INFLATION TARGETING—
IS IT SUITABLE FOR TRANSITIONAL ECONOMIES?

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Inflation targeting is a very popular strategy for keeping the inflation rate under control nowadays. It is applied in the Czech Republic as well. But is it possible to use this very approach in a transitional economy reasonably? This paper tries to address that very question.

1. Introduction

In the last one or two decades there have been emerging a strong agreement among economic scientists that a chief goal of the monetary policy should be price-level stability. The view is shared by both monetary authorities and by public now. But there has been not an agreement yet on what strategy should be used to achieve this goal.

Nowadays inflation targeting is a very fashionable topic in the debate. The approach is proposed by such authorities as Frederic Mishkin, Larry Svensson or Bennet McCallum. It has been adopted by many central banks, too. Also the Czech National Bank (a central bank of the Czech Republic) has applied this approach for the past couple of years.

But there are many questions unsolved yet. The most challenging one is caused by the fact that there is a big discrepancy between the theory of inflation targeting and its practice. Inflation targeting, in its theory, is just an application of the optimal control theory with forward-looking expectations. That’s why it is highly demanding of information. In practice it is very hard to obtain all the information needed to implement the policy. Generally a central bank needs to have a very strong prediction model at its disposal. The model must be able to predict the impact of changes in both exogenous variables and controlling variables to paths of future inflation, and also to paths of all real variables (such as real GNP, an unemployment rate or a rate of growth are). So, what substitute for the missing information should be used?

Another important question is: is there a possibility to implant this monetary-policy-regime reasonably in an economy in transition? My answer is “no”.

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2. Theory of Inflation Targeting

The theory of inflation targeting is quite simple. An ultimate monetary authority (e.g. a central bank, or a Treasury) sets an inflation target. The target is a level of inflation rate that the authority supposes to be desirable. The target can be given either as a point or as a band. In the point-target case the authority tries to push inflation as close to the target as possible. In the band-target case the authority tries to keep the rate of inflation within the band, possibly close to the middle of the band.

The target is usually given as a path—a trajectory of the inflation rate in the time. Seldom the target is described just in discrete time, e.g. at the end of the year (this is the case of the Czech Republic approach). Sometimes a disinflation process is under the way when inflation targeting is implemented. In such a case the target path follows the desired disinflation plan. Usually the final target is a small positive number, e.g. two per cent per year.

The term “rate of inflation” is a rate of any price index selected by the monetary authority. In most cases an adjusted CPI is chosen. The adjustment consists of exclusion of the most volatile items from the index basis, such as food, interest rates, and often of regulated items too.

The second step in the process of inflation targeting is a prediction of future inflation. The theory doesn't says how it should be obtained, nor what economic hypothesis should be used. Some authors propose that the inflation prediction should be obtained as an aggregation of many basic predictions (predictions of some quantitative models, predictions of experts, and so on).

As the inflation prediction is at the disposal of the central bank, the third step of the process begins. The inflation prediction is compared with the inflation target; if the predicted inflation exceeds the target, the “monetary conditions” are tightened, in the opposite case they are loosened. The reaction of the central bank is often illustrated by a simple equation

\[ \Delta R_t = \alpha (\pi_{t+h}^e - \pi_{t+h}^t) , \]

where \( \alpha \) is a reaction function of the central bank, \( \pi_{t+h}^e \) is the expected (predicted) rate of inflation at time \( t+h \), \( \pi_{t+h}^t \) is the inflation target at time \( t+h \), and \( \Delta R_t \) is the change of “monetary conditions” proposed by the central bank's reaction function at time \( t \). Note that the central bank's reaction isn't influenced by the current inflation rate but by the future one.
That's because there is a lag between the monetary policy action, and its impact on the inflation. The central bank's reaction is then “forward-looking”.

The second and the third steps are continually repeated. According to the theory such a process should keep the real inflation pretty near to the point target, or inside of the target band.

Moreover, the process influences people's inflation expectations. Everyone should, according to the theory, expect that the central bank keeps the real inflation near to its target. This way the target sets up people's inflation expectations. The expectations are considered to be self-fulfilling: when all economic agents believe the inflation will be low, they don't push prices up. Thus expectations helps the central bank to keep its target.

3. **Strict versus Flexible Inflation Targeting**

The first question to ask is: how fast should the reaction function $\alpha$ push the inflation rate to the target when it's been shifted out by some external shock? The faster the central bank tries to push it back the bigger must be an imposed monetary shock (change in the “monetary conditions”). The bigger shock also means the bigger impact to real (non-monetary) variables, such as GNP, or unemployment rate. In other words there can be some trade-off between the stability of the price level, and the stability of real variables in this sense.

Most authors advise to be flexible, i. e. to let the inflation rate to fluctuate a little, or in other words, to let the inflation rate to deviate from the target for some time, and push it back just gently.

A most striking disadvantage of the above mentioned flexible approach is that the inflation target isn't then taken seriously into account by the public. If the inflation rate can deviate from the target then there can be better inflation prediction then the target—in such a case economic agents will use a different inflation prediction scheme, and the “self-fulfilling” power of the target is spoiled. Thus flexible inflation targeting can become easily just words without any strength.

4. **Necessary Knowledge for Inflation Targeting**

After the last answer next questions arise in my mind: What precisely are the “monetary
conditions”? What does the reaction function $\alpha$ looks like? What is a lag $h$ between the reaction time (simultaneity), and the prediction time? How to predict a future inflation and future values of the real variables? These questions identify precisely what kind of information the monetary authority must have at its disposal to perform inflation targeting reasonably. The theory doesn't help here—it says the answers are unique for every single country.

First, the monetary authority has to know pretty well the inflation mechanism—the knowledge must be in a form similar to an econometric model: it has to know what are independent variables—the “monetary conditions” (i.e. whether the inflation can be controlled in a better way by some monetary aggregate (what precisely?), or by some interest rate (which one?), or by the exchange rate, or by what combination of them). The causality, strengths, and stability of these relationships must be checked.

Second, the delay between change in the independent variable, and the response in the dependent variable (the targeted inflation rate) must be known and stable.

These two kinds of information constitute a virtual (or even real) econometric equation that can predict what impact to the inflation rate any change in the “monetary conditions” will have. This is crucial. Even if the central bank had some mystique crystal ball to predict the future inflation, the equation like this would be needed. It is the only way how to determine the size and the timing of the change in the “monetary conditions”. (Of course, the equation needn't to be known in the form of an econometric equation precisely, but the lags and the strengths of its partial relationships should be known; otherwise the inflation targeting process is just like a ball-firing in the darkness.)

In the case of the flexible inflation targeting, similar equations should be known also for all other important variables (real variables which volatility is taken into account). The reason is the impact of the monetary control to important real variables should be estimated. Thus monetary policy can be optimized with respect to monetary authority's utility function that weights volatility of both the inflation rate and the selected real variables.

To carry inflation targeting on in practise the monetary authority must know not just the equilibrium relationship between the independent and dependent variables, but also its dynamic relationship. The case is quite difficult because often there are not even theoretical concepts for such relationships. For example, a dynamics of an inflation is described by the
theory of transmission mechanism. But there are about six different alternative hypotheses of the transmission (the list can be found e.g. in (Mishkin, 1996)). No one knows yet which of them (or what combination of them) is valid for any particular country.

For this very reason there is a big discrepancy between the theory and the practise. The theory supposes the transmission, and thus also the reaction function is precisely known for all targeted variables. In practise it is hardly true. The monetary authority just guesses the transmission mechanism from its research, its past experiences and an economic theory it believes in. Therefore in practise the inflation targeting process is quite far from an optimal control.

The process itself is then done in one of two ways: the monetary authority can try to predict the future inflation rate and guess the proper reaction function. The reaction can be slowed down by an attempt to be more flexible, and not to hurt the important real variables. Errors (i.e. too small, or too big, too early, or too late reaction) are corrected later. The problem is the impact to both the inflation and real variables displays itself with an uncertain lag \( h \) —therefore the correction can start too late.

The second possibility is that inflation targeting is simplified to MCI targeting. The MCI is a “monetary condition index”—usually a weighted average of an interest rate and an exchange rate. It is believed by some central banks that some level (or dynamics) of MCI is connected with the inflation stability. But there is no underlying theory for this very statement. Moreover, MCI targeting can be hardly supposed to be compatible with inflation targeting.

5. This kind of knowledge in a transitive economy
In the last section I've described in a general way what kind of information must a central bank possess to be able conduct inflation targeting reasonably. I also said that the information is known precisely neither in stable market economies. Now I want to adress the question whether such a knowledge can be obtained with any reasonable accuracy in a transitive economy. My opinion is that it is not possible.

The transitive economies are called “transitive” because they are under the process of transition from planned economies to market ones. Many of their features are subject to a fast change. A good example of such a change is a system of law, habits, and social institutions.
Also a financial system is usually emerging in these countries. As well as these, expectations and the process of creating expectations is changing too.

As economic conditions in the country are changing, the behavior of individuals adapts—i.e. changes too. Thus the relationship between macroeconomic aggregates cannot be stable. In such a case it is hard to estimate or even guess the behavioral equations I've spoken about above.

And there is even one more difficulty—the Lucas' critique. This is valid for both transitive and stable market economies, but is of a special importance for the transitive ones, in my opinion. The critique says that it isn't possible to use econometric equations (i.e. past data) for controlling current or future macroeconomic processes. The reason is that econometric equations picture the behavior of economic agents given the particular past governmental policy. If the policy is changed (for example because of implementing of inflation targeting), the economic agents changes their behavior as well. Thus the in-the-past-valid equation becomes non-valid for future.

In the stable market economy the policy changes can quite slow so that the Lucas' error could be pretty small. On the other hand, the necessary policy changes in the transitive economies are huge and fast. In such a case Lucas' error is a real danger.

To sum it up: it is very hard task to conduct inflation targeting even in the stable market economies, and it is rather impossible to do it in a transitive one. The reason is it is extremely unlikely that the monetary authority of a transitive country (let's say the central bank) can have all information and knowledge necessary for a reasonable pursuance of inflation targeting at its disposal. (It is even questionable whether the monetary authority of a transitive country has strong enough knowledge to provide even some less ambitious policy than inflation targeting. But it is beyond dispute that it doesn't have it for inflation targeting.)

6. Evidence from the Czech Republic

Let's look at evidences from our country. Inflation targeting was started in the Czech Republic in the beginning of 1998. The reason for its implementation in the Czech Republic was “a failure of the previous controlling mechanisms”. At least ČNB, the czech central bank, said the previously supposed relationships between inflation and a monetary aggregate, exchange rate, and interest rate were broken up one by one. Thus the lack of knowledge led
the central bank to implement even an more demanding strategy.

The first inflation target in the Czech Republic was published on 22nd November 1997. The target for the year 1998 was set to 6 % (±0.5 %), for the year 2000 it was set to 4.5 % (±1 %). The next week was published the target for the middle year 1999: the target was set to 4.5 % (±0.5 %).

The figure shows the trajectory of real rate of the adjusted inflation in the Czech republic (base is the same season of the last year). If the target was kept, the line would stay somewhere between numbers 104–105. But it is clearly visible that this is not true.

The real rate of the adjusted inflation was under the target all the time (for almost two years); sometimes it was even in a deflation area. In other words, the central bank was not able to conduct its monetary policy according to its proposed strategy. Reasons are many: first of all, there was a lack of knowledge about the transmission mechanism. Thus its actions could be just attempts in a try-and-learn-from-errors process. Second, because of the political pressure the central bank's strategy might be very flexible not to affect the real variables more in a bad way (but I have to recall that in the present situation restoring the inflation target would call for a monetary expansion that can hardly hurt the real variables right now). Third,
the overall contraction of the czech economy could make inflation targeting even harder. But the major reason is, in my opinion, clear: the central bank hasn't information necessary for the proper implementation of inflation targeting.

To conclude the section: I believe the case of the Czech Republic confirms the basic statement—the transitive economies are not ready for inflation targeting.

7. Summary
Inflation targeting is a strategy highly demanding of information and knowledge. Relationship between “monetary conditions” (whatever they are) and the inflation, and between “monetary conditions” plus inflation and the real variables has to be known. Also the transmission mechanism (i.e. the dynamics of the process) must be known. Without this very kind of knowledge inflation targeting cannot be reasonably done. It is either replaced by very simple indicator targeting (for example targeting of MCI), or by “just do what you need” strategy. (This is fully true even for the stable market economies.)

The uncertainty is high in all countries, but in the transitive economies is much higher than in the stable market economies. If the stable market economies in regime of inflation targeting must simplify the task contrary to the theory of inflation targeting because of a complexity of the problem, there is no chance that the transitive economies could be successful.

8. References


