



Inflation targeting vs. nominal GDP targeting

Tomáš Sivák¹

In this paper we will compare two monetary policy frameworks: inflation targeting and nominal GDP targeting. At present, inflation targeting is the currently used regime. But in fact there is quite a hot debate that it should be replaced with nominal GDP targeting. We will compare these two frameworks and try to argue that nominal GDP targeting is slightly superior to inflation targeting. The paper is divided into four sections. The first section deals with the current state of monetary policy. The second section describes inflation targeting, the concept and also the empirical experience, as it has been used for the last two decades. The third section describes nominal GDP targeting, its benefits and drawbacks, and compares it with currently used inflation targeting. The fourth section sums up the previous discussion and concludes, why nominal GDP targeting can be a better option.

1. INTRODUCTION

At present, most of the developed world central banks use a framework called inflation targeting. In a simplified view, central banks set a target for annual inflation rate, usually a low one, and endeavour to achieve this goal. By this nominal anchor they attempt to maintain price stability, which is understood to be a low and stable inflation rate. The predecessor of inflation targeting was monetary targeting (where central banks target money supply growth), but it encountered several difficulties in the 1980s, so a discussion about its successor began. Gradually, inflation targeting had been considered the most suitable approach. The first country which, in March 1990, adopted inflation targeting was New Zealand. Later on, this framework was also chosen by major developed countries. It was broadly supported by academia, among others also by current Fed chairman Ben Bernanke and one of the most prominent scholars in the field of monetary policy Frederic Mishkin. The policy framework proved to be very successful and became the main monetary policy strategy in the previous two decades.

Response of monetary policy to the current crisis

Yet the crisis came and world central banks started to deal with it. To stimulate the economy, they at first applied common monetary policy tools, mainly in order to lower short-run interest rates. As the time went by, target interest rates were cut to almost zero, and central banks fell into liquidity traps. Nominal interest rates cannot be lower than zero, because customers would not deposit their money at negative interest rates, and rather hold cash, which literally pays zero nominal interest rate. In practice, however, nominal interest rates can be slightly lower than zero (as we saw in Japan), but this can only happen because people feel safer if their money sit in a bank account instead of being under the pillow. When there was no option for lowering nominal interest rates,

less conventional tools came into use, and several rounds of so-called quantitative easing followed. The US Fed also started to buy long-term debt in order to increase its price, i.e. to lower the long-run interest rates and thereby to support investment. Yet many observers deemed these steps insufficient. Unemployment remained still quite high. Inflation was very low in 2010 and in fact there was a deflation in the US in 2009. Monetary policy should act to increase the aggregate demand but a lot of analysts said that Fed hasn't done enough to increase it. Another case is the European Central Bank (ECB). Many commentators describe its policy as more restrictive than expansionary. One of the problems can be inflation targeting itself. The ECB has adopted inflation targeting and its primary goal is to reach a defined level of inflation (close to but lower than 2%). (The Federal Reserve has a dual mandate of price stability and full employment). Outgoing head of the Bank of England Mervyn King once called central bankers strictly adhering to inflation targets as "inflation nutters". This term could now refer to the ECB, which is extremely caring about inflation and is reluctant to ease its policy. If fiscal policy in the euro area were expansionary, monetary policy would offset its expansion by restrictive policy, conducted in order to maintain the targeted inflation rate. Even in July 2008 the ECB raised its key interest rates as the crisis was emerging, because of fears that high oil prices would cause increased inflation.

Nominal GDP targeting debate

Therefore, questions started to arise: Is the inflation targeting the best option we have, or is there something better? Some economists answered: yes, there is. It is called nominal GDP targeting. Instead of targeting inflation, central banks would start to target nominal GDP, which is the product of price level (as measured by GDP deflator) and real GDP (amount of final goods and services produced within one year in real terms). The cause for it is a little bit complicated, and we will elab-

¹ The author of this article is a student at the Department of Economics, Central European University.



2 To mention some: Lars Christensen at „Market Monetarist“, David Beckworth at „Macromarket Musings“, Marcus Nunes at „Historinhas“

3 Minutes of the Federal Open Market Committee meeting, November 1-2 2011.

4 Peter Diamond, Eldar Shafir, Amos Tversky. 1997 „Money Illusion.“ *The Quarterly Journal of Economics*, Volume CXII, Issue 2.

5 Daniel Levy, Mark E. Bergen, Shantanu Dutta, and Robert Venable. 1997. „The Magnitude of Menu Costs: Direct Evidence from Large U.S. Supermarket Chains.“ *Quarterly Journal of Economics*, Vol. 112, No. 3, pp. 791-825.

borate on it later. Even when monetary targeting was in demise at the end of the 1980s, nominal GDP targeting was one of the options to supersede it. Nevertheless, inflation targeting became the winner. Inflation targeting seemed to be very successful and was believed to be one of the contributors to the Great Moderation. The problems (some were already mentioned) came later. As time went by, supporters of the switch to nominal GDP targeting started to show up. One of its main proponents is avid blogger Scott Sumner, with his blog „The Money Illusion“. Also some other enthusiastic bloggers joined.² The idea of nominal GDP targeting was becoming more and more popular and finally, in November 2011, also the Federal Open Market Committee (FOMC) discussed this idea.³

Is nominal GDP targeting really superior to inflation targeting? We will try to discuss the issue in this paper and compare inflation targeting with nominal GDP targeting. In the next section we will describe inflation targeting, its concept and also the empirical evidence, as it has been used for the last two decades. In the subsequent section we will describe nominal GDP targeting, its benefits and drawbacks, and compare it directly with currently used inflation targeting. As it has never been used in practice, we can only rely on the theory or on simulations. In the final section we will sum up the discussion and conclude, why nominal GDP targeting is a better option.

2. INFLATION TARGETING

Inflation targeting is something more than just setting the target for inflation rate. Mishkin (2007) describes it as monetary policy strategy that encompasses the following five elements:

1. the public announcement of medium-term numerical targets for inflation;
2. an institutional commitment to price stability as the primary, long-run goal of monetary policy and a commitment to achieve the inflation goal;
3. an information-inclusive approach in which many variables (not just monetary aggregates) are used in making decisions about monetary policy;
4. increased transparency of the monetary policy strategy through communication with the public and the markets about the plans and objectives of monetary policymakers;
5. increased accountability of the central bank for attaining its inflation objectives.

The first country to adopt inflation targeting was New Zealand, in March 1990. Since then on it was followed by Canada, Chile, the United Kingdom, Sweden, Israel, Brazil and other countries. What is the main argument for targeting a specific inflation rate? The reason is to achieve price stability. When there is high inflation (or deflation), it is hard to distinguish between real changes in prices and nominal changes in prices. In order to allocate resources in the economy efficiently, people should make decisions based on real values. In this case

they should make decisions in line with relative price changes. Yet there is evidence that people are subject to money illusion.⁴ In their decision making they take into account changes in nominal prices rather than changes in relative prices. If they see prices going up by 2% they mistakenly interpret this as a real change, even though the inflation could be 6%, which would mean that real prices went down. The same problem is with wages (which is the price of labour). Workers are reluctant to accept nominal wage cuts. If they see a 2% nominal decrease in their wages (with 0% inflation), they consider it unfair. Yet they are happy with 2% nominal increase, even though the inflation is 4%. In real terms, these two outcomes are equivalents. Hence, as it seems, money illusion exists.

Costs of inflation

For efficient functioning of the economy, right price signals are needed, since inflation can cause misallocation of resources. However, this is not the only cost of inflation. There are several others. Frequently mentioned are: shoeleather costs, menu costs, inflation-induced tax distortions, confusion and inconvenience and arbitrary redistribution of wealth. Shoeleather costs are costs of reducing the money holdings, as people during inflation periods use to hold less cash and therefore they need to go to their banks more often. This is the cost of lost time, which has an opportunity cost. The cost is more obvious in countries with very high inflation, when people start rather speculate with money than enter productive activities. Menu costs are borne by firms because every change of prices requires them to „print new menu“. More generally, it involves the cost of deciding about the amount of price change, printing new catalogues, advertising new prices, and so on. One study found that they can be higher than one would think (in the study the menu costs were 35% of net profits).⁵ Inflation causes also problems with taxation. There is agreement that taxed should be real values rather than nominal values. Yet tax codes do not take it into account in many cases. Most of the taxes reduce economic activities. This problem is even exacerbated by inflation. If somebody bought a stock for 10 dollars in 1980 and sold it for 50 dollars in 2000, tax laws would tax the capital gain of 40 dollars. But what if prices doubled during this time? Then the 10 dollars in 1980 has the same value as 20 dollars in 2000. So the real gain would be only 30 dollars. Government taxed the gain of 40 dollars instead of 30 dollars, so the tax burden was higher than it should be. A similar problem can arise with progressive personal income tax, if the tax brackets are not adjusted for inflation (but the benefit can be that it becomes an automatic stabilizer). Such distortions in general discourage people from saving, which can lower investment and, as a consequence, future growth. Confusion and inconvenience arises with inflation. It is harder to interpret all economic data. Money has



different value in different time, so computing a true firm's profit becomes cumbersome. If the inflation is unexpected, it causes arbitrary redistribution of the wealth between creditors and debtors. Debtors profit from unexpected inflation, while creditors profit from unexpected deflation (or lower-than-expected inflation).

Should we target 0% inflation?

After mentioning all of the costs of inflation (as well as deflation) we can see, how important it is to maintain stable price level. One can first think that the best would be to have always zero inflation, i.e. no changes in general price level. This can call for a target level for inflation of 0%. We will see that it is not as easy as it seems to be. There are several reasons to set the target above zero. First, policy makers are not omnipotent people who will always achieve their target. With target inflation at 0% level, deflation becomes more likely. Deflation can be especially harmful to economy and we saw a big fear of it in recent times in the USA (Japan is unfortunately having this unkind experience for almost last two decades). Second, it was found that consumer price index (CPI), which is used as the most widely measure of inflation, actually overstates the inflation rate.⁶ Since these findings, several measures have been adopted, but still it is believed that the overstatement is between 0.5 and 1 percentage points. So with measured 0% inflation, the economy can be actually experiencing deflation. Third, the higher the target, the lower the probability of liquidity traps. As we mentioned, nominal interest rates cannot fall under 0%. If we want to further boost the economy, instead of decreasing nominal interest rates we can increase the inflation rate and hence decrease the real interest rate. Investment and saving decisions are made based on real interest rates, so lowering it can give a stimulus to economy. Fourth, there is also one benefit of inflation. It "greases the wheels of labour market". Workers are reluctant to accept nominal wage cuts. If there is a necessity to lower them (in order to limit the costs of enterprises), workers would be reluctant to accept the cuts. With such downward wage stickiness, price of labour will be above equilibrium which will cause unemployment. Yet there is a solution for this. If we cannot cut nominal wages, we can let inflation to make the job. Higher inflation will lower real wages, which is what is important for companies. Therefore, labour market can achieve equilibrium much faster. These arguments for avoiding zero inflation targeting are quite persuasive.

Yet it does not mean that the target should be very far from zero, because of already mentioned costs. There is a widely cited definition of price stability proposed by Alan Greenspan. According to him price stability is "a rate of inflation that is sufficiently low that households and businesses do not have to take it into account in making everyday decisions".⁷ Taking into account already mentioned constraints, inflation targets between

1% and 3% can meet these criteria. And most of the inflation targeting countries actually set their targets within this range. One of the most important central banks, the ECB, has a target of inflation rate close to but lower than 2%. Finally, also Ben Bernanke, the Fed chairman, announced on 25 January 2012 explicitly an inflation target of 2% for the first time in Fed's history⁸ (even though it still remains under dual mandate, i.e. still cares the same about employment as about inflation).

Advantages of inflation target

It is useful to set the targets for inflation in numerical terms rather than to produce some vague statements like "central bank will strive to achieve low inflation". Explicit targets provide a nominal anchor for the central bank. The nominal anchor is a set variable that serves as a target for monetary policy. It helps to peg inflation expectations and avoid the time inconsistency problem. If there is a numerical target and the bank has accountability, inflation expectations tend to follow the target. This widely promotes the planning of firms and households. Also it is less probable that the central bank will fall into the time inconsistency trap. This was mentioned for the first time in an influential paper by Kydland and Prescott.⁹ Time inconsistency arises when central banks focus on the short run instead of the long run. There is a wide agreement among economists that central banks can influence output and employment in the short run but not in the long run. It is just the restatement of money neutrality. Central banks announce the inflation target and hence form expectations. Yet after expectations are formed central bankers are prone to conduct expansionary monetary policy, because unexpected inflation will boost the economy. This is true in the short run, but in the long run they cannot influence output and the only outcome will be permanently higher price level. So it is better to set the goal and then stick to it, which means to be consistent over time.

Inflation targeting was adopted because of its superiority to monetary targeting, which was used before. There are several advantages of inflation targeting. First, it is very easy to be understood by the public, at least easier than other potential goals. Second, for inflation targeting, the relationship between money and inflation is not as crucial as was with monetary targeting. Money influences inflation in the long run, but in the short run the correlation is not that strong and also other factors influence inflation. Actually, that is also a reason why central banks chose the short-term interest rate as their tool to perform monetary policy. The link between interest rates and inflation is tighter than the link between monetary aggregates and inflation.¹⁰ Third, an explicitly stated inflation goal increases the accountability of the bank by decreasing the likelihood that the central bank will fall into the time inconsistency trap. Fourth, and according to Mishkin¹¹ the

- 6 Michael J. Boskin, Ellen R. Dulberger, Robert J. Gordon, Zvi Griliches, Dale Jorgenson. 1996. „Toward A More Accurate Measure of the Cost of Living: The Final Report to the Senate Finance Committee from the Advisory Commission to Study the Consumer Price Index.“
- 7 Frederic S. Mishkin. 2001. „Inflation Targeting.“ *An Encyclopedia of Macroeconomics* (Edward: London).
- 8 Press Release, January 25, 2012, Federal Open Market Committee.
- 9 Finn E. Kydland, Edward C. Prescott. 1977. „Rules Rather than Discretion: The Inconsistency of Optimal Plans.“ *The Journal of Political Economy*, Vol. 85, No. 3, pp. 473-492.
- 10 Mishkin, Frederic S. 2007. „The Economics of Money, Banking and Financial Markets.“ Eight edition. Pearson Addison Wesley.

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- 11 Mishkin, Frederic S.. 2007. „The Economics of Money, Banking and Financial Markets.“ Eight edition. Pearson Addison Wesley.
- 12 Mishkin, Frederic S., Klaus Schmidt-Hebbel. 2001. „One Decade of Inflation Targeting in the World: What Do We Know And What Do We Need To Know?“ NBER Working Paper 8397.
- 13 Sumner, Scott. 2012. „The Case for Nominal GDP Targeting.“ Mercatus Center, George Mason University.

most important, it can help to focus the political debate on what a central bank can do in the long run – that is, control inflation, rather than what it cannot do – that is, permanently fuel growth and the number of jobs through expansionary monetary policy. Moreover, the communication part of inflation targeting is important. Even though other monetary regimes can also communicate their monetary policy, part of inflation targeting is highly transparent and regular communication with the public. Central bank gains accountability and the planning of the private sector improves.

Disadvantages of inflation target

There are also mentioned several disadvantages connected with inflation targeting. Yet as we will see, they are not always justified. First, there is delayed signalling. Monetary aggregates are easier to control than inflation rates. Therefore, monetary aggregates were supposed to send better signals to the public about the state of monetary policy. However, the past experience told us that it was not true. So it is hard to say that monetary targeting was superior in this sense. Second, many economists criticize inflation targeting for too much rigidity. Actually, this is not very legitimate because inflation targeting provides mainly a goal for central bankers, but they can choose whatever tools to achieve the goal. The policy making is quite flexible with inflation targeting. Third, inflation targeting can potentially increase the output fluctuations. If monetary policy looks too much only at the inflation target, it can oversee the impact on the output. However, from experience we can say that also inflation targeting countries care about output fluctuations. Fourth, there are concerns about economic growth. In fact, during the periods of disinflation countries suffer from quite high output losses, as the Phillips curve predicts, and sacrifice ratios are sometimes very high. But after achieving low inflation, its low rate and low volatility actually provides a favourable growth environment.

All in all, inflation targeting has been quite successful. Many countries have undergone painful disinflation periods and then were able to maintain low inflation. This success would not be possible without inflation targeting. Even though inflation targeting is not as successful as some other regimes in industrialized non-inflation targeting countries, still it is more successful than previously used frameworks.¹²

3. NOMINAL GDP TARGETING

As the name suggests, in nominal GDP targeting framework central banks will target nominal GDP. Nominal GDP is the nominal value of all final goods and services produced in the economy within one year. The name nominal income targeting is also used interchangeably.

After the recession, inflation targeting started to be criticized by some scholars. Some say it did not pay enough attention to asset price bubbles. Others criticize not sufficient responses of some

central banks to slump in the economy because of the fear of increased inflation. Avid advocate of nominal GDP targeting Scott Sumner reasons in his paper¹³ that “because of inflation fears, the Fed did not provide enough monetary stimulus in late 2008, allowing the largest decline in nominal spending since 1930s“. Later he states that “this demand shock intensified the financial crisis and led to high unemployment. Nominal GDP targeting would have greatly reduced the severity of recession, and also eliminated the need for fiscal stimulus. The national debt would be far lower“.

Logic of nominal GDP targeting

As with inflation targeting the central bankers try to hit a certain value of inflation rate, with NGDPT central bankers strive to hit a certain level of nominal GDP or its growth rate. The main idea behind NGDPT is that it can help to stabilize output fluctuations, i.e. the business cycle. The process is as follows: First, the central bank sets a target for growth of nominal GDP. For the US it is usually mentioned as 5%. This relates to 3% growth in real GDP (which is approximately the average rate of real GDP growth in the USA for last decades) and 2% target for inflation rate. If the real GDP growth is below its potential, let's say 1%, central bank should carry out expansionary monetary policy and try to achieve inflation rate of 4% (in order to hit a target of 5% for nominal GDP growth). Expansionary monetary policy will boost the economy and finally move it back to the potential growth path. This will stabilize output fluctuations and mitigate business cycle impacts. If the economy is above its potential and is overheated, let's say real GDP grows by 4%, there are inflationary pressures. In this case the central bank should carry out contractionary monetary policy and try to lower the inflation to 1%, in order to hit 5% target of nominal GDP growth. All in all, during expansions the central bank carries out contractionary monetary policy and during recessions (or lower growth) the central bank conducts expansionary policy. This should stabilize output fluctuations and make business cycle impacts less severe. This is the main advantage of NGDPT – by its mechanism it automatically leads to stabilization of the economy.

Why nominal GDP targeting can be better than inflation targeting?

One can say that inflation targeting is not that rigid and can also react to economic shocks. The problem is that it can react well to demand shocks, e.g. to a recession abroad or a change in the velocity of money, but it cannot react well to supply shocks, e.g. to a rise in oil prices or in food prices. If an adverse supply shock strikes, let's say there is a sharp increase in the world oil prices, countries would face a stagflation. There are two bad news for the economy – decline in output and high inflation. The central bank can accommodate only one of them. If it starts to carry out expansionary monetary policy, it would move the



economy out of recession, but it would increase inflation even further. If it starts to carry out contractionary monetary policy, it would lower inflation rate but only at the expense of further exacerbating the recession. With inflation targeting, the second option should be chosen. If a central bank targets 2% inflation and an exogenous adverse supply shock comes and puts pressure on inflation increase, central bank would reduce money supply growth and throw the economy into deeper recession. Obviously, such an outcome is not favourable. It is better to let inflation rise in order to decrease unemployment. Anyway, if we allow the inflation rate to grow from 2% to 4%, economists do not consider such a low inflation a big problem. We even mentioned one benefit of inflation, that it can bring the labour market faster to its equilibrium, which is especially useful during recessions. NGDPT lets the inflation to make its job of "greasing the wheels of labour market". Recession causes unemployment to increase. This increase refers to cyclical unemployment "only" and should be reversed during the subsequent boom. However, a theory called hysteresis asserts that high unemployment can become permanent, and the cyclical part will change into a higher natural rate of unemployment. The reasons can be that unemployed people will lose valuable job skills or willingness to work. This can be especially true during the current very long "bad times" (we see economic growth but its "jobless", i.e. unemployment still remains high). NGDPT can avoid this by letting inflation rise rather than keeping it fixed as under inflation targeting. Central banks would not be so feared of expansionary monetary policy.

Here would be helpful to change the rhetoric, and not to convey to the public that the goal of central bank is to increase inflation. People are subject to inflation fallacy, that is, they think that inflation decreases their purchasing power. It is more correct to say that central banks attempt by expansionary monetary policy to increase the aggregate demand and hence income and inflation can be called only a "byproduct". It is better for the public to hear that the central bank tries to increase their income, because increasing the inflation rate is interpreted as a decrease in income (or purchasing power), i.e. the complete opposite.

Distribution of supply shock between inflation and real GDP

Every supply shock would be distributed between inflation and real GDP under NGDPT. What decides how the shock would be distributed? The basic AD-AS model gives us the answer. The key is the slope of the aggregate supply curve. In the short run the aggregate supply curve is upward sloping curve (some prices are sticky and some prices are flexible in the short run)¹⁴. If the short-run aggregate supply curve (SRAS) is more horizontal, expansionary monetary policy (shift of the aggregate demand curve to the right) will affect

output more than prices, i.e. distribution will be more on the real GDP side than on the inflation side. On the other hand, if the SRAS is more vertical, expansionary monetary policy will affect more prices than output. Lucas (1973)¹⁵ found out some international differences in the slope of the SRAS. In countries, where aggregate demand (AD) fluctuates widely, SRAS is more vertical. In countries, where AD is relatively stable, SRAS is more horizontal. The second finding was that countries experiencing high inflation have SRAS more vertical and countries experiencing low inflation have SRAS more horizontal.¹⁶ If we sum up these findings, more developed countries (countries with relatively stable AD and low inflation) have SRAS, which is more horizontal, that means that prices are stickier. Thus, the effect of expansion of AD via monetary policy will be felt more in real GDP changes than in inflation changes. This makes monetary policy more powerful in developed countries compared to developing countries.

As we saw, supply shocks are always problematic with inflation targeting. We do not know if there is a huge supply shock just ahead of us, but at least we should expect it. NGDPT is prepared for such occasion. This makes it more favourable than inflation targeting.

Moreover, if a positive supply shock comes (such as IT revolution in 1990s), under inflation targeting, the central bank would conduct rather loose monetary policy in order to hit the inflation target. The problem is that this could lead to asset price bubbles (which cause problems as they burst). Under NGDPT, monetary policy would be tighter in order to hit the nominal GDP target. Thus, NGDPT can possible avoid asset price bubbles or at least mitigate them.

Bernanke and Mishkin discuss nominal GDP targeting

Bernanke and Mishkin (1997)¹⁷ also discuss NGDPT as an option, however, they mention three reasons why inflation targeting is slightly better in their opinion. We will attempt to show that they are not that convincing. One of them is that for inflation targeting there are still enough escape clauses which provide enough flexibility. Yet with NGDPT there is no need for such escape clauses. It directly mandates the central bank to target different inflation rates according to circumstances. As the second argument they mention that the concept of inflation is better understood by the public than the concept of nominal GDP. If we under the public understand the general population, we can assume that hardly anybody knows that there exists something like inflation targeting. Of course, for people would be much better if central bank tried to stabilize the business cycle rather than to target a specific inflation rate. If we under the public mean the experts who everyday follow the financial markets, there is no problem for them to understand what nominal GDP is if they understand what inflation is. Lastly, authors would mildly prefer inflation targeting, because

14 We deviate from the extreme short-run macroeconomic assumption that all prices are sticky in the short run. This is useful as a first approximation. In reality, some prices are sticky (e.g. prices of magazines) in the short run and some are flexible (especially prices in the financial markets). This makes short-run aggregate supply curve upward sloping rather than horizontal.

15 Lucas, Robert E. 1973. "Some International Evidence on Output-Inflation Tradeoffs." *The American Economic Review*, Volume 63, Issue 3, 326-334.

16 These findings are quite intuitive. In countries with high inflation and high AD fluctuations suppliers should have learned that most of the price changes are not changes in relative prices, so they do not respond so much to them by changing the production. On the other hand, in countries with low inflation and low AD fluctuations suppliers expect most of the price changes to be changes in relative prices, so they respond by increasing or decreasing the production.

17 Bernanke, Ben S., Frederic S. Mishkin. 1997. "Inflation Targeting: A New Framework for Monetary Policy?" *The Journal of Economic Perspectives*, Vol. 11, No.2 (Spring, 1997), pp. 97-116.

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- 18 There are various ways how to „measure“ expected inflation (in the USA). One way is to look at the TIPS breakeven rate, that is the difference between the same maturity interest rate on government bond and interest rate of TIPS bond, which is always adjusted for inflation. Another way is to look at the University of Michigan Inflation Expectation index. Cleveland's Fed also makes its own estimates combining different methods. There can be also found classical survey-based estimates.
- 19 Sumner, Scott. 2012. „The Case for Nominal GDP Targeting.“ Mercatus Center, George Mason University.
- 20 Hall, Robert, N. Gregory Mankiv. 1994. „Nominal Income Targeting.“ In Mankiv N. G., ed., *Monetary Policy*. Chicago: University of Chicago Press for NBER, pp. 71-94.
- 21 Sumner, Scott. 1989. „Using Futures Instrument Prices to Target Nominal Income.“ *Bulletin of Economic Research* 41: 157-62.

data on prices are obtained more frequently than nominal GDP data.

Looking at inflation expectations rather than current inflation

Nevertheless, one problem arises: Central banks should rather target the forecast than the actual value. When they are deciding about changes in monetary policy, a better way is to look at inflation expectations¹⁸ rather than at current inflation and accordingly adjust their policies. If we make decisions based on actual data, it is like trying to steer car by looking in the rear-view mirror¹⁹. If the current inflation rate is above the target but the expected figure is below the target we should rather loosen the policy to achieve the target in the future. This is one of the main reproaches to the Fed by Scott Sumner. He proposes to target the forecast and do the same with NGDPT. Nevertheless, there arises a problem of how to forecast the nominal GDP. Several ways were proposed: to use the consensus of Federal Open Market Committee (FOMC) members, or to use the consensus of private forecasters, such as Blue Chip consensus.²⁰ As it seems, Scott Sumner proposed the best solution: targeting futures instrument prices for assessing nominal GDP.²¹ From the futures market we can directly see the wide market consensus about expected nominal GDP (same as we can use today TIPS bonds breakeven rate to see wide market consensus about expected inflation). Central bank should target this rate, e.g. if the target for nominal GDP is 5% but the market expectation is only 4%, the central bank should conduct expansionary monetary policy in order to increase inflation and real growth (which it can do in the short run) and move expectations to 5% target.

Level targeting vs. growth rate targeting

There are several technical issues with NGDPT. As we already mentioned, there are two possibilities of how to conduct NGDPT. The first one is to target the growth rate of nominal GDP and the second is to target the level of nominal GDP. The advantage of level targeting is that divergences from target in certain years can be made up for in the years to follow. It is more intuitive to explain this with inflation targeting. If we target the price level and not the inflation rate (i.e. growth in price level) and we overshoot in certain year (e.g. we will achieve 4% inflation instead of 2% target), we can accommodate for this overshoot in the next years (e.g. to target only 1% inflation). With targeting directly the inflation rate, this overshoot in one year will be never accommodated in the future (one possibility of how to overcome it is to target medium-term inflation rates). With reference to NGDPT, the same analogy applies with level targeting versus growth targeting.

Lagged adjustment vs. forecast adjustment

Another technical issue with NGDPT is if to use lagged adjustment or forecast adjustment. We al-

ready mentioned this problem, and here we will elaborate on it. With lagged adjustment, central bankers will respond only to already observed nominal GDP. The figures are at disposal every quarter with a few weeks lag. With forecast adjustment, central bankers will look at forecasts of future nominal GDP and respond in advance. As we know, there are lags in implementing monetary policy. Economists distinguish between inside lag and outside lag. Inside lag is the lag between the shock and the response of the government authority (policy action). This lag is very short for monetary policy because central banks can adjust their interest rates (or use other tools) very quickly. The problem is the outside lag. It is the time between the authority response and the impact on the real economy. For monetary policy this lag can be very long, usually from half a year to one and a half year. This can be the main problem with lagged adjustment. If the central bank reacts too late, only after observation of digression of nominal GDP, it can exacerbate the shock rather than accommodate it. Thus, forecast adjustment looks superior to lagged adjustment.

4. CONCLUSION

In this paper we tried to compare current monetary framework inflation targeting with potential substitute NGDPT. Both regimes have their proponents and opponents. Several countries have adopted inflation targeting since 1990 and we were able to observe its functioning in practice. As the recession stroke and the monetary authorities responded, more and more proponents of NGDPT have started to emerge. We tried to argue that NGDPT is a slightly better framework than inflation targeting. As we mentioned, there are several arguments why NGDPT can be more suitable for many developed countries. First of all, NGDPT can better stabilize the economy. The business cycle, though not well understood, causes a lot of trouble. It would be better to have milder growth, and, therefore, also milder recession, as they are responsible for a lot of unnecessary unemployment and related social problems, which we are currently the victims of. NGDPT by its rule makes contractionary monetary policy during excessive expansions and stimulates the economy during recessions. One can argue that monetary policy can exacerbate the business cycle rather than to stabilize it because of slow response. Yet the same is true with inflation targeting. Moreover, it can be partially overcome by targeting expectations of nominal GDP. Also one can say that monetary policy under inflation targeting regime also stabilizes demand shocks. That is true, if there is an adverse demand shock, central banks can increase aggregate demand and put the economy back to its potential and at the same time follow their inflation target. The difference is in the response to supply shocks. Monetary policy which targets inflation rate should by definition react to potential price level increases by narrowing money supply. With adverse supply shock this will of course



22 Clark, Todd E. 1994. „Nominal GDP Targeting Rules: Can They Stabilize the Economy?“ *Economic Review*. Third Quarter 1994. Federal Reserve Bank of Kansas City.

put the economy into more severe recession, just because the central bank does not allow inflation to rise. This does not apply under NGDPT. In this case central banks let inflation grow and they do not worsen the recession. Moreover, as already mentioned, inflation during a recession can be beneficial, because in lots of times it is necessary to lower the real wages of workers. As they are reluctant to accept nominal wage cuts, inflation can bring labour market faster to equilibrium and hence lower the unemployment faster than under inflation targeting.

Inflation will stay predictable

The argument here can be that inflation would be less predictable. This can be true, but not to a large extent. Inflation will still stay quite predictable, as it is by definition a part of nominal GDP (as GDP deflator). The target for nominal GDP will be constructed as the GDP growth potential (let's say 3% for the USA) plus an inflation target (let's say 2%). If growth remains on average the same, the central bank is still "targeting inflation", but moreover it dampens business cycle fluctuations. The public can still use the forecasts for planning for the future, e.g. setting nominal interest rates in contracts. There can be higher fluctuations of inflation rate over the short run, yet still inflation can be predictable. As there will be a fixed rule (e.g. 5% nominal GDP growth), the public gets the short term inflation forecasts just by subtracting the expected rise of real GDP from the nominal GDP target. It will be predictable that during the periods of low growth there will be higher inflation and during higher growth periods inflation will be lower.

Simulations of NGDPT

There is no experience with NGDPT and therefore we can only rely on theoretical reasoning or simulations. Certain simulations were already made. Paper by Clark (1994)²² found, that NGDPT would significantly stabilize both real GDP growth and inflation. This model assumes that central banks will target forecasts rather than respond to actual nominal GDP (these simulations brought slightly worse predictions). Two "forecast adjustment rule" models were constructed: atheoretical model and a structural model. The atheoretical model predicts a reduction of real GDP volatility of 8.6%, and the structural model of 4.9%. The model predicted also a reduction in volatility of inflation, but as this paper is from 1994 and used data before inflation targeting was more widely spread, these numbers are not that informative. Moreover, we should not forget that it is only a model, and we can get the best reference only from the real world application.

The voices for NGDPT are rising in academic circles and also among policy makers. In this paper we tried to give some arguments that NGDPT can be slightly superior to currently used inflation targeting. Yet if we start thinking about the switch to NGDPT we should be very cautious. It took a lot of time to adopt inflation targeting and this framework promoted economic growth in the recent two decades. A switch to NGDPT can cause a loss of credibility in monetary policy which outcomes are difficult to predict. So even if policy makers propose a move to the new monetary policy framework, it should be communicated very seriously in order to eschew any potential problems which can arise just because of such a rapid change itself.

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