

Inflation Targeting in Indonesia: Trade-off and Strategy

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Abstract

This paper examines the relevance and prospect of inflation targeting framework (ITF) in Indonesia, and such an exercise is facilitated by a dynamic stochastic general equilibrium (DSGE) with New-Keynesian features. There are four research questions to be addressed: 1) what are the social cost of ITF, 2) how should the cost be minimized, 3) what inflation should be targeted, and 4) can managed float regime increase the effectiveness of ITF. In this paper, we provide several interesting findings. The adoption of ITF in Indonesia can in fact reduce the volatility of inflation and thereby inflation becomes more manageable easing up the process of targeting itself. However, this can only be achieved by sacrificing output stability. Thus, there is a trade-off between price and output. In order to reduce the trade-off, the central bank should opt to a right strategy which can be chosen either discretionary, simple Taylor rule or commitment. Based on our simulation, policy under commitment is far more superior to other two strategies. Commitment yields the lowest trade-off and volatilities and therefore the social cost can be kept very low. Interestingly, the effectiveness of ITF is not improved by the choice of inflation types as well as exchange rate regime. The use of consumer price index (CPI) inflation as the target can only improve marginally the effectiveness compared to core inflation. There is no evidence that moderating the exchange rate stability can enhance the effectiveness.

Keywords: Inflation targeting framework, discretion, Taylor rules, commitment.

JEL Classification Codes: E42, E52, E58

1. Introduction

Inflation targeting framework has become an epidemic amongst central bankers and monetary economists all over the worlds. It is believed that, ITF would reduce long-run inflation, create macroeconomic stability and promote sustainable growth (Bernanke, et.al, 2002). This leads to the adoption of such framework in developing countries that historically have moderate and high inflation. In Indonesia, the central bank started to adopt such a framework formally since July 2005.

Central bank as the monetary policy authority deserves a responsibility to maintain the progress and stability of economics, in particular those of financial and banking sectors. Normally central bank implements a certain monetary policy as a key factor in keeping the actual inflation level low and stable to support market-driven growth. Among other government policy instruments, it is also known

that monetary policy is the most flexible and applicable, especially in achieving mid-term stability, i.e., inflation stability. This can be explained as follows. Unlike fiscal policies that have side effects or approval lag from legislative bodies thus becomes not up-to-date anymore, monetary policies however provide some flexibilities in quickly responding the recent macroeconomic development. In other side, market is quite responsive in anticipating a monetary policy change, even before it was officially announced. Roughly speaking, monetary policies are frequently selected as policy instruments in responding economic fluctuations.

ITF has been officially adopted by Bank Indonesia since mid of 2005 in accordance with the mandate set forth in the Act whereby the central bank's main task is to maintain the currency stability. However, there is no independent audit so far to supervise the implementation of ITF in Indonesia, particularly in monitoring the roles of currency relatively to goods (inflation) and to other currencies (currency exchange). At least there are three fundamental questions should be addressed regarding to ITF surveillance. Firstly, whether the mandate stated in the Act supported by empirical judgment that ITF is the most appropriate monetary policy applicable in Indonesia since there are some other options such as output stability. If price stability is superior to other options then it will be the solid empirical foundation to ITF adjustment. Otherwise, the policy would be difficult and not optimal.

Second question is more practical since it relates to the best way in conducting ITF. Monetary economic literatures show at least three implementation strategies: discretion policy, simple-rule-based policy, and strong commitment-based policy (see, for instance, Svenson, 2002). Which is the most optimal strategy for Indonesia?

The third question deals with definition of inflation used. So far the national bureau of statistics of Indonesia (BPS) measures inflation in two ways: by using consumer price index (CPI) and core inflation. We mean by the later definition, inflation which excludes volatile food and administered price components to get near to those managed by monetary authority. However, difference of inflation references in optimizing behavior between monetary authority and economic agents can lead to a mis-signaling, and hence a not optimality. Therefore, the monetary authority should decide the most effective and optimal definition of inflation. This study attempts to answer those three questions.

We organize this paper into seven sections. A literature study on definition and framework of ITF is given in Section 2. The development of the model based on dynamic stochastic general equilibrium (DSGE) framework and new-Keynesian theoretical approach is presented in Section 3. We provide a series of findings in Sections 4-6. Concluding remark and policy implication are in Section 7.

2. Inflation Targeting: An Overview

This section is devoted to an overview of inflation targeting. Most part of this review can be found in first two chapters of Bernanke et al. (1999). Inflation targeting is a framework of monetary policy which characterized by an announcement to the public by authority concerning a target on rate of inflation or its range to be achieved in a certain period. It is a forward-looking strategy, thus is an anticipatory strategy to accomplish the target of inflation in the future. In this regard, the central bank explicitly stated that in the long term a low inflation rate and stable monetary policy is the main objective.

By communicating the plan and objective of inflation targeting policy to the public, the central bank intends to strengthen its accountability in achieving an objective. From this point of view, inflation targeting plays more as a framework rather than a rule.

Economists characterize strategies in monetary policy into rules and discretion. Rule is an automatic monetary policy strategy, where central bank employs its policy with a few or even without macroeconomic analyses or reasons. Constant money growth is an example of such kind of strategies, which implemented independently to the current macroeconomic situation. Supporters argue that the strategy reveals the discipline and credibility of central bank in preserving policy alongside with the commitment of the public. While those who criticize the strategy warn that the tight fullness of the central bank would require higher costs for consistent implementation.

In contrast to the strategy of rules, the central bank which applies discretion in monetary policy strategy does not demand a public commitment, in the sense that there is no obligation for public to follow the policy established by central bank, except under certain limited conditions. With this strategy, monetary policy is set periodically, for example month by month or week by week, adjusted to the prevailing economic conditions. Discretion strategy supporters argue that under such a policy strategy, monetary policy will be more flexible. In addition, central bank has ability to response any new information or recent developments in the economy.

The debate on what monetary policy strategy is applicable had been going for decades. But in fact this kind of dichotomy is not necessary to be deeply debated. Since, such a dichotomy is actually too simple in capturing the actual reality faced by central bank. In fact, none of the central bank in the world embraces rules strategy purely.

Although we have agreed that all monetary policy regimes are all discretionary, this strategy can be applied in a variety of levels. Discretion strategy may be realized in a less discipline fashion, in which monetary policy can vary according to central bank consideration or political direction. However, discretion can also be manifested in a more rigorous manner, where the central bank's objectives and strategies clearly defined.

As mentioned earlier, inflation targeting in this case is just a framework and not a rule. In other words, inflation targeting strategy can be referred to a constrained discretion, where the central bank must be disciplined in carrying out monetary policy without losing its flexibility in responding economic conditions. Thus, through the framework of inflation targeting, the central bank has ability to combine the benefits of rules as well as discretion strategies.

The main reason to set a low and stable inflation as a primary goal of monetary policy is that low inflation will support the creation of efficiency and growth in the long term, since a high inflation will damage the economy. It can be proved that countries which experienced hyper-inflation, i.e., inflation reached 100-500 percent per year; usually have a poor economic performance. Here are some reasons why a high and uncontrolled inflation adversely affect the economy:

1. Public and business will devote all the energy and resources to overcome the negative effects of inflation.
2. High inflation means high probability of insecurity and crisis in financial sector. In this situation, financial sector will have difficulty making adjustment due to high inflation rate.
3. As a result of an uncontrolled inflation, market for goods and services, as well as labor, are not too functional since price level is too easy to change, i.e., the price is too noisy, thus market will have difficulty in regulating prices of goods and services and wage levels.
4. For companies, the cost of price transfer will increase because prices are too often adjusted. Increasing the cost of transfer occurs due to the increasing of monitoring cost of competitor and supplier prices.
5. As a secondary effect, inflation impacts income redistribution, where the level of welfare of the poor and middle classes will decline by their income, wealth or savings.

Regarding the above, Fischer (1993) proves that the impact of unanticipated inflation will lead to macroeconomic instability. Thus, efforts to control inflation are very important prerequisites and preconditions in achieving economic growth.

Periods in which inflation rate is very high indeed potentially destroy the economic performance. However, even when the rate of inflation is moderate, i.e., a rate below 10 percent per year, the impact is still devastating. Even though this conclusion was very controversial, public is actually very antipathy about inflation as shown by a perception poll of inflation.

A survey by Shiller (1996) shows that public is generally confused by the inflation. They were often stressed by changes of relative prices to standard and quality of lives. This situation was also faced by investors, managers, and debtors, where they made some anticipation in isolating the effects of inflation on their assets value. In fact, this shows that public is very sure inflation contributes to inequality in income distribution.

In addition, inflation can also create distortions on accounting system particularly in making contract indexation and in determining economic valuation. In labor contract, for instance, the difficulties happen in determination of return and risk financial investments, tax determination, and so forth, even in condition of moderate inflation. Likewise, companies may also change their decisions on production and investment activities according to inflation.

Getting an empirical justification of how the relationship between inflation and economic performance are generally very difficult since inflation is influenced by interaction of various kinds of variables. Consequently it is impossible to provide a test that is truly "clean" on direct effects of inflation and real economic performance. However, studies so far lead to the conclusion that there is a relationship between inflation and low productivity which then resulted in low economic growth, such as Andersen and Gruen (1995).

In addition, Fischer (1993) shows that the increase in inflation by 1 percent will increase the growth of the economic costs of more than 10 percent. While Sorel (1996) reveals that the effect of inflation on economic growth is not significant when inflation rate is less than 8 percent, whereas when inflation is higher than that, is negatively related to growth. Sorel studies reinforced by Bruno and Easterly (1998), where only when there is a "crisis of inflation", i.e., when inflation is very high, then inflation has a negative effect on economic growth. However, there are also recent studies which indicate that inflation trigger unpredictable price changes even though the inflation is very low. See for example, Judson and Orphaides (1996) and Hess and Morris (1996). Several empirical studies above nevertheless justify that the higher the negative effects of inflation in the long run, the more it will push monetary authorities to better focus their policy objectives in price stabilization.

We have discussed above two main reasons for the monetary authorities to further emphasize the direction of monetary policy on price stability: reducing the number of policies that are too active and increasing the central bank's attention to the negative effects of inflation even when inflation rate is in moderate level. In the case the central bank has a strong reason for doing inflation targeting policy framework as a strategy, it is very reasonable for central bank to do a nominal anchor in conducting the strategy. The following discusses what nominal anchor is.

Price of goods, such as rice is measured in unit of public money. In gold standard system, the price of rice is measured in grams of gold. In this system, it is certainly not difficult to determine the price of rice, since rice and gold both are intrinsically useful commodities. Therefore, for consumers the prices of gold and rice are not too much different from their marginal values. In the event of food scarcity, rice will be more valuable than gold. Thus the relative price of rice to gold will increase. Conversely, if the preference on gold increases then it follows that demand for gold increases, too. Hence, the relative price of rice to gold declines.

How is the price of goods in generally accepted today unbacked paper-money standard? Certainly, the price is much different from its marginal value. As paper money has no intrinsic value, what affects the price of rice thus it is either one dollar or three dollars? The answer is very simple. In a paper-money system, there is a requirement for monetary policy to conduct an additional constraint called the nominal anchor. This constraint is managed by maintaining or fixing the price to a certain level at a time. This nominal anchor can be done in two forms of restrictions, namely restriction on quantity and restriction on price. The former restriction is carried-out for example by limiting the amount of paper money circulating in the community. While the later is conducted by fixing prices in association with prices of other goods or assets, e.g., gold or foreign currency. Both types of restrictions have been applied and they can guarantee the level of prices in the economy has a specific value despite the paper money itself has no intrinsic value.

Implementation of a monetary policy without nominal anchor can also be accomplished, but of course it contains a substantial risk. If there are no restrictions, either quantity or price restrictions, then monetary policy will result in a sharp increase in expected inflation. This will lead to inflation scares, which is a dilemma for monetary policy. On the one hand, if the monetary authorities allow expected inflation without issuing any policy, then it means they do not only allow the increase in inflation, but also showing that they do not have any credibility in preventing inflation. Or we can say, if monetary

authorities implement a contractionary monetary policy to prevent inflation, then there will be a risk of economic recession. Therefore, in the absence of a nominal anchor, the macroeconomic forecast and control mechanisms will be difficult since expected inflation is influenced by many factors.

Briefly, the existence of a nominal anchor will make a monetary policy more effective and, in the same time, more easily to be understood by the public. Commitment in long-term price stability is a nominal anchor. Hence, the inflation target should be communicated to the public in order to achieve specific targets in the future. As we emphasized before, inflation targeting is indeed a nominal anchor in monetary policy.

Inflation targeting framework is a useful framework for a monetary policy even when the target is set at a moderate rate rather a low level. Low inflation rate may be less preferable since it does not provide incentives for the economy. Moreover, inflation targeting framework does not preclude the actual degree of activity of monetary policy to achieve macroeconomic objectives in addition to price stability, but with a higher level of discipline and consistency of a monetary policy.

3. Model

The model used in this study is based on a theoretical approach of the new-Keynesian. Similar models can be found in Adolfson (2002), Soderlind (2003), and Svenson (2005), which are the main inspiration for this study. Combination of the three is the frontier of basic research on the economic of central banking.

New-Keynesian based theoretical approach has several features that have a strong and empirically relevant microfoundation. These features are mainly related to the following:

- economic actors perform intertemporal utility optimization as a forward looking agents based on a set of up to now information. Optimization performed recursively by withdrawing all expectations about the path that will happen in the future. In this case, the new-Keynesian has common features with those of new-classical in which actors act rationally as in Muth (1960).
- In accordance with the Keynesian tradition, price rigidity is applicable whether caused by market imperfection or friction that occurs in a variety of output and input markets. In an open economy, for example, rigidity may occur due to the occurrence of incomplete pass-through from changes in exchange rates as an implication of pricing to market strategy (Obstfeld, 1999). For the case of Indonesia, there is an empirical evidence that domestic goods also have a certain degree of price stickiness (Solikin and Sugema, 2004). Therefore, it is important to incorporate elements of price rigidity in all economic modeling.

As price rigidity (CPI) normally occurs in price of domestic and imported goods, Adolfson (2002) only identifies incomplete exchange rate pass-through as the only source of rigidity. In this setting, the deviation from the law of one price affects a sluggish domestic inflation adjustment. The similar situation also happens with the terms of trade. However, rigidity in the CPI and hence terms of trade can also be sourced from domestic goods. Calvo (1995), for example, provides formulation on how the prices of goods determined by price setter and non-price setter components. Surely this can capture the dynamics of flexibility and in the same time rigidity of the prices of domestic goods. Therefore, this study can be seen as a mix between Calvo and Adolfson approaches where the source of price rigidity is extended.

In this model, aggregate supply is represented by a Phillips curve enriched with a component of price rigidity, and embodied by the following equation:

$$\pi_t = \alpha_\pi E_t \pi_{t+1} + \alpha_y y_t + \alpha_q (p_t^M - p_t^D) + \alpha_p (p_t^* + e_t - p_t^M) + \varepsilon_t^\pi,$$

where $0 < \alpha_\pi < 1$ is a discount factor, α_y , α_q , and α_p are all positive constants. Under the index of time t , we define by π , y , p^D , p^M , p^* , and e the inflation rate, the domestic output, the price of domestic product, the price of imported product (in domestic currency), the price of imported product (in foreign currency), and nominal exchange rate, respectively. Shock on supply is represented by ε^π which obeys the following process

$$\varepsilon_{t+1}^{\pi} = \tau_{\pi} \varepsilon_t^{\pi} + u_{t+1}^{\pi},$$

where u^{π} is iid error with variance σ_{π}^2 .

Aggregate demand is represented by means standard Euler equation under intertemporal household consumption and CES function:

$$y_t = E_t y_{t+1} - \beta_q E_t (\pi_{t+1}^M - \pi_{t+1}^D) - \beta_i (i_t - E_t \pi_{t+1}) + \beta_e (E_t \pi_{t+1}^D - (E_t e_{t+1} - e_t) - E_t \pi_{t+1}^*) - \beta_{y^*} (E_t y_{t+1}^* - y_t^*) + \varepsilon_t^y.$$

In equation above, i is domestic interest rate, π^D and π^M are inflation rates caused by domestic and imported products, respectively, π^* is foreign inflation, and y^* is international output. Shock on demand is represented by ε^y which obeys the following process

$$\varepsilon_{t+1}^y = \tau_y \varepsilon_t^y + u_{t+1}^y,$$

where u^y is iid error with variance σ_y^2 .

The gap between domestic and international interest rates is defined as the accumulation of depreciation and premium risk:

$$i_t - i_t^* = E_t e_{t+1} - e_t + \varepsilon_t^{\varphi},$$

where i^* is the foreign interest rate and ε^{φ} is the premium risk governed by

$$\varepsilon_{t+1}^{\varphi} = \tau_{\varphi} \varepsilon_t^{\varphi} + u_{t+1}^{\varphi},$$

with u^{φ} is iid error with variance σ_{φ}^2 .

We follow Clarida (2000) by treating international economics as exogenous autoregressive processes. The formulation of foreign output, inflation, and interest rate are respectively given by

$$\begin{aligned} y_{t+1}^* &= \rho_y y_t^* + u_{t+1}^{y^*}, \\ \pi_{t+1}^* &= \rho_{\pi} \pi_t^* + u_{t+1}^{\pi^*}, \\ i_t^* &= (1 - \rho_{i^*}) (b_{\pi} \pi_t^* + b_{y^*} y_t^*) + \rho_{i^*} i_{t-1}^* + u_t^{i^*}, \end{aligned}$$

where ρ_y , ρ_{π} , and ρ_{i^*} are all coefficients in $[0,1]$, and u^{y^*} , u^{π^*} , and u^{i^*} are all iid errors with variances $\sigma_{y^*}^2$, $\sigma_{\pi^*}^2$, and $\sigma_{i^*}^2$, respectively.

The followings are identity equations:

$$\begin{aligned} p_t^M - p_t^D &= p_{t-1}^M - p_{t-1}^D + \pi_t^M - \pi_t^D, \\ p_t^* + e_t - p_t^M &= p_{t-1}^* + e_{t-1} - p_{t-1}^M + \pi_t^* + \Delta e_t - \pi_t^M. \end{aligned}$$

In this model, central bank aims to minimize a loss function by considering all information on economics path, i.e.,

$$\min_{i_t} E_t \beta^j L_{t+j},$$

under constraints of

$$A_0 \begin{bmatrix} x_{1,t+1} \\ E_t x_{2,t+1} \end{bmatrix} = A \begin{bmatrix} x_{1,t} \\ x_{2,t} \end{bmatrix} + B i_t + v_{t+1},$$

where

$$L_t = (\pi_t - \bar{\pi}_t)^2 + \lambda (y_t - \bar{y}_t)^2,$$

$$x_{1,t} = [i_{t-1} \quad y_t^* \quad i_t^* \quad \pi_t^* \quad \varepsilon_t^{\pi} \quad \varepsilon_t^{\varphi} \quad \varepsilon_t^y \quad (p_{t-1}^M - p_{t-1}^D) \quad (p_{t-1}^* + e_{t-1} - p_{t-1}^M)]^T,$$

$$x_{2,t} = [y_t \quad \pi_t^D \quad \pi_t^M \quad \Delta e_t]^T,$$

$$v_t = [0 \quad u_t^{y^*} \quad u_t^{i^*} \quad u_t^{\pi^*} \quad u_t^{\pi} \quad u_t^{\varphi} \quad u_t^y \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0]^T,$$

$$B = [1 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad (\beta_i + \beta_e) \quad 0 \quad 0 \quad 1]^T.$$

In this study we assume that both inflation gap target $\bar{\pi}$ and output gap target \bar{y} are all zeros. The complete solution to the model can be found in Svenson (2002). We note that the distinction

between the discretionary, Taylor rule, and commitment solutions lies in the way central banks react to economic developments.

4. Social Cost of ITF

In simple AD-AS model it can be explained an occurrence of a trade-off between price and output stabilization. There are some important things that can be taken as a lesson. At the time of monetary policy geared towards price stability or inflation pressure, the control of the output is vanished. Output variability becomes larger if the elasticity of supply increases. In this case, the output expenses can only be minimized if the supply is perfectly inelastic in the short term or the same to long-term supply. When a monetary policy is aimed to stabilize the output, then the control on price, i.e., inflation, is lost. An overly expansionary policy would lead to inflation gap and otherwise a contractionary policies would result in recessionary gap. Gaps will worsen when either the supply is inelastic or is approaching long term curve. Therefore, targeting the output will produce a minimum inflation cost when the elasticity of supply is perfect.

In practice, central bank actively adjusts the policy according to economic situation. If there is a substantial inflationary pressure, monetary policy is adapted to reduce inflation. In the event of unemployment, monetary policy is relaxed. In other words, the policy target is never monotonous. Many economists criticized the views of the active monetary policy. For instance, monetarist Milton Friedman stated that: (i) monetary policy can work with long and variable lags, (ii) in the long run, there is no trade-off between inflation and unemployment, and (iii) as implications, the importance on credibility of central banks in making monetary policy effective is emerged. In addition, Robert E. Lucas, Jr., doubted that policy makers will be able to accurately control the economy because it is very difficult to control and anticipate changes in public expectations. Kydland and Prescott (1977), Calvo (1978) and Barro and Gordon (1983) all criticized the active monetary policy because of the policy credibility problem or time inconsistency problem. According to their views, an active monetary policy will always result in an over-expansionist and hence inflation.

In this section we test whether ITF would cause the loss of opportunity for central banks to stabilize output. We also test whether multi-objective monetary policy strategy is a feasible solution to avoid the trade-off between output and prices. In other words we test which of three options (inflation target, output target, or both) is the most optimal option. The most optimal option would give the lowest variance of output and inflation. Our simulation results of each option are summarized in the chart below, where the horizontal axis represents the variation of inflation while the vertical axis expresses the variation in output.

Figure 1 shows that inflation targeting is in the top left position, indicating that its variance is relatively low. But compared to other two options, inflation targeting produces the highest output variance. Theoretically, this indicates that when being pursued is price stability, the stability of the output to be sacrificed. Conversely, stabilization of output option is in the lower right position, which is in contrast to the inflation option, shows that the output variance is small but large variance of inflation. It means that minimizing the variance of output is achieved at the expense of inflation. Multiobjectives option seems closer to the stabilization of output. The cost becomes too expensive if the objective is stabilization which is closer to price stability. This indicates that the supply curve has a relatively high elasticity. Overall, none of the three options is superior. The most optimal choice will primarily depend on social preferences. If price stability is considered more important, the inflation targeting is a better choice. While, if the fine tuning of output is more important, the output targeting is reasonable.

We note that the conclusion applies only to targeting with the strategy of discretion, where strategy is not fully adhere to the ITF. In fact, strategy of discretion offers more flexibility in target selection. Is there a room for reducing the social cost by implementing different strategy?

5. Options Strategies

ITF implementation requires commitment, transparency and accountability of monetary authorities. The commitment will greatly affect inflation expectations so that domestic interest rates will be lower. Hence, the trade off between output and prices can be minimized.

Figure 1: Targeting options and the volatilities of inflation and output

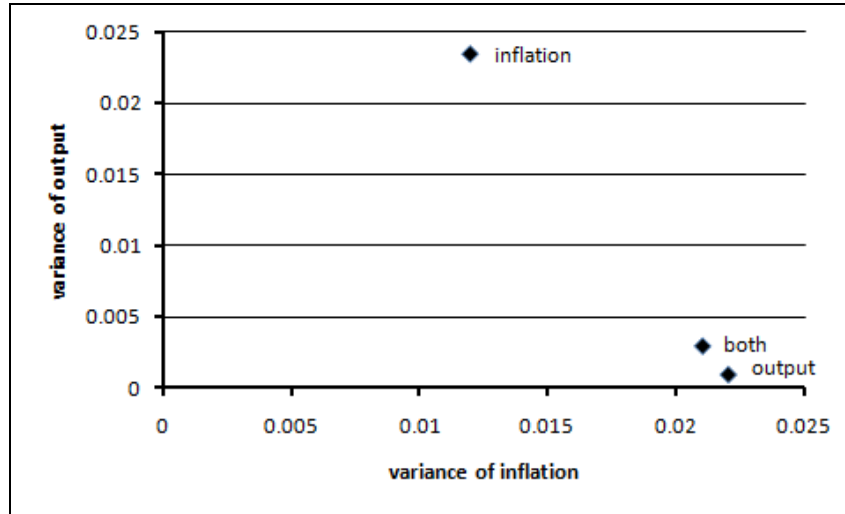


Table 1: The variances under three different strategies

Source of Variance	Discretion	Taylor Rules	Commitment
Inflation	0.023263	0.03257	0.000043
Output	0.133983	1.182986	0.000352

Now we examine whether the commitment strategy is much more efficient than the Taylor rule and discretion strategies. Results from the simulation are presented in Table 1 below. It is shown that commitment is the most superior strategy, since it produces smaller inflation and output variances. Explicitly, commitment strategy can reduce the cost of output fluctuations. Therefore, the implementation of ITF under commitment strategy is the most efficient in the sense that large cost in term of output can be avoided.

One thing that we could take as a lesson from simulation result is that the commitment strategy can only be well-implemented if the central bank has the credibility to run it. In this simulation we assume that the central bank consistently apply the ITF and economic players trust him. Credibility will awaken by itself through consistency.

6. Which Should be Targeted?

Core inflation is a new vocabulary which more popularly used by the central bankers. Probably that core inflation is a type of inflation that could make them comfortable in the sense that if the CPI inflation target was missed then it would have to be seen whether there are sources of failure in monetary policy or not. If the source of fluctuations in the CPI is dominated by administered prices and volatile components, the monetary authorities have little room to influence the movement of inflation. Therefore, core inflation is considered as an alternative suitable measure for the implementation of the ITF.

The question is then whether the targeting of core inflation is a more optimal solution than the CPI inflation. Empirically, this question obviously requires statistical tests. It is presented in Figure 2 the implications of targeting CPI and core inflations against the fluctuation of output. We can say that

targeting of a certain type of inflation provides an efficient solution if and only if the output expenses is minimal. We cannot compare it by using inflation volatility indicator, since each type of inflation has different calculation components. What we can compare is if we can suppress a certain type of inflation to its lowest limit, how the consequences to the output volatility?

Figure 2: Implication of inflation targeting on output volatility

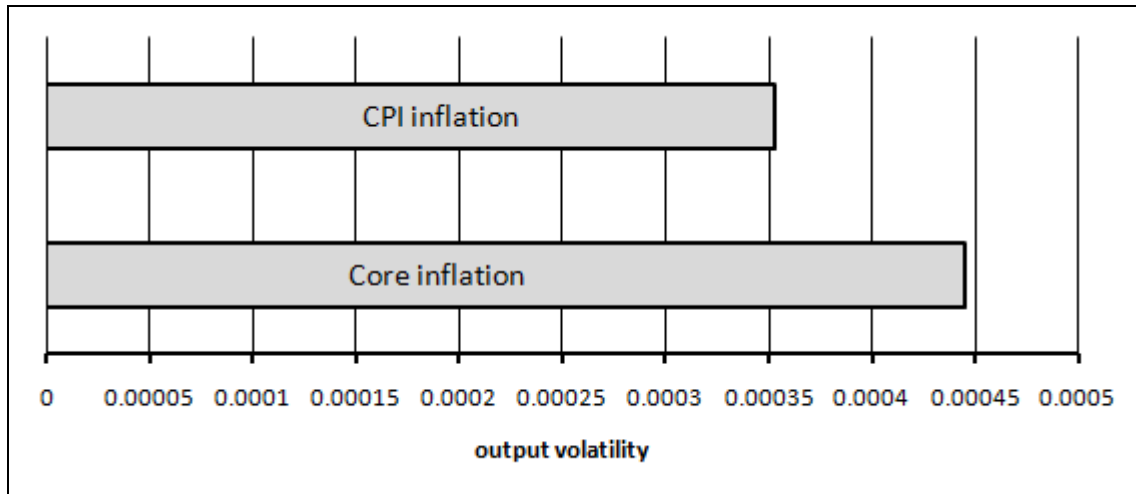


Figure 2 summaries that differences in volatility of output resulted by CPI and core inflation targeting are relatively marginal. But if we are asked to choose which is relatively better, then the obvious choice is CPI inflation targeting since it contributes smaller volatility on output. These findings clearly have important implications for monetary policy.

First, CPI inflation is a broader definition that represents a more realistic definition describe the actual economic situation. Eliminate the slightest information can reduce the ability of monetary policy to cope with economic development. Secondly, the use of different definitions to that used by economic players can lead to mis-signaling, such as core inflation is rising when the CPI inflation is declining. Thus, monetary policy will be in the opposite direction to the tendency of actual economic situation. We can say that the choice of definition will determine the level of appropriateness between monetary policy response and actual economic development. Third, core inflation probably should only be used to measure the extent to which the role of monetary policy in controlling prices. In other words, this definition should only be used as an assessment tool when something goes wrong.

7. Conclusion

Application of ITF in Indonesia could reduce the volatility of inflation in the sense that in overall it gives rise to a more manageable inflation. As an implication, monetary authorities through the application of the ITF will be easier in directing inflation towards the desired target. But it is achieved at the expense of output stability. This also indicates that trade-off between price and output stabilization exists.

Chance to minimize the instability of output can be reached by formulating the appropriate implementation strategy. Operational framework based on commitment is much more optimal than a policy framework based on the discretion and Taylor rule. It is demonstrated that commitment strategy produces the minimum output volatility.

In addition, the social cost of ITF is also determined by the type of inflation used as the final target. In fact, monetary authority has two alternative definitions of inflation, i.e., core inflation and CPI inflation. Simulation results show that the nominal anchor of stabilization with CPI inflation leads to the smallest output volatility. Therefore, the CPI as opposed to core inflation should be acknowledged as ITF target.

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