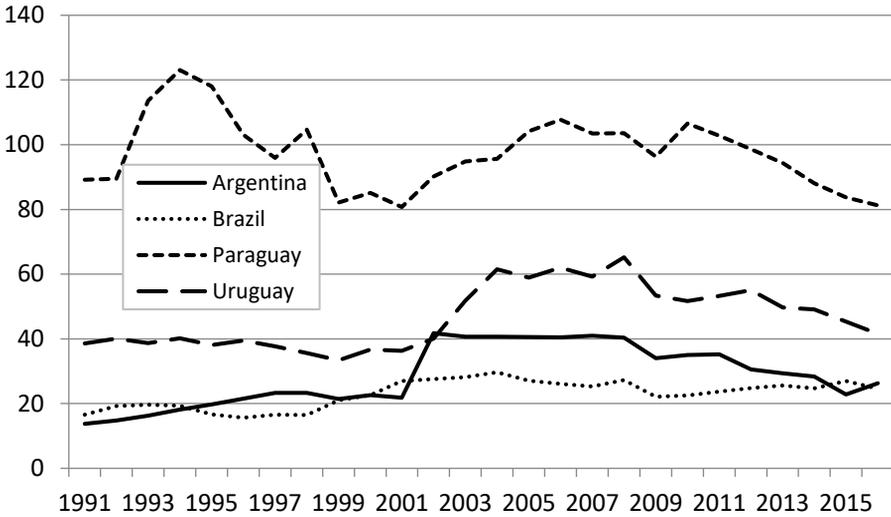
Figure 3. Development of trade-to-GDP ratio for Mercosur countries in 1991–2016 (in %)
Source: own elaboration based on The World Bank (2018).

Unemployment rate

The unemployment rate refers to the share of the labor force that is without work but available for and seeking employment (see The World Bank 2018). The data used are modeled estimates of the International Labor Organization and were again taken from the World Bank database, where they are listed under "Unemployment, total (% of the total labor force) (modelled ILO estimate)."

Comparing the last and the first values by the fixed base index, the greatest growth is in the case of Argentina (by 51.72%); the second growth is for Brazil (by 13.86%). In the case of Paraguay and Uruguay, the values of this indicator decreased – for Uruguay by 13.33% and for Paraguay by 15.62%. In Figure 4, we see that the development of the unemployment rates, thus defined in all four Mercosur countries surveyed during the monitored time series, was similar in some stages.

It is worth noting the especially adverse evolution of unemployment in Argentina in the first half of the 1990s. Argentina experienced a significant increase in rates of open unemployment after the late 1980s. Even after the arrival of the following decade, the figures kept worsening as a result of the economic crises and restructuring policies of the 1980s that negatively affected employment opportunities (Parrado and Cerrutti 2003). The Argentinian default crisis of 2001 explains only partly the repeated increase in the unemployment rate around 2000. According to Roudil (2006), it was the application of IMF's recipes in the 1990s and early 2000s that led to the decreases in the Argentinian GDP and, thus, they were also responsible for the high rates of unemployment and poverty that were registered around the turn of the millennium. Furthermore, Roudil (2006) states Uruguay

partially experienced a similar evolution as its neighbor did. Peluffo (2013), writing about Uruguay, found that in the first years after Mercosur's creation, there was a significant increase in the probability of unemployment. There are indications in Uruguay, Brazil, and Argentina that higher unemployment followed trade liberalization, which, to some extent, might be seen as a result of the improving productivity (Peluffo 2013).
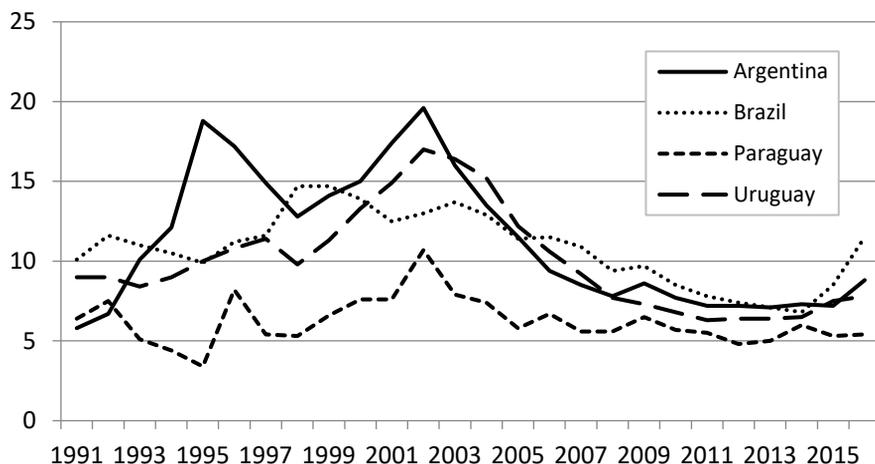
Figure 4. Development of unemployment rate for Mercosur countries in 1991–2016 (% of the total labor force)
Source: own elaboration based on The World Bank (2018).

From Table 2, it emerges that, according to the Euclidean distances based on the percentage changes of annual data of the unemployment rate indicator, the economic developments of Brazil and Uruguay were the most similar in the monitored period of 1991–2016. The economic developments of Paraguay and Uruguay can be characterized as the most similar based on the differences of values (expressed in percentage points). However, the distance for this pair of countries differs from the distance for the pair Brazil and Uruguay by only one hundredth.

Using hierarchical cluster analysis to create two clusters based on the year-on-year percentage changes, we obtained Brazil, Uruguay, and Argentina in the first cluster and Paraguay in the second one (for all the three linkage methods). Based on the year-on-year differences, Paraguay, Uruguay, and Brazil were assigned to one cluster and Argentina to the second (for all the three linkage methods).

GDP deflator

The last selected indicator is the *GDP deflator*, which is defined by inflation measured by the annual growth rate of the GDP implicit deflator displaying the rate of price change in the economy as a whole. The GDP implicit deflator is expressed by the ratio of GDP in current local currency to GDP in constant local currency, see (The World Bank 2018).

The GDP deflator reflects the year-on-year change in the aggregate price level. The graphically displayed development of the GDP deflator in the monitored countries is dominated by the Brazilian curve, which suffered from hyperinflation from the 1980s until 1994 (with the highest value of 2302.84 in 1994). For this reason, in Figure 5, only the development for the period 1996–2016 is shown because any larger fluctuations in the other three countries are almost imperceptible for the whole monitored period.
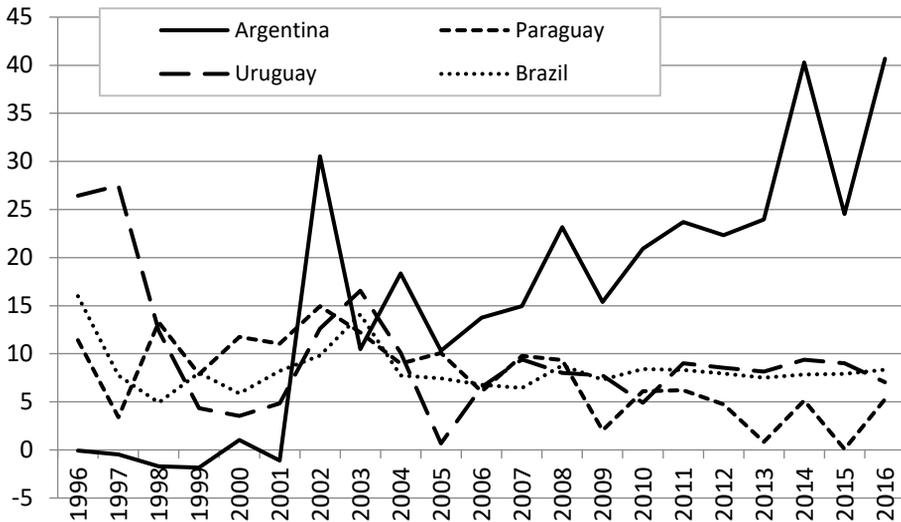
Figure 5. Development of GDP deflator for Mercosur countries in 1996–2016 (in %)
Source: own elaboration based on The World Bank (2018).

From Table 2, it emerges that, according to the Euclidean distances, in the case of the indicator GDP deflator, the economies of Brazil and Paraguay were the most similar in the monitored period. Using hierarchical cluster analysis for the creation of two clusters based on the GDP deflator values in the period 1996–2016, we obtained Brazil, Paraguay, and Uruguay in one cluster and Argentina in the second one (for all the three linkage methods).

Assessment

From the presented analyses, according to the year-on-year percentage changes of the individual indicators (in two cases), as well as the year-on-year differences (in three cases), the most similar countries were Paraguay and Uruguay. After further comparison, using clustering based on average distances computed for percentage changes of the GDP per capita, trade-to-GDP ratio, and unemployment rate indicators, it arises that, overall, the most similar economies in the whole monitored period were those of Brazil and Uruguay (see Figure 6, in which clustering using the complete linkage

method is presented). This result is caused by the greatest percentage changes in the unemployment rate indicator, according to which Brazil and Uruguay are the most similar. Using the other two linkage methods, the assignment of countries is different – Paraguay is single in the cluster.

Taking into account four indicators (with the exception of the current account balance), for the period 1996–2016, when using the average and complete linkage methods, based on the year-on-year percentage changes, we obtained similar results as those displayed in Figure 6.
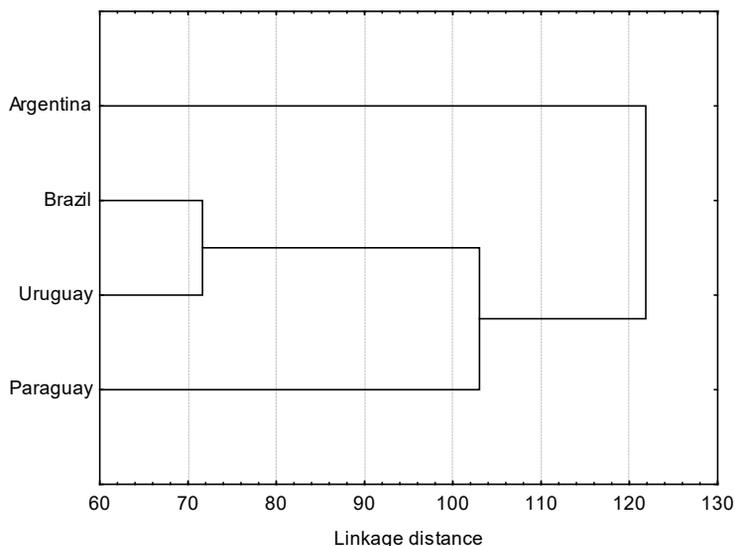
Figure 6. Dendrogram based on average distances of countries computed for percentage changes of the selected indicators in the period 1991–2016 (the complete linkage method)
Source: own elaboration based on The World Bank (2018).

Conclusion

At the beginning of this article, on the basis of quoted assertions, it was mentioned that the countries came together mainly because of the expected welfare effects and the potential distributional effects. Consequently, the question arises as to whether the countries came together (consciously or unconsciously) because of their common characteristics. This led us to the question of how the four founding Mercosur countries are economically similar.

Therefore, we decided to focus on evaluating and comparing the development of the four founding Mercosur countries from the point of view of certain macroeconomic indicators. The surveyed countries were assessed and compared on the basis of the

development of five selected macroeconomic indicators in the period 1991–2016. The relationships between the countries were quantified with the use of the Euclidean distance based on year-on-year changes – The relationships between the countries were quantified with the use of the Euclidean distance based on year-on-year changes – both the differences and the percentage changes were investigated (depending on the indicator type).

From the values of the indicators, we can see that according to the current account balance, Brazil has diverged significantly from the other countries since 2009. Only in 2015 did Brazil manage to correct the negative state of this indicator. Using the Euclidean distances based on differences, we can state that Brazil differs the most from the other countries, and then Argentina differs from Paraguay and Uruguay, which are the most similar.

Concerning GDP per capita, the lowest values were in Paraguay for the whole monitored period. According to the Euclidean distances based both on the percentage changes and on the differences of annual data, the economic developments of Paraguay and Uruguay were the most similar in the period 1991–2016. The second most similar pair of countries was represented by Uruguay and Argentina.

From the point of view of the trade-to-GDP ratio, the largest share of trade turnover on GDP is reported by Paraguay over the long-term. In the monitored period, the economic developments were the most similar for Paraguay and Uruguay from the point of view of the percentage changes, and for Brazil and Uruguay from the point of view of the differences of annual data.

The development of unemployment rates of all four Mercosur countries surveyed during the monitored time series was similar in some stages. There are small differences between countries when it comes to the Euclidean distances based on the year-on-year differences, but there are significant differences in the Euclidean distances based on the percentage changes. With respect to the percentage changes, Brazil and Uruguay were the most similar.

The graphically displayed development of the GDP deflator in the monitored countries is dominated by the Brazilian curve, which suffered from hyperinflation from the 1980s until 1994; since 1996, Argentina has had a different development (growth) than the other three countries. The GDP deflator includes the percentage changes itself. According to the Euclidean distances based on these changes, Brazil and Paraguay were the most similar in the period 1996–2016.

According to the average distances computed for percentage changes of the GDP per capita, trade-to-GDP ratio, and unemployment rate indicators, it arises that, overall, the most similar economies in the whole monitored period were those of Brazil and Uruguay. The same pair of most similar countries was obtained when four indicators were taken into account (with the exception of the current account balance), the analysed period being 1996–2016. The highest level of economic similarity between Brazil and Uruguay is caused by the greatest percentage changes in the unemployment rate indicator.

Our paper demonstrated the difficulty of finding a closer economic similarity among all the four founding Mercosur countries when using the above-mentioned economic indicators. This is because, on the one hand, it is possible to observe certain common long-term trends, but on the other hand, these trends have not always concerned all the four countries. Moreover, there have also been some individual short-term deviations.

Basnet and Pradhan (2017, p. 108) claimed that "if member countries share synchronous long-term trends and short-term cycles in their key macroeconomic variables, these countries may find it mutually beneficial to strengthen their integration process. Eventually, these countries could potentially even move toward a monetary union, the highest level of economic integration." Our analysis, which points to dissimilarities between short-term and long-term evolutions, could partially explain why, to date, the four founding Mercosur countries have not managed to proceed to a higher level of integration.

The inability to reach a higher level of integration may, however, be an obstacle for the efficient functioning of a regional grouping – an idea supported already in 2002 by Baer et al. (2002, p. 286), who indicated that "the lack of macroeconomic and exchange rate coordination policies in Mercosur has been an impediment to bringing the full potential trade benefits of a common market to the region." Nonetheless, Mercosur remains active, although its recent activities seem to be connected more to its exterior than to its interior. Recently, de Almeida (2018, p. 11) stated that "Mercosur remains what it was at the beginning: a project for a future single market." Regarding these two quotes, it is possible to state that they can be still considered valid. As the political environments in the four founding Mercosur member countries are not continuously in unison and supportive of the deeper integration of Mercosur, we can even claim that Mercosur is, to a certain extent, locked in a vicious circle.

Our research may lead to the recommendation that developing countries trying to integrate their economies should carefully assess not only their current political and economic state and development, but also their future prospects.

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Streszczenie

Mercosur – porównanie czterech krajów członkowskich na podstawie wybranych wskaźników ekonomicznych

Celem tego artykułu jest ukazanie w jaki sposób można dokonać porównań państw na podstawie wybranych wskaźników makroekonomicznych. Zbadano podobieństwo gospodarek czterech krajów założycielskich Mercosur (tj. Argentyny, Brazylii, Paragwaju i Urugwaju) w analizując zmiany pięciu wybranych wskaźników makroekonomicznych w latach 1991–2016. Przeanalizowano następujące wskaźniki: saldo obrotów bieżących, PKB per capita, wskaźnik handlu do PKB, stopę bezrobocia i deflator PKB, wykorzystując dane z bazy danych Banku Światowego. Za pomocą hierarchicznej analizy skupień zmian szeregów czasowych (różnic i wskaźników wzrostu) wykazano, że uzyskane skupienia poszczególnych krajów są różne. W związku z tym analizę skupień przeprowadzono na podstawie średnich odległości euklidesowych uzyskanych dla poszczególnych wskaźników dla dwóch różnych grup wskaźników.

Słowa kluczowe: Mercosur, analiza skupień, porównanie krajów, integracja regionalna