Some warning signals about average inflation targeting

By Seppo Honkapohja and Nigel McClung*

In 2020, the Federal Reserve announced a new policy of flexible average inflation targeting, but they have not announced some details of the new regime such as the averaging window for the target. This brief discusses the performance of average inflation targeting rules when agents have imperfect knowledge about the economy and learn to forecast over time. We find that an opaque average inflation targeting rule can badly destabilize expectations – even if initial inflation expectations are very close to the inflation target. Communication about the averaging window can help improve outcomes under average inflation targeting, and may even help to initiate an escape from the liquidity trap, but traditional inflation targeting rules also guide the economy out of the liquidity trap and bring inflation back to the inflation target under similar conditions. Policymakers should exercise caution when implementing an average inflation targeting framework, and future work may uncover new ideas about how to successfully implement an average inflation targeting policy.

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* Seppo Honkapohja, Aalto University School of Business; Nigel McClung, Bank of Finland.

The zero lower bound (ZLB) on central bank policy rates strained the effectiveness of traditional inflation targeting policies and generated considerable interest in alternative policy frameworks such as price level targeting, nominal GDP targeting and average inflation targeting (AIT). The Fed weighed these alternatives in its own strategy review, and ultimately opted for a policy of flexible average inflation targeting in August, 2020.[1] However, Fed announcements since then have provided little information about the policy structure, including the relevant averaging window for the new target. Consequently, we have imperfect knowledge about the Fed's new policy regime.

Research on AIT

The research literature on AIT is small relative to the literature on price level targeting and standard inflation targeting, and most papers either impose rational expectations, such as Nessén and Vestin (2005) and Mertens and Williams (2019), or assume that agents are boundedly rational but have perfect knowledge about the policy structure, as in Budianto, Nakata and Schmidt (2020). The rational expectations literature makes very stringent and unrealistic assumptions about agents' understanding of opaque policies. Moreover, rational expectations implies a dramatic response of inflation expectations to the Fed's 2020 announcement which is arguably inconsistent with the mild response of household inflation expectations documented by Coibion, Gorodnichenko, Knotek II, and Schoenle (2020).

In a recent paper (Honkapohja and McClung (2021)), we fill a gap in the current research literature by studying the performance of AIT when agents have imperfect knowledge about the policy structure and learn to forecast over time.

Expectations can become de-anchored from the inflation target

With AIT, policymakers target the average of past inflation rates, and therefore policymakers aim to overshoot the inflation target (e.g. 2%) after a sustained period of below-target inflation. However, the transmission of AIT depends on how the central bank implements the AIT policy. For example, it matters whether the policymaker is using a simple or weighted average of inflation to guide policy, whether the policymaker responds symmetrically or asymmetrically to below vs. above-target inflation, and also whether the policymaker is transparent about the averaging window itself.

Given the opacity of the Fed's current framework, it may be reasonable to assume that the Fed targets a simple average of inflation over a finite data window in a setting where agents do not understand salient details about the policy framework. In our recent work (Honkapohja and McClung (2021)), we adopt this view of the current regime and study the performance of AIT in a standard macro model with adaptively learning agents. We find that AIT can easily destabilize the economy if prices are fully flexible or if agents' beliefs are realistically responsive to incoming data. More precisely, we find that the inflation target equilibrium is unstable under learning, which implies that even small deviations of inflation expectations from the 2% target will lead to permanent divergence of actual inflation from the target. Instability under learning should be interpreted as a warning sign that an opaque AIT policy may lead to undesirable inflation outcomes.

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[1] Svensson (2020) details many of the alternative policy frameworks considered by the Fed's strategy review.

Figure 1. Diverging oscillations under AIT
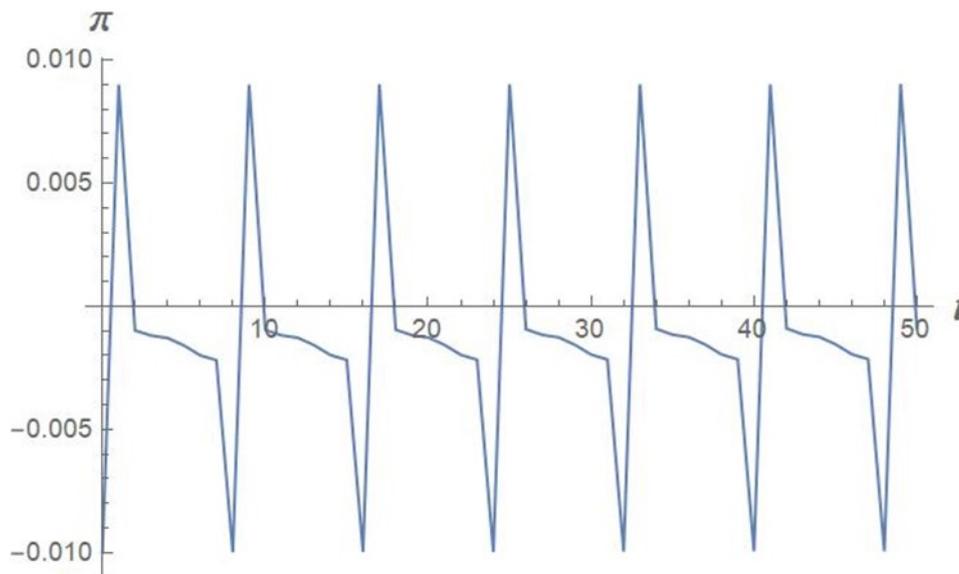
Honkapohja and McClung (2021) shows this formally in an analytical framework, and Figure 1 illustrates inflation dynamics after AIT is implemented in a low inflation environment. The figure reveals slowly diverging oscillations in the inflation rate, which eventually lead to inflationary or deflationary spirals. Three ingredients of the model contribute to these unstable dynamics. First, the policy aims to create makeup inflation (i.e. a period of inflation overshooting following the initial period of undershooting). Second, since the policymaker targets a simple moving average of inflation with a finite data window, *average inflation* eventually overshoots the target during the period of makeup inflation, and this compels the policymaker to aim for a subsequent undershooting of the target. Thus, the use of a finite averaging window for the target results in a pattern of under- and overshooting of the target. Finally, agents do not understand that the policymaker is targeting a simple average of inflation, and this prevents them from forecasting this pattern of under- and overshooting. Consequently, the agents' long run inflation expectations drift away from the target.

Importantly, we would not observe the unstable learning dynamics in Figure 1 under a standard inflation targeting policy, which does not aim for a makeup inflation, nor would we observe these dynamics under price level targeting rules that feature an infinite averaging window.[2] Thus, the instability of the target equilibrium under learning is not an intrinsic flaw of makeup strategies or inflation targeting policies generally – it is a distinctive feature of an opaque average inflation targeting regime.

Communication and Robustness

The central bank can successfully implement AIT by communicating the averaging window to the public. If the public forecasts inflation using the knowledge that the current policy stance depends on a specific number of lags of inflation, then the target equilibrium with 2% inflation is stable under learning. Good communication helps to anchor private sector inflation expectations.

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[2] See Honkapohja and Mitra (2018) and Honkapohja and Mitra (2020) for results on price level targeting in economies with adaptively learning agents.

Honkapohja and McClung (2021) examines the robustness of a well-communicated AIT policy in a few different ways. First, the paper documents that a well-communicated AIT policy can anchor expectations around the long run target given some empirically realistic assumptions about the pace at which agents revise their inflation expectations over time. However, traditional inflation targeting frameworks keep expectations anchored at the target even when expectations are very sensitive to new data, whereas AIT policies require a relatively slow speed of learning.

Second, the paper assesses robustness in terms of the range of assumptions about initial inflation, output and interest rate expectations that cause the ZLB to bind when AIT is first implemented, but which ultimately result in the economy escaping the liquidity trap and returning to the target equilibrium over time. Figure 2 illustrates this set of initial beliefs, which we call the "domain of escape", for a well-communicated AIT policy. For points outside the domain of escape, the economy never escapes the ZLB and deflationary spirals occur. The domain of escape includes initial expectations that are close to the model's "deflation equilibrium" which features a permanent liquidity trap. Thus, a well-communicated AIT rule can initiate escape from the ZLB provided that agents are not initially too pessimistic. However, the domain of escape for a simple inflation targeting rule is slightly bigger in our model.[3] It is therefore not clear that a well-communicated AIT rule outperforms a standard inflation targeting policy when interest rates are at the ZLB.

Figure 2. Domain of escape of the liquidity trap
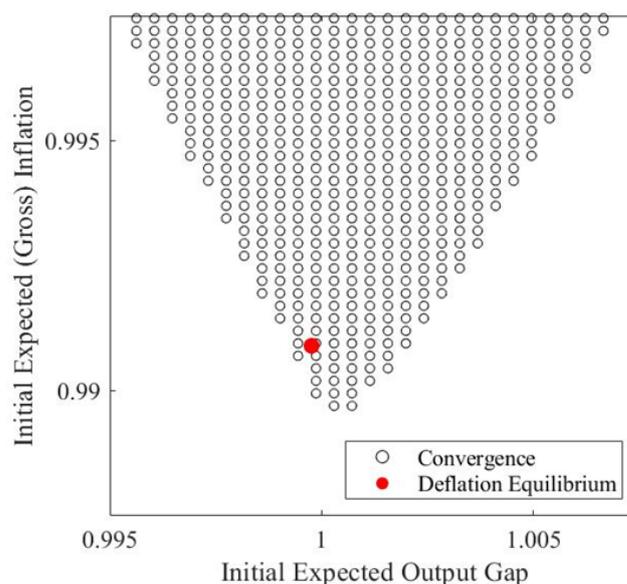
Conclusion

An average inflation targeting framework can destabilize expectations and the macroeconomy if agents do not understand the basic structure of the policy. This is the case even if inflation expectations are initially very well-anchored near the long run inflation target. Good communication about the averaging window can improve outcomes, but standard inflation targeting frameworks are more robust than well-communicated average inflation targeting policies. Future research should identify rules, strategies and policy actions that can successfully implement AIT under conditions of imperfect knowledge. ■

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[3] It should be noted that the domain of escape for both AIT and IT is quite small near the deflation equilibrium. Hence the ability to escape deflation under AIT or IT is limited to small shocks.

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About the authors

Seppo Honkapohja *has an M.Soc.Sc. and D.Soc.Sc. from University of Helsinki. He is currently Visiting Professor, Department of Economics, Aalto University School of Business, Finland. He was Member of Board and Deputy Governor, Bank of Finland 2008-2017. Previously he has been Professor at Turku School of Economics, University of Helsinki and University of Cambridge. He has twice been Academy (Research) Professor. He has published several books and a large number of journal articles and done occasional economic policy advising over his career.*

Nigel McClung *is a Research Economist at the Bank of Finland's Monetary Policy and Research Department. His research interests include macroeconomics, learning, and monetary-fiscal policy interactions. He obtained his Ph.D. in Economics from the University of Oregon in 2018.*

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