

Dominik Nowak

Wrocław University of Economics

IS THE FLAT OPEN-ECONOMY PHILLIPS CURVE DECEPTIVE ILLUSION?

Summary: The main purpose of following article is to highlight potential modern Phillips curve augmentation caused by globalization. Although there was a lot of discussion about so called “flattered” curve, the author of the article has decided to present a different approach to relevant matter. Along with a brief presentation of theoretical background behind open-economy of Phillips curve this paper treats new macro-foundations, strictly related with globalization, which may be responsible for accelerating inflation in emerging countries, both in short and long perspective. Above all the contents of the article should not be considered as direct opposition to the New Keynesian modern Phillips curve theory, but rather as a modest follow-up.

Key words: inflation, Phillips curve, Keynes.

1. Introduction

Since the early 1990s we all observe an intensive discussion about a possible impact of globalization on price and wage stability. There seems to be a lot of evidence suggesting intensified capital flow, great increase of trade volume between not only countries, but also global organizations, and so on which will suppress pro-inflationary factors in modern economy. Indeed, it is hard to disagree – globalization has changed inflation, but in my opinion, we cannot remain so sure about the change of direction itself. The purpose of this brief paper is to point out some reasons which may suggest that widely integrated international market can become unsustainable to inflation, exactly because of globalization. Personally I am far from criticizing New Keynesian view on modern Phillips curve, which could have been “flattery” for developed countries across the world in the 1990s. On the other hand I think we cannot be sure that prices were relatively stable for that period of time because of other inflation-suppressing factors, such as major world central banks restrictive and rule-guided monetary policy. I think it is vital to present concerns about how deceptive it could be to believe that demand pulled and supply pushed inflation would be weakened in global and as well in local scope by globalization. First, it should be defined what exactly we mean using the word globalization in the following discussion. Furthermore,

it is essential to provide a brief reflection on flat Phillips curve idea in short and long run perspective. Then it is possible to examine a relationship between inflation and unemployment according to this theory and provide counter-arguments.

Before getting started it is absolutely imperative to clarify what exactly the author means by using term “globalization”. First of all, obviously it has countless meanings, sometimes regarding extremely distant subjects, inconsistent or even conflicting with each other. For the purpose of this paper I use globalization in sense of accelerating the growth of foreign trade in goods, services, financial assets, creating multinational enterprises, outsourcing and offshoring business processes and increasing a volume of capital flow. What is crucial, the does not use the word globalization here to reflect the extension of international economic supervision and regulations, like for example fiscal and monetary policy unification, the creation of new international financial institutions and so on. Keeping that in mind makes it easier to avoid any confusion while reading the article.

2. Theoretical and empirical evidence supporting flat Phillips curve

The idea of flat Phillips curve came into focus once again in the late 1980s. It was considered a new addition to intensive discussion about how to define the relationship between inflation and unemployment, worldwide known as Phillips curve. The major opponents were the New Keynesian economists proposing the evolution of expectations-augmented Phillips curve model, proposed originally by Edmund Phelps¹ and new classicals with their rational expectations, Lucas critique and rules vs. discretion doctrine². First liked to believe even if in long run Phillips curve can be vertical there is adaptive nature of inflation expectations, which adds a factor of constant misperception caused by taking previous inflation projection into the equation in environment full of exogenous supply-side shocks. These cannot be reflected in the changes of prices in the past. That is why Phillips curve might be vertical in long run, but it cannot be stable, in fact it will follow the path of their short-run “sisters”. By contrast we find rational expectations and strictly vertical and stabilized image of how prices and wages will react, when unemployment decreases. Inflation narrowed to money supply expansion is fully anticipated by people and companies, who try to predict central bank’s monetary policy. Thus persistent inflation can be referred as an effect of disequilibrium on labour market, determined by institutional, exogenous factors. Rational expectations theory quickly became a popular and useful tool to backup original monetarist approach to *Phillips curve* and

¹ E. Phelps, *Phillips curves, expectations of inflation and optimal unemployment over time*, “Econometrica” 1967, No. 34.

² F. Kydland, E. Prescott, *Rules rather than discretion: The inconsistency of optimal plans*, “Journal of Political Economy” 1977, No. 3.

to the monetary policy. Anyway both new classicals and modest New Keynesians generally agreed (in the early 1990s) that it is pointless to expect that constant and sustainable economic growth can be stimulated by money supply expansion in mid or long run perspective. It created solid foundations for more independent and rules-orientated monetary policy, focused entirely on keeping inflation at the low acceptable (not encouraging deflation) level. The European Central Bank, with its two independent policy restrictions: direct inflation target restriction which means EU HICP cannot soar above 2,5% and money supply growth restriction stating that Central Bank cannot allow annual growth rate reach above 4%, serves of course as the ultimate example. But from that time a lot has changed, both in theory and policy. One of the most modern and popular approaches is the concept of Phillips curve that can actually be “flat” under certain circumstances. It refers specially to the situation called “Beyond the full employment”. It used to be taken for granted when unemployment level decreased below its Natural Unemployment Rate (see: Monetarist and New Classical view)/Non-Accelerating Inflation Rate of Unemployment (see: Stable New Keynesian and Unstable Postkeynesian perspective) inflation would rise, for instance because of stronger bargain-power of employees in a wage setting process. But what if in open economy companies are able to countermeasure rising wage expectations of domestic workers by hiring low-cost labour force from other countries? Let us look at the same problem from a bit different angle. Companies are under pressure to increase wages when economy rises closer to the full employment, far beyond its natural rate. Marginal variable cost is growing. Naturally they would set up higher prices to secure their margins. What if in such a situation they have to compete with producers from other countries, since international trade exchange volume has soared and there are less institutional limitations? A situation in foreign labour markets can be different, so external competitors can remain able to sell products in our domestic markets with the same prices as before. Would domestic companies take a risk of losing market share because of noncompetitive prices? Such logic created foundations for flat Phillips curve concept. So far several important papers regarding this economic phenomenon have been published worldwide, including famous *Has globalization changed inflation?* written by Lawrence Ball³. A new approach to *Phillips curve* could justify shifting tighten monetary policy theories into aggregate demand stimulation, since the relationship between inflation and unemployment is weakening. Modern Keynesian economy provided even more additional macro-foundations, with unemployment hysteresis and already mentioned (un)stable NAIRU. Although first one had was originally developed by Edmund Phelps in the early 1970s⁴, it later was widely adopted by some economists, who described themselves as New Keynesians. For more reference I would recommend

³ L. Ball, *Has globalization changed inflation?* “NBER Working Paper” 2006, No. 12687.

⁴ E. Phelps, *Inflation Policy and Unemployment Theory*, Norton, New York 1972.

Layard and Bean’s *Why does Unemployment Persist?*⁵ and Gordon’s *Hysteresis in History: Was there ever a Phillips Curve?*⁶. In short, hysteresis determines that natural rate of unemployment will be related to its current level. For example let us imagine if serious, negative supply shocks affect global output for several years, forcing companies to reduce employment, NRU will follow present rate and shift to the right. Milton Friedman argued that unemployment in long run will be determined by exogenous (to labour market) factors, such as social security support, people’s motivation to work, labour union’s power of bargaining and other institutional rules and barriers. Hysteresis indicates opposite, NRU is at least partially indigenous. Deviations from equilibrium state in labour market shift actual unemployment rate which will affect NRU as well. How all of this stick to flat Phillips curve and monetary policy? If hysteresis ceaselessly “moves” long run unemployment rate, we cannot build tight monetary policy theory around the rule of stable employment frontier which could not be surpassed without igniting high inflation. Since hysteresis came into focus of Monetarist NRU, based on full Neutrality of Money, or Neoclassical vertical LAS (Long Run Aggregate Supply) based on Say’s law, it could be conside-

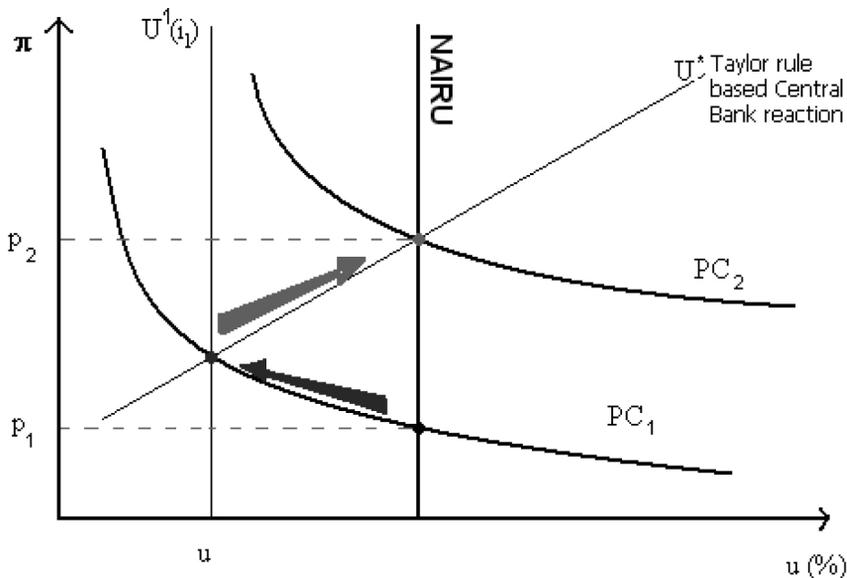


Figure 1. The NARU in New Keynesian Perspective. Long run unemployment rate stabilized by monetary policy based on Taylor Rule

Source: own elaboration.

⁵ R. Layard, C. Bean, *Why does unemployment persist?* “Scandinavian Journal of Economics” 1989, No. 91(2).

⁶ R. Gordon, *Hysteresis in history: Was there ever a Phillips curve*, “American Economic Association: Papers and Proceedings” 1989, No. 79(2).

red as such “inflation barriers”. So we reached a point where, in New Keynesian perspective, long-run unemployment rate is unstable and globalization which augmented Phillips curve has distinctly “flattened” shape. Theoretical rudiments which backed up restrictive monetary policy can be seen enfeebled.

Along with the evolution of Keynesian economy theories we have gathered a lot of empirical evidence since the late 1990s of the 20th century. Inflation pressure in developed countries decreased with the rapid expansion of international trade volume and capital flow.

Furthermore global economy received a significant boost from the dynamic development of information delivering technologies. Along with IT revolution, in the early 1990s it was far easier, cheaper and safer than a decade before to transport commodities between distant parts of the globe. Finally, there were obviously a lot of political transformations across the world, providing appropriate degree of economic freedom, allowing foreign trade, global investment, outsourcing, offshoring, etc. at the scale we had not seen so far. Global market created a lot more distribution channels, product placement opportunities and target clients volume capacity. On the supply side, wider diversified and liquid raw material and semi-product market make companies able to build new marginal costs optimization strategies. Global financial market provided more flexible and easier accessible methods of gaining and investing capital. All of this is evident and apparent, along with “rediscovered” macro-foundations such as unstable NRU/NAIRU⁷ or flat Phillips curve. It’s not hard to form hypothesis that new, global economy is far more resilient to inflation threat than ever before. Indeed during 1985-1995 we observed price growth at stable level in most of the developed countries. And just some years before the inflation pressure was one of the major concerns in these countries. Consumer Price Index (CPI) annual growth in the United Kingdom soared in 1975 up to 24.2%. Even two years later consumer prices were growing at the rate of 15.8% (13.4% in 1979). In 1978 the USA economy suffered as well from high 9% CPI growth rate.

Table 1. Annual CPI Index growth ratio in USA and UK for last 20 years

CPI%	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
USA	4.8183%	5.4032%	4.2081%	3.0103%	2.9936%	2.5606%	2.8340%	2.9528%	2.2945%	1.5576%
UK	5.2376%	6.9728%	7.5326%	4.2615%	2.5065%	1.9785%	2.6565%	2.4812%	1.7779%	1.5889%
CPI%	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
USA	2.2086%	3.3613%	2.8455%	1.5810%	2.2790%	2.6630%	3.3880%	3.2258%	2.8482%	3.8396%
UK	1.3354%	0.7853%	1.2359%	1.2562%	1.3629%	1.3446%	2.0497%	2.3335%	2.3210%	3.6132%

Source: <http://www.bls.gov/cpi/>.

⁷ E. Stockhammer, *Is the NAIRU Theory a Monetarist, New Keynesian, Postkeynesian or a Marxist Theory*, Vienna University of Economics & B.A, Vienna 2006.

That is why the last two decades mainly for the USA and developed European countries can be considered much less vulnerable to inflation than the 1990s. But is it really globalization decisive factor “flattening” this mid-run Phillips curve? In the next part of the article some of counterarguments and conclusions resulting from this comparison are presented.

3. Accelerating inflation factors related to globalization

Empirical evidence behind the idea of globalization cooling down inflation seems to be undeniable, but only if we refer to developed countries such as the USA, the UK, Germany or Japan. Especially in the first three of them we have seen significantly tighten monetary and fiscal policy, generally associated with Reagan’s administration and Thatcher’s government. First the following figure shows how rapidly the ratio of M3 money supply to GDP decreased in the USA from 1986 to 1996.

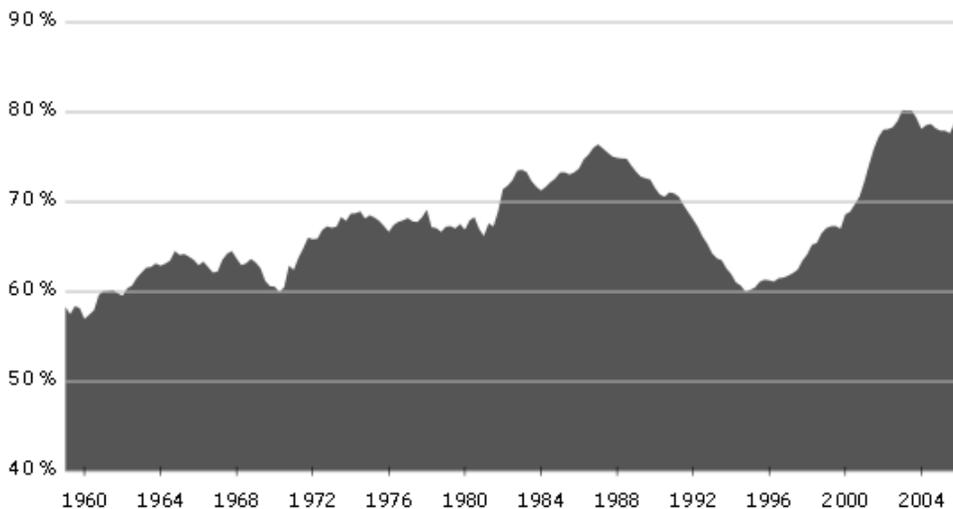


Figure 2. M3 to GDP ratio in USA (1959-2005)

Source: St. Louis Federal Reserve.

It is apparent that globalization increased productivity growth and boosted pressure to develop more innovations. Companies in both developed and emerging markets paid more attention to non-price competition. On the other hand, inflation should be always considered as nominal rather than real economy factor (according to money-neutrality based theories). That is why strict monetary policy, aimed at slowing down money supply growth rate was a key solution in order to stabilize inflation in developed countries. Globalization may have played a substantial role in supporting such a policy. The integration of national economies in the 1990s resulted

in granting less capability for individual policymakers to stimulate output with M3 expansion. In the author's opinion only nominal determinants should be reputed as having affected inflation in 10-20 year perspective. Tight monetary policy introduced during the late 1980s is the prime factor, which allowed to extinguish persistent inflation from the 1970s stagflation crisis. Positive effects of globalization served as a catalyst. Now the author in the article is going to show that it can be also seen as negative supply shock, similar to oil (1973) and energy (1979) shocks. It is impossible in scope of this paper to present a complete and detailed description of all potential pro-inflationary determinants related to globalization. Therefore, the author tries to point out the most significant ones. Again, we need to remember, they are real factors. The author is skeptical about their contingent influence on long-run inflation.

First of all – the agflation – a new term popularized in 2007. It is not another inflation component, but it reflects a phenomenon of how significant the impact on aggregate inflation can be made by rising prices of agricultural commodities. In general, prices of these goods are filtered along with prices of petroleum and other energy related medias from so called core inflation. Obviously food prices are sustainable to seasonal fluctuations, which could create a false image of rising or falling inflation in short run. That is why central banks do not consider them as important as the other demand-pulled inflation “ingredients” in monetary policy framework, the same as energy media prices, determined exogenously, beyond central banks area of influence. But what if new permanent trend has been created due to the globalization process? There seems to be at least three major determinants causing agflation (especially in Europe): production of biofuel, intensified speculation on agricultural commodities markets and demand for food in emerging markets.

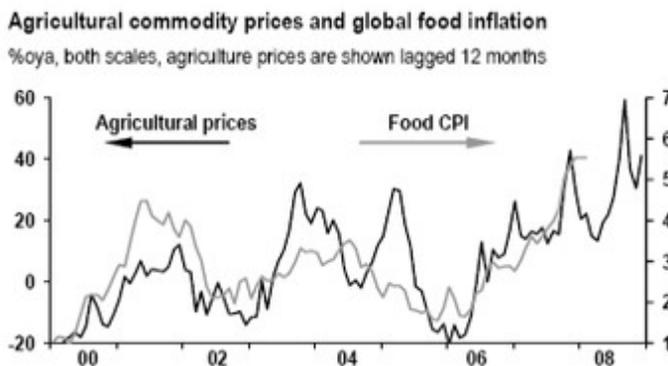


Figure 3. Agricultural commodity prices and global food inflation

Source: JP Morgan, Global Watch 15/02/2009.

Furthermore, there is always a risk of negative supply shocks, caused by unfortunate weather conditions, clearly noticeable during The Great Depression (1927-1933) and The Stagflation Crisis (1973-1979). Although the influence of drought depleting food supply capacity is not related to globalization at all, on the contrary there is an example of EU policy of extending biofuel production or speeding the process of life conditions convergence between new members and “old 15” members. Regardless of many controversies related to biofuel itself as clean or efficient energy medias, there is a lot of confusion about how hard its production affects corn, sugar cane and vegetable oils market. According to OECD approximately 60% of global demands for grain and vegetable oils growth have been caused by biofuel production⁸. Depleting resources of crude oil, matters of energy security and so on can make growing participation of fuel production in ethanol and vegetable oil market a long run trend⁹. If we assume hypothetical goal of 25% ratio between biofuel and traditional fuel medias, the acreage of approximately 5 billions hectares of soy is required. Going forward, 2.5 billions hectares of sunflowers, 2 billions of colza and a little less of barley and so on are required. Global agriculture utilizes no more than 2.5 billions hectares. To increase biofuel output to such a desired level it would be necessary to use for sugar cane alone the additional acreage of 17% of its global volume for the entire agricultural production. For soy and sunflowers almost 200% is needed separately. These rough figures illustrate how strong impact on food market may have been delivered by biofuel expansion. Since national markets are open for foreign customers ethanol and biodiesel production constantly shifts to the left demand curve. Apparently, sluggish agriculture supply will be unable to match this with the adequate increase of output in decades to come. Of course cheaper and more available energy medias affect prices of crude oil, petroleum or natural gas, the problem is in unequal distribution of positive and negative inflation determinants connected with biofuel across different countries. The developed ones will benefit more from potential energy prices stability while economies of emerging suffer from skyrocketing prices of food, which equal about 30% of consumer expenditures. As per inflation itself, food participation in CPI in Germany equals 10.3%, compared with 18.4% in Hungary, 25.7% in Poland or 33.8% in Russia¹⁰. So it is obvious that economies of developed countries are more resilient on agflation.

Consecutive significant pro-inflationary factor in agricultural commodities market is strong domestic aggregate demand, experienced specially in emerging countries, with China, Brazil, Russia and EU new members serving as prime examples. In the author’s opinion this is a much less dangerous aspect of agflation. Accelerating process of life standard convergence among countries in globalized

⁸ OECD-FAO. Agricultural outlook 2008-2017. OECD-FAO 2008.

⁹ L.O. Fresco, *Biomass for Food or Fuel: Is There a Dilemma?* University of Amsterdam, Amsterdam 2006.

¹⁰ *Biofuels in the European Union. A Vision for 2030 and beyond*. Final report of the Biofuels Research Advisory Council, European Commission, Luxembourg 2006.

economical environment cannot be surprising and its future dynamics is possible to forecast. Anyway foreign demand for food is sometimes hard to predict for domestic producers. Negative shocks affecting supply in one region will result in augmenting import from other countries, which may cause short-run market deficiencies far more often because of globalization. More disturbing effects will be caused by speculative bubble in global agricultural commodities markets. So far such bubbles have been related mostly to financial or real estate markets. Soaring demand with high prices volatility tempt new investors, interested especially in speculation on alternative exchange. Yet, there is no hard evidence that speculation has added much to the price increase on spot markets. But it is worth considering such as possible future pro-inflationary factor. Currently the excess of global demand makes theories state that agflation is boosted primary by speculating capital highly unlikely.

It seems definite that globalization should be regarded as a catalyst of agflation pressure on consumer prices. Magnified trade volume of food and other agricultural articles makes demand-pulled inflation in particular more susceptible to negative supply shocks across the globe. Moreover, international scale biofuel production ventures created far greater demand for acreage than anticipated. That leads to inevitable shortage in some agricultural goods, boosting inflation pressure, mainly in emerging countries.

If agflation is the present issue with global inflation pressure, than a financial crisis will be serious one as well in the nearest future. Since the US subprime mortgage financing sector reported tremendous losses in July 2007 the world's economy suffers a deep recession. Although present situation is a result of countless different reasons, one of them is crucial to possible global inflation growth – public debt. Of course owing to the circumstances inflation can be hardly described as an imminent threat now, with global output tumbling, soaring unemployment, sluggish aggregate demand seen in developed countries and avalanche of bankruptcies, forced mergers and acquisitions, lack of investment and so on. Financial crisis inflicts enough damage to the GDPs of most countries across the globe to make policymakers worry about deflation rather than inflation. But even in two years perspective global economy is going to bounce back, primarily thanks to enormous GDP growth potential of the biggest emerging countries, such as China, India, Brazil or even Russia. At the same time many of the developed countries will need to preserve their interest rates at lower possible ratio because of enormous both public and personal debt. Extensive and widespread implementation of mortgage based securities and securitization with SPV companies in financing loans made debt and liabilities of people or companies the major trading asset class in the globalized financial market. Furthermore, credit default swaps allowing investors for long and short participation in credit risk exposure of countless enterprises, business sectors, regions etc. During last two decades financial markets accelerated the transmission of public and personal debt into global network, where apparently unrelated factor can determine distant element. How all of this stick to the global inflation? Increased debt in developed

countries will affect the consequences of utilization of monetary policy instruments. We have already seen how credit default risk can be vulnerable to interest rates changes. The cost of huge public debt will also rely on how expensive it is to roll it over. While FED and EBC interest rates reach their lowest levels, governments are utilizing expansionary fiscal policy connected with commercial banks liquidity support and toxic assets redemption.

However, there is no clear evidence about global debt as inflation accelerating force. The following chart shows the US data.

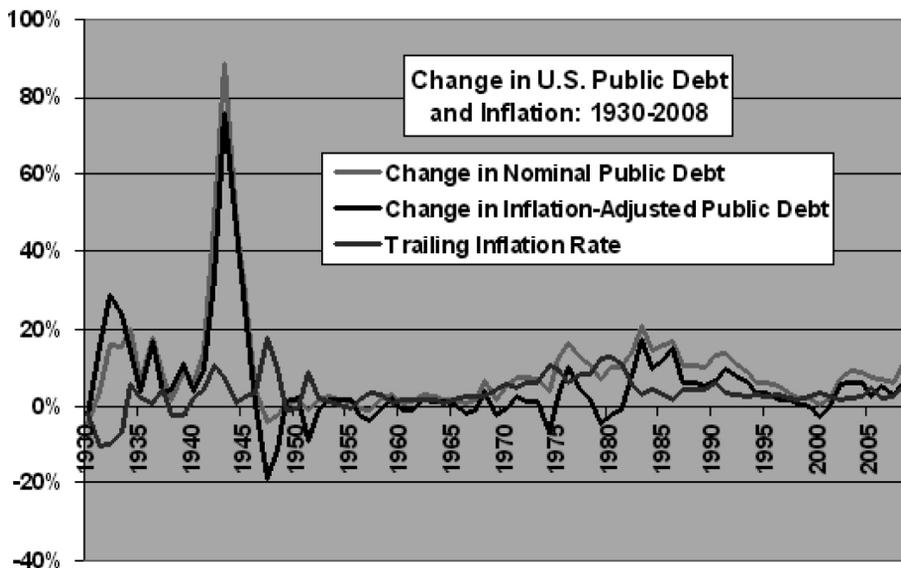


Figure 4. Relationship between public debt annual growth ratio and inflation in the USA for the last 80 years

Source: <http://www.cxoadvisory.com>.

The core sense of this idea is that enormous debt could become a barrier for rising interest rates, crippling attempts to tight monetary policy in case of erupting inflation. According to IMF analyses¹¹, public debt to GDP ratio in 10 biggest world's economies will rise from 78% to 114% by 2014. They may suffer from reduced tax revenue, rising cost of unemployment etc, which makes them unwillingly to slow down accelerating M3 money supply growth rate in years to come. Moreover, due to consistent demographic trend, so called "graying population" in developed countries, the growing costs of pensions and health-care pose another threat. One third of rich countries population will be over 60. Nowadays these countries fear deflation more than inflation like some of emerging ones. For instance, public debt to GDP ratio in

¹¹ *The big sweat*, "The Economist" June 11th 2009.

Hungary equals approximately 67%, 59% in Argentina, 58.2% in India, 48% in Croatia, 45% in Brazil, 43% in Poland, 40% in Turkey. It is likely that facing a vast increase of global debt credit risk aversion to public debt's financing instruments will grow as well. It may affect their ratings, based on already high debt to GDP ratio. In this case the exchange rate of their currencies against euro, USD or GBP will be weakened. Aggregate supply will be affected by a higher cost of imported raw materials and semi-products, the same factor previously considered as "flattering" the Phillips curve aggregate demand of course will suffer from more expensive consumer goods. In the author's point of view, currency exchange rate and financial asset flow fluctuations will be generating additional inflation pressure in emerging markets, strongly depending on favorable (so far) prices of imported semi-products in their marginal costs calculation. Along with robust (despite the circumstances) domestic demand such possible FX Rates volatility could shift short-run Phillips curve up¹². And what can be worst, monetary policy countermeasures may have been difficult to apply owing to the global recession.

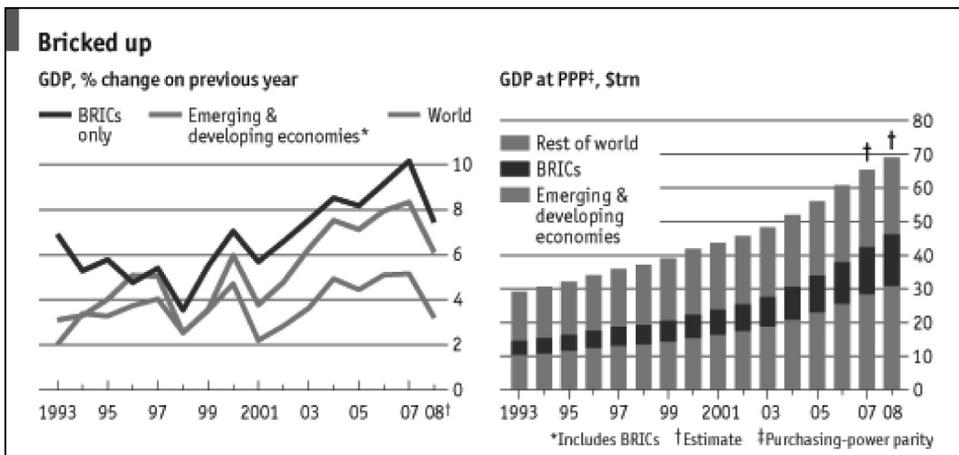


Figure 5. How have the BRIC countries participated in global GDP since 1993

Source: *The big sweat*, "The Economist" June 11th 2009.

Agflation and accumulation of public debt can be comprehended as imminent danger of inflation acceleration, principally for emerging countries. The ecological barriers of economic development are another ones. Even a brief covering of this matter is far beyond the scope of following paper, yet it is imperative to understand that global inflation may be stimulated by environmental related trouble. Issues like depleting natural resources, atmosphere pollution, soil and water degradation and

¹² See also M. Pettis, *The Volatility Machine: Emerging Economies and the Threat of Financial Collapse*, Oxford University Press, New York 2001.

overpopulation are evident and widely disputed. Rich and developed countries have already tried to adjust on some level the guidelines of their economic policy to take into account ecological concerns. They can afford to switch production and consumption course into more “green” technologies, endeavor the reconstruction of some natural resources, etc. Leading emerging states like China, India, Turkey, South Africa, Brazil, Russia etc. will not spend similar proportion of their assets, while trying to catch up with most developed ones.

According to IMF in 2000 37% of global output (measured by purchasing power parity) came from developing countries. In 2008 their share mounted up to 45%. Almost 60% of all the increase in the world output that occurred during the last eight years happened in emerging states. Brazil, India, Russia and China should be credited for the half of that growth. In years to come more than 50% of global output will be produced utilizing much less environmental-safe methods. That will definitely lead to faster than anticipated so far degradation of natural resources and should be considered as a new major area of origin for forthcoming exogenous supply shocks. Another issue, connected chiefly with BRIC states, is extensive fiscal simulation. While the richest countries turn into money expansion and “rescue plans” trying to overcome recession, China for instance pumped out new loans of 800 billions USD value during the first quarter of 2009 (which is by the way more than in the whole 2008) to boost GDP growth, affected by reduced export (approximately 15% in 2008, according to IMF). Other example, Brazil – due to required reserve reductions and deposit insurance of major banks was able to buy up portfolio of smaller ones, which resulted in 69 billion dollars capital injection into credit market, according to the World Bank. Such positive demand shocks will be differently absorbed by BRIC countries, where there is plenty of space to improve marginal productivity. Countries, like Poland or Hungary, where productivity growth has been recently stabilized, will be much more exposed to inflation threat caused by global stimulus policy.

4. Conclusion

It is apparent that globalization has changed inflation, yet following comments should be attached. The direction of this influence is uncertain. Indeed during the 1990s inflation pressure was limited by foreign trade, production process reengineering from domestic to international, widespread capital flow, non-price competition development, etc. Nowadays we might need to adjust our view to the relationship between inflation and globalization. Solid structural macrofoundations like agflation phenomenon, world’s financial crisis, enormous public debt will affect price level in the way not easy to predict. It is a complex problem of several different origins of exogenous shocks. Such volatility makes a process of adapting nominal wages to desired real ones more difficult. Thus stronger money illusion can occur, both on demand and supply side, heating the pressure on persistent inflation growth. The globalization related inflation threats presented in the article are also different in a

matter of urgency. The influence of agflation has been noticeable since 2006 and will be harmful as long emerging biofuel production technology absorbs so much of the natural resources. Another thing is how long it will take to make global output of agricultural commodities equalize rising demand in emerging states. Anyway in the author's opinion global food market can from time to time make domestic markets more vulnerable to negative exogenous shocks, accelerating market-clearing process. Stimulus policy, both in emerging and in developed countries will cause faster money supply growth which will be possible in the next five years. The trick is that monetary expansion will be differently absorbed in various conditions. Rich countries economies, suffering from unemployment surge and sluggish aggregate demand do not concern inflation as an imminent threat. The same is with the biggest emerging ones such as BRICs as potential marginal productivity growth may shield their producers from the necessity of rising prices when wages go up. Other states should pay attention to potential globalization related cost-push inflation, especially if credit risk aversion (connected with global debt) will limit their ratings, causing FX rates fluctuations. At last, there are mentioned possible ecological barriers. The total world's output share of above 50% may lead to much faster exhaustion of natural resources. This will increase the probability of new kinds of negative supply shocks, speculation bubbles on raw materials markets, etc.

Above all, in the author's point of view, inflation should be understood primarily as a nominal phenomenon, strictly connected with the neutrality of money theory. Globalization may have been able to inflict even significant pressure in both directions but not in short run perspective. A key to dynamic comprehension of prices and wages growth lies in how fast money supply will expand. On the other hand it is imperative to understand that so called Flat Open Economy Phillips Curve can be very deceptive.

Literature

- Ball L., *Has globalization changed inflation?* "NBER Working Paper" 2006, No. 12687.
- Biofuels in the European Union. A Vision for 2030 and beyond.* Final report of the Biofuels Research Advisory Council, European Commission, Luxembourg 2006.
- Fresco L.O., *Biomass for Food or Fuel: Is There a Dilemma?* University of Amsterdam, Amsterdam 2006.
- Gordon R., *Hysteresis in History: Was There Ever a Phillips Curve?* "American Economic Association: Papers and Proceedings" 1989, No. 79(2).
<http://www.bls.gov/cpi/>.
<http://www.cxoadvisory.com>.
- Kydland F., Prescott E., *Rules Rather than Discretion: The Inconsistency of Optimal Plans*, "Journal of Political Economy" 1977, No. 3.
- Layard R., Bean C., *Why Does Unemployment Persist?* "Scandinavian Journal of Economics" 1989, No. 91(2).
- OECD-FAO. *Agricultural outlook 2008-2017.* OECD-FAO 2008.

- Pettis M., *The Volatility Machine: Emerging Economies and the Threat of Financial Collapse*, Oxford University Press, New York 2001.
- Phelps E., *Inflation Policy and Unemployment Theory*, Norton, New York 1972.
- Phelps E., *Phillips Curves, Expectations of Inflation and Optimal Unemployment over Time*, "Econometrica" 1967, No. 34.
- Stockhammer E., *Is the NAIRU Theory a Monetarist, New Keynesian, Postkeynesian or a Marxist Theory*, Vienna University of Economics & B.A, Vienna 2006.
- The big sweat*, "The Economist", June 11th 2009.

CZY KRZYWA PHILLIPSA NAPRAWDĘ MOŻE BYĆ „PŁASKA” W OBLICZU GLOBALIZACJI?

Streszczenie: Głównym zamierzeniem artykułu jest wskazanie, w jaki sposób procesy globalizacyjne mogą oddziaływać na funkcje krzywej Phillipsa. Mimo iż współczesna dyskusja na ten temat jest ukierunkowana na koncepcję „płaskiej krzywej Phillipsa”, autor artykułu zdecydował się przedstawić inne podejście do tego zagadnienia poprzez nakreślenie teoretycznych podstaw, które uzasadniają tzw. współczesne ujęcie krzywej Phillipsa. W artykule podjął on próbę przedstawienia argumentów sugerujących proinflacyjny wpływ globalizacji na współzależność pomiędzy dynamiką wzrostu cen i płac a poziomem zatrudnienia, tak w krótkim, jak i w długim horyzoncie czasowym. Główny nacisk starał się położyć na odniesienie tejże argumentacji do uwarunkowań panujących w państwach rozwijających się. Pragnął również zaznaczyć, iż publikacja nie powinna być interpretowana jako bezpośrednia kontestacja koncepcji „płaskiej krzywej Phillipsa” w ujęciu nowych Keynesistów, lecz raczej jako próba jej uzupełnienia poprzez zwrócenie uwagi na kilka alternatywnych dróg interpretacji makroekonomicznych zjawisk, które są katalizowane przez globalizację i mogą mieć zauważalny wpływ na dynamikę inflacji.