Modern trends of the world inflation processes and their influencing factors

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Abstract. The features of a modern inflationary wave progressing on a growth stage of the fifth Kondratiev cycle are considered. Since we use information from the IMF database as the most complete statistical database for the general use in terms of the greatest number of the accessible countries and regions of the world, we use only 1980-2008 year period. The dependence of global inflation and inflation in developing countries and countries in transition is researched. The features of a current dynamics of inflation are examined: the tendency of the GDP volatility and inflation decrease in developed countries over the past 20 years – "the Great Moderation".

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Introduction

It is considered that the term "inflation" originated in North America in 1861 — 1865. Initially, the term was examined on a monetary factors view, but since 60—70s of the XX century inflation has been considered as "a multifactorial process".

There are different types and forms of inflation depending on the individual characteristics of the country. Examples of the demand-pull inflation countries might be seven Asian countries — China, Indonesia, Malaysia, Korea, the Philippines, Singapore, and Thailand where, according to the International Monetary Fund study [1], inflation in 2008 was caused primarily by an excessive aggregate demand.

A study of the statistical data shows that during the 1987—2008 year period a moderate inflation rate, not exceeding 8.7% per year, was observed in such countries as Australia, Canada, Denmark, Finland, Germany, Ireland, Italy, Norway, Spain, Switzerland, United Kingdom, and the United States. As for Austria and France, inflation was not only moderate, but also creeping and did not exceed 4% per year. All of these countries are characterized by a relative stability of inflation: the highest volatility was observed in Australia where an average deviation was only 2.6%. Consequently, the money in these countries maintained its value and the risk of contracts at current prices was minimal for the entrepreneurs. In Czech Republic, Greece, Hungary, Iceland, Mexico, New Zealand, Slovakia, Turkey, Chile, China, Indonesia, Israel, and South Africa galloping inflation was observed in different years of the 1987 — 2008 year period.

Duration and nature of the galloping inflation is different in different countries. So, in Greece and Chile it lasted for 8 years (1987 — 1994); then it gradually grew into a moderate inflation, and during the period 1999 — 2007 it was creeping. In Hungary, the galloping inflation lasted for 12 years (1988 - 1999), and then it gradually decreased up to the moderate. In some countries galloping inflation lasted for several years and alternated with moderate one. The examples might be Mexico where galloping inflation took place during the 5-year-periods in 1987 — 1992 and 1995 — 1999, as well as Indonesia where galloping inflation lasted for 2 years during the periods 1998 — 1999, 2001 — 2002, 2005 — 2006.

Galloping inflation level was different in different countries: while in some countries galloping inflation didn't not exceed 21% per year (Czech Republic, Greece, Chile, Israel, South Africa), in other countries it reached several hundred percent per year (Mexico — 131.8% in 1987, Turkey — 105.2% in 1994).

Turkey was marked not only by a high rate of inflation, but also by an inflation crisis — a period of time not less than two years during which annual inflation exceeds 40%. The inflation crisis in this country lasted for 15 years since 1988 to 2002.

The main threat of the galloping inflation is its inconspicuous transformation into the hyperinflation which is considered to be the most dangerous form of inflation in economic and social terms. Hyperinflation implies a price rise more than 50% per month (Keygen criterion) or 200% per year (Samuelson criterion).

Modern examples of hyperinflation might be a hyperinflation in Bolivia in 1985 (11,750% per year), as well as in Peru (7,482%), Argentina (3,079%), Brazil (2,948%), and Nicaragua (7,429%) in 1989-1990 [2]. Hungary set a record of the worldwide price rise: in 1946 its inflation made up

41.9*10^{15} %. The greatest recent manifestation of the hyperinflation might be a price rise in Yugoslavia — Serbia in 1996 when, as a result of military events, inflation made up 3,000,000,000%.

Inflation dynamics in different countries occurs in different ways: the inflationary waves differ in the fluctuation range, wavelength duration, and inflationary peak / rise period which is related to the specific characteristics of the economies of the countries under review. Two major inflation waves are clearly noted in Brazil, Japan, and Hungary, as well as one wave of inflation is noted in China with clear peaks and dips of the inflationary cycle.

Main part

Let us consider the features of a modern inflationary wave which occurs on a growth stage of the fifth Kondratiev cycle. Since we use information from the IMF database as the most complete statistical database for the general use in terms of the greatest number of the accessible countries and regions of the world, we use only 1980-2008 year period which limits the study of a comparative dynamics of the inflation cycles (since inflationary cycles have greater wave length).

The latest global inflationary cycle occurred in 1986 — 2002 and lasted for 16 years. This inflationary cycle has several peculiarities.

First of all, this inflationary cycle occurred during the business cycle rise stage which provided an unprotracted character of the high inflation period.

Secondly, inflationary cycle of 1986—2002 period was developing step-by-step; there might be distinguished two sub-cycles with the duration of 5 and 11 years: since 1986 to 1991 and since 1991 to 2002. Inflationary cycle peak occurred in 1992 when the average annual global inflation was 37.5%.

It was found that the correlation of global inflation with the major world indicators is low which means that it is impossible to work out a regression equation for the global inflation because of the lack of indicators.

Inflation indicators in developing countries and countries in transition during the period under review were much higher than the world average which, in turn, had an effect on higher amplitude of the inflationary cycle in developing countries. The peak of inflation in developing countries made up 127.5%.

Dependence of the global inflation and inflation in developing countries and countries in transition is confirmed by the correlation coefficients calculation:

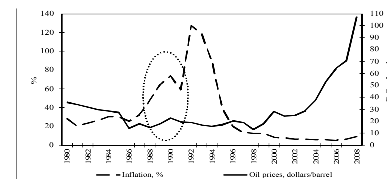
Table 1. Correlation coefficients of the inflation indexes of the world regions

Region	World	Developed countries	Newly industrialized countries NIC	Developing countries and countries in transition
World	1.0000			
Developed countries	0.3600	1.0000		
Newly industrialized countries NIC	0.3977	0.8431	1.0000	
Developing countries and countries in transition	**0.9743**	0.1488	0.2278	1.0000

Thus, modern inflationary cycle affected developing countries and countries in transition by the most part which resulted into hyperinflation in many of these countries in the period of 1990—1993. In accordance with the International Monetary Fund data, in 7 out of the 180 countries of the world hyperinflation was more than 200% (Albania, Angola, Bulgaria, Mongolia, Poland, Romania, Suriname), and it was more than 1,000% percent in seven countries (Argentina, Brazil, Congo, Macedonia, Nicaragua, Peru, Croatia). In addition, in 1993 hyperinflation was observed in all the former Republics of the Soviet Union.

In 1990, the year which was marked by the first peak of global inflation, especially high annual inflation was observed in four countries of Latin America and Caribbean — Argentina (2,314%), Brazil (2,948%), Peru (7,482%), and Nicaragua (3,004%).

High inflation in Latin America and Caribbean in 90s was caused primarily by the crises in the banking sector. However, the crises in the Caribbean and Latin America were not the only reason of high inflation in developing countries and countries in transition (for example, Iraq's invasion in Kuwait took place in 1990). So, inflation in Kuwait increased by 5 times, in Oman — by 7 times, and in Saudi Arabia — by 2 times [2]. Inflation level rise in developing countries and countries in transition, followed by the world oil prices rise, might be seen on the graph (see picture 1).



Picture 1. The world oil prices and inflation dynamics in developing countries and countries in transition

In 1989-1991 inflation and world oil prices were moving in the same direction. Later, however, such synchrony of movement was not noted which means a significant reduction of the oil price factor impact on the global inflation.

Oil prices growth in 1990 might also indirectly affect the inflation in other developing countries and countries in transition through the food prices growth. Thus, in the researches, conducted in 15 developing countries and countries in transition, it was revealed that the main factor of inflation was a sharp food price rise, while the relationship between the oil prices and inflation was weak [3]. Let us to verify this hypothesis by calculating the correlation coefficient between the inflation in developing countries and countries in transition and food prices index over the period of the inflationary cycle (1986—2002) (see table 2).

Table 2. Inflation and food price indexes in the developing countries and countries in transition in 1986—2002[2]

Year	Average annual inflation, %	Food prices index, 2005=100	Year	Average annual inflation, %	Food prices index,2005=100
1986	25.69	94.25	1995	39.25	104.61
1987	32.61	102.14	1996	20.39	112.27
1988	47.72	110.4	1997	13.34	102.63
1989	64.88	101.12	1998	12.8	92.05
1990	73.94	103.7	1999	12.7	80.16
1991	59.02	98.32	2000	8.458	82.12
1992	127.59	97.11	2001	7.635	80.49
1993	118.74	96.46	2002	6.72	83.33
1994	89.74	99.41	-	-	-

The correlation coefficient is 0.35; i.e., in this case, relation between inflation and the food prices index in developing countries and countries in transition is insignificant, in spite of the fact that the price index in 1990 grew by 2.6%.

Thus, the main reasons of the inflation rise in 1990 were not only the crisis in the banking sector in Latin America and Caribbean, but also the oil prices growth caused by the war in the Persian Gulf.

After the fall in 1991 by 4.5%, inflation rose again in 1992 – this year is considered to be a year of the highest word inflation over the period under review and it amounted 37.5%. This surge of inflation is related with a large-scale world event — a shift of the Central and Eastern Europe countries and Mongolia to a free market economy. The main factors of the inflation in the former Republics of the Soviet Union might be a credit expansion of the central banks and monetization of the budget deficit [4].

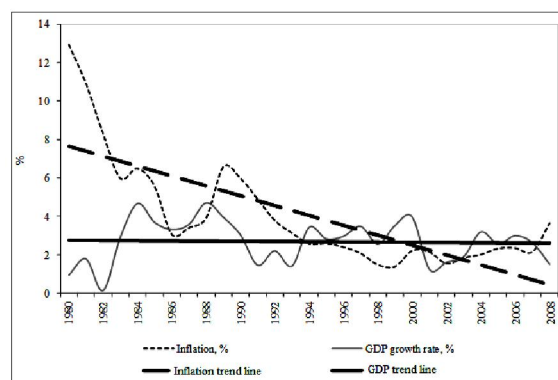
We cannot help paying attention to the following fact: after the inflation peak in 1992, global inflation index and inflation in developing countries were decreasing steadily, in spite of the Asian crisis in 1997-1998 and financial crises in Russia, Brazil, and some other countries in Latin America in 1998-1999.

Thereby, there might be revealed one of the positive trends of the modern inflation: reduction in the number of galloping inflation in the world and increase in the number of countries with a moderate inflation in recent years.

"The Great Moderation"

Let us consider another feature of the modern inflation dynamics which is a trend of the GDP volatility and inflation decrease in developed countries over the past 20 years [5]. In 2002 Harvard university economist James Stock in his book "Has the business cycle changed and why it has changed?"[6] named this trend as "the Great Moderation". Later, in 2004 this term came into a wide-use after the speech of the Federal Reserve System Chairman of the Board of Governors of the U.S. Ben Bernanke [7].

In developed countries "the Great Moderation" especially clearly occurred after the year 1994 when the amplitude of the GDP and inflation fluctuations did not exceed 3%, in spite of the rise in inflation in developing countries and countries in transition. Dynamics of the GDP and inflation growth in developed countries over the period under review had the following form (see picture 2).



Picture 2. Dynamics of the GDP and inflation growth in developed countries [according to: 2]

As it can be seen from the figure, during "the Great Moderation" period there was no obvious occurrence of both economic and inflationary cycle since the GDP and inflation make minor fluctuations around the average value. At the same time, inflation trend has a negative slope while the GDP trend is almost parallel to the abscissa which indicates a gradual decrease in the rate of inflation, which occurs without any economic growth damage.

In developing countries and countries in transition the signs of "the Great Moderation" appeared with a large lag (9 years) regarding the developed countries — GDP volatility and inflation decrease took place approximately since 2003. Inflation fall was a lot more representative in this group of countries in comparison with the developed countries: if in 1990-1994 inflation averaged at 93.7%, in 2000-2008 it has stabilized at 6.9%. I.e. inflation fall made up 87%. At the same time, favorable GDP dynamics and the inflation growth slowdown were noted in the developing countries during the last decade.

To date, researchers have not reached a consensus regarding the cause of "the Great Moderation". They express different views concerning the reasons of decline and reduce of the volatility rates of GDP and inflation. In our view, factors of structural changes in the labor market connected with the wages ratio to the company profits, as well as with the contracts with a lot more flexible conditions, have a more likely influence on the inflation. These structural changes reduce the probability of imbalances in the economic development and, consequently, the probability of the sharp inflation fluctuations.

The study, performed by the International Monetary Fund by means of the econometric model, supports this point of view. It was revealed that the open economies are predisposed to the lower inflation rates than closed economies, and countries which foreign trade quota exceeds 25% are of a higher probability to reach moderate inflation [8].

World prices decrease was also contributed by the entrance into the world market of the rapidly developing Asian countries (primarily China and India) with cheap labor and products [9]. Thus, supply deflation took place under the influence of the Asian countries; i.e. a move of an aggregate supply curve to the right which reduced the world prices.

However, it makes sense to consider the fact that economic growth of the developed and developing countries has led to the opposite effect on the prices: increased needs of India and China exceeded the global demand on the products. The result was an upward pressure on prices [10].

An aggregate effect of the supply inflation and demand deflation, caused by the entrance of the Asian countries into the world market, was studied by the researchers of the Organization for Economic Cooperation and Development (OECD) [11]. As a result, it was found that the aggregate effect for the U.S., Eurozone, and OECD countries was -0,25-0% which means that the aggregate demand and aggregate supply movement had virtually no impact on the world prices.

An impact of the globalization becomes apparent through the indirect effect which contributed the inflation decrease and stabilization: an increased interaction between the central banks, researchers, and society dedicated to the problem solving in the field of inflation reduction and stabilization [12]. It is related with another reason which explains "the Great Moderation" — improvements and transformations in the world banking sector, as well as a more deliberate policy of the central banks.

According to the International Monetary Fund, the government's efforts aimed to the achievement and maintenance of the low inflation rates by means of the monetary policy were the main factors of the global recession and inflation volatility decrease in 80—90s. There are two explanations of the monetary policy effectiveness improvement for the control over the inflation.

First of all, monetary policy has become a lot more well-considered which is explained by a government's better understanding of the economy functioning, as well as its attention to the mistakes of 1970s (years during which inflationary crisis preceding 90s occurred). Inflation processes research, as well as the research of their causes and patterns promoted a lot more well-considered decision-making process of the central banks.

At second, a lot more effective monetary policy is explained by its mechanisms of functioning improvement over the past 20 years. An example might be a strategy of inflation targeting and providing a greater freedom for the central banks [13].

For example, banking reform, aimed to stabilize the inflation, was performed in 90s in Latin America; as the result, it reduced the inflation from about 228% in 1990-1995 to 10% in 1996-2003 [14]. According to the researches of some scientists, a lot more effective monetary policy explains two-thirds of "the Great Moderation" [15].

Consequently, global inflation decrease over the recent year resulted into the fact that in 2008 none of the 180 countries, examined by the International Monetary Fund, did not exceed inflation threshold of 40% which, in accordance with the scientists, is considered to be dangerous for the successful economic growth. Global inflation index stopped at 6.2% per year. Such trend is considered to be positive for the development of the world economy.

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