

Is It Possible to Create Goods from Thin Air Using Money and an Expenditure Multiplier?

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Abstract

Most sensible people will not think to dispute the fact that any active government monetary policy that has no solid theoretical or empirical grounding should be thought of as an irresponsible experiment with completely unpredictable consequences for the economy. However, as surprising as it may be, this is exactly the policy in use today in many countries all over the world in the hope of overcoming the crisis and reviving national economies. The results of empirical studies on the effects of a certain amount of money on economic growth are rather contradictory and do not allow us to definitively evaluate the effectiveness of government intervention. The Keynes Theory, which for a long time served as scientific proof of the entry of the government to a market, has been the object of fierce criticism for the last 40 years. Little is left of the proud status it once enjoyed. Many economists are still only willing to support Keynes when he states that under certain circumstances, an unexpected increase in the money supply may have a positive effect on the function of the economy. Author argues that such attempts to refute the neutrality of money are theoretically unfounded and contradict empirical data and additional money in a crisis is more likely to be a poison rather than a cure.

Keywords: Money, Monetary Policy, Multiplier, Keynes Theory, Economic Growth

1. Introduction. Scientists and Engineers

Mankiw (2006) rightly noted that there are two types of economists: engineers and scientists. The engineers address the important practical issues. Their efforts are primarily aimed at improving the function of the economy. They are in a constant struggle against unemployment, crises, inflation and other market imperfections. Most macroeconomists are, of course, engineers, or in any case strive to be. Engineers often become advisers to politicians and

sometimes become politicians themselves; they occupy positions in commissions, committees and working groups. They write speeches and develop programmes for current and future presidents and prime ministers. They have a high level of authority and they are in demand. In my opinion, however, the close link between engineers and politicians has now become a major problem for society. The problem lies in the fact that engineers have now come to depend on politicians to the same extent that politicians depend on them. Today, the level of prestige of macroeconomics as a profession largely depends on the level of interest of politicians towards engineers. This dependency is, of course, rather dangerous; the danger has to do with the fact that very many politicians and state officials have a vested interest in expanding their influence over the economic life of society. The prestige of their profession is, to a significant extent, determined by the size of the budget they manage. This is why politicians usually have a highly sympathetic attitude towards any theories that justify government intervention. I am by no means judging certain individuals, but it cannot be denied that a situation such as this is far from ideal.

Mankiw believes that scientists have a different objective – to understand how the world is built, how the market system works. Scientists are mainly focused on microeconomic issues. Their choice is easily explained. Economic scientists believe that in order to understand macroeconomic issues we have to thoroughly study the mechanism of interaction of individual economic agents and only then can we move on to discussing the function of the economy as a whole. The relationship between these two types of economists has never been simple. Engineers criticise scientists for ignoring the interest towards real markets and for attempting to create their own theories on very dubious grounds. Engineers believe that there are no ideal markets, no perfect competition and no balance in real life, and if there are they are very rare, an exception. We live in a world of imbalance and imperfect competition, therefore all microeconomic theories are invalid. What is proposed instead? Even less realistic grounds for forming theories: money illusion, liquidity preference and animal spirits (Keynes, 1973; Krugman, 2008; Skidelsky, 2009; Akerlof and Shiller, 2009). For some reason it is also thought that some people are not subject to all these preferences and illusions, therefore only they are able to think sensibly and advise the rest. Naturally engineers believe that they are the only ones who are capable of doing this, which I personally doubt, given the confusion that prevails in the macroeconomic environment every time there is a crisis. These strange grounds are not only used to develop theories, but also serve as a basis for practical steps taken towards improving the function of the economic markets. The results of these practical steps usually seem less than convincing. Most macroeconomic theories do not even stand up to basic empirical tests. Furthermore, many theories contradict not only microeconomic foundations of science, but also plain common sense. For some reason, however, this does not concern engineers in the least and does not prevent them from bringing their dubious ideas to life. There is no need to recall what came out of the realisation of the ideas of one of the first economic engineers in history. Fortunately Marx was not a practising engineer, but unfortunately he did have many practising followers. Thanks to their efforts and advice, economies in many countries were put back hundreds of years, to the Middle Ages. Marx's preaching on the immorality of the free market became so deeply ingrained in people that even today certain rather well-respected economists attempt to use them as scientific arguments (Akerlof and

Shiller, 2009; Sandel, 2012; Skidelsky, 2009). All of their moral limitations of the free market that they tirelessly state are in fact absolutely immoral from the point of view of those who are affected by such limitations. It is not only economic engineers who are responsible for this situation; microeconomic scientists, too, are responsible. Today much depends on the viewpoint of scientists, their voice is important in discussions of practical issues associated with attempts to regulate the economy. How actively and successfully they defend their views will have a great impact not only on the future of our science and the authority of economists, but also on the level of people's wellbeing. In order to win over people's minds and demonstrate that they, the scientists, are right, they do not need to create complicated, obscure theories, filling them with endless mathematical equations. Very often, using only common sense and the simplest truths, success can be achieved and dubious economic experiments can be avoided. Today the circumstances are such that scientists have now become the only force that is able to and must stand up against the dangerous tandem of engineers and politicians.

This paper does not set out to do much. I would simply like to try to analyse the influence of an increase in the money supply on inflation, employment and economic growth and also discuss the function of the multiplier mechanism. For this purpose I will critically examine currently existing microeconomic grounds for the lack of neutrality of money. The influence of an amount of money on business activity and the function of the multiplier are used by many economists in order to justify intervention in the economy with the aim of correcting what they believe to be imperfections in the function of the free market. I will primarily be interested in the response and actions of economic agents and which macroeconomic effects these actions bring about. The analysis will be based solely on simple ideas and arguments that nobody can refute and also common sense.

2. Literature Survey. Inflation, Employment and Economic Growth

As stated by Lucas (2009), the matter of the effect of an amount of money on economic activity has been given so much attention and so much has been written about it that one could assume that the issue had long since been resolved. However, this is not the case. The issue was not resolved during the times of Keynes, nor in the 1970s, nor the 1990s and today there is still no satisfactory answer to the question. Now almost all economists, with few exceptions (for example Akerlof and Shiller, 2009), are only willing to unconditionally support the claim that money is neutral in the long term. In this case there is a rare unanimity. There have never been any serious theoretical and empirical objections to this claim. It is enough to recall the respected and credible work of McCandless and Weber (1995), which gives a correlation between the increase in the monetary base and inflation and also between the increase in the monetary base and the actual production output during different time intervals in a large sample of 116 countries. The result, especially for large time intervals, is consistent with the quantitative theory of money. Inflation rises in the same proportion as the amount of money and the actual production output does not depend at all on the increase of the money supply.

The short-term effect of the increase in an amount of money is far from obvious. According to data from McCandless and Weber (1995), in the short term, with a moderate increase in the money supply, there is a rather large range of values for inflation and production. This fact

alone does not say much. When looking at the influence of money on the economy, it is important to remember that money can only have an effect on certain economic parameters when it is really involved in the process of market exchange. When additional money appears in an economy, economic agents need time to make a decision on how to use it. This means that money does not start to actively participate in market exchange processes right away. Briefly speaking, this can be expressed as follows: money cannot instantly be absorbed into an economy as there are transaction costs of exchange. Therefore there is nothing surprising about the uncertainty of the results of the short-term effects of money. Furthermore, in the late 1960s, thanks to the efforts of Friedman (1968) and Phelps (1968), insight was given into the causes of the uncertainty associated with the consequences of the short-term effects of money and reasonable doubts were expressed regarding the effectiveness of the countercyclical monetary policy carried out by the authorities. It became clear that the short-term effect of money on real economic indicators depends on the predictability of the actions of the authorities. A rational and informed economic agent would not immediately increase output in response to an increase in prices of their own products. Only people with limited information who are suffering from monetary illusion would act in accordance with the wishes of regulatory bodies. This approach seriously undermined the theoretical foundations of economic regulation, which is why many economic engineers rushed to defend their ideas. The struggle continues to this day with mixed success.

It must be recognised that the empirical studies available today do not allow us to give a definitive answer to the question of the short-term effect of money on economic activity. In a sample of 100 countries from 1960 to 1990, Barro (1995) discovered a weak negative relationship between inflation and economic growth. Barro and Sala-I-Martin (2004) confirm this conclusion also noting a significant inhibitory effect of high inflation on output growth. Fischer (1993) suggests that high inflation lowers labour productivity growth rates. Some authors (Rindyck and Solimano, 1993) believe that high inflation has a negative effect, especially on making investment decisions. It also inevitably raises a question: what level of inflation should be considered high and what happens in the event of a moderate increase in an amount of money? Ghosh (1997) defined the threshold value of inflation having a positive impact on growth as 10% per year. Fischer (1996) believes that the threshold is in the region of 15% and Sarel (1996) is certain that inflation of less than 8% is harmless and has no significant effect on the economy. Many economists believe that the threshold value of inflation depends on the particular economic features of a country. Khan, Senhadji and Smith (2001) suggest that the threshold value of inflation for developed countries is in the region of 1% and for developing countries – in the region of 11%, and with lower values of inflation they were not able to define the relationship between growth and inflation. The empirical results of studies for 42 economies conducted by Lopez and Mignon (2011) give threshold values of 2.7% and 17.5% respectively; with inflation below the threshold values, a very weak relationship is observed between the increase in the monetary base and the growth in the economy.

The issue of the influence of inflation on employment also lacks clarity. Lucas (2009), using the results of Stockman (1996), rightly notes that just because there is a Phillips Curve in certain short periods of time, we should not draw hasty conclusions on the positive effects of

inflation on employment. If we look at long periods of time, we can easily be clear that periods of a positive slope in the Phillips Curve are inevitably followed by periods of a negative slope and vice versa. This is confirmed by the results of numerous studies. Some of them indicate a positive link between inflation and employment (for example: Caporale and Skare, 2011), others do not agree (for example: Hooker, 2002).

What conclusion can be drawn from all this? At present there are no arguments in favour of the positive influence of moderate and high inflation in the long term. Furthermore, all researchers note the unambiguously harmful effects of high inflation. In the short term the situation is not entirely clear, some researchers confirm the positive effect of money, others reject this effect. It is surprising that this has no effect on the activity of regulatory authorities and monetary authorities who persist in trying to influence market processes, despite the very dubious end results of their activity. This is just like trying to embark on a round-the-world trip with a newly-built ship full of passengers that nobody has checked is seaworthy against the advice of the ship's engineers.

The mechanism of the expenditure multiplier has received extremely widespread coverage in economic literature (Blaug, 1993; Benassy, 2007; Corsetti, Meier and Muller, 2012; Giles, 2012; Romer, 2012), and practically in every macroeconomic textbook there is a whole section on the wonderful way in which it works (for example: Mankiw, 2007). A great deal of scientific work is currently devoted to discussing the values of the multiplier for different economies and markets and also explaining the reasons for its volatile character. The reality of the multiplier effect is not really disputed by anyone, although there are certain doubts regarding its fantastic capabilities (Moore, 1994; Hazlitt, 1959; Stoddard, 2010; Barro, 2009). This is strange and surprising if you consider the improbable and unrealistic consequences that it could potentially have. For example, you could very well have a situation where the increase in output and profit of a certain company could be many times greater than initial investments. This unusual situation should be the rule for large vertically-integrated companies. Indeed, if a certain subdivision of a company decides to invest a certain amount of funds into expanding production and increasing profit, this should automatically increase profits and production in all other subdivisions. Consequently, regardless of the desires, abilities and efforts, the productivity of labour in all subdivisions will increase by itself. A fantastic result! What more does one need to be happy! Another example, any dictator can easily create conditions in a country whereby the multiplier will be infinite, or in any case will reach a very high value. The prosperity and success of the country will be guaranteed. Of course such assumptions have no common sense; neither do they have any sense of history of how a certain family dispute could provoke a real business crisis in a small town or how the broken windows of a shop and the window of your neighbour are able to cause an economic boom. These light-hearted tales are clearly only included in textbooks to cheer up students studying the multiplier effect (McConnell and Brue, 2005). At the same time, these stories should sow seeds of doubt and encourage microeconomists comprehensively analyse such strange inventions of macroeconomists as the multiplier or the effect of money on economic activity. I will try to follow this advice and analyse the behaviour of rational and irrational people in response to the appearance of additional money in an economy.

3. The Models of Production of Goods from Thin Air

3.1 Money and Economic Growth

It may seem surprising, but today, in order to theoretically justify the lack of neutrality of money in the short term, economists usually use the same arguments used by David Hume ([1752], 1970) in his time. His explanations sound so common, natural and convincing that they have long since been taken as self-evident and banal truths. However, nothing is as simple as it seems at first glance. A more detailed analysis inevitably points to a number of errors, inaccuracies and contradictions that Hume overlooks in justifying the short-term effect of money.

Hume states that the main cause of the short-term effect of an additional amount of money on output is its unequal distribution among the population. If one night by some miracle five pounds lands in the pocket of every person in the United Kingdom, this will have no effect on the wellbeing of the population. All goods will increase in price in accordance with the quantity theory of money. Speaking in modern terms, these people in the United Kingdom should have no monetary illusion; they have enough information in order to respond rationally to such an event. However, Hume believes that everything changes if not all people in the United Kingdom, but only a certain group of producers receive a certain amount of additional money. They will be able to hire additional workers who will not even think of asking for a higher wage. These workers will produce an additional amount of goods. Even at this stage of reasoning a number of questions arise. Firstly, why is Hume so certain that there is always involuntary unemployment? On what grounds? Secondly, if producers seek to expand production, this means that their activity is bringing profit and has done so in the past. Therefore it is entirely unclear why they did not try to hire additional workers before. An expansion of production would enable them to increase their profits. What prevented them from doing this? In this case a lack of funds cannot be a comprehensive explanation for the passivity of entrepreneurs. Producers could take out a loan and pay it off using the profit they have. If the rates are too high for them they are still able to fund the gradual expansion of production using existing profits. What fundamental change did money have? It is not clear. Thirdly, Hume's model assumes that there is not only involuntary unemployment, but also unlimited economic opportunities to produce any capital goods. This is how it must be because in order to expand production an additional amount of material resources and raw materials are always needed. If the additional demand increases the prices for a certain raw material, this has a negative effect on the activity of all enterprises that use the raw material. Enterprises that have not received any benefit from the expansion of the money supply will be forced to reduce output, which is further evidence against the positive effects of an increase in an amount of money.

As it goes on there are more and more questions and less and less clear answers. According to Hume, after a certain period of time, people going to the market discover that goods are sold at the same price as before, but they return with more goods of a better quality for their family. The farmer and the gardener, convinced that all their goods are being sold, try to increase production. Very strange conclusions. As mentioned before, salaries remain the same, prices for goods have not changed, but for some unknown reason people are able to buy more

products of a better quality. How can this be? An increase in production caused by an increase in employment, if this happens at all, will be compensated by an increase in demand from new workers. Their incomes will be exactly equal to the value of the additionally produced goods. The production of goods and services per UK resident will not change, therefore nobody will come back from the market with more goods of a better quality. This is not possible, and neither is the increase in demand for the goods of the farmers and gardeners. It may well be so that new workers want to buy their goods, but goods produced by new workers will also have to be purchased by somebody. Therefore the demand for the goods of the farmers and gardeners will remain the same. There will be no economic boom. There may be a slight increase in employment, but even this conclusion seems doubtful. Why did none of the producers or traders see the opportunity for earning profit before the additional money arrived? What could have prevented them from doing so? It is a well-known fact that an amount of money is in no way connected to intelligence and the acuity of human vision, therefore there was nothing preventing entrepreneurs from seeing an opportunity to increase their profits and expand production before the money appeared. Following all of these arguments, we were only able to conclude that an increase in an amount of money could have the same result as with no increase in an amount of money. This is all that can be concluded from Hume's explanations.

The starting point for Hume's argument was the effect of money on the supply of goods and services. The Keynes Theory is based on other conditions and focuses on demand. Let us examine what this approach may change. Let us suppose that residents of the UK receive additional money and they go off to the market. At that moment in time the amount of goods and their price are the same. What then happens? There are two alternatives. If the prices remain unchanged, a portion of the buyers will not have any goods because the amount of money is greater than the total value of the goods. The buyers will have all the additional money. In this case nothing in the economy will change because the previous amount of money is involved in the process of exchange. This result is of no interest to us. What is more interesting is the second version of the events whereby the increase in demand leads to an increase in price. As a result, the residents who have suddenly become wealthier will purchase more goods than before and the rest will be forced to reduce their consumption. However, what is most important is that the earnings of producers will be higher than their costs and they will receive profit. This means that Keynes' dreams start to come true. Following his logic, producers should immediately start investing their profit in the production of goods that are becoming more expensive. This may happen, but I hope to demonstrate that this route will lead to nothing but disappointment. Let us not forget that for consumers the increase in prices has already become a reality, therefore it is most likely that in the future when making decisions they will take this fact into consideration. If they demand an increase in wages they will put possible investments under threat. Producers will not have funds left for investment and all profit will go towards payment of compensation. This version of events will have no effect on the growth of economic activity, therefore we will go on slightly different assumptions and we will accept that most people suffer from a full range of all the possible Keynes diseases, including monetary illusion. We will suppose that nobody will demand an increase in wages and producers will continue to hire additional workers who will produce additional goods. We are, of course, again forced to admit the existence of infinite economic opportunities for the

production of any amount of resources and raw materials. Otherwise the additional demand for resources and raw materials must inevitably increase the prices for them, which will have a negative effect on the output of end goods and services in a country. However, even under these imaginary conditions producers will be faced with very unfavourable events – prices of the goods will start to go down. This will be inevitable because the amount of money will remain unchanged, but the amount of goods will increase. Nobody will receive any additional profit; at best producers will be able to only reimburse their expenses. The most optimistic outcome of all this will be the production of a certain additional amount of consumer goods with a value equal to the cost of the additionally hired workers. The income per resident of the country will remain the same, employment may rise slightly. However, employment will only rise if a number of not very plausible conditions are fulfilled: irrational behaviour, a lack of information, involuntary unemployment, disregard of past experience, limitless production of capital goods and many more. And even if all of these conditions are fulfilled, a rise in employment still seems very doubtful. After an increase in production followed by a reduction in prices, entrepreneurs will most likely try to somehow retain their profits. In order to do so they must either lower wages, which Keynes believes is impossible, or dismiss some workers. This will result in levels of output and employment returning to previous values.

Very often, followers of Keynes argue that real markets are different to markets invented by microeconomists as some of the firms have unsold residual stock. In this case the appearance of additional money will not lead to inflation, therefore the growth of the economy will not depend on how rationally or irrationally consumers or producers behave. An increase in demand will enable all residual stock to be sold and producers will respond to this by increasing the number of staff and expanding production output. At first glance this is wonderful; the markets receive a powerful positive impulse and there are no negative consequences for the economy. Is this really the case? In my opinion it is not. Firstly, an increase in goods reserves means that nobody needs the product at the offered price. The price for the product is too high and it will only be purchased if its real value decreases. After the appearance of additional money and an increase in demand, prices increase for all products except for those that are available in abundance. Its relative value will decrease and only in this case will it be sold. Secondly, there will be no increase in output. Producers of higher-priced goods will not increase output for the reasons discussed above. If a producer who has sold all of their goods reserves decides to increase their output, they will end up in the same situation that they were in before. The demand for their products will remain the same, but the supply will increase. The producer will again be faced with unsold residual stock or will have to reduce the price of the products. They will not be able to lower the prices; on the contrary they will be forced to increase prices because raw materials, machinery and labour costs will have become more expensive due to the rise in prices, which happened because of an increase in the money supply. In either case there will again be unsold residual stock and everything will revert back to as before with just one difference: there will be higher prices on the market. One thing is clear – an increase in the money supply under all of the possible scenarios of the development of events cannot cause an increase in production output. Money can have no effect on the existing level of GDP in a country.

All of today's misunderstandings regarding the possibility of the real effect of money on the economy are to do with common misconceptions on the nature of economic growth. Modern economic science considers investment to be a key factor of growth and nobody denies this. However it is very important to understand and take on board when conducting any economic policy that not all investments increase the production of goods and services. As can be seen from the above examples, additional investments always require an additional amount of capital resources and raw materials, which puts certain limitations on investment processes. Investments enter into a competitive battle with one another for resources and economic growth becomes dependent upon which methods of investment win the battle. Only the most effective investments, which allow producers to receive the maximum amount of goods from one resource unit, are conducted in a free market. These producers may offer the highest price for the resources. The market sets the price for the resource and this price will be equal to the average marginal product. The marginal product of the most efficient producers will be greater than the average market marginal product and these companies will earn profit. In order to further increase their income, successful companies will put their profit towards acquiring additional resources and expanding output. The value of the additional product will equal the profit obtained. This is why profit always turns into economic growth. This is why real market signals, rather than artificially created signals are important for an economy to function properly. This is why rational and informed producers and consumers, rather than individuals with complicated illusions and preferences are needed for growth. By intervening, the government creates false signals for market participants and profit may not go to the most efficient producer, which takes resources away from this producer. Illusions always give rise to illusions and artificial profit always gives rise to nominal economic growth rather than real economic growth, or, in other words, inflation. Therefore artificial stimulation of the economy, which is seen as a cure and which modern interpreters of Keynes (Krugman, 2008; Skidelsky, 2009) insist upon, more often than not leads to recession rather than recovery. This may be the reason why economies sometimes have a very hard time during a crisis and take a long time to recover.

At first glance, nothing is preventing producers from increasing the production of any capital goods or raw materials if necessary. However, this is not the case; the production of capital goods and end products may, at any given moment in time, come to an end because the economy has one very important resource, the production of which cannot be increased – people. A person's productivity, not an amount of money, determines the level of output of goods and services in any country and is a key driver of economic growth. The reluctance of many economists to note this variable and include it in their models is entirely understandable and is most likely due to the fact that labour productivity is in no way connected to the amount of money in an economy. No governments or central banks are in a position to influence this indicator, even with large sums of money. Money is entirely useless in a situation when more goods have to be produced from a resource unit than were produced before. This requires innovation implemented by entrepreneurs in order to increase their profit. Innovation does not depend on money; therefore all attempts to stimulate an increase in production by injecting cash into an economy are doomed to fail. A magical multiplier, which we will discuss later on, cannot cause a rise in business activity because it is not able to alter the existing level of labour

productivity. Productivity depends not on the efforts of the monetary authorities and theories of macroeconomists, but on the level of development of science, technology, education and the quality of control.

3.2 The Multiplier

The time has now come to discuss one of the most important inventions of economic engineers. We are, of course, going to talk about the multiplier, which enables goods to miraculously be produced from thin air. For this magic to take place, all you have to do is invest a certain sum of money and a mysterious mechanism will be activated that will allow you to obtain much more goods than any sensible person would expect. Prior to this invention, nobody would have dreamed that there could be a situation where the value of additionally produced goods could be many times greater than the amount of initial investment. In other words, the value of the additionally produced goods can be many times higher than the costs. How is that for a miracle! What an incredible return! And the higher the so-called propensity to consume, the greater amount of products will be produced. It remains a mystery why this discovery was not taken advantage of by many non-free countries. In these countries they know perfectly well how to deal with various human propensities, including the propensity to consume, and guide them in the right direction. Consequently, any dictator will easily be able to increase the expenses multiplier to the highest values possible and turn the country into a paradise. However, something invariably prevents dictators from turning Keynes' dream into reality. Perhaps they simply did not read textbooks on macroeconomics or missed the chapter on the multiplier. Let us remind ourselves and them how the multiplier effect is described in modern textbooks (for example: Mankiw, 2007). At the beginning of the chapter, authors usually put readers at ease, stating that elementary mathematical knowledge that even a senior student at secondary school would know is enough to understand the function of the multiplier. This is perfect because as Coase (1988) once stated, if nonsense is too obvious people often try to express it using complicated mathematical equations. This is followed by an example of the government deciding to purchase new fighter planes worth \$20 billion from Boeing, which causes a rise in employment and profit for the contractor of the government order. Even a senior student at secondary school may think to ask the reasonable question: where did the government get such a large sum of money from? Did it reduce funding for education? Did it raise taxes? If it did, then did employment and profits decrease in other industries of the economy? Usually textbooks do not mention anything about this therefore we will assume that the government simply printed the money. Let us continue. The increase in income of workers at Boeing raises the demand for the goods and services of other companies. If the marginal propensity to consume is $\frac{3}{4}$, the demand will increase by \$15 billion. The increased incomes of workers of these companies will raise the demand for production of other companies. A shrinking wave of additional demand will appear in the economy, which will in the end lead to an increase in combined demand of \$80 billion. This is all very fascinating, but a very attentive secondary school student may have certain doubts. How can it be so that the appearance of \$20 billion in an economy allows workers to acquire goods for \$80 billion? This contradicts the rules of elementary mathematics. Economic engineers will, of course, condescendingly explain to the student that the expansion of production and the rise in employment happen gradually and the

demand is transferred from one industry to the other not in an instant, but over a period of time. However, the meticulous student may object: this means that growth in demand will inevitably be followed by a decrease in demand and a rise in employment in one industry will lead to redundancies in another. Consequently there can be no growth in demand of \$80 billion. Indeed, after workers at Boeing announce an additional demand of \$15 billion for the goods of other industries, the prices of these goods will increase and the additional profit will enable the company's management to hire additional staff who will produce additional products. But who will buy them? Boeing's workers will not be able to; they already spent the \$15 billion. If the government fails to quickly allocate \$20 billion for the purchase of the fighter planes, nobody will purchase the products of other industries. This will cause demand for goods to return to previous values and all hired workers will lose their jobs. In order to sell additionally produced goods, companies will be forced to lower goods output for a certain period of time. The GDP in the country will remain the same. The economy will be hit by waves of employment followed by redundancies and periods of profit will alternate with periods of losses. It may well be the case this activity will bring more harm than good. One thing is clear, the prices for goods and services will increase because the manufacturers of additional fighter planes need to eat, clothe themselves and have a place to live.

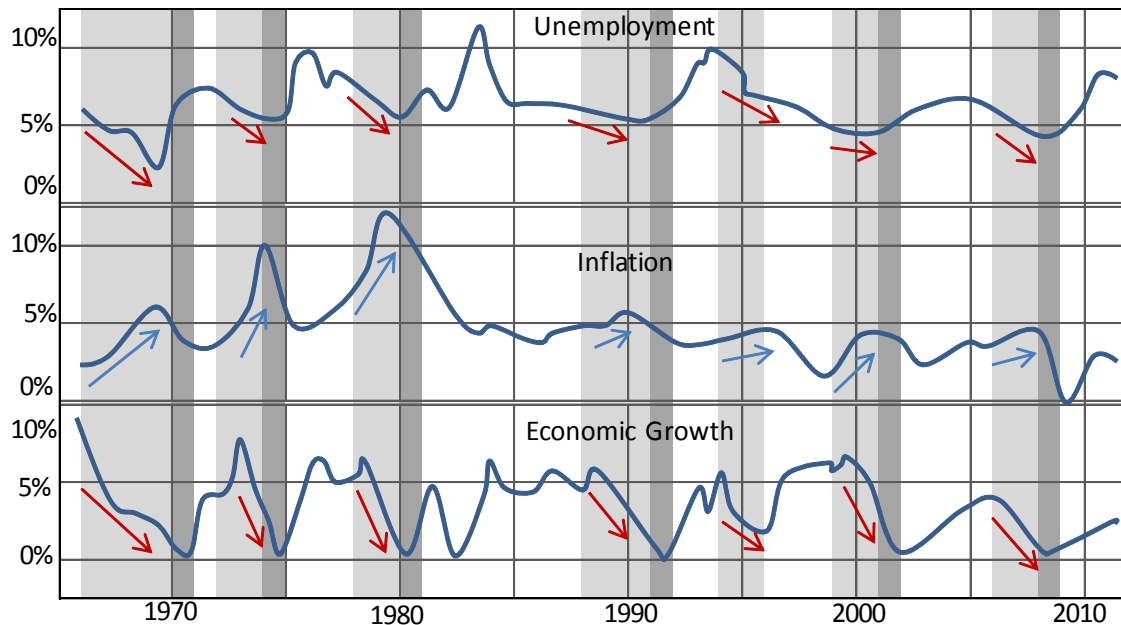
In this dispute I am on the side of the secondary school student; I believe their arguments are more consistent and logical. If we continue to believe in the wonderful capabilities of money, we still have to explain how the appearance of \$20 billion made it possible to purchase goods for \$80 billion. It is possible if \$20 billion are spent over a certain period of time more than once. However, it would be completely erroneous to argue that GDP had increased by \$80 billion. Real or, more likely nominal GDP will only increase \$20 billion. Textbook authors use strange calculations; they add together the growth in GDP at different periods of time, forgetting that growth in one industry is always followed by decline in another.

If the reader goes back to the very beginning of the aforementioned textbooks on macroeconomics, he or she will certainly find a section on circular flow, which is directly linked to the topic being discussed. The whole section together with the circular flow diagram easily fits onto 1-2 pages and its contents rarely rouses much interest. It is important however because it demonstrates that any income of individuals and firms is always at the expense of other people and firms. If the income of certain companies increases, this means that the expenses of other companies increase. An increase in income equals an increase in expenses. Therefore, when prices for cars increase, at the same time the costs of transport companies increases, which has a negative effect on the activity of companies that require transport services, including the car manufacturers themselves. For the economy as a whole, the increase in price does not change anything. An increase in production in one industry is compensated by a decrease in another. Economic growth is not an increase in the value of goods and services; on the contrary, it is a reduction. Only when prices for goods and services are lower than the level of salaries will people be in a condition to obtain more of them. The ratio between product prices and the cost of labour determines the level of economic well-being, therefore monetary stimulation or burying bank notes in pits, as once recommended by Keynes, will not restore growth. Growth can only be restored by increasing labour productivity which, fortunately or

not, does not at all depend on the efforts of macroeconomic engineers and politicians.

4. Empirical Results

Fig.1 shows the changes in economic growth, inflation and unemployment in the US from 1965 to 2012.



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Figure 1. Economic Growth, Inflation and Unemployment in the US (1965-2012).

Even a quick glance at the shape of the curves will reveal a very interesting feature: at certain periods in time inflation and unemployment behave exactly as predicted by the classic Phillips Curve. However, an unexpected fact is that this happens when economic growth is in decline. At this time, when growth is slowing down and the economy is approaching another crisis, inflation rises and unemployment decreases. This result seems strange because for most people an increase in employment is always associated with a rise in economic activity. In order to explain this phenomenon I will try to express certain concerns regarding the causes of cyclical changes of GDP having refused to use Keynes' numerous and dubious inventions. Surprisingly this is not so difficult if we remain within the boundaries of classic theory rather than endlessly searching for market imperfections. The only reasonable explanation for an increase in production and consumption is an increase in labour productivity. In order to increase production we have to somehow increase the production process or improve the management of a company. These improvements are usually called innovation. A company that introduces innovation has the capability of producing more products from one resource unit than other companies. Consequently the difference between earnings and costs will be higher at that company and this means that it will have higher profits. This company will become a temporary monopoly continually increasing production and its market share. Naturally the company will rapidly acquire followers, which will enable a greater amount of economic

resources to be used in the most productive manner. During such periods, indicators for economic growth in a country rise at a steady rate. In the US, for example, such periods were observed in 1971-1973, 1975-1976, 1982-1984, 1992-1993, 1996-1999 and 2002-2004. Many companies unable to introduce innovation into production are forced to reduce output or terminate their activity. Unemployment may rise during these periods if the number of redundancies at companies experiencing problems is not compensated by a rise in employment at more successful companies. There are no objective reasons for a rise in inflation during periods of heightened economic growth. Furthermore, the introduction of innovation creates real conditions for lowering prices, which is also confirmed by the data presented in *Fig. 1*. At the time when half of the country's resources begin to be used in the most productive manner or, in other words, half the companies introduce innovation, growth reaches its maximum values. After this, economic growth in the country begins to decrease and the battle for resources intensifies. Fewer resources are used non-productively, therefore companies have less and less opportunities to obtain profit and expand output. The fierce competition for material and human resources pushes prices up, therefore unemployment declines steadily and inflation begins to rise. During periods of declining economic growth, which in the US economy took place in 1965-1971, 1973-1975, 1978-1980, 1988-1991, 1999-2001, 2005-2008 we see a classic Phillips Curve. During these years the profits of companies gradually go down and this means that there is a great difference between the profits of companies when they receive loans and when they return them. If in such a situation the managers of companies reassess their capabilities, this may cause serious financial difficulties both for the companies themselves and for the banks that are providing loans to them. During this period, active government intervention in the form of a relaxation of the monetary policy is most likely to only make the situation worse. A rise in inflation and a reduction in interest rates caused by an expansion of the money supply will, of course, make repaying loans simpler, but at the same time this will encourage less efficient production companies to use borrowed funds, which may cause serious difficulties for the whole economy in the short term. During this period the future is rather predictable. Companies have less and less opportunities to increase labour productivity and the economy inevitably approaches the limit of its production capacity. Profits and economic growth tend towards zero, which signifies the advent of an economic crisis. People will soon rush to blame financial institutes and their managers of greed and dishonesty, producers of being too presumptuous and consumers of behaving irrationally. Keynes' followers will perk up and with renewed energy begin to criticise the market system, demanding that control be tightened and freedom limited. The governments will make new laws, introduce additional taxes and begin to pour money into the economy. All of these actions will not give any positive results because the economy has reached the limits of its production capacity and overcoming these limits does not require heightened government control, but creative efforts of entrepreneurs. Innovation is needed to get out of a crisis and this will certainly happen. It will happen not through the efforts of economic engineers and politicians, but through people's natural pursuit of profit. Only the implementation of innovation, which increases labour productivity, will enable entrepreneurs to earn profit again and bring the economy back on course for the next business expansion. This is how it always has been and how it always will be. This is how it was in the times when people hunted with wooden arrows and stone axes.

This is how it was when the pharaohs and feudal lords ruled. This is how it was when the first merchants and free peasants appeared. Of course, features of capitalism and the free market system do not actually cause crises. Crises have always been as inevitable as the onset of winter or summer. What can an active government monetary policy or fantastic inventions of economic engineers do to change the situation? In the best case nothing and in the worst case they may create additional problems. We can, of course, proudly argue and ramble on about the highly important role of money in the economy. But show me on *Fig. 1* the year when the work of the monetary authorities gave a positive result and changed the function of the economic markets for the better. In which year did adding money to the economy and rising inflation overcome recession and encourage growth? I searched for a long time, but could not find the answer.

5. Conclusion

A monetary policy conducted by the authorities must have solid theoretical and empirical grounding; in any case it must be supported by the majority of actively working economists. If these conditions are not fulfilled, any monetary policy should be regarded as dubious and an irresponsible economic experiment. I may be mistaken in regard to the extent to which a government's monetary policy is supported by economists, but I am convinced that at present there are not enough theoretical and empirical grounds for attempts to stimulate business activity by expanding the money supply. Most empirical studies carried out over the last 40 years either reveal an inverse relationship between the increase of the money supply and the value of economic growth, or they support the idea of the neutrality of money. Only a few studies leave hope for a successful stimulating monetary policy.

Today there is little left of the former glory of the Keynes Theory, which for a long time served as scientific evidence of the entry of a country to the free market. A significant number of economists are still prepared to only support Keynes in as far as that only a poorly informed individual suffering from monetary illusion could behave as the monetary authorities hope for. As they see it, in response to the appearance of additional money in an economy, such an individual will immediately attempt to increase production output. However, I believe that these assumptions are completely unfounded and contain a serious logical error. In arguments on the possibility of the positive influence of the expansion of the money supply, the fact is not taken into consideration that any increase in income of certain economic agents is the same increase in expenses for other economic agents. The income of people selling certain goods or services is exactly equal to the expenses of the people who obtain these goods or services. The expansion of demand of certain goods causes their price to rise, which increases the costs of the people or firms consuming these goods. The possible increase in output of goods that have risen in price is compensated by a reduction in the output of other goods. The economy does not produce anything new; the loss of certain individuals is exactly equal to the losses of others. This clearly demonstrates the circular flow diagram studied by all novice economists. Adding a certain amount of money to the economy does not make it possible to change the existing level of labour productivity, upon which the real output of goods and services in a country are dependent. Naturally, for this very reason in the real world there is no multiplier effect allowing us to magically increase GDP in a country to a value many times higher than an initial

government investment. It is nice to dream that having spent \$20 billion, we could produce goods and services for \$80 billion, but this is not possible. It is nice to imagine yourself being a wonderful magician creating a wide range of goods from thin air, but even the most distinguished politicians and economic engineers are not able to do this.

Today, the disappearance of money from models used by economists, which greatly surprised and upset King (2002), in actual fact reflects the constantly rising doubts of economists of the chances of successfully implementing an active monetary policy. Increasing numbers of macroeconomists are coming to the conclusion that increasing the money supply only leads to price increases and does not bring about any economic changes. It is not easy to give up the role of ruler of destinies and go from being an irreplaceable engineer, fearlessly hurling hundreds of billions of dollars into the fire of a crisis, to an ordinary scientist. It is even more difficult, but sooner or later it will have to be admitted that over the last 70 years, not ordinary citizens, but many former and currently active politicians and economic engineers have suffered from monetary illusion and other Keynes diseases. This is not surprising. The sooner we admit this, the more chances we will have to maintain economic freedoms and prevent the market from turning into a lifeless desert with 'no-entry' signs dotted here and there and kilometre after kilometre of barbed wire fences.

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