PEOPLE: International Journal of Social Sciences
ISSN 2454-5899

Krisztina Soreg, 2018

Volume 4 Issue 1, pp. 571-590

Date of Publication: 21st May, 2018

DOI-https://dx.doi.org/10.20319/pijss.2018.41.571590

This paper can be cited as: Soreg, K. (2018). Long-Term Growth Dynamics Of Emerging Economies In Light Of Jánossy's Trendline Theory. PEOPLE : International Journal of Social Science, 4(1), 571-590.

LONG-TERM GROWTH DYNAMICS OF EMERGING ECONOMIES IN LIGHT OF JÁNOSSY'S TRENDLINE THEORY

Krisztina Soreg
PhD Candidate, Faculty of Science of Public Governance and Administration, National University of Public Service, Budapest, Hungary
krisztina.soreg@gmail.com

Abstract

It is a well-known fact – and the main research motivation of our paper – that at the turn of the 21st century our world economy witnessed an incipient fast development path produced by a group of emerging countries. Besides their enormous market size and raw material abundance, such countries as Brazil, Russia, India and China – known as the BRICs – have gradually become one of the most influential economic clubs of the world. Although it seemed that in the first years of the 2007-08 financial crises latter countries had been far from showing signs of downturn in contrast with some most developed economies, surprisingly, a moderate slowdown could be observed – with the exception of India – following 2014. In view of this, we are modelling the growth dynamics of the BRIC group as well as some Central Eastern European economies (CEECs) on the basis of Ferenc Jánossy's trendline theory and aiming to detect some similar patterns in the stages of economic development of these countries. In the course of studying the long-term growth path of the BRIC country group our main research objective is to examine whether the economic growth of the most significant emerging countries might be modelled with the trendline theory of Jánossy and to analyze the post-transition growth as well as slowdown periods of the CEECs from the point of view of economic convergence. In order to identify some basic characteristics of the so-called middle-income trap episodes, as a selected methodology, we are applying chi-squared test as well as the analysis of variance (ANOVA).

Keywords

Economic Growth, Development Economics, Trendline Theory, BRICs

1. Introduction

There is no doubt that the fast economic growth of emerging countries is playing a vital role in the development of our world economy. Periods of significant growth and slowdown have considerable effects on global economic tendencies and market processes in both more and less developed regions. Over the last decade, the average growth rate of GDP per capita has been almost double that of the developed economies (Ho-Mauro, 2014). It is also a well-known fact that in case of latter countries, the financial crisis of 2007-2008 has had quite devastative impacts, especially regarding the protracted recession period in the European Union.

There seems to be no compelling reason to argue that each cluster of emerging countries is differently integrated into world economy, has various sets of input and output factors depending on social, economic and political structure and reacts quite diversely on such external shocks as the price change of raw materials, global commercial tendencies or financial crises. On one hand, in frames of our study we are dealing with the country group of the BRIC economies representing the largest emerging countries of the world and having significant influence on global economic development. On the other hand, we are examining the post-transition phase of the Central Eastern European Countries which may also be viewed as a special case among developing economies: although after the fall of the Soviet Union transformation driven crises were successfully overcome and since the millennium, a relatively high growth rate could have been observed, recent economic turmoil has had immensely negative effects on their development causing protracted recession and divergence from the most advanced countries of the EU.

The economic and financial crisis – among several other negative effects – contributed to the asymmetric growth of disparities of peripheral economies. Besides the Central Eastern European Region, countries like Greece and Portugal have also been severely affected by the economic turmoil and as a result, had to apply austerity policies as well as different adjustment programs (Lampropoulou, 2017). It is also important to examine the crisis management techniques of the nation states. In case of East Asia efforts have been taken in order to increase export. In contrast, certain Latin American economies aimed at decreasing import. Concerning latter crisis, several countries have moved from liberal trade driven policies towards strongly protectionist actions (Demir-Sepli, 2017). When analyzing the growth path of developing

economies, it is a relevant question to examine whether the given countries are affectedby the so-called middle-income trap and thus possibly experiencing a long-term growth slowdown period. Latter episode emerging in the course of economic development of certain countries might be also referred to as convergence trap. Pruchnik and Zowczak define it as the selected economy's GDP per capita level cannot produce convergence towards a more advanced nation state that is used as a reference economy (Pruchnik-Zowczak, 2017).

1.1 Research Objectives

In the present study, the issue under scrutiny is the overall economic development of two selected groups of emerging economies. Despite the geographical distance as well as significant socio-economic differences, both sets of countries have managed to produce relatively high growth rates and on the other hand, episodes of protracted slowdowns could have also been detected. However, the phenomenon of the middle-income trap is representing a common element in our country studies. One of our main research objectives is to analyze if the economic growth of the most significant emerging countries might be modelled with the so-called trendline theory of Ferenc Jánossy and to provide a brief evaluation of the post-transition growth as well as slowdown periods of the CEECs from the point of view of economic convergence. Thus, the main theoretical premise of the paper is that by applying the long-term economic growth model using the Jánossy trendline theory, the economic convergence or divergence of the given country can be effectively identified.

Current study is organized as follows. After the introduction, we are providing a brief theoretical background of the middle-income trap. Besides presenting some definitions and characteristics of the trap, we are also introducing an alternative set of conditions for detecting the above-mentioned situation. Next, the famous Jánossy trendline theory is touched upon in order to reproduce it in our case studies. In Chapter 3 we are setting some hypotheses regarding the basic characteristics of slowdown periods in middle-income economies using different statistical models: examining the probability of slowdown episodes, the randomness concerning the order of slowdown years, the probability of initial and closing years of persistent slowdowns and the covariance within country groups. To continue, in Chapter 4, the growth dynamics of developing countries is scrutinized more precisely. First, by using the constant GDP per capita data provided by the World Bank, the long-term growth path of the four BRIC economies is demonstrated in some graphs from 1960 to 2016 and growth rates are also calculated in order to compare members of this country group. Second, we are presenting the post-transition

development of 8 selected Central Eastern European Countries with annual real GDP growth rates and making some reflections on their crisis management strategies with a special focus on Hungary.

2. Theoretical Background

2.1 Theoretical Approaches For The Middle-Income Trap Phenomenon

Nowadays trends in health food needs of consumers are increasing. Conduction of life has change in the rush of time and a lot more interesting image. As a result, some consumer groups, especially the health conscious consumer to get the nutrients while consumers around the world give priority to health.

There is a rapidly growing literature on the phenomenon of the so-called middle-income trap (hereinafter referred as the "MIT") episodes in world economy examining the cause and effect relationship, tendencies, boundary conditions and possible economic policy solutions for the countries concerned.

Among the first ones, Indermit Gill and Homi Kharas examined and identified the main features of the MIT in 2007 in frames of their World Bank publication entitled "An East Asian renaissance: ideas for economic growth". According to the research, in order to realize a successful development path, economies of scale should be utilized effectively. In regions like East Asia, adoptions were supposed to undergo in three steps. Following the decline in diversification being the result of shifting towards production and employment, investment may also shrink while innovation gains more and more importance and finally, education will focus on providing future workers important skills essential for the use of modern technologies (Gill & Kharas, 2007). In 2015 the authors continued their research in a paper entitled "The Middle-Income Trap Turns Ten" highlighting that middle-income countries were defined as a group stuck between economies of low development being competitive in low wages and high work intensity, traditional industries as well as developed countries being leaders in IT sectors and reproducing high quality human capital. What is also important to outline, Gill and Kharas are drawing our attention to the fact that originally, middle-income trap emerged as a result of not having an appropriate solution pack for countries unable to continue their catching-up process and not as a completely new phenomenon to analyze in development economics. Of course, not every middle-income country is predestined to achieve this status, so the concept should not be applied as an inevitable outcome but as a possibility for certain middle-income economies producing a protracted growth slowdown (Gill & Kharas, 2015).

In order to make a classification of different MIT approaches, three main groups can be detected (Gill & Kharas, 2015):

- Institutional and policy based approaches providing development scenarios for middle-income economies;
- Long-term data based empirical approaches defining different intervals for countries being stuck in the middle-income trap;
- Methods driven by the lack of convergence towards a more developed – reference – economy that is in most cases the United States.

Concerning the main causes of the income trap, Eichengreen, Park and Shin examined the correlation between growth slowdowns and several economic, social and political processes. One of their main observations is that slowdowns usually emerge gradually, progressively and not radically. There are also certain countries where stagnation periods occurred at least two times. It is notable that there is significant correlation between slowdown periods and such factor as for example, age dependency ratio. The research also proves that in the pre-slowdown period a higher than average GDP per capita can be examined. In the long run, economic growth regularly returns to an average level. What is more, more opened economies are more exposed to growth slowdowns. (Eichengreen et al., 2013). Latter observation can be validated in the development of the European Union that has experienced a protracted recession following the recent crisis.

The 2013 IMF research explored the middle-income trap phenomenon from a growth dynamics aspect on 138 countries and 11 periods. Aiyar, Duval, Puy, Wu and Zhang state that the trap indeed, more likely appears in middle-income economies where such endogenous factors as political economy strategies and actions play a primary role in realizing higher development (Aiyar et al., 2013). Felipe, Abdon and Kumar defined MIT economies using eight different parameters concluding that upper-middle income countries tend to have a higher value added and more sophisticated export structure before the outbreak point compared to the lower-middle income economies (Felipe et al., 2012). The authors also refer to the concept of the product trap that may precede the MIT when a given country is specified for the export of low value added products and if these may be not connected easily to production chains, e.g. industrial raw materials, metallurgical products, etc. (Felipe et al., 2012). Eva Paus considers that despite the difficulties it provokes, the MIT is not impossible to avoid, even in Latin America where several

such episodes have been detected. As a solution, the author mentions a complete change in policies to be carried out (Paus, 2017).

2.2 Methodology Of Middle-Income Trap Identification

After having presented some relevant MIT terminology, in current study we are applying the following conditions to detect middle-income trap episodes in world economy (Soreg, 2017a):

- First of all, it is relevant to determine the income categories used for classifying world economies. Relying on World Bank World Development Indicators data as well as the Maddison Project Database, we are comparing the per capita Gross Domestic Product of the given country to the world's GDP per capita. As a result, those countries can be considered as low-income group members which are below 50 percent. Between 50 and 100 % economies belong to the lower-middle group. From 100 to 200 percent countries are identified as upper-middle income economies. Above 200 percent we are dealing with high income group members which represent the most developed countries.
- Second, some further criteria should be developed in order to identify protracted slowdown periods as well as possible income trap phenomena.
- As it has been already defined, the per capita GDP adjusted for purchasing power parity of the middle-income economy has to achieve at least 50% of world average and maximum the double of it;
- 10 years before the slowdown period there is a significant and fast economic growth. Moreover, the given country is probably following a catching-up path producing an at least 3 % annual per capita GDP growth as a 10 year average;
- Growth slowdown is viewed as stagnation and not a rapid recession;
- During the minimum 10-year long growth slowdown, the per capita GDP growth is close to zero or maximum one percent per year;
- The upper level of the middle-income trap is an income level being 2.3 times the value of the per capita world GDP. This value approximately conforms to the current level of development of the Czech Republic or Estonia.

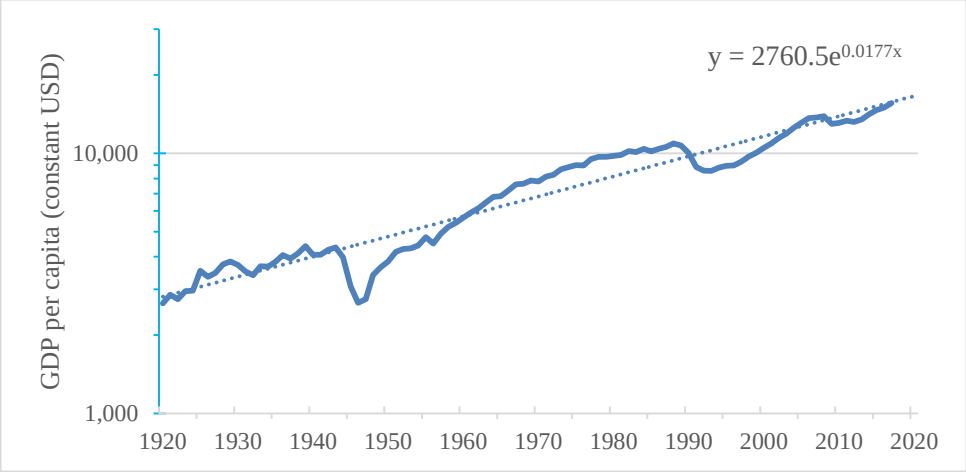
After having taken into account the above-mentioned boundary conditions, the following countries are considered as MIT economies: Republic of South Africa (RSA), Gabon, Namibia, Seychelles, Albania, Greece, Poland, Hungary, Malta, Russia (+ex-Soviet Union), Portugal, Spain, Serbia, Argentina, Barbados, Belize, Brazil, Costa Rica, Dominican Republic, Ecuador,

Jamaica, Columbia, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Algeria, Jordan, Tunisia, Fiji and the Philippines. There are altogether 34 MIT periods, however, there are some economies having experienced at least two such episodes (e.g. Hungary, Poland).

2.2 Methodology Of The Jánossy's Trendline Theory And The Case Study Of Hungary

Regarding economic growth approaches, we have to highlight the results of Ferenc Jánossy, a Hungarian researcher from the second part of the 20th century. The famous trendline theory states that human capital is the true long-term driver of economic growth. Based on his previously established theory, in 1966 Jánossy prepared a prognosis according to which a significant slowdown in economic growth had to be expected within the 1970s, since the Hungarian economy had achieved such a level of development where it would have been in the process of gradual economic growth in case there was no World War II. According to Jánossy's theory, post war economic boom does not end when production achieves its pre-war level but when the volume of production corresponds to the trendline of long-term economic development. In other words, in case a given economy's development had been stable before the war, the pre-war growth level will be achieved following the reconstruction period. However, Jánossy's most important statement is that human capital represents the essential driving force of economic growth (Jánossy, 1966).

In what follows, we are going to present Jánossy's trendline theory in case of Hungary for the period of 1920 to 2017 by relying on the Maddison Database and also the World Development Indicators.



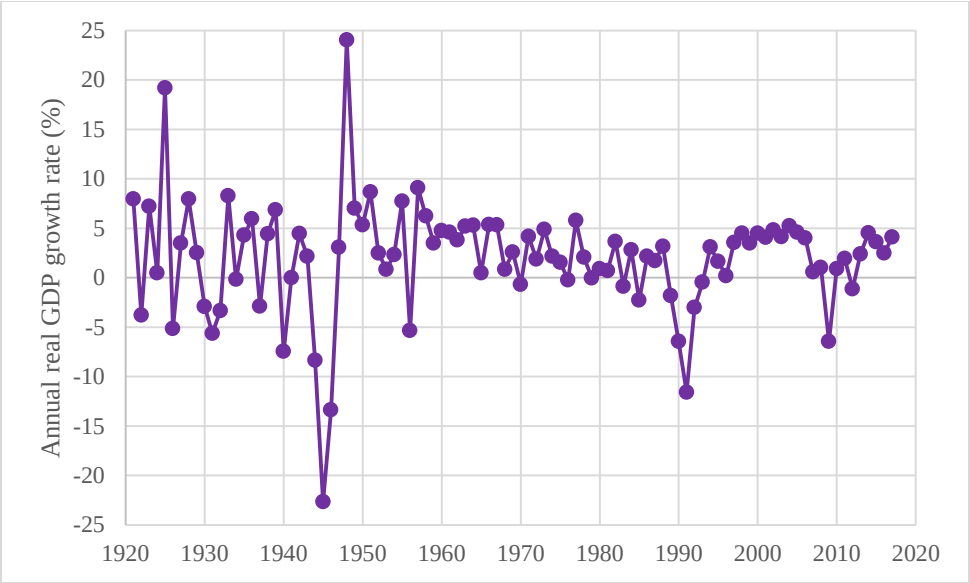


Figure 1: *Hungary's trendline of long-term economic growth and the annual GDP growth rate*

In Figure 1 Hungary's trendline of economic growth as well as its annual GDP growth rate (1920-2017) is illustrated. In accordance with Jánossy's results, the most significant slowdown periods are clearly viewed in the graph. There are altogether 4 relevant decrease phases, namely the two world wars, the transformation crisis following the dissolution of the Soviet Union and the 2007-08 global financial and economic crisis. It can also be seen that after the above-mentioned break points economic growth returns to its pre-shock level. After having produced the equation of our trendline it can be noted that Hungary's long-term (98 year-long) average growth rate is 1.77 percent indicating that current CEEC member has been neither converging nor diverging to the most developed economies of the region. On such basis it would be interesting to examine whether long-term convergence can be ever achieved in the future. Is it correct to suppose that all (half) periphery economies are truly producing convergence in the long run?

It is a well-known fact that Central Eastern European Economies' growth has been primarily stimulated by the massive FDI inflow, especially after EU accession was realized. However, such driver of growth is not sufficient for longer terms since GDP increase has to be supported by endogenous factors as for example, high value added production, effective research and development strategies or highly skilled human capital. The lower graph was created relying on the annual real Gross Domestic Product growth rate and regarding the recent crisis, the double-dip recession phases are also quite visible in 2009 and in 2012 as in case of other CEECs. Although from 2014 some growth tendency has started in Hungary, its convergence process

towards the advanced EU countries is still uncertain enough to make long-term positive predictions.

3. Basic Findings Of The Research

3.1 The Main Characteristics Of Slowdown Periods In Middle-Income Economies

In what follows, we are going to present a model created to detect the basic features of the slowdown episodes in the examined middle-income economies by applying a chi-squared test to examine whether there is a significant relation between the two chosen variables. Basically, 6 main sets of premises will be tested concerning the probability and the order of years of slowdowns. What is more, we are also using the analysis of variance to examine the initial and final years' slowdown characteristics.

- *H0: slowdown periods start with the same probability in each year, i.e. a discrete uniform distribution can be assumed.*
- *H1: The probability of the slowdown episodes in each year is not equal.*

Since our p-value is 0.003, we have to accept the statement indicated in the counter hypothesis. In certain periods, like for example during the 1970s, there used to be significantly more slowdowns in world economy. We can also assume that this anomaly is not an incidental amplitude since the probability of its occurrence is only 0.3 percent. As a next step, a Wald-Wolfowitz test was carried out:

- *H0: the order of years with slowdown periods and without any of these is incidental.*
- *H1: the order of years with slowdown periods and without any of these is not random.*

In latter case the p-value achieved 0.076, so at 1% and 5% significance level H0 should be accepted. On this basis, the random nature of the process cannot be excluded.

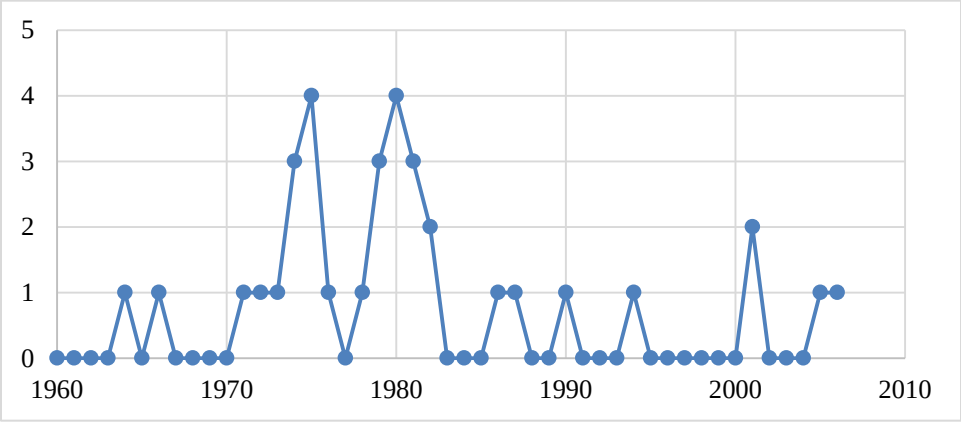


Figure 2: *The distribution of the initial dates of protracted growth slowdown periods*

Regarding the final years of slowdown periods, similar tests can be implemented:

- *H0: slowdown episodes are terminated with the same probability in each year having a discrete uniform distribution.*
- *H1: the probability of slowdown episodes' ending is not equal each year.*

The p-value is 0.282, so at 1, 5 and 10 percent significance level we have to accept the statement indicated in H0. To continue, we may also examine some hypotheses using again the Wald-Wolfowitz test:

- *H0: years with and without slowdown periods follow each other randomly.*
- *H1: the above-mentioned years do not follow each other incidentally.*

After having our analysis done, since in latter case p-value is relatively high (0.076), we are accepting H0 at a 1 and 5 percent significance level.

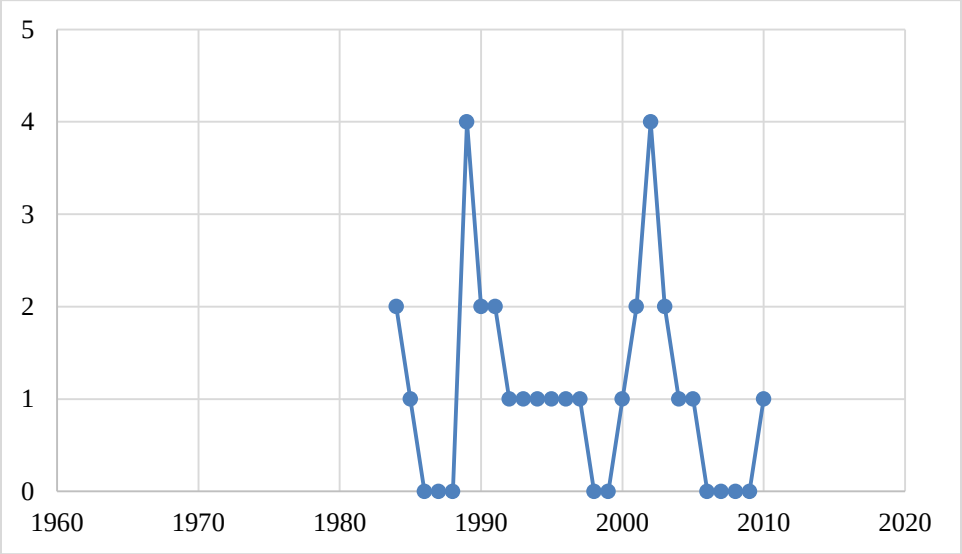


Figure 3: *The distribution of the closing dates of protracted growth slowdown periods*

To sum up, null hypothesis was accepted in 3 cases on the basis of our analysis indicating that in most episodes there is not enough evidence to reject the random character of growth slowdown periods. The only case where incidence can be excluded is the strong concentration of initial years concerning growth slowdowns in the second half of the 1970s and at the beginning of the 1980s. In latter period there used to be significant slowdown tendencies in 3-4 different countries. Thus we may consider that during this term there were also some exogenous effects besides the usual structural inner causes. However, the available facts seem to suggest that slowdown could still be observed when the exogenous effect had already ceased (e.g. rapid increase of oil prices). The end of slowdown processes does not show any regularity, so it can be presumed that it has a random nature.

As a next step, we are aiming at revealing the relationship among regions of world economy by applying the analysis of variance (ANOVA). Taking into account the already detected MIT countries, the following groups have been analyzed: Europe, Latin America, the Middle East and North Africa, Sub-Saharan Africa and Southeast Asia. Our first set of hypotheses on the starting and final years of growth periods is indicated below:

- *H0: there is no connection between country groups and the initial years of growth slowdowns.*
- *H1: there is covariance in case of starting years of slowdowns within country groups.*

As a result, p-value turns out to have a 0.589 value – at 1, 5 and 10 percent significance level the interdependence can be excluded, so there is no reason to reject the hypothesis which presumes randomness. On the basis of the previous assumptions, we are going to check what the case is regarding the closing years of economic slowdown periods:

- *H0: no relation can be observed between the final years of slowdowns as well as the indicated country groups.*
- *H1: there is some covariance of closing years of slowdowns within country groups.*

Similar results are produced after having tested our hypotheses: since p-value is relatively high (0.257), H0 should be accepted at all (1%, 5% and 10%) significance levels.

In light of the latter hypothesis testing we may conclude that differences between initial and closing years of slowdown periods cannot be explained by belonging to a certain country group. In other words, the starting and final year of a slowdown may be considered as a random phenomenon. However, this statement does not prove the former conclusion of dependence theories according to which counties' development is significantly converging within regions of world economies.

3.2. Growth Dynamics In Developing Countries

3.2.1 Long-Term Economic Growth In The Largest Emerging Economies

On the basis of Jánossy's trendline theory, in what follows, we are going to examine the long-term economic growth of certain developing economies. First of all, the development of the BRIC country group is illustrated in Figure 4 using the GDP per capita (constant 2010 US$) data provided by the World Development Indicators database from 1960 to 2016 with the exception of Russia, where information was available only after 1989.

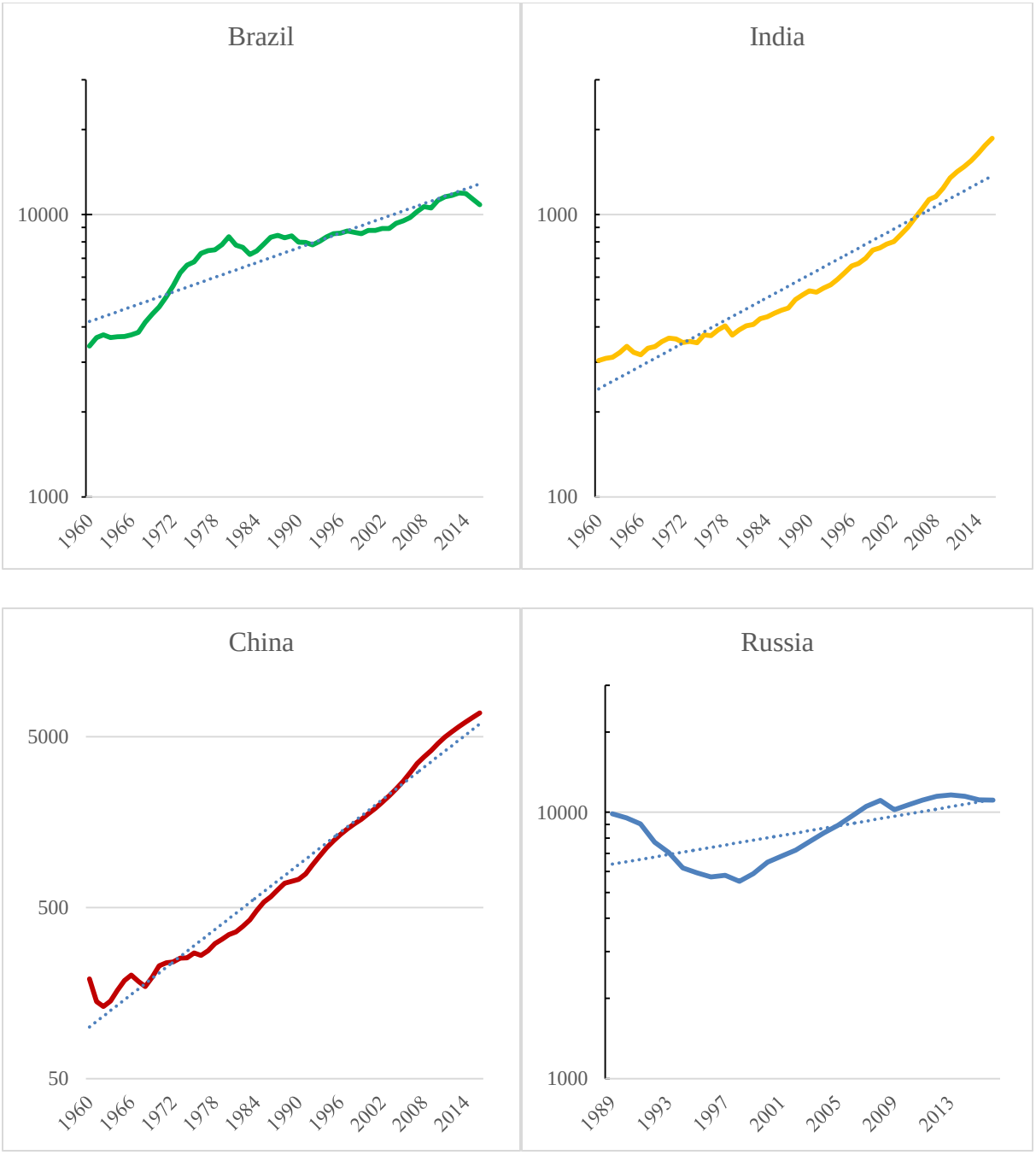


Figure 4: *Long-term economic growth (GDP per capita, constant 2010 US$) of the BRIC countries (1960-2016)*

As a next step, it is important to take a look at the equation of the trendlines in case of the four biggest emerging economies.

Brazil: $4095{,}3e^{0{,}02x}$ (1)

India: $233{,}98e^{0{,}031x}$ (2)

China: $93{,}252e^{0{,}0729x}$ (3)

Russia: $6255{,}9e^{0{,}0207x}$ (4)

By comparing the exponent values of the above-listed countries we may see that China and India represent the most classical type of fast-growing emerging economies having a high-slope function. In China, the long-term economic growth rate is 7.29 percent while in India it is 3.1% over the past 58 years. Both Brazil and Russia have been producing an average 2 percent growth, so these two BRIC economies seem to be less dynamically growing countries. Although during the first years of recent economic crisis BRIC's performance was more than positive. In 2009, Brazil was even on the front page of The Economist ("Brazil takes off") as having a 5 percent annual growth rate: concerning the downturn, Brazil "was among the last in and the first out" and it was also predicted to achieve an even higher growth rate in the short run (The Economist, 2009). However, predictions were not proved by reality. In 2013, the same magazine informed about Brazil's decay starting in 2012 ("Has Brazil blown it?") with a 0.9 percent growth rate, high unemployment and corruption, decreasing wages and several other social tensions (The Economist, 2013).

As for India, this country has the most outstanding growth path, especially during the recent crisis and recession period. Between 2007 and 2016, it experienced its lowest rate in 2009 (3.89%) and one year later it managed to achieve 8.48 percent as an annual GDP growth rate. In 2012 – as the effect of the so-called double-dip recession – the second minimum was 5.46%, while in 2016 it produced a 7.11 percent growth (The World Bank, 2017). Practically, there were no negative growth rates in India over the crisis period. As a possible explanation for latter phenomenon, we may add that among other BRIC countries, India is the only member where the exposure to commodity prices is quite moderate. The highest values were produced thanks to the computer software activity with 75 billion US dollars in 2014. On the other hand, Brazil and Russia are very exposed to commodity prices while China is the most independent from these factors and consequently, the less volatile economy (Soreg, 2017b).

3.2.2. Growth Tendencies In Central Eastern European Countries

After having presented the growth path of the largest four emerging economies, in current subsection of our paper we are continuing the analysis within the European Union. At the geographic – and in some cases – economic (half) periphery of the EU, eight selected countries' growth tendencies are going to be discussed for the period between 1996 until 2016. The starting date of the period has been chosen on the basis that these economies – namely Bulgaria, Croatia, the Czech Republic, Hungary, Romania, Slovakia and Slovenia (hereinafter referred to as the

CEEC-8 group) – by 1996 had been already more or less over the so-called transformation crisis after the dissolution of the Soviet Union. It is a well-known fact that the above-mentioned countries have always represented one of the most volatile regions of the Union. Their convergence to the EU could be observed before the outbreak of the crisis, however, it was usually driven by a large amount of foreign direct investment causing high growth at the beginning of the period but in the long run, it could not sustain it.

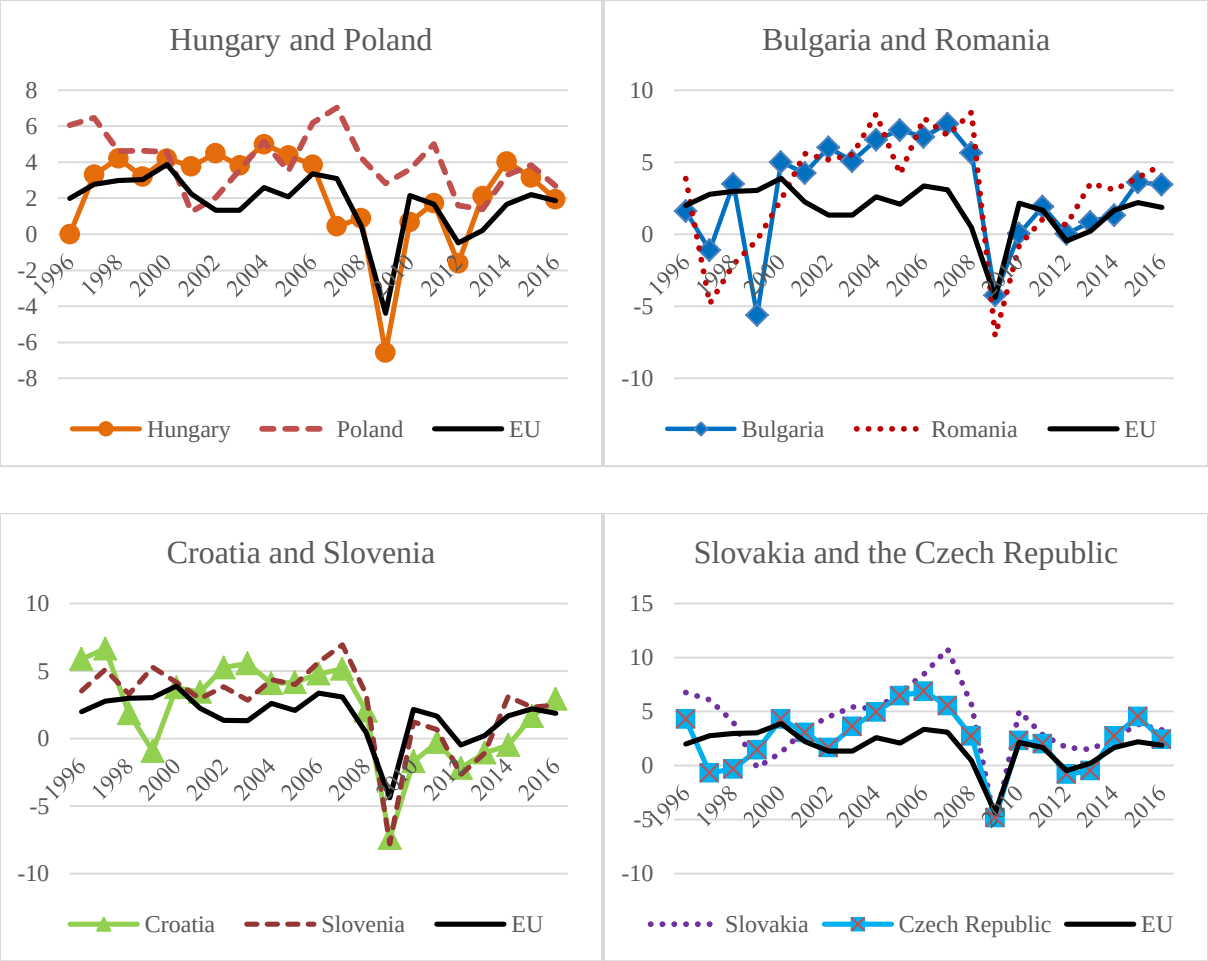


Figure 5: *Real annual GDP growth rate in CEEC-8 compared to EU average (1996-2016)*

In Figure 5 sets of CEECs are presented regarding their real annual GDP growth rate compared to EU average. It is easy to see that the biggest declines took place in 2009. The deepest fall was spotted in Slovenia (-7.8% in 2009) while the highest growth occurred in Slovakia (10.8% in 2007). The average annual Gross Domestic Product of the group was -5.06 percent and -4.38 in the European Union in 2009. Among the 8 economies, Poland managed to become a leader with its 2.82 growth during the most critical year.

Concerning the first set of Central Eastern European Countries, Hungary and Poland were paired since despite the geographical closeness, very different growth and crisis

management scenarios had been realized. In Hungary, political economic actions turned out to be truly inefficient. In October 2008, the Hungarian Central Bank decided to raise the interest rate by 3 percentage points in one day. To continue, the Hungarian government initiated negotiations with the International Monetary Fund to receive credit for the support of the economy. During the period of 2008-2009, the current account balance grew by 7 percentage points. As a result, domestic consumption and investment started to fall. Gross Domestic Product decreased by 7 percentage points within a year. Not surprisingly, serious recession was about to evolve. Nevertheless, in Poland there was also some current account deficit just before the economic turmoil but the Polish government have chosen the way of gradual corrections in order to avoid massive economic shocks. Recession was successfully avoided and nowadays Poland is the most stable and dynamic country of the region. European regional policy is also representing a key area in economic development aiming at the decrease of the main disparities within the EU and thus stimulating competitiveness. There are several countries within the Union which have been long struggling with some significant economic and social differences. In case of Poland such disparities might also be detected, however, the applied strategies by the local authorities have managed to moderate latter tendencies. What is more, there are also certain regions where latter have been completely terminated (Kowalik-Zawada-Kucęba, 2017).

In case of Bulgaria and Romania, the transformation crisis was very protracted as it can be seen in our second mini graph in Figure 4. However, following the millennium, relatively high growth rate was achieved (in 2007 Bulgaria: 7.68%; Romania: 6.86%). As in other CEECs, crisis showed its first signs in 2009 and was very severe (Bulgaria: -4.22%; Romania: -7.07%). Although from 2014 they managed to produce a 3-4 percent annual growth rate, Bulgaria and Romania are still the poorest economies of the region.

As for Slovenia, it is interesting that its GDP fall turned out to be the deepest within the CEEC group in 2009 (-7.08%). In Croatia, the transitional crisis was sharpened by the War of Independence which lasted until 1995. After 2000, several reforms were carried out contributing to economic growth increase that had lasted until 2008. In 2009, there was a -7.38 decrease of GDP. In 2012 the double-dip recession crisis took place (-2.19%). Currently, the Croatian economy has turned to its pre-crisis – approximately 3 percent per year – level.

Members of the former Czechoslovakia are nowadays holding the middle ground within the CEECs. In 2007 Slovakia reached 10.8 percent in real annual GDP growth which is the highest value of the group during the analysed period (it was also called as the Tatra Tiger).

During the crisis, GDP fell to -5.42%. In 2016 it bounced back to 3.29 percent that is still under the pre-crisis values. In the Czech Republic – that used to be one of the most stable economies of the Soviet Union – a significant downturn emerged in frames of a local crisis in 1997 (-0.67% in 1997 and -0.32 in 1998). Thanks to the FDI inflow – like in the rest CEEC members – especially after the 2004 accession to the EU, growth could develop (6.88 percent in 2006). Economic crisis was not as deep in the Czech Republic as in other neighbour economies. Among the first reasons, it has to be mentioned that public debt is very low which makes the country less dependent on external shocks. In 2015 the Czech economy achieved 4.54% that was considerably higher than other EU Member States' performance.

All in all, it can be concluded that although Central Eastern European Countries managed to produce a relatively fast economic growth after the transition crisis, the latest recession has had significantly devastating effects in certain regions. In contrast with the BRIC economies, the CEECs are relatively small, open and natural resource-poor (half) periphery countries strongly depending on tendencies within the Union. There are certainly some members with a more stable economic background (e.g. Poland, the Czech Republic), however, countries like Romania and Bulgaria have still a long way to go to emerge from the poorest economies' status.

4. Basic Findings Of The Research

4.1 Research Outcomes

In recent years, research has provided ample support for the assertion that the economic growth of emerging economies can be quite unpredictable, including the largest developing countries which have significant effects on global tendencies of our world economy. However, the development of the smaller emerging countries is also representing a key factor in the overall growth of the given economic region.

After having provided a brief reflection of middle-income trap characteristics and definitions, the Jánossy trendline theorem was also discussed drawing on the example of Hungary's long-term growth path. Since data had been previously collected for the period of almost a century, an important conclusion could be made regarding its development. On the basis of the Maddison Project Database as well World Development Indicators data, it can be stated that Hungary's position has been pretty stable: in the long term, neither significant converging nor diverging tendencies have taken place since its long-term growth rate is 1.77 percent. Analyzing the four main crisis episodes driven downturn periods, it is evident that in accordance

with Jánossy's results, pre-crisis growth level has been achieved in each case. On logical grounds, the question can be raised whether (half) periphery countries like the Central Eastern European Economies can ever realize true convergence to the most advanced countries of the given region.

In Chapter 3, our research was extended to the middle-income trap affected economies paying particular attention to the main features of protracted slowdown episodes. By applying a chi-squared test, our first result showed that the probability of the slowdown episodes in each year was not equal. We learnt that there might also be randomness in the order of years with or without slowdown episodes. What is more, slowdown episodes are terminated with the same probability in each year thus having a discrete uniform distribution. After applying the ANOVA method, it turned out that there was probably no connection between country groups and the initial years of growth slowdowns and also that there was no relation between the final years of slowdowns as well as the indicated country groups. To sum up, the starting and final year of a slowdown may be considered as a random phenomenon. As Eva Paus concluded, MIT episodes might be evaded, however, policy choices of the given governments do not always keep in focus latter issue. To continue, innovation and appropriate job creation is also a key element in the catching-up efforts of the economies involved (Paus, 2017).

In frames of current study one of our main targets was to present the long-term growth of the most potent emerging economies (Chapter 4) – the BRIC country group – for the period of 1960 to 2016 paying particular attention to the latest crisis and recession period. Although it at first seemed that Brazil, Russia, India and China were only slightly affected by the economic turmoil (India has been even producing positive values), from 2012 a considerable decay has evolved in Brazil accompanied by a wave of social tensions. By creating the graphs for the examined group we also gained the equations of their trendlines showing that China and India are the fastest-growing economies and also the less dependent countries on such factors as commodity prices. Our second goal was to analyze growth tendencies in some chosen Central Eastern European Countries. In latter case, research has been carried out for the (post-transition) period of 1996 to 2016. By comparing the 8 CEECs, from the point of view of economic performance and crisis management, Poland and also the Czech Republic were highlighted as the most stable countries of the region, while Romania and Bulgaria have not yet been able to overcome the status of the poorest and least developed countries within the group.

It is also important to outline that there are several external factors making transition economies much more vulnerable than other developing regions of the world having merely 30 years following the dissolution of the Soviet Union. On the other hand, the EU is one of the world's most open integrations reacting very quickly on such exogenous impacts as a global crisis. Policy makers on national and EU level should pay more attention to the special growth characteristics and needs of this area and prepare suitable development scenarios in order to prevent or lessen the negative effects of the middle-income trap. However, we may not completely exclude the scenario of the unsuccessful convergence of these countries. Having seen the long-term growth rate of Hungary, similar convergence issues can be driven in connection with the other CEECs. Concerning the development of the BRICs, such factors as the exposure to commodity prices will always determine their temporary direction of economic growth. As it could be recently observed, crises do have significant impacts on the largest emerging countries, especially if they are combined with some serious domestic problems to deal with. All in all, catching-up is always representing new challenges for bigger and smaller developing economies in our globalized world thus requiring faster nation state reactions and more complex approaches for creating sustainable growth scenarios.

4.2 Future Scope

Since the development of emerging economies has been representing a topical issue, some future research should be carried out concerning the possible catching-up strategies for certain middle-income economies. It should be also investigated more thoroughly what governments as well as public institutions should imply as strategies in order to maintain stable economic growth especially in country groups with such a special development pattern as the CEECs being so vulnerable on the periphery of the Union. Crisis management in emerging economies is also a relevant issue to discuss since their relatively higher dependency on external processes represent much more possible economic, financial and social shocks to deal with. Regarding the BRICs, it would be vital to model their future rate of economic growth as well as to predict the impacts of persistent slowdowns because due to their size of economy, the effect on other regions' development is also quite significant. However, the lack, reliability and quality of the data are one of the main limitations of such researches.

Acknowledgement

This research was supported by the ÚNKP-17-3 New National Excellence Program of the Ministry of Human Capacities.

References

Aiyar, S., Duval, R. A., Puy, D., Wu, Y., Zhang, L. (2013). Growth Slowdowns and the Middle-Income Trap. IMF Working Paper, WP/13/71, 1-64. doi: https://doi.org/10.5089/9781484330647.001

Demir, M. A., & Sepli, A. (2017). The Effects of Protectionist Policies on International Trade. PEOPLE: International Journal of Social Sciences, Volume 3 Issue 2, 136 - 158. doi: https://doi.org/10.20319/pijss.2017.32.136158

Eichengreen, B., Park, D., Shin, K. (2013). Growth Slowdowns Redux: New Evidence on the Middle-Income Trap. NBER Working Paper No. 18673, 1-54. doi: https://doi.org/10.3386/w18673

Felipe, J., Abdon, A., Kumar, U. (2012). Tracking the Middle-Income Trap: What Is It, Who Is in It, and Why? Levy Economics Institute Working Paper No. 715, 1-59. doi: https://doi.org/10.2139/ssrn.2069645

Gill, I., & Kharas, H. (2007). An East Asian Renaissance. Ideas for Economic Growth. The World Bank, 1-366. doi: https://doi.org/10.1596/978-0-8213-6747-6

Ho, G., & Mauro, P. (2014, December). Rapid Growth in emerging markets and developing economies: Now and Forever? Policy Brief, Number PB14-26, 1-12. Retrieved from https://piie.com/sites/default/files/publications/pb/pb14-26.pdf

Jánossy, F. (1966). A gazdasági fejlődés trendvonala és a helyreállítási periódusok. Budapest: Közgazdasági és Jogi Könyvkiadó.

Kowalik, J., Zawada, M., Kucęba, R. (2017). Regional Diversification of the Level of Economic Development in Poland. PEOPLE: International Journal of Social Sciences, Volume 3 Issue 2, pp. 730 - 745. Retrieved from https://doi.org/10.20319/pijss.2017.32.730745

Lampropoulou, M. (2017). Administrative Reforms and the Eurozone Crisis: A Comparative Study of Greece and Portugal. PEOPLE: International Journal of Social Sciences, Volume 3 Issue 2, 336 - 361. doi: https://doi.org/10.20319/pijss.2017.32.336361

Paus, E. (2017). Escaping the Middle-Income Trap: Innovate or Perish. ADBI Working Paper Series, No. 685, 1-31. Retrieved from https://www.adb.org/sites/default/files/publication/231951/adbi-wp685.pdf

Pruchnik, K., & Zowczak, J. (2017). Middle-Income Trap (MIT): Review of the Conceptual Framework. ADBI Working Paper Series, No. 760, 1-35. Retrieved from https://www.adb.org/sites/default/files/publication/329201/adbi-wp760.pdf

Soreg, K. (2017a). Theoretical Approaches of Income Traps. In M. Kiaba, S. Šályová, Z. Huliaková (Eds.), Scientia Iuventa 2017 (pp. 401-411). Retrieved from http://si.umb.sk/wp-content/uploads/2017/07/Soreg.pdf

Soreg, K. (2017b). Persistent Growth Slowdowns in Fast-Growing Middle-Income Economies. Acta Oeconomica, Volume 67(s1), 97-111. doi: https://doi.org/10.1556/032.2017.67.S.8

The Economist (2009, November). Brazil takes off. The Economist, 12 November, 2009. Retrieved from http://www.economist.com/node/14845197

The Economist (2013, September). Has Brazil blown it? The Economist, 27 September, 2013. Retrieved from https://www.economist.com/news/leaders/21586833-stagnant-economy-bloated-state-and-mass-protests-mean-dilma-rousseff-must-change-course-has

The Maddison Project (2013). Maddison Project Database. Retrieved from http://www.ggdc.net/maddison/maddison-project/home.htm

The World Bank (2017). World Development Indicators. Retrieved from https://data.worldbank.org/data-catalog/world-development-indicators