

Ágnes Csermely and Máté Barnabás Tóth: Nominal GDP targeting: what are central bankers talking about?*

During the current crisis, the question of how central banks should set their monetary policies after the key policy rate has reached the zero lower bound has provoked heated debates. One idea that has recently received attention is 'nominal GDP targeting', which many people believe is worth considering as a monetary policy option irrespective of the crisis. This article presents an overview of the pros and cons of nominal GDP targeting. Overall, targeting a specific level of nominal GDP could, in principle, help monetary policy to stabilise the real economy more effectively after the interest rate has reached the zero lower bound, but practical problems (e.g. frequent revisions of GDP data, uncertainty related to the measurement of potential output, etc.) raise questions about its applicability. For this reason, using nominal GDP targeting as a general policy strategy would not provide tangible benefits compared with the proven, flexible inflation targeting regimes.

INTRODUCTION

Virtually all efforts by economic policy-makers over the past four years to bring the global economy back to its previous growth path have failed. The euro area remains mired in recession, and unemployment has been stuck above pre-crisis levels even in countries registering positive growth. Meanwhile, economic policy seems to be running out of ammunition to stabilise the economy. In the first phase of the crisis, fiscal stimulus helped to halt the decline in demand, but today the focus has shifted to long-term fiscal sustainability both in the euro area and the United States. Leading central banks had reduced interest rates to levels close to the zero lower bound by 2009. As time progresses, the quantitative easing programmes subsequently introduced are losing their effectiveness, amidst increased concerns about the potential adverse side effects (e.g. asset price bubbles). It seems that the stimulatory fiscal policies pursued over the past few years have reached their limits, and therefore the question arises as to what alternative tools could be used to encourage economic agents to spend more and to reach a higher level of capacity utilisation. In this special context, nominal GDP

(nGDP) targeting,¹ a popular concept in academic circles in the 1980s, has been brought back to the table. Although a number of reputed theoretical economists argue in favour of this approach,² there are currently no central banks which pursue this monetary policy strategy. In a speech,³ Mark Carney, current Governor of the Bank of Canada and incoming Governor of the Bank of England, said that adopting a nominal GDP level target would be an option to consider for central banks whose policy rates are stuck at the zero level bound and, as a result, the idea has become a topic of discussion in the daily press. In the following, we discuss whether nGDP targeting could support recovery from recession and whether it would be useful to consider replacing inflation targeting with nGDP targeting in central banking practice over the longer term.

THE THEORETICAL PROBLEM: HOW TO CREATE MONETARY STIMULUS IF POLICY IS CONSTRAINED BY THE ZERO LOWER BOUND?

One key problem facing monetary policy in several developed countries is that economic conditions would

* The views expressed in this article are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

¹ A survey of the early literature on nominal GDP targeting is available in: HALL, ROBERT E. AND N. GREGORY MANKIWI (1994), "Nominal Income targeting", in MANKIWI, N. G. (ed.), *Monetary Policy*, NBER, pp. 71-94.

² Among others: Christina Romer, Paul Krugman, Michael Woodford.

³ CARNEY, MARK (2012), *Guidance*, CFA Society Toronto, Toronto, Ontario, 11 December 2012, URL: <http://www.bankofcanada.ca/wp-content/uploads/2012/12/remarks-111212.pdf>.

require further monetary easing, but policy rates have already reached their effective zero lower bound and cannot decline further.⁴ In turn, with inflation at low levels, this leads to excessively high real interest rates. In this environment, central banks attempt to achieve further easing by using an array of unconventional policy tools. The effectiveness of these tools, however, has declined over time. In addition to the tools employed so far, exerting a greater influence on longer-term interest rate expectations may be a new way of stimulating the economy. The idea is based on the concept that real economic decisions are not only influenced by short-term, but also by longer-term (real) interest rates, which are strongly dependent on expectations of the future path of the key policy rate. In principle, therefore, the economy could also be stimulated by influencing the expected future path of the key policy rate, in addition to actual reductions. However, when influencing expectations of the path of interest rates, it should also be taken into account that, generally, economic agents already have some idea of the central bank's usual behaviour. Based on past behaviour, therefore, participants may interpret communication about maintaining interest rates persistently low as reflecting a deterioration in the central bank's outlook for the real economy, and thus it does not necessarily have the desired stimulatory impact.

Consequently, for monetary policy to be able to significantly stimulate activity by influencing expectations of the future path of interest rates, it must convince economic agents that the low interest rate environment will be maintained for a while even *after* the recovery is well underway. This, however, is a time-inconsistent promise, as market participants can reasonably assume that, as the output gap closes, central banks will follow an interest rate policy which seems appropriate at the given time. Monetary easing by influencing expectations therefore requires that central banks credibly commit themselves to keeping interest rates low even after the economy has recovered.

Central banks have recently made several promises to keep interest rates low. Communication about maintaining a low interest rate environment for an extended period has been the most frequently used approach. Previously, some central banks published their own interest rate projections (e.g. Sveriges Riksbank, Norges Bank), so this did not

represent a significant departure from their traditional operations, whereas in other central banks indicating an interest rate path for a longer period constituted a new approach in their communication (e.g. Bank of Canada). After the nominal interest rate reached the zero lower bound, the Fed also began to make stronger references to the future path of interest rates, indicating that the interest rate level could be expected to be left unchanged for more than two years. These policy projections, however, have not always been efficient in reducing long-term interest rates, as central banks began to emphasise the conditionality of projections in their messages about the interest rate path: a low interest rate environment can only be sustained as long as it does not pose a threat to price stability.⁵ Accordingly, market participants did not necessarily consider it a lasting commitment, but rather the best possible forecast based on information currently available, which may change if the economic outlook improves. This technique therefore proved insufficient to fully implement extra easing by influencing expectations.

Another possible way of establishing the central bank commitment is to link interest rates to observable economic conditions, rather than to a certain period of time. From December 2012, the state-dependent commitment (or Evans Rule) has become the Fed's official policy rule. According to this rule, the federal funds rate will be kept low at least as long as the unemployment rate remains above 6.5 per cent, inflation between one and two years ahead is projected to be no more than a half percentage point above the 2 per cent longer-run goal and longer-term inflation expectations continue to be well anchored.⁶ This sort of forward-looking communication may be more effective than the previous one, because it makes it clear that the central bank will leave interest rates low to help the recovery of the economy even if it should raise them based on its past behaviour.⁷

The logic of the proposal to link the future path of interest rates to developments in nominal GDP is similar to that of the Evans Rule. This is based on the observation that US nominal GDP grew at a relatively stable rate in the period prior to the crisis. Consequently, assuming that the potential output of the US economy has not been damaged in the crisis, a return to this path can be considered its

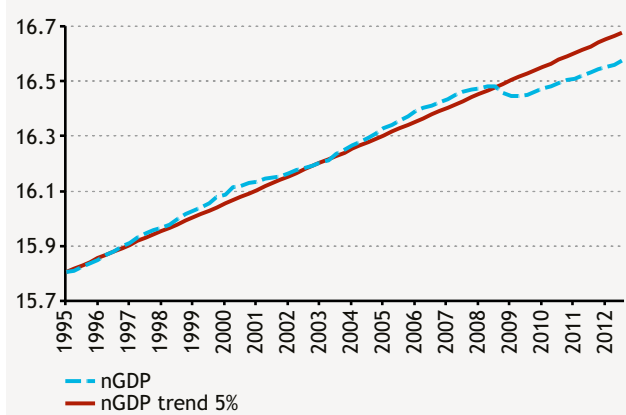
⁴ One reason is that holding zero interest bearing money is always an alternative for economic agents seeking to avoid negative interest rates, and therefore a negative interest rate would not be effective.

⁵ This is illustrated by the words of the Governor of the Bank of Canada: 'This guidance is never a promise, however. Actual policy will always respond to the economic and financial outlook as it evolves'. Speech by Mark Carney on 12 December 2012: <http://www.bankofcanada.ca/2012/12/press-releases/central-bank-policy-guidance/>.

⁶ Federal Reserve Press Release, 12 December 2012. URL: <http://federalreserve.gov/newsevents/press/monetary/20121212a.htm>.

⁷ Originally, Evans proposed a threshold of 3 per cent for the inflation rate and one of 7 per cent for the unemployment rate; however, the decision-making body accepted a lower tolerance for inflation.

Chart 1
US nominal GDP
 (log scale)



normal state. Then, the central bank should commit to maintaining stimulatory monetary policy until the economy reaches the nominal path of the period characterising the period before the crisis (Chart 1). So, in an implicit way this approach also assumes that loose monetary conditions are maintained even if inflationary pressures appear in the economy.

However, there are doubts as to whether this new approach to monetary easing can be effective.⁸ The Evans Rule and the strategy of targeting a specific level of GDP can only succeed if the central bank is able to encourage households and companies to spend more today by moderating future interest rate expectations, while inflation expectations remain well anchored over the longer term. Sceptics believe the behaviour of banks and real economic agents is dominated by uncertainty about the outlook for growth and the reduction in debt to an extent that further marginal easing of monetary conditions would not bring any tangible benefits, while central banks' anti-inflation credibility is put at risk by tolerating, if only temporarily, higher inflation. Moreover, as we will discuss in more detail below, if the production capacity of the economy has been damaged during the crisis, then monetary easing over an extended period will generate extra inflation and will not help provide a boost to growth.

MONETARY REGIME CHANGE? INFLATION VS. NOMINAL GDP TARGETING

Although the debate today focuses on the search for a temporary solution which could be applied in a situation where the key policy rate is at its zero lower bound, the question has also been raised as to whether nominal GDP targeting could provide a suitable policy framework over the long term. Jeff Frankel⁹ actually argues that – due to the credibility risks – full transition could be a practical solution. The reason is that if nominal GDP level targeting is introduced as a longer-term monetary regime change rather than a temporary solution, it need not be made explicit when the central bank faces cost-push shocks, but it is willing to tolerate higher inflation temporarily in order to avoid excessive output losses. However, the experience of countries operating a flexible inflation targeting regime shows that a similar response is possible even within the current monetary policy framework in such a manner that long-term inflation expectations remain well anchored.

One argument supporting nominal GDP *level* targeting is that within this framework 'real economy' aspects may come to the forefront more strongly than in the current policy regimes. However, this interpretation is only valid if the actual value of nominal GDP is below its long-run trend.

Nominal GDP level targeting can be thought of as a monetary policy rule where the central bank responds with an equal weight to deviations in output and prices (or, more precisely, the GDP deflator) from their ideal level.¹⁰ However, the departure from the logic of inflation targeting is mainly due to history-dependence, rather than to stronger considerations to real economic aspects. Inflation targeting focuses on changes in the general price level (i.e. inflation), and therefore if inflation rises temporarily above the target, the central bank still seeks to ensure a 2 per cent increase in prices over the medium term (*bygones are bygones*). By contrast, in targeting the level of nGDP, if the price level and/or output increase policy is set to create a contraction in order to return to the targeted nominal path. Such a 'history-dependent' rule of behaviour could be more

⁸ See, for example, <http://www.economist.com/blogs/freeexchange/2011/11/case-against-case-nominal-gdp-target>.

⁹ JEFF FRANKEL (2012), "Central Banks Can Phase in Nominal GDP Targets without Losing the Inflation Anchor", *Jeff Frankel's Weblog*, December 25, URL: http://content.ksg.harvard.edu/blog/jeff_frankels_weblog/2012/12/25/central-banks-can-phase-in-nominal-gdp-targets-without-losing-the-inflation-anchor/.

¹⁰ Although this option is not in the focus of today's discussions, the monetary policy rule responding to *changes* in nGDP was also raised in the economic debates of the 1980s. Targeting the level and changes in nGDP are treated as synonyms in the press, while there are significant differences between the two strategies. There is no history-dependence in the latter, and therefore its ability to influence expectations is reduced (i.e. its quality which was instrumental in raising the idea of nGDP targeting at all). Moreover, in the case of recovery from a very low demand environment, when the growth rate of the economy temporarily exceeds potential growth targeting the change in nGDP may unnecessarily slow the expansion of the real economy.

efficient in influencing future expectations. However, it has its price, as for example the rule does not allow for the central bank to disregard certain one-off price shocks that divert nominal GDP from its target level, and must offset them even at the price of generating deflation.

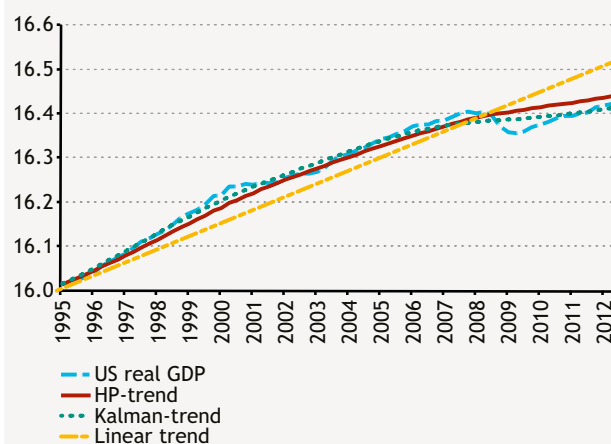
Nominal GDP targeting therefore does not imply systematically looser or tighter monetary policy compared with inflation targeting. In the case of a demand shock, when growth and inflation change in the same direction, a central bank employing an nGDP regime adjusts interest rates by more; when there is excess demand it tightens more, and it eases policy more when there is weak demand, as is currently the case. In the case of shocks affecting output and inflation in opposite directions, the path of nominal GDP is more stable than that of inflation. However, it cannot be inferred from this that nGDP targeting places more weight on the real economy, as the actions of inflation targeting central banks are also influenced by real economic considerations. This may manifest itself in the fact that, for example, the central bank does not respond to current inflation, but to the medium-term inflation outlook, or directly takes into account the cyclical position of the economy.

Furthermore, nGDP level targeting necessarily runs into problems related to the measurement of potential output and its growth rate.¹¹ As the desired path of nominal GDP is the sum of potential output and a targeted price level, a central bank pursuing a GDP target (or the government defining the central bank's mandate) needs to have a clear picture of a variable which it cannot directly influence let alone observe and which can only be estimated with a significant degree of uncertainty (Chart 2).

Although potential output is a key variable even in current central bank practice, inflation targeting central banks do not have a numerical target for it and, consequently, potential mismeasurement may lead to distortion only indirectly, through the estimated impact on inflation. In the case of nGDP targeting, however, the measurement/observation problem directly affects the target variable. Moreover, growth is a much more politicised issue than inflation, and therefore the central bank may be under pressure to calculate a higher-than-realistic rate of potential output/growth. However, a central bank is unable to materially influence potential output,¹² while medium-term

Chart 2
Estimating US potential GDP with various methods

(log scale)



Note: HP trend: trend derived using a univariate Hodrick-Prescott filter (λ : 1600). Kalman trend: the trend derived based on a multivariate state-space model, using a Kalman filter. The state-space model contains a price and wage Phillips curve and an Okun's law relationship.

developments in inflation are fundamentally dependent on monetary policy. Under both nGDP and inflation targeting, a central bank seeking to achieve a higher potential output than determined by the supply side of the economy can only generate higher inflation, without any significant influence on long-term growth.

A second practical problem stems from the measurement of nominal GDP. While indicators of inflation are available on a monthly basis, data on nominal GDP are released only quarterly, typically with a delay of several months. In contrast to inflation indicators, GDP is revised frequently, i.e. the entire time series may change as more accurate information is received. While many academic authors identify the GDP deflator with inflation or, sometimes, core inflation, co-movement between the two time series can be demonstrated only over the longer term. The reason is that inflation is the price index of household purchased consumption, while the GDP deflator is the price index of overall GDP, and because consumption accounts for roughly about a half of GDP, a number of factors may divert movements in the two indicators. Backward revisions to GDP may overwrite the starting position of the economy again and again and, consequently, the path of interest rates required to return to the targeted path.

¹¹ The measurement problem is discussed in more detail in PÉTER GÁBRIEL AND GERGŐ MOTYOVSKI (2013), "Possible impacts of the financial crisis on potential output", *MNB Bulletin*, May 2013.

¹² Exceptions from this may be episodes of persistent unemployment leading to a loss of skill due to cyclical reasons, which in turn raises the level of structural unemployment and reduces potential output. In such cases, cyclical stabilisation by monetary policy may help reduce the damage to the supply side of the economy in a persistently low demand environment. For more details on this issue, see: PISSARIDES, CHRISTOPHER A. (1992), Loss of Skill During Unemployment and the Persistence of Employment Shocks, *The Quarterly Journal of Economics*, 107 (4), pp. 1371–1391.

CONCLUSION

In summary, there is an approach to monetary easing where the central bank seeks to provide further stimulus to the economy by softening up its future anti-inflation commitment temporarily. This is a risky strategy, as it poses the threat that inflation expectations will not be well anchored, but if there is a significant margin of spare capacity in the economy, interest rates are close to the zero lower bound and unconventional policy tools are becoming less effective, the central bank may feel that it is worth running this risk. So far, the example of the Fed has been the only one of explicitly pursuing a similar strategy. However, the Fed has opted for a state-dependent commitment (Evans Rule) rather than setting an explicit target path for nominal GDP.

If we think of nominal GDP targeting not only as a temporary approach that can be used after interest rates have reached

the zero lower bound, but also as a long-term monetary policy framework, it is important to note that it may lead to more rigid and more unfavourable real economic outcomes in the case of certain shocks compared with the current practice of inflation targeting. Defining the actual and targeted level of GDP is made more difficult by serious data revision and measurement problems, which would hinder the reliable operation of the system.

As Mark Carney mentioned in his often quoted speech, as long as conventional monetary policy tools are available, full transition to nominal GDP targeting would not bring tangible benefits. In the exceptional case when the central bank policy rate has reached its zero lower bound, setting a target path for nominal GDP may help stimulate the economy. 'Of course, the benefits of such a regime change would have to be weighed carefully against the effectiveness of other unconventional monetary policy measures under the proven, flexible inflation-targeting framework.'