

INFLATION TARGETING—IS IT SUITABLE FOR TRANSITIVE ECONOMIES?

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THE GOAL OF MONETARY POLICY

The ultimate goal of monetary policy is to keep the economic system stable, i. e.

- ▶ to keep price level stable (or low and stable inflation),
- ▶ not to impose monetary shocks,
- ▶ and to sterilize other (e. g. external) shocks.

There is a debate nowadays what strategy should be used to achieve this very goal. One possible answer is *inflation targeting*.



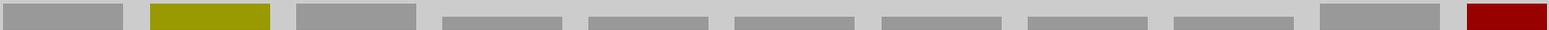
INFLATION TARGETING

It's hard to define what is inflation targeting, because there are two different approaches to this very strategy:

- ▶ theoretical one, proposed e. g. by Lars E. Svensson; he says that inflation targeting is an application of the optimal control theory,
- ▶ empirical one, proposed e. g. by Frederic Mishkin; he says that the “theory” is rather confusing—just empirical behavior of central banks should be studied.

The first approach speaks rather about techniques of monetary policy, the second one about institutional arrangements.

Definitely there is a big discrepancy between the “theory” and the practice. Moreover, inflation targeting is in different countries implemented in a different ways.



WORKING DEFINITION OF INFLATION TARGETING

Inflation targeting can be defined as any monetary regime in which the central bank has no intermediate target, but it targets the inflation itself.

Inflation targeting is then a process in which three steps are repeated:

- ▶ the ultimate monetary authority sets the inflation target,
- ▶ the central bank predicts a future inflation,
- ▶ the target and the prediction are compared: if the prediction is higher than the target, “monetary conditions” are tightened, in an opposite case they are loosened

The third step can be described by the **equation 2.1**.

$$\Delta R_t = \alpha(\pi_{t+h}^e - \pi_{t+h}^*), \quad (2.1)$$

where $\pi_{t+h}^e - \pi_{t+h}^*$ is a difference between the inflation prediction and the inflation target at time $t + h$, ΔR_t is a change in “monetary conditions” at time t , and α is a *reaction function*.

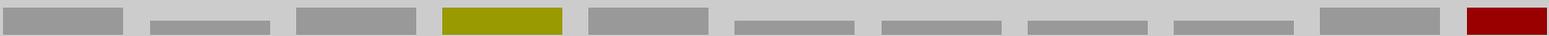
It is obvious that the central bank doesn't respond to the current inflation, but to the future one. The reason is that the current inflation is predetermined by the old monetary policy, external shocks etc., and that there is a lag h between a monetary action and its impact to the inflation.

It is the *reaction function* that describes the particular implementation of inflation targeting, i. e.

- ▶ it says what are “monetary conditions”,
- ▶ what is the lag h between a monetary action and its impact to the inflation,
- ▶ how sensitive is the central bank to external shocks,
- ▶ and how fast should the central bank push the inflation back to its target when stretched out by some shock.

The theory doesn't say it precisely, nor how the inflation prediction should be obtained. It is believed this is unique for every particular country.

The most important task is therefore to construct the optimal reaction function α (see **equation 2.1**).



THE REACTION FUNCTION

To construct the reaction function α the central bank must know:

- ▶ what is the mechanism of inflation, i. e. what transmission mechanism is relevant for the economy,
- ▶ what central bank's tools has the most stable relationship with inflation,
- ▶ how sensitive is this relationship (i. e. how big change in the inflation is caused by 1 % change in the tool),
- ▶ what is the lag between the monetary action and its result to inflation,
- ▶ and what are results of the change in the tools to real variables, such as aggregate product or unemployment rate, and what is the lag between the monetary action and its impact to the real variables.

In other words, the inflation function and the real variable function must be known:

$$\pi_t = \pi(R_{t-h}, \dots) \quad (2.2)$$

$$y_t = y(R_{t-k}, \dots) \quad (2.3)$$

The central bank must know the impact (and delay) of its tools to both inflation and real variables.



Then the reaction function α can be obtained using the optimal control theory. The α should minimize the central bank utility function, for example either

$$U(\pi_t - \pi_t^*, y_t - y_t^*, \pi_{t+1} - \pi_{t+1}^*, y_{t+1} - y_{t+1}^*, \dots) \quad (2.4)$$

or

$$U(\pi_t - \pi_t^*, \text{var}(y_t), \pi_{t+1} - \pi_{t+1}^*, \text{var}(y_{t+1}), \dots). \quad (2.5)$$

Real variables must be taken into account because they could be harmed seriously otherwise. When the inflation is shifted from the target by some external shock, the monetary response could be too rapid, and thus influence the product and so on.



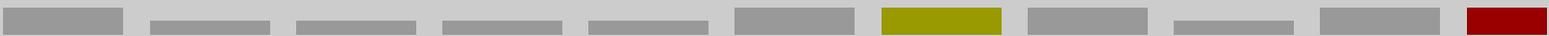
WITHOUT NECESSARY KNOWLEDGES

To estimate the optimal reaction function α the complete model of all relevant variables (inflation π_t and all important real variables y_t) must be known. But this is not true nowadays. For example, there are at least 6 or 7 alternative hypothesis of the transmission mechanism now, and there is a great controversy now which one is relevant for modern economies.

In such a situation the reaction function α is not precisely known. Thus inflation targeting can be in one of two ways then:

- ▶ the reaction function can be guessed by intuition; the central bank then does what it guesses the best without knowing precisely the results,
- ▶ or some indicator is targeted instead of the inflation directly. Mostly MCI (“monetary condition index”, a weighted average of some interest rate and some exchange rate). Svensson states that after all it is not inflation targeting.

Both these “strategies” are applied in practice.



IN TRANSITIVE ECONOMIES

Transitive economies are subject to a great and fast change (environment, legal system, economic policy are changed; economic agents' behavior is changed as well).

It means that inflation and real-variable functions (**equations 2.2 and 2.3**) are *not stable* in the time. Moreover it is hard to estimate them because of short time series. Neither transmission is known.

In such a case it is impossible to estimate the reaction function α well.

Thus the central banks of transitive economies can just do “try-and-learn-from-error” policy. Inflation target would be hardly kept and real variables can be sorely hurt.

In such conditions inflation targeting *is not* a nominal anchor, but a permission for the central bank to do whatever it sets mind on.



CONCLUSION

My conclusion is:

- ▶ inflation targeting is a great theoretical concept, probably the best one of the human-controlled monetary regimes,
- ▶ but it is hard to implement it; always it is much simplified when implemented in practice,
- ▶ it is impossible to implement it reasonably in a transitive economy, because inflation function π and real-variable function y are not known (i. e. the transmission mechanism is not known); thus the reaction function cannot be even guessed,
- ▶ the central bank without *real* nominal anchor can harm economy seriously: inflation can be far of its target and aggregate product under its potential level while the unemployment rate is high.
- ▶ The case of the Czech Republic seems to support this view.

