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Just Do IT? An Assessment of Inflation Targeting in a Global Comparative Case Study*

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Abstract

This paper proposes new measures of the effectiveness of inflation targeting (IT) and evaluates its main drivers in a (large) sample of advanced economies (AEs) and emerging market and developing economies (EMDEs). Using synthetic control methods, we find that IT has heterogeneous effects on inflation across countries. The gains shifting the level of inflation (generally downwards) are modest and smaller in AEs than are those in EMDEs. All such gains are statistically significant in one out of three economies approximately. Second, statistically significant differences in keeping inflation close to target under IT (compared with estimated counterfactuals) can be detected more broadly in nearly half of the economies. Third, IT can be a source of economic resilience that helped cushion inflation fluctuations during the 2007-09 Global Financial Crisis with statistically significant gains mostly found among EMDEs (in two out of three of these economies). Finally, we find that IT effectiveness—measured by the dynamic treatment effect and the absolute deviations of both observed and synthetic inflation from target—is significantly correlated with indices of exchange rate stability and monetary policy independence, especially among EMDEs.

JEL Codes: C33, E31, E42, E52, E58, E61, N10.

Keywords: Inflation-Targeting Regime, Monetary Policy, Inflation, Synthetic Control Method.

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1. Introduction

Price stabilization through inflation targeting (IT) regimes became the norm in central banks over the past three decades. From 1989 to date, more than forty countries have adopted an IT regime.[1] Some of them had suffered hyperinflationary or high-inflation periods before its adoption (e.g., Albania, Peru, Poland). One has suffered a seemingly never-ending deflationary episode (Japan). Only a handful of them have abandoned IT in order to adopt the Euro (Finland and the Slovak Republic)[2] or other monetary arrangements (Albania and Argentina). In sharp contrast with the past, many inflation-targeting central banks (ITCBs) enjoyed low and stable inflation rates since implementing IT until the post-pandemic inflation surge, with averages around 2.5% and 5% in advanced economies (AEs) and emerging and developing economies (EMDEs), respectively.

Since the Great Inflation era in the 1970s and into the 1980s, AEs have pursued policies and strategies to fight inflation. Likewise, EMDEs followed in their footsteps adopting similar approaches since the 1990's. In the view of many scholars and even policy makers, IT has since then been the preferred monetary policy framework (Hammond, 2012). In the recent pandemic times, the concerns have reappeared raising anew the question of whether the IT framework contributes to maintain inflation low and stable. In this paper, we investigate whether the implementation of an IT scheme was effective among the countries that chose to follow that path and what institutional and structural features made adopting IT more favorable and likely to succeed in its goals.

The literature on the effectiveness of IT to which we contribute is inconclusive. On the one hand, several studies claim that ITCBs have been successful in various dimensions. According to some of these studies, IT has played a significant role in bringing inflation down and stabilizing inflation fluctuations, lowering inflation volatility (Debelle, 1997; Corbo et al., 2002; Pétursson, 2005; Brito and Bysted, 2010; Bleich et al., 2012). Inflation targets allowed a larger disinflation with smaller forecast errors (Johnson, 2002) and coincide with an (often downward) shift in expected inflation and the anchoring of long-run inflation expectations (Johnson, 2003; Levin, et al., 2004; Kose et al., 2019). IT has been successfully used to lock in the benefits of previous disinflations in the face of large one-time shocks (Mishkin and Posen, 1997; Corbo et al., 2002; Bernanke et al., 2018). IT has even been associated with improved macroeconomic performance and lower vulnerability to crisis relative to other monetary policy regimes (IMF, 2006). Moreover, using a meta-regression analysis based on 8059 estimated coefficients from 113 studies, Balima et al. (2020) find IT to be correlated with lower inflation even after controlling for publication selection bias.

On the other hand, criticisms on IT have not been absent. The number of studies that have shown skepticism or do not find a statistically significant difference in inflation levels among IT adopters and non-IT adopters is not negligible (Dueker and Fischer, 1996; Groeneveld et al., 1998;

[1] The number of countries that adopted IT has been increasing over time. For the full list of inflation-targeting central banks and our classification, see our discussion in Section 2 and Table 1.

[2] For some analysts and scholars, Spain was another case of IT abandonment before adopting the Euro (see, e.g., Mishkin and Schmidt-Hebbel, 2002).

Neumann and von Hagen, 2002; Ball and Sheridan, 2004; Dueker and Fischer, 2006; Blinder et al., 2008; Levy-Yeyati and Sturzenegger, 2010; Ball, 2011; Willard, 2012; Alpanda and Honig, 2014; and Ardakani et al., 2018; among others). Furthermore, a subset of this literature has also argued that if IT is effective, it is mainly among EMDEs (Gonçalves and Salles, 2008; Lin and Ye, 2009; Akyurek et al., 2011; Lee, 2011; De Mendonça and De Guimarães e Souza, 2012; Gerlach and Tillmann, 2012; Samarina et al., 2014; Mariscal et al., 2018). Some of these negative findings could be attributed to differences in aims pursued by the IT adopters as, for some, the primary objective is not to shift the level of inflation—having already achieved a low inflation after a prior disinflationary process—but to lower the inflation volatility around the target and build resilience when confronted with large shocks to lock in those gains. The literature, to our knowledge, has paid less attention to those alternative goals so our paper addresses this gap exploring more systematically these other dimensions along which an IT regime can be effectively deployed.

Leaving aside econometric analyses without comparison groups, one important strand of the literature has mostly used difference-in-differences (DID) estimators and propensity score methods to evaluate the causal effects of IT on observed inflation rates. Those studies, however, obtain rather mixed results on causality. Instead, in this paper we adopt a purely agnostic viewpoint about the effectiveness of IT and we use recently proposed synthetic control (SC) methods for causal inference to test whether IT matters in a (large) sample of AEs and EMDEs. In doing so, we avoid important issues in this literature: the absence of parallel trends and equal weights of control units usually assumed in DID estimations, as well as the small number of control units that does not allow accurate estimates by propensity score matching methods.[3,4] We also deal with several empirical obstacles such as different treatment periods, selection of control groups, and methodological limitations with great care.

We use the SC approach comprehensively summarized in Abadie (2021), jointly with a careful selection of treated units and control groups. To improve the pre-treatment fit of the synthetic estimates, we employ the intercept-shifted SC method suggested by Doudchenko and Imbens (2016) and formalized by Ferman and Pinto (2021). After discarding synthetic units with weak pre-treatment fit, our final sample contains 23 treated units (9 AEs and 14 EMDEs) and a set of potential comparison units (17 AEs and 50 EMDEs) covering different available samples over the 1980Q1-2018Q4 period.[5] Using this dataset and the abovementioned SC techniques, we find the following.

[3]For a useful exposition on these and other empirical issues related to the use of DID and propensity score matching methods to evaluate IT effectiveness, see Lee (2011).

[4]Other relevant works in this segment of the literature are Lee (2011) and Barbosa et al. (2018). Our work shares essentially the same estimation method with them, but there are important differences regarding the sample of study, the definition of the treatment, choice and number of treated and untreated units, research questions, IT effectiveness measures, inference, and results.

[5]We identify a set of 47 candidates to be classified as ITCBs. Then, we apply our definition of IT and remove economies with a very limited pre–intervention and post-intervention periods. As a result, we obtain 38 units with a fully-fledged IT regime (see Table 1). The final sample with a proper pre-treatment balance has 23 units. More details in (sub)sections 2 and 4.1.

First, IT has been effective in reducing the level of the inflation rate compared with the counterfactuals in most countries (at least 5 AEs and 11 EMDEs). However, the gains of disinflation are modest—especially among AEs—and statistically significant in just a few of the treated units (notably, Canada, UK, Colombia, Hungary, Peru, Philippines, Poland, South Africa, and Thailand). Interestingly, Japan—a country that has been coping with deflation for a long period of time—achieved a significantly higher (positive) inflation rate after the adoption of IT. In the group of EMDEs, the reductions are relatively substantial in the short and even over the medium term.

Second, we propose a novel measure and test of IT effectiveness that compares the dispersion of the actual and synthetic inflation rates around the target point or the midpoint of the target band, while controlling by the degree of pre-treatment fit. Under the null hypothesis of no effectiveness the indicator is equal to zero—the observed and counterfactual inflation rates are the same. Using exact inference, we find statistically significant differences in approximately three out of five economies over the full post-intervention.

Third, IT could be useful to lock in the beneficial effects of price stabilization even during severe crisis episodes. We investigate the resilience of the IT framework to help stabilize inflation in response to the large 2007 commodity price shocks (oil and food commodities) and the subsequent 2007-09 Global Financial Crisis (GFC). Our evidence on economic resilience shows sizeable differences among AEs and EMDEs. There are virtually no statistical gains in shifting the level of inflation for AEs and only one in four countries achieved lower volatility around the target than in the counterfactual. By contrast, statistical gains among EMDEs are quite sizeable reaching two out of five economies for the shift in the inflation level and two out of three economies for the volatility around the target, respectively.

Fourth, we find that measures of IT effectiveness—proxied by the dynamic treatment effect or the absolute inflation deviations from the target—are statistically related to indices of exchange rate stability and monetary policy independence, especially among EMDEs. ITCBs that are more (monetary policy) independent from the base country, other things equal, tend to enjoy an improved ability to control inflation around the proposed target. Similarly, more stable exchange rates are associated with ITCBs that can moderate the inflation level and its variability more effectively.

Our study contributes to the existing IT literature in different ways. First, the paper provides causal inference on the adoption of IT using a global perspective and SC methods with a much larger sample size than that of prior studies. For example, economies with IT regimes such as Iceland, Japan, Norway, Guatemala, India, Indonesia, Romania, and Serbia have not been evaluated as treated units in any previous study, even among those that use causality techniques (see, e.g., Ball, 2011; Lee, 2011; and Barbosa et al., 2018). Second, we propose a new test of effectiveness in maintaining inflation close to the target, exploiting the actual and synthetic inflation rates, and assessing its significance by using exact inference procedures as in Abadie et al. (2010, 2011) and Abadie et al. (2015). While the usual average treatment effect can identify whether an ITCB was successful in lowering (or raising, in some cases) the inflation rate, it is uninformative about whether the monetary authority was effective in keeping inflation controlled around the desired target rate. This is particularly relevant for evaluating the performance of an IT regime given that not all central banks aimed to shift the level of inflation when adopting IT—in fact, for some countries (mostly AEs) the primary objective was to lock in the gains from pre-IT disinflations and to reduce the volatility of inflation around a target that was consistent with the low inflation achieved. Third, we propose an evaluation of IT as a tool to lock in the benefits of previous disinflations and improve resilience, specifically for the case when the economy was hit by large shocks during the 2007 commodity price boom and the 2007-09 GFC. With few exceptions, tests of resilience have been previously omitted.[6] Finally, unlike much of the prior literature, we explore the possible reasons behind the heterogenous performance of ITCBs by analyzing its relationship with potential covariates such as indices of exchange rate stability, monetary independence, financial and trade openness, and central bank independence, among others. Our evidence suggests that IT regimes that performed better also tend to display more monetary autonomy with respect to the base country and low exchange rate volatility within a fairly flexible exchange rate regime—although there are limits to the gains IT can achieve keeping inflation anchored at a low level and an stable exchange rate with the base country reflecting the implications of the impossible trilemma of international finance (Aizenman, 2019).

The reminder of the paper proceeds as follows. Section 2 discusses the design and the data. This part includes the hypotheses, theoretical issues, brief comments on the related literature, the definition of the intervention, and features of the dataset. Section 3 describes the empirical strategy. Section 4 reports the main results, tests, and robustness checks. Section 5 explores potential covariates of our measures of IT effectiveness and provides some discussion of the policy and modeling implications of our findings. Section 6 concludes with some final remarks. More details on the dataset and our strategy to define treated and control groups can be found in the Appendix.

2. Design and Data

2.1. Hypothesis and theoretical framework

We hypothesize that the adoption of an IT regime with a (credible) target inflation below the current inflation rate implies a reduction of the inflation rate in the short and long run. The usual transmission mechanism cited in the literature works through inflation expectations (Ball and Sheridan, 2004; Vega and Winkelried, 2005; Gürkaynak et al., 2007; Batini and Laxton, 2007; Svensson, 2009; Lin and Ye, 2009; Miao, 2009; Walsh, 2009; Revenna, 2010; Ball, 2011; Tillmann,

[6]For studies that propose a similar idea without a formal hypothesis test, see Mishkin and Posen (1997), Corbo et al. (2002), and Bernanke et al., (2018). Fratzscher et al. (2020) find that economies with IT regimes show lower inflation rates after a large natural disaster compared with economies with alternative monetary regimes. Angeriz and Arestis (2008) provide empirical evidence that suggests that both ITCBs and (two) non-ITCBs are equally successful in locking in low inflation rates using intervention analysis to multivariate structural time series models.

2012; Ardakani et al., 2018; Agénor and Pereira da Silva, 2019; Huang et al., 2019). The effective deployment of an IT regime can result in improved policy credibility and the anchoring of long-run inflation expectations, leading ultimately to lower variability and persistence of the realized inflation rates.

A new vintage of New Keynesian models, whose equilibrium dynamics are solved around a non-zero long-run inflation rate, establishes a positive link between the inflation target and the level as well as the variability of the actual inflation rate (Ascari and Sbordone, 2014; Ascari et al., 2017).[7] In this generalized New Keynesian model, a moderate inflation trend tends to destabilize inflation expectations and hence requires a more aggressive monetary policy response to inflation deviations from the target rate (Ascari and Sbordone, 2014).[8]

Another transmission mechanism pointed out in the literature is that of the exchange-rate pass-through (Coulibaly and Kempf, 2010; Agénor and Pereira da Silva, 2019; Ha et al. 2019), which could be even more relevant for small open economies. If the inflation target is credible and dampens the pass-through coefficient, then domestic and external shocks that hit the nominal exchange rate would translate into more muted changes in domestic inflation rates.

2.2. Intervention and intervened units

To determine the intervention effect, we need first to define what inflation targeting (IT) is. The classification of ITCBs is not fully clear (Dueker and Fischer, 2006; Blinder et al., 2008), and even less clear for EMDEs. There are a number of definitions proposed in the literature.[9] We focus on those central banks that adopted from the beginning an explicit IT framework for the conduct of monetary policy coupled with the use of a policy rate as the primary policy instrument and some degree of exchange rate flexibility. More precisely, a treated unit—an ITCB—should satisfy all of the following conditions:

1. The explicit acknowledgment of the adoption of an inflation-targeting regime by the monetary authority or its legally-binding incorporation in the central bank's statutes.[10]

2. The periodic announcement of an explicit numerical inflation-target some periods ahead.[11] Aside from a price index, this framework includes the specification of either a target inflation

[7]Ascari et al. (2017) use trend inflation, inflation target and steady-state or long-run inflation interchangeably.

[8]In addition, positive trend inflation increases price dispersion and thus flattens the Phillips curve.

[9]Some scholars distinguish between strict and flexible IT (Svensson, 2010) in the sense that central banks that have adopted the IT framework not only aim at stabilizing inflation around the target but also put some weight on stabilizing real output. Bernanke (2003) regards IT as a policy framework of constrained discretion and a communication strategy that attempts to influence expectations and explain the policy framework to the public.

[10]This feature is related to the idea of inflation as the main objective of monetary policy. As Debelle (1997) puts it, "the distinctive feature of the inflation targeting countries is that the inflation rate is the over-riding objective of monetary policy." In other words, if there is a conflict between the inflation rate target and any other objective of monetary policy (i.e., some measure of economic activity), the inflation target has priority in terms of the monetary policy action. Note that the mandate to achieve price stability (Schaechter et al., 2000) is not a sufficient condition here.

[11]See Svensson (2008, 2010).

level, a target band on inflation, or both. A tolerance band may or may not be added to the numerical inflation target.[12]

3. The use of a policy rate or key interest rate as the primary instrument for policy making and, consequently, the absence of an explicit monetary aggregate target, exchange rate target, or a combination of these.[13]

4. The publication of inflation forecasts and other relevant indicators as well as the use of accountability mechanism for attaining its inflation objectives.[14]

It is important to point out that the definition we propose is not carved in stone. As we mentioned above, several definitions used in the literature imply a set of ITCBs that mostly coincide with ours. More importantly, we perform robustness checks and include other potential candidates that do not satisfy some of these conditions (more on this in section 4.3).

Table 1 displays a list of countries jointly with their main features (IT adoption date, whether they acknowledge IT explicitly, publish forecasts, use an accountability mechanism, set a policy rate, and have some degree of exchange rate flexibility). The lower panel of the table shows another group of countries whose central banks are possible IT candidates or share some similar features with formal ITCBs. We exclude such countries, however, because of the lack of an adequate minimum number of post-treatment periods (Argentina, Costa Rica, Finland, Jamaica, and Ukraine) or due to a partial implementation of IT (Spain, Switzerland, the United States, and Uruguay). We discuss more about these issues below. Those countries are excluded not only from the treated group, but also from any control group. Table A1 in the Appendix provides more detailed information about the IT features in each economy.

We verify most of the requirements of our IT definition by consulting central banks' documents and other relevant sources. We check that the monetary authority implements some type of flexible or semi-flexible exchange rate regime according to the coarse classification by Ilzetzki et al. (2019). It is worth mentioning that most of the conditions (1-4) above are stated in the literature (see,

[12]A target interval is a range of future inflation values that the monetary authority may target when designing its monetary policy. In contrast, a tolerance band is an interval of outcomes that are tolerated by the monetary authority but do not constitute part of the objectives. According to Svensson (2010), the differences between a target interval (with or without a target midpoint) and a target point do not seem to matter in practice. Partly, this is because the edges of the range are usually viewed as "soft edges" anyway when a rate outside the range does not imply immediate discrete policy shifts.

[13]The absence of other anchors or targets has been listed as a requirement by Jonas and Mishkin (2004) and Jahan (2012). We should note here that some countries have employed balance sheet policy actions as a substitute for the policy rate when monetary policy accommodation was deemed necessary but rates themselves were stuck at their effective lower bound. In those instances, the toolkit of monetary policy was expanded but policy itself was still being guided by the central bank's actions to signal and support the policy rate path. This is very different, therefore, from adopting a monetary aggregate target and is, therefore, in keeping with the terms stated in this condition.

[14]Debelle (1997), Fracasso et al. (2003), Roger (2009), and Frascaroli and Nobrega (2019) argue that a high degree of transparency and accountability is a necessary element of a successful IT scheme. Svensson (2010) argues that IT is characterized by, among others, a role for an inflation forecast—which leads IT to also be known as inflation forecast targeting—and a high degree of transparency and accountability.

e.g., Mishkin, 2000; Sterne, 2002; Truman, 2003; and Little and Romano, 2009, among others). Our definition leaves out some countries that could have initially experimented with informal IT variants and those that follow an IT regime implicitly or *de facto*, but have not made a binding, formal commitment to it that was clearly communicated to the public. In those cases, at least one of the requirements indicated above was not fulfilled.

Central banks under a quasi-IT regime are excluded from the current analysis over the full sample or some subset of the sample. Conditions1, 3 and possibly 4 leave out economies like Spain.[15] The latter has been usually viewed as an ITCB over the 1995-1999 period in previous research (see, e.g., Bernanke and Mishkin, 1997; and De Mendonça and De Guimarães e Souza, 2012).[16] Condition 1 leaves out central banks such as the Swiss National Bank (see Truman, 2003) and the Federal Reserve Bank.[17,18] Condition 3 leaves out Uruguay's central bank because of its sporadic targeting of monetary aggregates (see Table A1 for this and other issues), and Switzerland since it followed a regime classified as a pre-announced peg or currency board arrangement.[19] Hence, even when the central bank acknowledges itself as an ITCB (satisfying condition 1), we recognize that violating any of the conditions 2-4 can ultimately limit the central bank's effectiveness to control inflation. This is because behaving as an ITCB most of the time may not be enough to assuage the private agents' perception that policymakers pursue a more discretionary policy than an inflation targeter that satisfies conditions 1-4 is committed to implement.[20]

[15]Germany could be another case (see Svensson, 2010).

[16]Ilzetzki et al. (2019) classify Spain as having operated under a horizontal band that is narrower than or equal to +/-2 percent (a *de facto* peg). However, the case of Spain is more nuanced. After the crisis of the European exchange rate mechanism in 1992-1993, a grid (known as the Parity Grid) of bilateral rates was calculated on the basis of the central rate expressed in ECUs, and currency fluctuations of the Spanish peseta had to be contained within a margin of 6 percent on either side of the bilateral rate. Based on that fact, it can be argued that Spain should be reclassified to a 3 in Ilzetzki et al. (2019)'s classification which recognizes more flexibility in exchange rates than that of a *de facto* peg.

[17]For a discussion of the US monetary policy frameworks from Volcker's era to the adoption of flexible average inflation targeting in 2021, see Coulter et al. (2022).

[18]The fact that a central bank's statutory primary objective is price stability does not suffice to consider it as an ITCB or as a quasi-ITCB. For example, the ECB is excluded from the treated group because it fails condition 1 requiring the explicit adoption of an IT regime. Moreover, the ECB does not behave as an implicit ITCB either because its strategy was based on a two-pillar approach that gives weight in the conduct of monetary policy to the rate of growth of the M3 monetary aggregate (Gros and Capolongo, 2019), which conflicts with condition 3. Additionally, in the specific case of the ECB, its supranational character is also a distinct factor that sets the ECB apart from any of the ITCBs and quasi-ITCBs considered in this paper.

[19]We relax the IT definition we adopt in this paper and include the analysis of quasi-IT regimes in the subsection of robustness checks.

[20]Kydland and Prescott (1977) noted that central banks with discretionary power have an incentive to renege on commitments to price stability (the so-called "time inconsistency" problem). A binding strategy which is explicitly announced and verifiable, Kydland and Prescott (1977) argued, can lead to better outcomes by making the central bank accountable and its commitment to price stability credible. Pursuing strategies with an explicit monetary target or an exchange rate target can also constraint the ability of the central bank and conflict with its goal of price stability, the latter one as it confronts the central bank with the limitations of the impossible trilemma of international finance when coupled with capital mobility (Aizenman, 2019).

Table 1: IT Adoption Periods and Requirements of IT Regimes

Country	IT adoption period	Acknowledges IT explicitly?	Publishes forecasts?	Accountability mechanism?	Uses policy rate?	Flexible exchange rate regime during IT period?
Albania	2009Q1-2013Q4	Yes	Yes	Yes	Yes	Yes
Armenia	2006Q1–2014Q4	Yes	Yes	Yes	Yes	Yes
Australia	1993Q2–	Yes	Yes	Yes	Yes	Yes
Brazil	1999Q1–	Yes	Yes	Yes	Yes	Yes
Canada	1991Q1–	Yes	Yes	Yes	Yes	Yes
Chile	1991Q1–	Yes	Yes	Yes	Yes	Yes
Colombia	1999Q3–	Yes	Yes	Yes	Yes	Yes
Czech Rep.	1997Q4–2013Q4	Yes	Yes	Yes	Yes	Yes
Dominican Rep.	2012Q1–	Yes	Yes	Yes	Yes	Yes
Georgia	2009Q1–	Yes	Yes	Yes	Yes	Yes
Ghana	2007Q1–	Yes	Yes	Yes	Yes	Yes
Guatemala	2003Q1–	Yes	Yes	Yes	Yes	Yes
Hungary	2001Q2–	Yes	Yes	Yes	Yes	Yes
Iceland	2001Q1–	Yes	Yes	Yes	Yes	Yes
India	2015Q1–	Yes	Yes	Yes	Yes	Yes
Indonesia	2005Q3–	Yes	Yes	Yes	Yes	Yes
Israel	1991Q4–	Yes	Yes	Yes	Yes	Yes
Japan	2012Q1–	Yes	Yes	Yes	Yes	Yes
Kazakhstan	2015Q3–	Yes	Yes	Yes	Yes	Yes
Korea, Rep.	1998Q2–	Yes	Yes	Yes	Yes	Yes
Mexico	1999Q1–	Yes	Yes	Yes	Yes	Yes
Moldova	2011Q1–	Yes	Yes	Yes	Yes	Yes
New Zealand	1989Q4–	Yes	Yes	Yes	Yes	Yes
Norway	2001Q1–	Yes	Yes	Yes	Yes	Yes
Paraguay	2011Q2–	Yes	Yes	Yes	Yes	Yes
Peru	2002Q1–	Yes	Yes	Yes	Yes	Yes
Philippines	2002Q1–	Yes	Yes	Yes	Yes	Yes
Poland	1998Q4–	Yes	Yes	Yes	Yes	Yes
Romania	2005Q3-	Yes	Yes	Yes	Yes	Yes
Russian Federation	2015Q1–	Yes	Yes	Yes	Yes	Yes
Serbia	2006Q3–2014Q4	Yes	Yes	Yes	Yes	Yes
Slovak Rep.	2005Q3-2008Q4	Yes	Yes	Yes	Yes	Yes
South Africa	2000Q1–	Yes	Yes	Yes	Yes	Yes
Sweden	1993Q1–	Yes	Yes	Yes	Yes	Yes
Thailand	2000Q2–	Yes	Yes	Yes	Yes	Yes
Turkey	2006Q1–	Yes	Yes	Yes	Yes	Yes
Uganda	2012Q3–	Yes	Yes	Yes	Yes	Yes
United Kingdom	1992Q3–	Yes	Yes	Yes	Yes	Yes

Addendum: Other Possible IT Candidates and Quasi Inflation Targeters (Excluded from Main IT Sample)

Country	Possible target adoption period	Acknowledges IT explicitly?	Publishes forecasts?	Accountability mechanism?	Uses policy rate?	Flexible exchange rate regime during IT period?
Inflation targeters with an insufficient number of post-IT periods						
Argentina	2016Q3-2018Q3	Yes	Yes	Yes	Yes	Yes
Costa Rica	2018Q1–	Yes	Yes	No	Yes	Yes
Finland	1993Q1-1994Q4	Yes	Yes	Yes	Yes	Yes
Jamaica	2018Q1–	Yes	Yes	Yes	Yes	Yes
Ukraine	2017Q1–	Yes	Yes	Yes	Yes	Yes
Quasi-Inflation Targeters						
Spain	1995Q1-1998Q4	No	No	No	Yes	No
Switzerland	2000Q1-2011Q2	No	Yes	Yes	Yes	Yes
United States	2012Q1–	No	Yes	Yes	Yes	Yes
Uruguay	2008Q3-2013Q4	Yes	No	No	No	Yes

Notes: The addendum lists economies that are sometimes classfied as inflation targeters or are candidates to be classified as ITers because of the use of an inflation target. They were excluded from the main sample because at least one of the conditions described in section 2 are not satified or for having a too short post-intervention period (less than 12 quarters within the period under analysis). We restrict the IT period to one of minimum exchange rate flexibility (coarse classifications 2-5 per Ilzetzki et al., 2019) for Albania, Czech Republic, Romania, Serbia, and Slovak Republic. A "flexible exchange rate regime" includes (2) pre-announced crawling peg, preannounced crawling band that is narrower than or equal to +/-2%, de facto crawling peg, de facto crawling band that is narrower than or equal to +/-2%; (3) pre-announced crawling band that is wider than or equal to +/-2%, de facto crawling band that is narrower than or equal to +/-5%, moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time), managed floating; (4) freely floating; and (5) freely falling. See Appendix Table A1 for further details. Sources: Debelle (1997), Hammond (2012), Levin et al. (2004), Little and Romano (2009), Mahadeva and Stern (2002), Roger and Stone (2005), Stone (2003), and central banks' documents and websites.

As mentioned above, Table 1 documents the adoption period for each treated unit. We obtain IT adoption periods from central banks' own documentation and prior studies. Table A2 in the Appendix displays summary statistics about the years of IT adoption as reported in the literature.[21] With some exceptions, there is a relatively low standard deviation of the IT adoption year in the sample. We typically choose an adoption date that is consistent with the most frequent adoption year reported in previous studies (see the column of modes in Table A1). The post-intervention period starts at such date and ends at the last period available within our sample (2018Q4) or when the country abandoned the IT regime. To be part of the analysis, every intervened unit should have at least 16 quarters of pre-intervention period and 12 quarters of post-intervention period.

Our initial set of treated units consists of 38 economies: 12 AEs and 26 EMDEs that adopted an explicit IT regime coupled with some degree of exchange rate flexibility according to the four conditions discussed above.[22] As stated earlier, we use the coarse classification values between 2 and 5 by Ilzetzki et al. (2019) as evidence of exchange rate flexibility.[23] At any given point in time, if a country is classified with a coarse classification value of 1, then its central bank is not considered to be an ITCB. This requirement restricts the post-intervention period of countries such as Albania (2009Q1-2013Q4), Armenia (2006Q1–2014Q4), Czech Republic (1997Q4–2013Q4), Serbia (2006Q3–2014Q4), and the Slovak Republic (2005Q3-2008Q4). The latter one abandoned the IT framework to adopt the euro in 2009Q1. The other economies adopted a *de facto* peg: Albania (2014Q1), Armenia (2015Q1), Czech Republic (2014Q1), Serbia (2015Q1) (see Ilzetzki et al., 2019).

Table 2 reports a non-exhaustive list of the various possible reasons that could lead central banks to adopt an IT regime according to their own reports and statements complemented with other sources. Mostly, the table suggests that ITCBs prefer to adopt this monetary policy framework to lock in inflation or assure price stability (18 out of 38). The second reason mentioned is the objective of achieving a lower inflation rate (14 out of 38). Other reasons stated include the purpose of anchoring economic agents' expectations, dissatisfaction with previous monetary arrangements, more transparency, accountability, independence of monetary policy, preparing for another monetary arrangement, etc.

[21] Sometimes a single study reports two or more classifications.

[22] As we will see below, we drop all the units whose pre-treatment of fit is not regarded at least as *good* or *very good*. Our final set of treated units has two groups composed of 9 AEs and 14 EMDEs. The Data Appendix shows the full list of treated units.

[23] Put differently, we discard multilateral and unilateral currency unions (e.g., fully dollarized nations, the Euro zone, etc.), currency boards, and other hard pegs (pre-announced horizontal bands that are narrower than or equal to +/-2%, and *de facto* pegs).

Table 2: Possible Reasons for IT adoption

Country	Main possible reason(s) for the adoption of an IT regime	IT adoption to achieve disinflation?	IT adoption to lock in inflation or price stability?	IT adoption to achieve higher inflation?	Other reason?
Albania	Ensure and maintain price stability. Anchoring economic agents' expectations and reducing inflation risk premium.	No	Yes	No	Yes
Armenia	Maintain price stability. Faced difficulty in handling broad money measures under monetary targeting regime.	No	Yes	No	Yes
Australia	Lock in the low inflation that had occurred in the aftermath of the early 1990s recession.	No	Yes	No	No
Brazil	Forced off a fixed exchange rate regime, search for a new anchor within IMF program.	No	No	No	Yes
Canada	Provide a new monetary anchor and bring down inflation.	Yes	No	No	Yes
Chile	Reduce inflation in a context of a healthy financial system and robust external accounts. Provide a new monetary anchor.	Yes	No	No	Yes
Colombia	Dissatisfaction with earlier framework, search for a new anchor within IMF program. Gradualism in pace of disinflation.	Yes	No	No	Yes
Czech Rep.	Forced off a fixed exchange rate regime, bring down inflation with future EU membership in mind.	Yes	No	No	Yes
Dominican Rep.	To strengthen monetary policy effectiveness in place of a monetary targeting regime.	No	No	No	Yes
Georgia	Ensure price stability as necessary pre-requisite for growth.	No	Yes	No	No
Ghana	Reduce inflation to the lower-single digit range.	Yes	No	No	No
Guatemala	Promote a gradual reduction in inflation and price stability.	Yes	Yes	No	No
Hungary	Increasing incompatibility of fixed exchange rate regime and disinflation; bring down inflation with future EU membership in mind.	Yes	No	No	Yes
Iceland	Dissatisfaction and problems with fixed exchange rate regime and capital deregulation.	No	No	No	Yes
India	Reduce inflation and ensure low and stable inflation expectations.	Yes	Yes	No	Yes
Indonesia	Control growth in base money in line with real economy needs. Bring inflation down to a low, stable level.	Yes	Yes	No	Yes
Israel	Lock in disinflation and define the slope of the exchange rate crawling peg.	No	Yes	No	Yes
Japan	Ensure price stability on a sustainable basis.	No	Yes	Yes	No
Kazakhstan	Ensure price stability, allowing free-floating exchange rate.	No	Yes	No	No
Korea, Rep.	Ensure stable inflation after the Asian Financial Crisis in 1997-1998.	No	Yes	No	No
Mexico	Problems with earlier fixed exchange rate and monetary target; provide a new nominal anchor.	No	No	No	Yes
Moldova	Ensure price stability.	No	Yes	No	No
New Zealand	Part of extensive reforms, dissatisfaction with earlier outcomes; provide a new nominal anchor.	No	No	No	Yes
Norway	Final phase in gradual movement towards flexible exchange rate and stronger emphasis on low inflation and price stability.	No	Yes	No	Yes
Paraguay	To reduce inflation level, but also align inflation expectations with the medium-term inflation target.	Yes	No	No	Yes
Peru	Ensure stable prices over the projected period and within the announced range, greater transparency of policy.	No	Yes	No	Yes
Philippines	Promote low and stable rate of inflation conducive to balanced and sustainable economic growth.	Yes	Yes	No	Yes
Poland	Considered the most effective way to bring down inflation as a precondition for subsequent EU membership.	Yes	No	No	Yes
Romania	Anchor inflation expectations to the inflation target.	No	No	No	Yes
Russian Federation	Strike a balance between inflation reduction, economic growth, and financial stability.	Yes	No	No	Yes
Serbia	Increase transparency of its monetary policy and efficient communication with the public, achieve lower core inflation.	Yes	No	No	Yes
Slovak Rep.	Motivated to meet Maastricht inflation criteria for EU membership and euro currency adoption.	No	No	No	Yes
South Africa	Curb inflation expectations and provide consistency and transparency in the conduct of monetary policy.	No	No	No	Yes
Sweden	Forced off a fixed exchange rate regime; search for a new anchor to secure price stability.	No	No	No	Yes
Thailand	Inflation targeting considered more appropriate with floating exchange rate than money supply targeting; ensure price and financial stability and economic growth.	No	Yes	No	Yes
Turkey	Ensure price stability for sustainable economic growth.	No	Yes	No	Yes
Uganda	Enhance the effectiveness and transparency of monetary policy, control of inflation over medium term.	No	Yes	No	Yes
United Kingdom	Need to find a viable monetary policy framework after exiting the ERM in 1992 to rebuild credibility.	No	No	No	Yes
#Yes		14	18	1	30
#No		24	20	37	8

Addendum: Other Possible IT Candidates and Quasi Inflation Targeters (Excluded from Main IT Sample)

Country	Main possible reason(s) for the adoption of an IT regime	IT adoption to achieve disinflation?	IT adoption to lock in inflation or price stability?	IT adoption to achieve higher inflation?	Other reason?
Inflation targeters with an insufficient number of post-IT periods					
Argentina	Bring down inflation, create more transparency in the relationship between monetary policy decisions and inflation targets.	Yes	No	No	Yes
Costa Rica	Effort to improve transparency and independence of central bank.	No	No	No	Yes
Finland	Stabilize the underlying indicators of consumer prices.	No	Yes	No	No
Jamaica	Enhance transparency of monetary policy and greater accountability of Central Bank.	No	No	No	Yes
Ukraine	Bringing inflation back down to its target and ensuring price stability. More effective, transparent and accountable monetary authority.	Yes	Yes	No	Yes
Quasi-Inflation Targeters					
Spain	Geared toward securing price stability by influencing economic agents' price expectations, preparing for euro adoption.	No	Yes	No	Yes
Switzerland	Dissatisfaction with earlier regime; however, the central bank did not consider itself on a formal inflation target.	No	No	No	Yes
United States	Anchor long-term inflation expectations and thereby fostering price stability.	No	Yes	No	Yes
Uruguay	Price stability to preserve currency value.	No	Yes	No	No
#Yes		2	5	0	7
#No		7	4	9	2

Note: #Yes and #No indicate the number of affirmative and negative answers to each question. Other reasons include: anchoring economic agents' expectations, dissatisfaction with previous monetary arrangement, more transparency, accountability, or independence of monetary policy, preparing for another monetary arrangement, etc. Sources: Central Banks's annual reports and bulletins, Alonso (2018), Anand et al. (2019), Bean (2004), Cihak and Holub (1998), Chowdhury and Siregar (1998), Csermely et al. (2007), Debelle (1997), Gómez et al. (2002), Hammond (2012), Mohan and Ray (2018), Morandé (2002), Petursson (2005), and Shirakawa (2012).

2.3. Donor pools

The donor pool for the treated group of industrialized economies is composed of 16 AEs and 4 EMDEs. The latter are Algeria, Bangladesh, Iran, and Malaysia. We include these economies because they are neighbors of certain treated AEs and can capture potential regional shocks on domestic inflation rates.[24] As Table 1 shows, we have AEs not only in Europe, but also in Asia (e.g., Israel, Japan, Korea) and Oceania (e.g., Australia, New Zealand). Furthermore, some of the AEs are relatively small commodity-exporting economies that are subject to external demand and supply shocks.

The donor pool for the treated group of EMDEs includes 50 economies. Note that the donor pools have four units in common. All the countries that adopted IT prior to 2019, even those excluded in the treated groups because of the small number of post-intervention periods, are not part of the donor pools. The members of the treated and the control groups are listed in the Data Appendix. We verify the sensitivity of our results to alternative formulations of our baseline donor pools in section 4.3 (robustness checks).

It is worth adding that member states of the euro area are part of the donor pools and not of the treated groups since they are classified using the code 1 of a hard peg as *no separate legal tender or currency union* by Ilzetzki et al. (2019).

2.4. Outcome variable

The outcome variable is the percent year-over-year change in the (seasonally-adjusted) headline consumer price index: $\pi_t = 100(lnCPI_t - lnCPI_{t-4})$. Although not every ITCB targets the CPI (e.g., the South African Reserve Bank), this standard index is tracked by most of the ITCBs and non-ITCBs to gauge price stability. The data source is Grossman et al. (2014) complemented with national sources in some cases. We consider countries that have CPI data fully available over the 1980Q1-2018Q4 period. The exceptions are Albania, Czech Republic, Serbia, and post-Soviet states such as Armenia, Georgia, Kazakhstan, Moldova, the Russian Federation, and Ukraine.

Table 3 reports summary statistics for the original list of IT AEs and EMDEs and our final sample with the best pre-treatment fit, both before and after the adoption of IT. The mean, median, and coefficient of variation of the inflation rates show a drop in both samples and across treated groups.

[24] According to Neely and Rapach (2011), regional components account for 16% of annual inflation variability on average across countries. Mumtaz et al. (2011) identify inflation regional factors for most world areas including Europe, Asia, and Oceania.

Table 3: Descriptive Statistics: Inflation Rates

	Advanced economies	Emerging market and developing economies
	All IT units	
Pre-IT regime periods		
Mean	8.54	29.53
Median	4.40	11.67
Standard deviation	17.83	55.64
Coefficient of variation	2.09	1.88
N	893	2267
Post-IT regime periods		
Mean	2.50	4.97
Median	2.04	4.25
Standard deviation	2.28	3.47
Coefficient of variation	0.91	0.70
N	995	1354
Cross-sectional units	12	26
	Final treated groups	
Pre-IT regime periods		
Mean	6.28	21.39
Median	4.45	10.06
Standard deviation	8.20	42.22
Coefficient of variation	1.31	1.97
N	579	1165
Post-IT regime periods		
Mean	2.33	4.28
Median	2.05	3.82
Standard deviation	1.87	3.08
Coefficient of variation	0.80	0.72
N	745	871
Cross-sectional units	20	50

Note: Statistics are calculated over the 1981Q1-2018Q4 period. For the full list of countries in the upper panel, see Table 1 or 2. In the lower panel (Final treated groups), we discard the treated units with weak pre-treatment fit (AEs (3): Israel, New Zealand, and Slovak Rep.; EMDEs (12): Armenia, Brazil, Dominican Republic, Georgia, Ghana, Kazakhstan, Mexico, Moldova, Paraguay, Russian Federation, Turkey, and Uganda). See Table 1 or A1 for the IT adoption periods.

3. Empirical Strategy

3.1. The estimation method

The seminal SC method was proposed by Abadie and Gardeazabal (2003) and developed in a series of papers by Abadie et al. (2010, 2011) and Abadie et al. (2015). To improve the pre-treatment fit of the synthetic estimates, we employ the intercept-shifted SC method proposed by Doudchenko and Imbens (2016) and Ferman and Pinto (2021). We follow the notation from those articles in this section. Given that this method is well understood, our discussion here will be brief. Consider a sample of $J+1$ (cross-sectional) units, each indexed by i. Unit $i=1$ is the case of interest. Units $i=2,3,...,J+1$ are possible control units (comparison units). We label unit 1 as the treated unit, whereas units $2,...,J+1$ constitute the "donor pool" (a set of potential control units). All the units are observed between periods 1 and T. The intervention period starts at T_0 and ends at T. That is, we have periods 1, 2,..., T_0, T_0+1, T_0+2,..., T in a balanced panel of the outcome variable.

The dynamic treatment effect occurring at a given time $t \geq T_0$ on the treated unit ($i=1$) can be represented by

$$\tau_{1t} = \pi_{1t} - \pi_{1t}^N$$

where π_{1t} is the (demeaned) outcome variable—the inflation rate—of the unit exposed to the intervention, π_{1t}^N is the (demeaned) outcome that would be observed for unit 1 at time t in the absence of the intervention. The SC method proposes to construct the counterfactual by using a weighted average of the J control units: $\pi_{1t}^N = \sum_{i=2}^{J+1} w_i \pi_{it}$, for $t \geq T_0$, where $0 \leq w_i \leq 1$ for $i \geq 2$, and $w_2 + w_3 + ... + w_{J+1} = 1$. In words, no unit receives a negative weight, but can receive a zero weight, and the sum of all weights equals one. That weighted average is the synthetic control. Thus, we can obtain an estimate of the dynamic treatment effect as $\widehat{\tau}_{1t} = \pi_{1t} - \widehat{\pi}_{1t}^N$. The outcome variable is demeaned by subtracting the pre-treatment average of the outcome variable from the actual outcome variable for every treated and untreated unit, $i = 1,2,...,J+1$, and every period 1, 2,..., T_0,..., T (Ferman and Pinto, 2021).[25]

The weights are obtained so that the resulting synthetic control best resembles the pre-treatment values for the treated unit of predictors of the outcome variable (Abadie, 2021). Let us define X_1 as the $(K \times 1)$ vector of values of the predictors for the treated unit. Similarly, X_0 denotes a $(K \times J)$ matrix that contains the same predictors for the unaffected units. The $(J \times 1)$ vector W^* is chosen to minimize some distance, $||X_1 - X_0 W||$, between X_1 and $X_0 W$, subject to $w_2 \geq 0, ..., w_{J+1} \geq 0$, $w_2 + ... + w_{J+1} = 1$. To measure the discrepancy between X_1 and $X_0 W$, the method employs

[25] When we construct the demeaned outcome variables for each period of the full sample, we subtract the corresponding sample mean calculated only over the pre-intervention period from the raw outcome variable. This is not the mean of the full sample and cannot be regarded as a measure of a (constant) long-run inflation rate. The idea of demeaning seeks to reduce the imbalance by removing a fixed effect from each unit's outcome variable, which is implicitly assumed to be zero in the standard SC method. This individual fixed effect might contain a combination of various time-invariant idiosyncratic characteristics.

$||X_1 - X_0 W|| = \sqrt{(X_1 - X_0 W)' V (X_1 - X_0 W)}$, where V is some $(K \times K)$ symmetric and positive semi-definite matrix. The V matrix is introduced to allow different weights for the variables in X_0 and X_1 depending on their predictive power on the outcome. An optimal choice of the matrix V assigns weights that minimize the mean squared prediction error (MSPE) of the synthetic control estimator. In other words, V^* is chosen to minimize $(X_1 - X_0 W(V))'(X_1 - X_0 W(V))$ using the pre-treatment observations, and where V is picked over the set of all positive definite and diagonal matrices and the weights for the synthetic control are given by W.

Under some regularity conditions, Abadie et al. (2010) demonstrate that the SC estimator is asymptotically unbiased.[26] More precisely, Abadie et al. (2010) show that the asymptotic unbiasedness holds if the number of pre-treatment periods is large relative to the scale of the transitory shocks. Moreover, the number of post-treatment periods should also be sufficiently large so the treatment can have an effect on the outcome. For these reasons, we try to maximize the period of analysis and require at least 16 quarters of pre-intervention period and 12 quarters of post-intervention period as explained in the previous section. All the units in the final treated group satisfy these pre-requisites. Within the final set of treated units, only two of them reach the lower bounds: Serbia (16-quarter pre-treatment period) and India (12-quarter post-treatment period). All remaining units have longer pre-treatment and post-treatment periods.

In our study, both X_1 and X_0 include only pre-treatment values of the outcome variable as predictors. We use one value of the outcome as predictor every other pre-treatment period and check sensitivity to the inclusion of more pre-treatment values in section 4.3.

3.2. Average treatment effect on the treated unit

Once the dynamic treatment effect is estimated for each post-intervention period, we can calculate the average treatment effect on the treated unit (ATT) for different periods with width L:

$$\widehat{ATT}_L = \frac{1}{L} \sum_{t_1}^{t_2} \widehat{\tau}_{1t}$$

where $L = t_2 - t_1 + 1$ and $T_0 \leq t_1 < t_2 \leq T$. For each treated unit, we are particularly interested in (i) the short-term effects over the first three years that followed the IT implementation (i.e., $L = 12$ quarters and $t_1 = T_0$); (ii) the medium-term effects over the first five post-intervention years ($L = 20$ and $t_1 = T_0$); (iii) the full post-intervention period ($t_1 = T_0$ and $t_2 = T$); and (iv) the 2007-09 period ($L = 12$ and $t_1 = 2007Q1$).

We address the significance of the treatment effects via the distribution of the ratios between the post-intervention RMSPE and pre-intervention RMSPE for each unit. For unit j, such a ratio

[26] In addition, Ferman and Pinto (2021) show that the demeaned version of the SC method can significantly reduce the bias and variance relative to the difference-in-differences estimator.

is

$$r_j = \frac{R_j(T_0+1,T)}{R_j(1,T_0)}$$

where $R_j(.)$ is defined for $1 \leq t_1 \leq t_2 \leq T$, and $j = \{1, ..., J+1\}$ as

$$R_j(t_1,t_2) = \left[\frac{1}{t_2-t_1+1}\sum_{t_1}^{t_2}\left(\pi_{jt}-\widehat{\pi}_{jt}^{N}\right)^2\right]^{\frac{1}{2}}$$

where $\widehat{\pi}_{jt}^{N}$ is the outcome variable estimated by a synthetic control in a given period t, when unit j is coded as treated unit, and using all other J units to form the donor pool. Thus, the statistic r_j measures the quality of the fit of a synthetic control for unit j in the post-treatment period, relative to the quality of the fit in the pre-treatment period. Abadie et al. (2010) use the permutation distribution of r_j for inference.

We run placebo studies by iteratively applying the SC method to every unit in the donor pool that did not implement IT during the sample period. In each iteration, we reassign artificially the policy intervention to one of the comparison units, shifting the intervened unit to the donor pool. We then compute the estimated effect associated with each placebo run. This iterative procedure provides us with a distribution of estimated gaps for the units where no intervention took place. For a significant effect, we wish to obtain the largest post-intervention RMSPE and the lowest pre-intervention RMSPE.

The corresponding p-value from the permutation distribution of r_j is defined by Abadie (2021) as:

$$p_j = \frac{1}{J+1}\sum_{j=1}^{J+1} I_+\left(r_j - r_1\right),$$

where I_+ is an indicator function that equals one if the argument is non-negative and zero otherwise.

We also construct the one-sided test for positive and negative gaps only by replacing $\left(\pi_{jt}-\widehat{\pi}_{jt}^{N}\right)$ in $R_j(T_0+1,T)$ with their positive, $\left(\pi_{jt}-\widehat{\pi}_{jt}^{N}\right)^{+}$, or negative, $\left(\pi_{jt}-\widehat{\pi}_{jt}^{N}\right)^{-}$, counterparts. As Abadie (2021) points out, one-tailed inference may result in a considerable gain of statistical power.

3.3. A new measure and test of IT effectiveness

A central bank that adopts an IT regime might seek a lower or, in some cases, a higher inflation rate. Most importantly, an ITCB is interested in keeping inflation controlled around the desired inflation target. We propose an indicator to measure the dispersion around the target point. This indicator compares the root mean squared deviations ($RMSD$) of the observed inflation rate from the inflation-target value (or the midpoint of the IT band, π^T) with an analogous statistic calculated using the synthetic inflation rate instead. For a given treated unit ($j = 1$), we define the following ratio:

$$DEV = \frac{RMSD(\pi_j; t_1, t_2|\pi_1^T) - RMSD(\widehat{\pi}_j^N; t_1, t_2|\pi_1^T)}{R_j(1, T_0)}$$

where $T_0 \leq t_1 < t_2 \leq T$, $j = 1, ..., J+1$, and the components of the numerator are defined as

$$RMSD(\pi_j; t_1, t_2|\pi_1^T) = \left[\frac{1}{t_2 - t_1 + 1}\sum_{t_1}^{t_2}\left(\pi_{jt} - \pi_{1t}^T\right)^2\right]^{\frac{1}{2}},$$

$$RMSD(\widehat{\pi}_j^N; t_1, t_2|\pi_1^T) = \left[\frac{1}{t_2 - t_1 + 1}\sum_{t_1}^{t_2}\left(\widehat{\pi}_{jt}^N - \pi_{1t}^T\right)^2\right]^{\frac{1}{2}}$$

We include the pre-treatment RMSPE in the denominator of our indicator as a penalty for relatively weak pre-treatment fit. Under the null hypothesis of no effectiveness, the ratio equals zero—the observed and counterfactual inflation rates are the same. The lower the first component of the numerator, the more effective is the IT regime in keeping inflation close to its proposed target. Thus, it could be the case that without the IT intervention, the counterfactual inflation could have also been similarly close to such a target (the second component could approach zero as well). In turn, we expect the numerator (and by extension the ratio) to display a negative sign, as an indication of IT effectiveness in lowering the dispersion around the target. Statistically speaking, we use the distribution of ratios as in the placebo study discussed above to verify that the difference between both elements in the numerator scaled by the pre-treatment fit measure in the denominator is significant. As in the case of the ATTs, we calculate the one-sided test for negative differences to gain statistical power.

One advantage of the DEV indicator over the ATT is that it is simpler to interpret in terms of IT effectiveness. We should expect different signs of the ATT if an ITCB seeks lower inflation (e.g., Poland) or higher inflation (e.g., Japan) than in the corresponding counterfactual. Moreover, if a central bank implements IT to maintain the inflation stable and to lock in the target (after previously having brought inflation in line with the target) rather than to shift the inflation rate level (e.g., Norway), then it is not clear whether the ATT provides meaningful information about IT effectiveness anyway. By contrast, for the case of our proposed DEV ratio, a negative sign would indicate that the inflation rate was, on average, closer to target under IT than could be expected given our estimated counterfactual inflation rate in the absence of the IT intervention and that is an unequivocal indication of the good performance of the IT regime.

4. Results

4.1. Pre-treatment fit and synthetic weights

As in other studies that use the SC method, the degree of fit over the pre-treatment period is an issue. Our exercise is particularly challenging because of the high level of volatility and noise in the inflationary processes of AEs and, particularly, among EMDEs during the 1980's and 90's. To reduce the risk of matching noise, we employ the demeaned SC method as discussed above. In certain cases, we also restrict the pre-intervention period by removing some periods of large persistent fluctuations over the initial part of the sample (e.g., Australia, Peru, Serbia). If the pre-treatment fit is poor, Abadie (2021) recommends not to use the SC method.[27]

Table 4 reports measures of pre-treatment fit. We show the values of the root mean squared prediction error (RMSPE), mean absolute prediction error (MAPE), the standard deviation (SD), and the MAPE rescaled by the SD (Hollingsworth and Wing, 2020), all calculated over the pre-intervention period. We constrain our analysis to all the units with RMSPE lower than 3 p.p. and an MAPE-to-SD ratio lower than 0.5.[28] We did not obtain reasonable fits for the inflationary processes of 15 countries (see Table 4). We opted to remove those units from the main analysis. Our final treated groups are therefore composed of 9 AEs and 14 EMDEs. Our conclusions are based on the results from these final treated groups with relatively better pre-treatment balance. Figures A1 and A2 show the actual and synthetic (demeaned) inflation rates for each treated unit in our final sample. The figures also include the treatment period, the point inflation target (or midpoint of target/tolerance band if a point value is not adopted), and the tolerance or target bands (whenever adopted).

In the Appendix, Tables A.3 and A.4 report the estimated weights obtained for each synthetic unit in our final samples. Overall, we observe a reasonable level of sparsity across synthetic units in both treated groups.[29]

[27]It is important to note that a (very) good pre-intervention fit is a necessary but not a sufficient condition for a proper SC estimation due to the risk of over-fitting (see Abadie and Vives-i-Bastida, 2022).

[28]To the best of our knowledge, the literature on the SC method does not propose an optimal procedure to determine what a "very good" pre-treatment fit is. Based on the propensity score matching literature, Hollingsworth and Wing (2020) recommend to ignore units with synthetic pre-intervention fit measured by the MAPE-to-SD ratio larger than 0.25. The authors, however, acknowledge that this threshold value is arbitrary. Considering the high volatility of our outcome variable over the pre-IT periods, particularly among EMDEs, we chose an MAPE-to-SD cut-off value of 0.5 in our study and report this and other statistics related to the pre-intervention imbalance in Table 4.

[29]For example, only a small number of units in the donor pool contribute with a weight higher than 10% to the estimate of the counterfactual inflation rate (between 1 and 4 among AEs and between 2 and 5 among EMDEs as can be seen in the the descriptive statistics in Tables A.3 and A.4).

Table 4: Measures of Pre-Treatment Fit

	RMSPE	MAPE	SD	MAPE/SD
Advanced economies				
Australia	1.31	1.09	2.84	0.38
Canada	0.48	0.40	2.76	0.14
Czech Republic	2.15	1.65	3.93	0.42
Iceland	1.67	1.25	4.05	0.31
Israel	1.21	1.03	1.75	0.59
Japan	0.81	0.62	1.50	0.41
Korea, Rep.	1.38	1.06	2.24	0.47
New Zealand	3.11	2.82	4.78	0.59
Norway	1.16	0.89	3.22	0.28
Slovak Republic	2.34	1.58	2.75	0.58
Sweden	1.59	1.28	2.66	0.48
United Kingdom	0.77	0.62	2.35	0.27
Emerging market and developing economies				
Albania	0.77	0.61	1.76	0.35
Armenia	3.80	2.97	7.53	0.39
Brazil	19.37	10.44	39.65	0.26
Chile	2.99	2.38	5.83	0.41
Colombia	1.63	1.27	3.73	0.34
Dominican Republic	4.08	2.70	5.64	0.48
Georgia	4.02	3.01	7.79	0.39
Ghana	3.75	3.04	7.39	0.41
Guatemala	1.68	1.09	3.87	0.28
Hungary	2.02	1.60	7.50	0.21
India	1.80	1.38	3.03	0.46
Indonesia	2.62	1.65	5.22	0.32
Kazakhstan	3.14	2.36	6.86	0.34
Mexico	5.45	4.46	8.39	0.53
Moldova	4.72	4.05	9.09	0.45
Paraguay	3.73	2.78	7.82	0.36
Peru	0.62	0.44	6.27	0.07
Philippines	2.31	1.75	5.67	0.31
Poland	1.04	0.73	9.04	0.08
Romania	1.94	1.63	9.84	0.17
Russian Federation	7.75	4.98	14.09	0.35
Serbia	0.77	0.51	2.57	0.20
South Africa	1.02	0.77	3.49	0.22
Thailand	1.26	0.97	2.76	0.35
Turkey	9.96	8.77	19.53	0.45
Uganda	3.65	2.90	5.23	0.55

Notes: RMSPE denotes root mean squared prediction error, MAPE denotes the mean absolute prediction error, SD is the standard deviation. All the statistics are computed over the pre-treatment period of each treated unit. The pre-treatment period is the one before the adoption of IT. For the IT adoption periods, see Tables 1 or A1. We consider that a treated unit shows "weak pre-treatment fit" if either its RMSPE is higher than 3 or the MAPE-to-SD ratio is higher than 0.5 over the pre-treatment period. We discard the following treated units due to weak pre-treatment fit: (3 AEs) Israel, New Zealand, and Slovak Rep.; (13 EMDEs) Armenia, Brazil, Dominican Republic, Georgia, Ghana, Kazakhstan, Mexico, Moldova, Paraguay, Russian Federation, Turkey, and Uganda.

4.2. Main findings

4.2.1. Estimated average ATT

As a preliminary look at the results at an aggregate level, Table 5 provides summary statistics of the estimated ATTs for both groups of countries. We report the mean, median, minimum, and maximum ATT across the units in each treated group. In addition, we include the weighted mean ATT (see Acemoglu et al., 2016). This is the weighted average of the units' ATTs. Each weight is an inverse function of the corresponding pre-treatment RMSPE. The idea here is that those units that show better pre-intervention balance contribute more to the calculation of the average.

Table 5: Average Treatment Effects on the Treated Units — Summary Statistics

	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
Advanced economies				
Mean	-0.21	-0.29	0.07	0.28
Weighted mean	-0.57	-0.65	-0.04	-0.12
Median	-0.37	-0.28	-0.45	-0.47
Min	-3.51	-2.76	-1.49	-1.94
Max	1.69	1.78	3.02	7.48
N (ATT<0)	5	5	5	5
N (ATT≥0)	4	4	4	3
N	9	9	9	8
Emerging market and developing economies				
Mean	-2.06	-3.96	-3.46	-4.75
Weighted mean	-1.51	-2.14	-2.68	-3.50
Median	-1.71	-1.66	-1.96	-2.77
Min	-10.32	-21.58	-10.21	-12.80
Max	3.83	1.55	3.28	0.35
N (ATT<0)	10	10	12	11
N (ATT≥0)	4	2	2	1
N	14	12	14	12

Notes: The statistics (mean, median, minimum and maximum) are calculated across the number of treated units (N) in each group of countries (over the first 3 years, 5 years, and full post-treatment period). The treated units in this table include only those ITers that have "good pre-treatment fit" (RMSPE<3, MAPE/SD<0.5). Some units were not treated during the 2007-09 period. For the IT adoption periods, see Tables 1 and A1. ATT denotes the average treatment effect on the treated units. ATTs for first 3 or 5 years estimates the ATT over the first 12 or 20 quarters (or the number of available quarters within the first 12 or 20 quarters of the post-treatment period). The weighted mean ATT is the weighted average of the units' ATTs whose weights are constructed using the inverse of the pre-treatment RMSPEs (see Acemoglu et al., 2016). N (ATT<0) indicates the number of units with ATT<0. N (ATT>=0) indicates the number of units with ATT>=0.

The table also presents the summary statistics of the ATTs for different post-intervention sub-periods: the first 12 quarters, the first 20 quarters, the full post-treatment period, and the 2007-09 period, whenever the treated unit's outcome is observed over this episode. In the latter case, 8 AEs and 12 EMDEs implemented an IT regime during all those twelve quarters during 2007-09.

The remaining economies implemented IT during such an episode or after 2009 (Albania, Japan, India). The Slovak Republic had an IT regime that ended in 2008Q4.[30]

Two observations are worth pointing out. First, using the simple mean as the measure of central location, we find that IT was mostly followed by reductions in the inflation rate among AEs and EMDEs. Such declines are modest in the developed world—lower than 0.5 p.p. over the first three years and five years—and almost negligible over the full post-intervention period. Among EMDEs, the average reduction in inflation fluctuates in the range of 2.1 and 3.5 p.p. per year. Second, economies that implemented IT regimes before 2007 were able to cushion the external shocks related to the commodity price shocks (oil and food commodities) and 2007-09 GFC. Although the average gains in lower inflation are almost negligible in AEs (0.3 p.p.), EMDEs achieved average inflation gains close to 5 p.p. with respect to the comparison group.

At this point, it could be useful to compare our average results to those from other studies that also employ comparison groups. Ball and Sheridan (2014), for instance, estimate that the average inflation rate shows a (statistically insignificant) fall of 0.55 p.p. for 7 AEs that adopted IT. Vega and Winkelried (2005) conclude that the gains in lower inflation are significant and can reach 2.8 p.p. in AEs and 4.9 in EMDEs. Lin and Ye (2007) show that IT has an average estimated ATT of -0.17 p.p. in 7 AEs. In contrast, Lin and Ye (2009) report that the average estimated ATT is -2.97 p.p. across various estimators in a sample of 13 EMDEs. Depending on the set of estimation methods, De Mendonça and De Guimarães e Souza (2012) find that average ATTs are insignificant and close to zero for 12 AEs but about -5 p.p. in 17 EMDEs.[31] These empirical studies differ in sample size, periods of analysis, and estimation techniques, but qualitatively and even quantitatively they obtained ATT results that are similar to ours.

4.2.2. Heterogeneity in ATTs

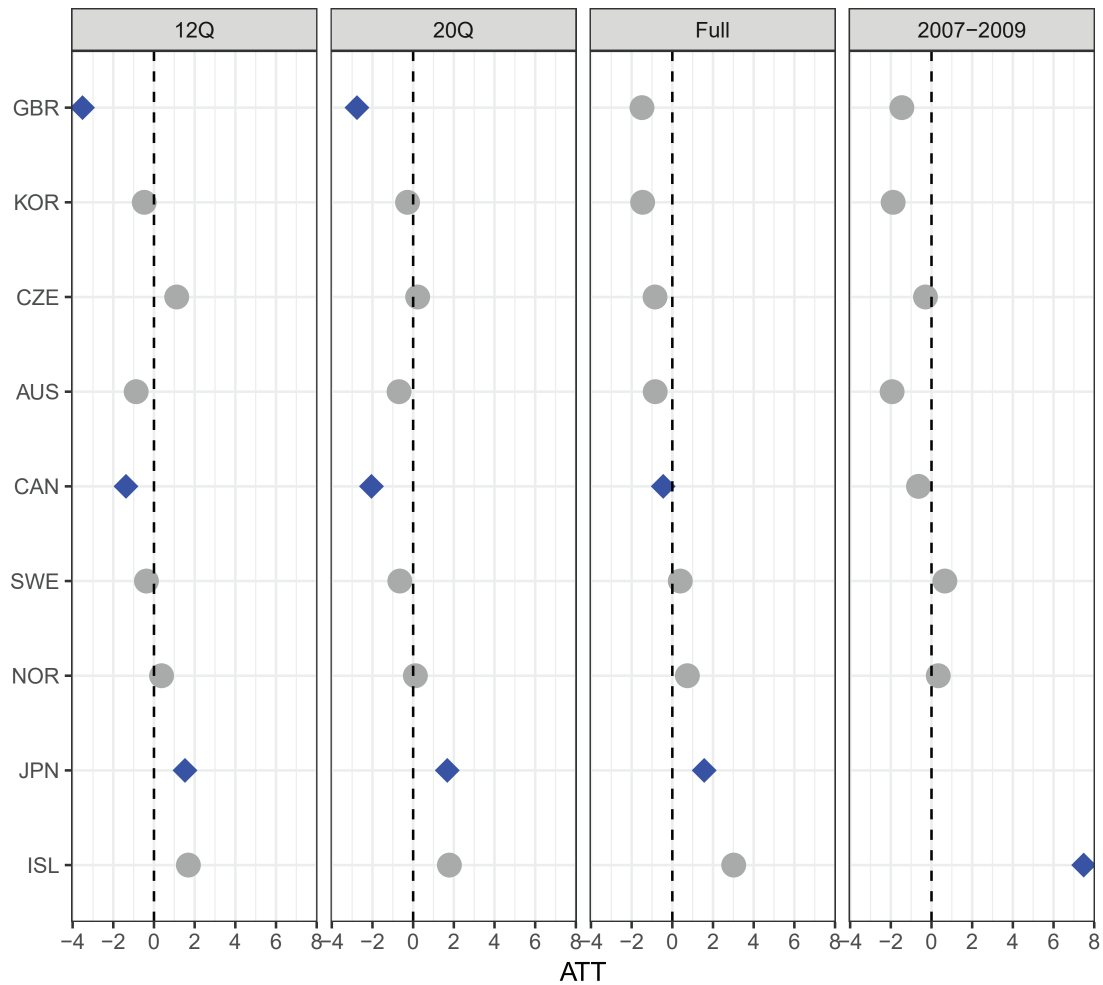
Beyond the averages, we are particularly interested in the heterogeneity across countries. Figures 1 and 2 display the ATT estimates over the four periods of the post-intervention for each AE and EMDE. We are able to find statistically significant average treatment effects in approximately 40% (10 out of 24) of the countries at the 10% significance level using the corresponding one-sided test to improve statistical power (see also columns First 20Q and Full Post-T in Table 6). In particular, significant effects are observed in 3 out of the 9 AEs and in 7 out of the 14 EMDEs in at least one of the sub-periods of analysis. Statistically significant gains in lower inflation over the first 3 (and 5) years or the full post-intervention period are found in Canada and the UK among AEs, and Colombia, Hungary, Peru, Philippines, Poland, South Africa, and Thailand in the group of EMDEs. Japan—a special case due to its recurrent deflationary episodes—reached a significantly

[30] Recall that the IT adoption periods are reported in Tables 1 and A1.

[31] See Ball and Sheridan (2014, Table 6.3, p. 258), Vega and Winkelried (2005, Table 3, p. 170), Lin and Ye (2007, Table 3, p. 2528), Lin and Ye (2009; Table 4, p. 121), and De Mendonça and De Guimarães e Souza (2012; Table 6, p. 187). Of course, these empirical studies (and ours) differ in sample size, periods of analysis, and estimation techniques.

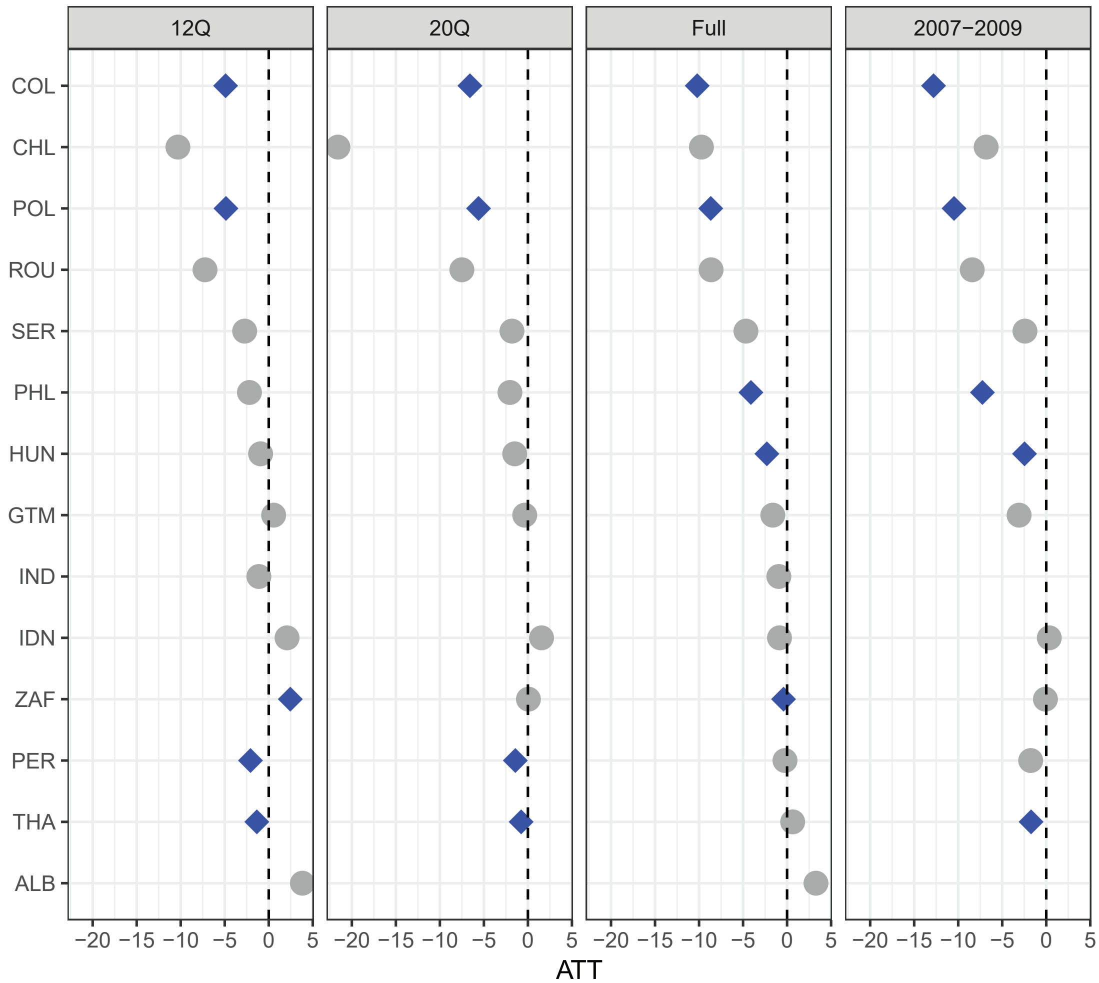
higher (positive) inflation rate after the adoption of IT; an outcome that brings inflation closer to the Bank of Japan's stated goal than in the counterfactual where IT is not adopted (Shirakawa, 2012).

Figure 1: Average Treatment Effects on the Treated Units, Advanced Economies



Notes: The figures show the ATT for four periods (from left to right): the first 12 quarters (12Q) of the post-treatment period, the first 20 quarters of the post-treatment period (20Q), the full post-treatment period, and the 2007Q1-2009Q4 period for those that implemented IT before 2007Q1. The ordering of economies is from the largest negative ATT to the largest positive one for the full post-treatment period. A negative (positive) value denotes an actual inflation rate below, on average, the estimated counterfactual, which can be interpreted as a gain in lower inflation (or higher inflation for the case of Japan, which is consistent with the Bank of Japan's objective). Blue diamonds denote the rejection of an ATT equal to zero at 10% significance level in a one-sided placebo test. Gray circles denote statistical insignificance. We label each treated unit with the corresponding 3-digit ISO code for the country in place of its name.

Figure 2: Average Treatment Effects on the Treated Units, EMDEs



Notes: The figures show the ATT for four periods (from left to right): the first 12 quarters (12Q) of the post-treatment period, the first 20 quarters of the post-treatment period (20Q), the full post-treatment period, and the 2007Q1-2009Q4 period for those that implemented IT before 2007Q1. The ordering of economies is from the largest negative ATT to the largest positive one for the full post-treatment period. A negative (positive) value denotes an actual inflation rate below, on average, the estimated counterfactual, which can be interpreted as a gain in lower inflation. Blue diamonds denote the rejection of an ATT equal to zero at 10% significance level in a one-sided placebo test. Gray circles denote statistical insignificance. We label each treated unit with the corresponding 3-digit ISO code for the country in place of its name.

Table 6: Average Treatment Effects on the Treated Units

	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
Advanced economies				
Australia	-0.88	-0.69	-0.84	-1.94
Canada	-1.38 *	-2.05 *	-0.45 *	-0.64
Czech Republic	1.12	0.22	-0.85	-0.30
Iceland	1.69	1.78	3.02	7.48 **
Japan	1.52 *	1.68 *	1.57 *	NA
Korea, Rep.	-0.48	-0.28	-1.46	-1.89
Norway	0.37	0.11	0.74	0.33
Sweden	-0.37	-0.65	0.39	0.66
United Kingdom	-3.51 *	-2.76 *	-1.49	-1.46
Emerging market and developing economies				
Albania	3.83	NA	3.28	NA
Chile	-10.32	-21.58	-9.73	-6.83
Colombia	-4.90 **	-6.59 **	-10.21 **	-12.80 **
Guatemala	0.55	-0.36	-1.62	-3.08
Hungary	-0.93	-1.50	-2.29 *	-2.47 **
India	-1.12	NA	-0.94	NA
Indonesia	2.08	1.55	-0.86	0.35
Peru	-2.07 **	-1.43 **	-0.24	-1.77
Philippines	-2.19	-2.04	-4.11 *	-7.25 *
Poland	-4.86 *	-5.61 *	-8.67 *	-10.47 **
Romania	-7.24	-7.50	-8.63	-8.41
Serbia	-2.73	-1.81	-4.67	-2.42
South Africa	2.45 *	0.06	-0.40 **	-0.09
Thailand	-1.35 *	-0.77 *	0.64	-1.72 **

Notes: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1, using the corresponding one-sided test. NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps during the entire corresponding period). See also Tables A5 and A6 for two-sided and one-sided p-values from placebo runs.

In the Appendix, Tables A.5 and A.6 complement the information about the statistical significance of the ATTs reported in Table 6. Those tables show the rank of each treated unit in the distribution of ratios (r_j) between the post-intervention and pre-intervention RMSPEs—key elements of the placebo study explained in section 3.2—jointly with the corresponding p-values (p_j) for each post-treatment sub-period. For example, in the first row, the column labeled "First 12Q Post-T (ATT>0)" shows that Australia is ranked 14th out of 19 units that were able to produce an SC estimate in the placebo run.[32] This corresponds to a p-value of 0.737. Thus, we cannot reject the null hypothesis that the average outcome gap (i.e,, the ATT) is zero (in favor of the alternative that the ATT is strictly positive) during the first 12 quarters of the post-treatment period.[33] Broadly speaking, EMDEs have successfully pursued lower inflation with the adoption of an IT regime; by contrast, most AEs have implemented their IT regime primarily for other purposes (like building resilience or to stabilize inflation around the target) rather than to shift the level of inflation, as the ATT performance result shows. We discuss those other performance dimensions and how EMDEs and AEs have fared with those after adopting IT in the remainder of the paper.

It is worth commenting on some limitations that our estimation strategy face. As in most policy evaluations using observational data, the SC method does not deal with all possible sources of endogeneity bias such as that from reverse causation (Billmeier and Nannicini, 2013; Adhikari et al., 2018). As Table 2 suggests, at least part of the sample (about 37% of all the 38 ITCBs) apparently adopted IT to reduce the inflation, which in turn, might be linked to the expectations of a higher inflation under an alternative monetary framework. As we mentioned above, the SC method can deal with omitted-variable bias by accounting for the presence of time-varying unobservable confounders (Billmeier and Nannicini, 2013). Although we must be cautious in the interpretation of results, we keep a healthy, but not very high, level of concern because of two reasons. First, it is less likely to observe this kind of bias if we are matching the unobservable heterogeneity adequately using the SC estimation. Second, Table 2 also suggests that ITCBs adopted IT because of other reasons (dissatisfaction with previous monetary arrangements, more transparency, accountability, or independence of monetary policy, preparing for another monetary arrangement, etc.).

4.2.3. Resilience

We evaluate the resilience hypothesis in both samples as well. The last column of Table 6 displays the ATTs and the statistical significance of the IT performance during the commodity

[32] For the calculation of the p-values, it is important to note that in some cases the SC algorithm cannot converge to a solution and provide an estimate for some control units. That is the reason why some p-values have to be computed over a smaller number of units than the maximum number of control units plus the treated one (i.e., 21 for AEs and 51 for EMDEs).

[33] To be more precise, the null hypothesis is a sharp hypothesis that the outcome gap is zero for every period after the intervention ($H_0 : \tau_t = 0$ for $t \geq T_0$). This implies that the difference between the expected value of the difference between the outcome variable of the treated unit and that of its counterfactual is zero. The alternative hypothesis is that the outcome gap is positive (negative) at least in one period after the intervention, which implies a positive (negative) difference between the expected values mentioned before.

price shocks and the GFC (2007Q1-2009Q4). We find no causal evidence indicating that IT allows to cushion such global shocks in AEs. By contrast, about 40% (5 out of 12) of the EMDEs obtained disinflationary gains during the same period.

Iceland is an exception of statistical significance among AEs but with a positive ATT (about 7.5 p.p.). The cleanup after the 2008-11 financial crisis in Iceland took time, with government blanket guarantees to its banking system completely removed only in 2016 (see Baudino et al., 2020). The fragility of the Icelandic banking system that came to the forefront after the privately-owned Icelandic bank Landsbanki was placed in receivership on October 2008 together with continued market pressures to depreciate the Icelandic currency strained the monetary policy framework of the Central Bank of Iceland for much of the 2010s. The monetary authority tried to keep the currency stable; however, it was ultimately unsuccessful. The rapid depreciation in 2008 added to the domestic inflationary woes through rising import inflation. This series of events probably took away much of the central bank's credibility to implement the IT regime, still formally on the books. As a consequence, the central bank has *de facto* been unable to maintain its commitments under IT and regain much credibility, resulting in poor performance (high-inflation) until now.

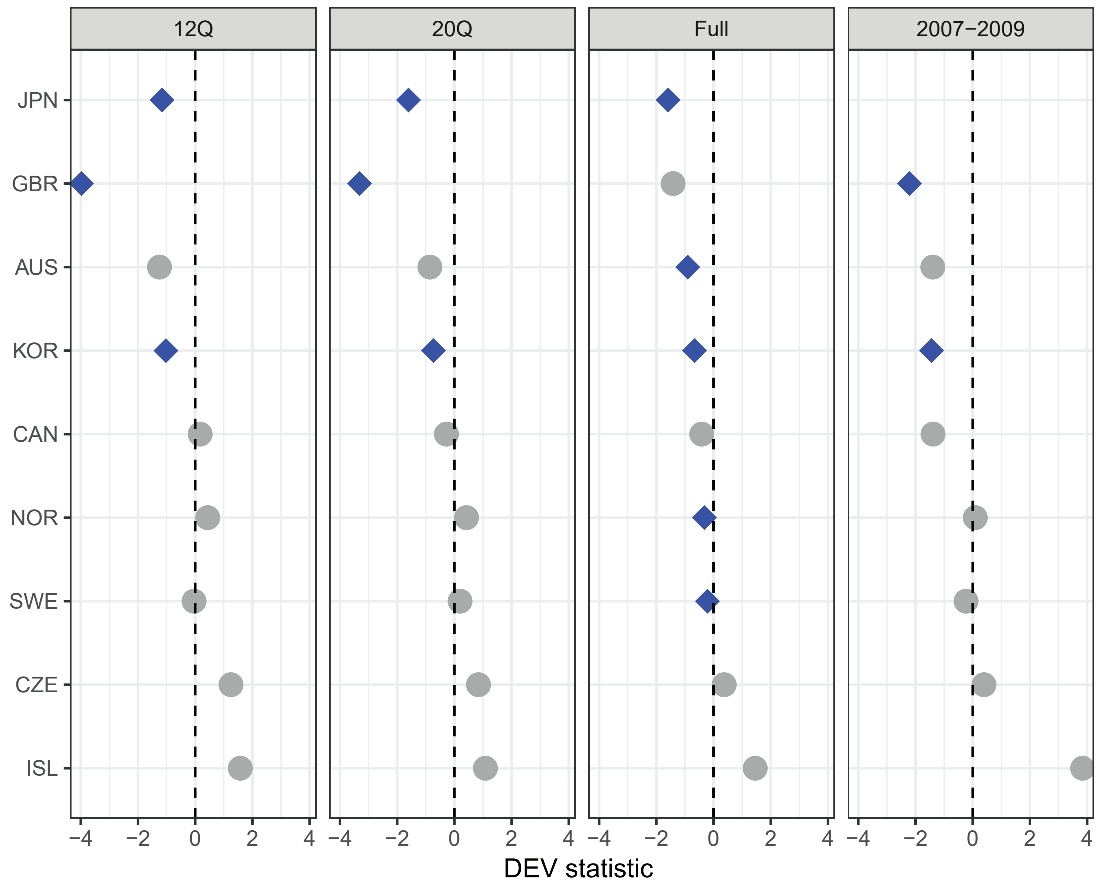
4.2.4. Inflation dispersion around the target

Figures 3 and 4 show our proposed measure of dispersion around the target point (DEV statistic) for each economy calculated over the four post-treatment (sub-)periods. Mostly, IT adopters show a ratio with a negative sign as expected (see also Table 7). At conventional significance levels, we observe six cases in which the difference of root mean squared deviations ($RMSDs$) is significant in the group of AEs over the first five years or the full post-treatment period: Australia, Japan, Korea, Norway, Sweden, and the UK (6 out of 10). Likewise, there are nine significant cases among EMDEs: Albania, Chile, Colombia, Hungary, Peru, Philippines, Poland, Romania, and Thailand (9 out of 14). Overall, about 60% (15 out of 24) of the economies in our final sample show significant improvements in the variability of the inflation rate around the desired target after the adoption of IT.

Figure 5 compares the two measures of IT effectiveness—the ATT and the measure of dispersion around the target (DEV ratio)—for both groups of economies over the full post-treatment period. We change the sign of Japan's ATT to make it comparable. The plots show a positive correlation between these indicators in each group. This view is confirmed with the estimated coefficients: $\widehat{\rho}_{AE} = 0.843$ (p-value=0.004) and $\widehat{\rho}_{EMDE} = 0.699$ (p-value=0.005). The correlation for the full sample of countries is $\widehat{\rho}_{All} = 0.764$ (p-value=0.000).[34] That is, economies that, on average, achieve an inflation lower than its estimated counterfactual, tend to be those that keep the inflation closer to its target (compared with the estimated counterfactual). It is worth adding that there is no country that lies in the upper-right quadrant of both positive ATT and DEV except for Iceland.

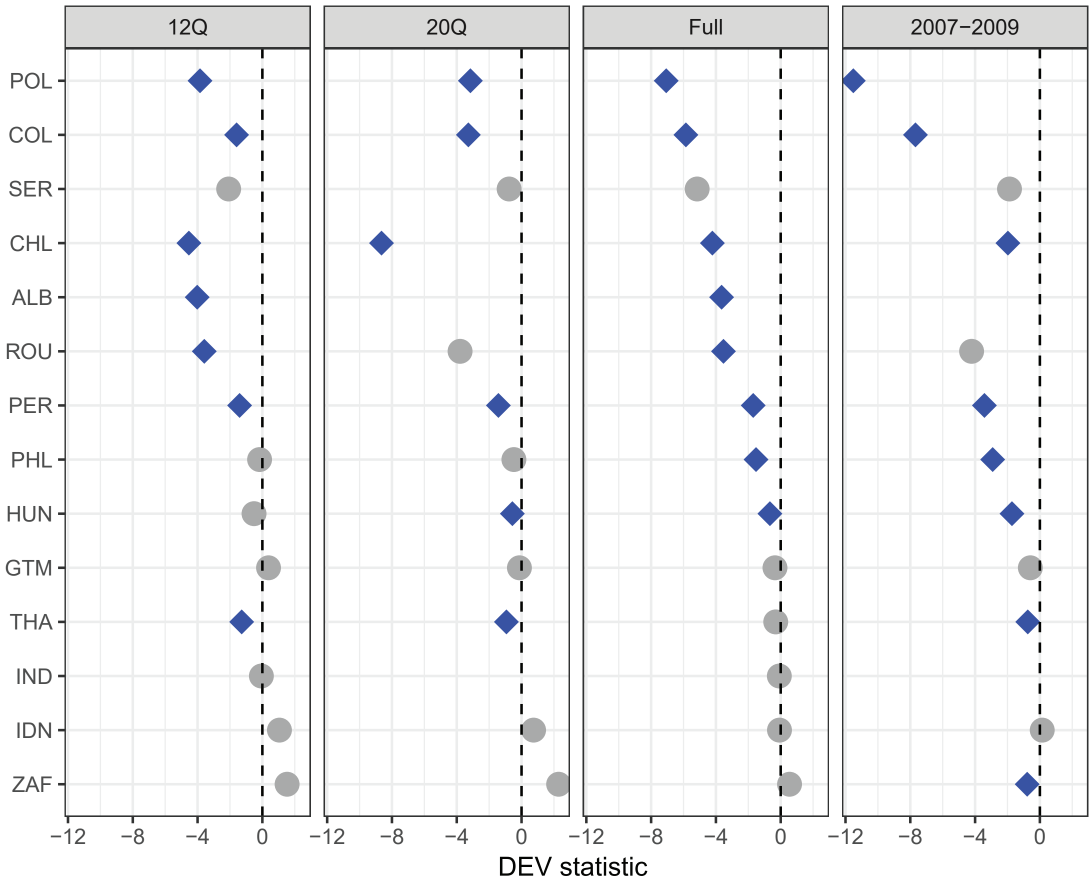
[34]The estimates are robust to the exclusion of Japan: $\widehat{\rho}_{AE} = 0.828$ (p-value=0.011) and $\widehat{\rho}_{All} = 0.764$ (p-value=0.000).

Figure 3: Differences in Root Mean Squared Deviations of Observed and Synthetic Inflation Rates from Inflation Target (DEV statistic), Advanced Economies



Notes: The figures show the DEV ratios for four periods (from left to right): the first 12 quarters (12Q) of the post-treatment period, the first 20 quarters of the post-treatment period (20Q), the full post-treatment period, and the 2007Q1-2009Q4 period for those that implemented IT before 2007Q1. This indicator compares the root mean squared deviations ($RMSDs$) of the observed inflation rate from the inflation-target value (or the midpoint of the IT band) with an analogous statistic calculated using the synthetic inflation rate instead. The ordering of economies is from the largest negative DEV ratio to the largest positive one in the full post-treatment period. A negative value denotes higher effectiveness in keeping the inflation rate close to the target (lower dispersion around the inflation target). Blue diamonds denote the rejection of a DEV ratio equal to zero at 10% significance level in a one-sided placebo test. Gray circles denote statistical insignificance. We label each treated unit with the corresponding 3-digit ISO code for the country in place of its name.

Figure 4: Differences in Root Mean Squared Deviations of Observed and Synthetic Inflation Rates from Inflation Target (DEV statistic), EMDEs



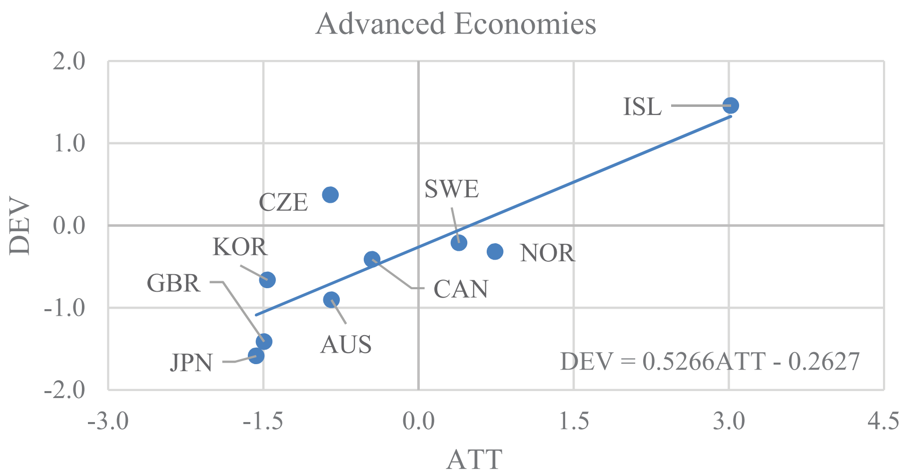
Notes: The figures show the DEV ratios for four periods (from left to right): the first 12 quarters (12Q) of the post-treatment period, the first 20 quarters of the post-treatment period (20Q), the full post-treatment period, and the 2007Q1-2009Q4 period for those that implemented IT before 2007Q1. This indicator compares the root mean squared deviations ($RMSDs$) of the observed inflation rate from the inflation-target value (or the midpoint of the IT band) with an analogous statistic calculated using the synthetic inflation rate instead. The ordering of economies is from the largest negative DEV ratio to the largest positive one in the full post-treatment period. A negative value denotes higher effectiveness in keeping the inflation rate close to the target (lower dispersion around the inflation target). Blue diamonds denote the rejection of a DEV ratio equal to zero at 10% significance level in a one-sided placebo test. Gray circles denote statistical insignificance. We label each treated unit with the corresponding 3-digit ISO code for the country in place of its name.

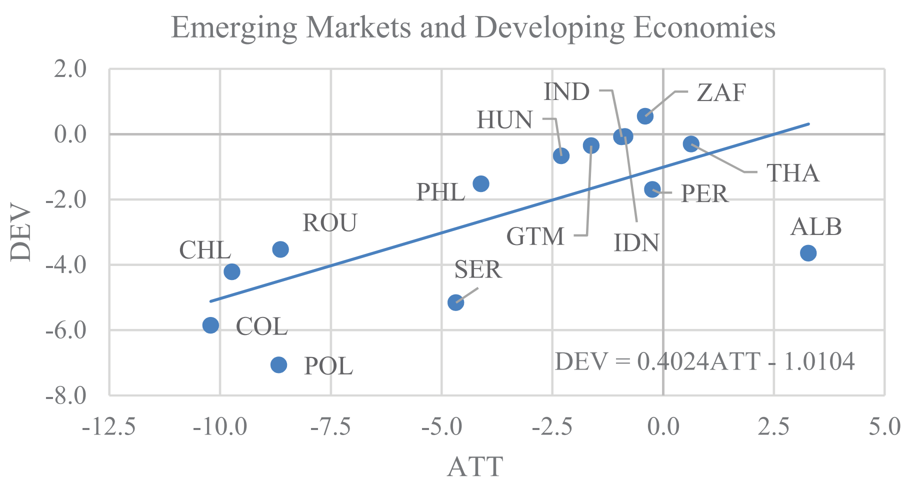
Table 7: Differences in Root Mean Squared Deviations of Observed and Synthetic Inflation Rates from Inflation Target (DEV statistic)

	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
Advanced economies				
Australia	-1.25	-0.86	-0.90 *	-1.40
Canada	0.17	-0.28	-0.41	-1.39
Czech Republic	1.25	0.84	0.37	0.39
Iceland	1.58	1.09	1.46	3.84
Japan	-1.16 **	-1.60 **	-1.59 **	NA
Korea, Rep.	-1.02 *	-0.73 *	-0.66 **	-1.44 *
Norway	0.44	0.42	-0.32 *	0.09
Sweden	-0.04	0.20	-0.21 **	-0.23
United Kingdom	-3.98 **	-3.31 **	-1.41	-2.21 *
Emerging market and developing economies				
Albania	-4.02 **	NA	-3.65 **	NA
Chile	-4.54 *	-8.64 *	-4.22 **	-1.97 *
Colombia	-1.59 **	-3.28 **	-5.85 **	-7.68 **
Guatemala	0.38	-0.13	-0.35	-0.59
Hungary	-0.51	-0.57 *	-0.67 *	-1.72 **
India	-0.06	NA	-0.09	NA
Indonesia	1.05	0.74	-0.08	0.15
Peru	-1.41 *	-1.43 **	-1.70 **	-3.42 *
Philippines	-0.17	-0.47	-1.52 **	-2.91 **
Poland	-3.85 *	-3.16 *	-7.07 **	-11.52 **
Romania	-3.59 *	-3.79	-3.53 *	-4.22
Serbia	-2.08	-0.77	-5.16	-1.88
South Africa	1.53	2.29	0.54	-0.78 *
Thailand	-1.28 **	-0.93 *	-0.31	-0.75 *

Notes: Inference: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1, using the corresponding one-sided test. The DEV statistic is the ratio whose numerator is the difference between the root of the average squared deviations (RMSDs) of the (demeaned) observed inflation rate from the inflation-target value (or the midpoint of the target/tolerance band) and the RMSDs of the corresponding synthetic inflation rate from the inflation-target value (or the midpoint of the target/tolerance band). The denominator is the pre-treatment RMSPE, used as penalty for pre-treatment imbalance. A negative sign would indicate that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no RMSDs during the entire corresponding period).

Figure 5: Correlation of Measures of IT Effectiveness





Notes: The figures show the statistics ATT and DEV measured in the corresponding axes. The latter is a ratio whose numerator is the difference between (A) the root mean squared deviations of the (demeaned) observed inflation rate from the (demeaned) inflation-target value (or the midpoint of the IT band) and (B) the root mean squared deviations of the corresponding synthetic inflation rate from the (demeaned) inflation-target value (or the midpoint of the IT band). The denominator is the pre-treatment RMSPE as a penalty for pre-treatment imbalance. A negative sign indicates that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. Both statistics are calculated over the full post-treatment period of each economy. The estimated correlation coefficients are $\widehat{\rho}_{AE} = 0.843$ (p-value=0.004), $\widehat{\rho}_{EMDE} = 0.699$ (p-value=0.005), and $\widehat{\rho}_{All} = 0.764$ (p-value=0.000). We label each treated unit with the corresponding 3-digit ISO code for the country in place of its name.

4.3. Robustness checks

4.3.1. Quasi-IT Cases

We report the ATTs and DEV statistics from relaxing our definition of IT in Appendix Table A.7. In this exercise, we include Spain (1995Q1-1998Q4), Switzerland (2000Q1-2018Q4), the US (2012Q1-2018Q4), and Uruguay (2008Q3-2013Q4). The first two economies have monetary authorities classified as ITCBs in a number of studies (see Appendix Table A.2). As was noted in subsection 2.2, conditions 1, 3 and possibly 4 from our definition of an ITCB appear violated by the Bank of Spain.[35] Both the Swiss National Bank and the Federal Reserve Bank use a target band or a specific inflation target but they do not claim to be ITCBs up to the end of our sample. Moreover, Switzerland has followed a regime classified as a pre-announced peg or currency board arrangement over the 2011Q3-2014Q4 period (see Ilzetzki et al., 2019). Regarding pre-treatment fit, these economies show RMSPEs lower than 1 (except for Uruguay) and MAPE-to-SD ratios below 0.5 (see Table A.7). Overall, we judge the quality of the pre-treatment fit to be reasonable and consistent with the standards we have imposed on the ITCBs in subsection 4.1.

The point here is whether these cases that deviate from our defined intervention—cases that we denominate as *quasi IT*—can still be successful in reducing inflation and controlling the inflation fluctuations close to the adopted numeric target. Figure A.1 and Table A.7 in the Appendix document the main results. In these economies, the adoption of an inflation target did not produce a lower inflation rate or lower inflation variability around the target. None of the ATTs and DEV ratios are statistically different from zero. On average, the performance of this sort of quasi-IT regime on the inflation dynamics of these economies is not much different from that observed in their corresponding estimated counterfactuals. This suggests that if a central bank does not meet the conditions 1-4 stated in subsection 2.2, behaving as an ITCB most of the time may not be enough to convince private agents that policymakers will not exercise more discretion than is afforded to a more strict ITCB that must fulfill conditions 1-4. This, in turn, limits the quasi-ITCBs' ability to control inflation consistent with the results we observe in Figure A.1 and Table A.7.

4.3.2. Other predictors of the outcome variable

It could be useful to analyze the sensitivity of our estimates to the choice of predictors of the outcome variable (see Abadie, 2021). In particular, we evaluate the results from using a full set of pre-treatment values of the outcome variable in Appendix Table A.8. That is, rather than including one pre-treatment outcome every other pre-treatment period, we exploit all the pre-treatment periods to verify if there is any benefit from this additional information.

Table A.8 reports the indicators of pre-treatment imbalance (RMSPE and MAPE-to-SD) and the ATTs and DEV statistics. The results are not substantially different from the baseline findings.

[35] In the case of Spain, we did not find documents that support the idea that the central bank published inflation forecasts or used any accountability mechanism.

About 39% (9 out of 23) of the countries experience a lower ATT (higher in the case of Japan) and 61% (14 out of 23) show lower variability of inflation around the target during either the first five years or the full post-intervention period. Similarly, 25% (5 out of 20) of the economies show resilience in terms of lower inflation during the 2007-09 period, whereas 55% (11 out of 20) of them show a reduced volatility of inflation around the target during the same episode.[36,37]

4.3.3. Alternative donor pools

We experiment with alternative donor pools following a recommendation by Abadie (2021). First, we modify the donor pool proposed for the group of AEs and focus on industrialized economies only. Recall that the original pool contains a small number of EMDEs in order to capture better regional shocks. Table A.9 in the Appendix reports the indicators of pre-treatment fit, ATTs, and DEV statistics for the restricted donor pool with 16 AEs. For the first five years or the full post-intervention period, we find that the number of treated units with significant shifts in the level of inflation remains the same, whereas the cases of lower inflation volatility around the target diminish to 33% (3 out of 9). That said, note that this smaller donor pool reduces the pre-intervention fit measured by the RMSPE or the MAPE-to-SD ratio of each AE except for Iceland (see also Table 4 for the value of these statistics in the baseline scenario). Given this feature, we tend to prefer the baseline results that show a superior pre-treatment fit.

Similarly to Acemoglu et al. (2016), we also experiment with an idiosyncratic donor pool, namely, one that is constructed for each treated unit individually. Using the full set of AEs and EMDEs (66 units), we calculate the correlation coefficients between the treated unit's inflation rate and that of each donor unit during the pre-treatment period. After sorting these correlations, we choose the subset of control units that shows the highest correlations. For each treated AE, we pick a subset of 20 units, whereas we choose 50 units for each EMDE.[38] The new estimates are shown in Table A.10 in the Appendix. One interesting improvement with this exercise is that of the pre-treatment imbalance among AEs. When we use idiosyncratic donor pools, small open economies characterized by a high inflation variability such as Israel, New Zealand, and the Slovak Republic show RMSPEs and MAPE-to-SD ratios below the cutoffs we impose, making their estimates worth reporting (see upper panel in Table A.10). In contrast, several EMDEs—Chile, Guatemala, Hungary, India, Indonesia, Philippines, and Romania—now show weaker fit before the adoption of IT. In some cases, this could be due to the reduction in the quality of the donor set in spite of the gains in statistical association. If we focus on the ATTs over the full post-intervention

[36] Again, we should note that only 8 out of the 9 AEs and 12 out of the 14 EMDEs in our sample did have their IT regime in place during the 2007-09 period.

[37] If we remove Chile from the calculations due to a slightly poorer pre-intervention fit ($RMSPE = 3.07 > 3.0$; see Table A.8), then 41% (9 out of 22) would show a lower ATT (higher in the case of Japan) and 59% (13 out of 22) would show lower variability. Regarding resilience, the corresponding rates would be 26% (5 out of 19) and 53% (10 out of 19).

[38] In an unreported robustness check, we tried also with 20 units for each EMDE and arrived to similar conclusions at the cost of a somewhat weaker pre-intervention fit. These estimates are available upon request.

period, we can highlight a statistically significant gain in lower inflation in the Slovak Republic. In the group of AEs, we have a proportion close to 33% of effective ITCBs (4 out of 12). Robust cases in the group of EMDEs are Colombia, Hungary, Philippines, and South Africa.[39] With regard to the DEV ratio, we observe that about 58% of the countries (15 out of 26) achieved a lower variability of inflation around the target during the full post-IT intervention period.[40] Accordingly, we conclude that the main results we obtained with our baseline are largely robust to this alternative selection procedure for the donor pool.

5. Covariates of IT Effectiveness

5.1. Panel data evidence

In this section, we investigate a series of covariates that could be behind the different levels of IT effectiveness documented previously. For that, we exploit the cross-sectional and the time dimension of the dynamic treatment effect and the difference between the absolute deviations of inflation from the target and the absolute deviations of the synthetic inflation from the target. More precisely, we analyze what covariates are statistically associated with these measures of IT effectiveness. The question is whether IT effectiveness proxies are statistically related to indices that capture the economic and institutional limitations—understood in a wide sense—faced by the ITCB and its ability to carry out monetary policies to reduce (increase) the inflation level or maintain its stability around the target over time.

Our sample period coincides with a historical episode of broad and wide capital account liberalization, so we focus mainly on proxies of monetary independence—defined as the reciprocal of the annual correlation between the monthly interest rate of the home country and that of the base country—and exchange rate stability—measured as a decreasing function of the annual standard deviation of the monthly change in the logged nominal exchange rate between the home country and the base country—as proposed by Aizenman et al. (2010).[41] The reasons are various. The ability and preferences of any ITCB will be constrained by its lack of monetary policy independence from the base country and by related considerations about the stability of its domestic currency with respect to that of the base country. ITCBs with a degree of exchange rate flexiblity (as those we investigate in this paper) that are more (monetary policy) independent from the base country, other things equal, tend to enjoy an improved ability to control inflation around the proposed target. Similarly, more stable exchange rates are associated with ITCBs that can moderate the inflation level and its variability around the target more effectively. Recall that many central banks

[39] Note that if we remove the EMDEs with poor pre-treatment imbalance in this exercise, we will get a total of 8 treated units and only 3 with a statistical significant gain in disinflation (Colombia, Hungary, and South Africa). This calculation implies a ratio of 38% (3 out of 8 cases).

[40] Removing units with weak pre-treatment fit, this calculation yields a ratio of 60% (12 out of 20 cases).

[41] Aizenman et al. (2010) defines the base country as the country that a home country's monetary policy is most closely linked with as proposed by Shambaugh (2004).

have also the mission to preserve or contribute to the stability of the financial system, and a stable currency is seen as an important requirement for that.[42]

That said, we also consider a richer specification that controls for other potentially relevant covariates suggested in the literature such as financial openness (Chinn and Ito, 2006; Aizenman et al., 2010) to account for the trilemma of international finance, central bank independence from the domestic fiscal authorities (Garriga, 2016),[43] irregular central bank governor turnovers (Dreher et al., 2010) as an indicator of institutional instability, financial development (Sahay et al., 2015) measuring the depth, access, and efficiency of financial institutions and financial markets as determinants of the functioning of the transmission mechanism of monetary policy,[44] and the fiscal balance as a percentage of GDP as a fiscal proxy.[45] We also include an index of corruption control (ICRG, PRS Group 2020), a measure of trade openness (Grossman et al., 2014), the number of quarters under IT as proxy for the experience accumulated with the new monetary framework, and the inflation target or the midpoint of the IT band.

It is important to note that some of these covariates—namely, Garriga (2016)'s central bank independence and the index of corruption control—do not show an important amount of variability over time and only contribute, if any, to the cross-sectional fit of the model. Likewise, data availability for some indicators is more limited and reduces the total number of observations in the specifications. In particular, monetary policy independence, exchange rate stability, and financial openness are not available for Serbia. Additionally, the budget balance as a percentage of GDP is not reported for Albania and Iceland. We also add country dummies and time dummies to take account of unobserved characteristics of the data, and one lag of the dependent variable to capture

[42]In our sample, the poor IT performance of Iceland discussed earlier offers a good example of how interconnected financial stability and exchange rate volatility can be and how detrimental they can be for an ITCB.

[43]The central bank independence index of Garriga (2016) includes four components: Central Bank (CB) CEO's characteristics (appointment, dismissal, and term of office of the chief executive officer of the CB), CB's objectives, CB policy formulation attributions (who formulates and has the final decision in monetary policy and the role of the central bank in the budget process), and CB's limitations on lending to the public sector (for more details, see Garriga, 2016). For studies that argue that central bank independence is a requirement for an effective IT regime, see Dotsey (2006), Frascaroli et al. (2019), Freedman and Ötker-Robe (2009), Jahan (2012), Jonas and Mishkin (2004), Leyva (2008), Schaechter et al. (2000), and Svensson (2010), among others. Also, Alpanda and Honig (2014) find large effects of IT on inflation in emerging economies with low central bank independence, but not in AEs. The authors conclude that central bank independence is not a prerequisite (i.e., there is no *precondition effect*) for economies to gain substantial reductions in inflation after the adoption of IT. When the institutions related to central bank independence are already present, there may be little room for IT to improve upon. They call it *improvement effect*.

[44]Several authors contend that a well-developed financial system and sound financial markets (or financial stability) are required for a successful IT regime (see Schaechter et al., 2000; Allen et al., 2006; Frascaroli et al., 2019; Jonas and Mishkin, 2004; Leyva, 2008; Freedman and Ötker-Robe, 2009; Svensson, 2010). The intuition is twofold. An underdeveloped financial system or financial turbulence might create a conflict between financial stabilization and the monetary policy objectives under IT. In addition, a sound financial system facilitates an effective transmission of monetary policy (Allen et al., 2006).

[45]For works that contend that the absence of monetization of the fiscal deficit or absence of fiscal dominance is a necessary condition of IT effectiveness, see Allen et al. (2006), Leyva (2008), Roger (2009), and Svensson (2010), De Mendonça and De Guimarães e Souza (2012), and Jahan (2012), among others.

the persistence of our measures of IT performance. For further description of the main covariates, see Appendix A.3.

Table 8 shows the main results of regressing the dynamic treatment effect on (A) our two preferred covariates (monetary policy independence and exchange rate stability) and (B) all the covariates listed above. We show estimates for three samples: (i) all the economies, (ii) AEs only, and (iii) EMDEs only. We opt to include Japan with the negative of the dynamic treatment effect to capture the fact that an inflation above the counterfactual is a desired outcome for its central bank in that particular episode of IT adoption. The main conclusions do not depend on this modification. The main finding is that this type of IT effectiveness is statistically associated with the indices of monetary independence and exchange rate stability in the full sample and, in particular, among EMDEs. An independent, autonomous monetary policy—in the sense that its policy rate is less tightly correlated with that of the reference country for the domestic economy—is essential for the central bank to accrue the expected benefits from adopting an IT regime. In turn, a stable domestic currency affords a more effective IT regime greater success achieving disinflationary gains.

Table 9 displays analogous estimates for the second dependent variable: the absolute deviations of inflation from target compared with its synthetic counterpart. Once again, exchange rate stability seems statistically significant with the expected sign in the full sample. As in the previous table, both covariates, monetary policy independence and exchange rate stability, appear statistically significant and with the expected sign for the group of EMDEs.

In spite of some sensitivity to the inclusion of additional regressors, both monetary policy independence and exchange rate stability appear significantly correlated with both measures of IT effectiveness in Tables 8 and 9, especially in the group of EMDEs. It should also be noted that most other controls do not have statistically significant association with our measures of IT effectiveness. However, measures of the inflation target level and experience (number of quarters under IT) are strongly significant for the dynamic treatment effect of EMDEs and the former also for the absolute deviations of inflation from target of EMDEs. Financial openness and different measures of institutional quality (central bank independence, irregular CB governor turnover) also appear to be strongly correlated with the absolute deviations of inflation from target for EMDEs as well as for AEs. It is worth mentioning that we are interpreting these results as statistical associations and not (necessarily) causal links.

Table 8: Covariates of IT Effectiveness: Dynamic Treatment Effect

	ALL		AEs		EMDEs	
Covariates	[1]	[2]	[3]	[4]	[5]	[6]
Monetary policy independence	-0.442 **	-0.504 **	-0.295	-0.420	-0.970 ***	-1.075 ***
	(0.188)	(0.223)	(0.312)	(0.457)	(0.207)	(0.312)
Exchange rate stability	-1.305 **	-1.144 *	-0.718	-0.057	-1.962 **	-2.230 *
	(0.619)	(0.615)	(0.670)	(0.588)	(0.891)	(1.047)
Financial openness		0.895 *		-0.294		0.966
		(0.464)		(0.276)		(0.763)
Central bank independence		0.203		0.373		1.408
		(0.460)		(0.347)		(0.806)
Irregular CB governor turnover		0.310 *		0.060		0.139
		(0.153)		(0.100)		(0.201)
Corruption control		0.023		-0.215 *		0.147
		(0.180)		(0.093)		(0.331)
Financial development		0.758		1.311		2.292
		(1.033)		(1.134)		(1.621)
Budget balance-to-GDP ratio		-0.012		-0.010		0.016
		(0.026)		(0.016)		(0.036)
Trade openness		0.001		0.017		-0.002
		(0.005)		(0.009)		(0.006)
Number of quarters under IT		-0.043		-0.008 *		-0.055 ***
		(0.025)		(0.004)		(0.011)
Inflation target		-0.035		0.146		0.198 **
		(0.042)		(0.106)		(0.081)
Lagged dependent variable	0.909 ***	0.905 ***	0.860 ***	0.835 ***	0.882 ***	0.850 ***
	(0.021)	(0.013)	(0.012)	(0.014)	(0.017)	(0.013)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,548	1,458	736	665	812	793
No. of countries	22	20	9	8	13	12
R-squared	0.935	0.913	0.879	0.743	0.954	0.933

Notes: Inference: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1. Robust standard errors are reported in parentheses. The dynamic treatment effect (DTE) is the difference between the actual and the synthetic series of inflation for each country and each quarter post-IT adoption. Japan's DTE is included with a negative sign to capture the fact that an inflation above the counterfactual is a desired outcome for the BOJ in the short term. The index of monetary independence (MI) is defined as the reciprocal of the annual correlation between the monthly interest rates of the home country and the base country (Aizenman et al., 2010). The exchange rate stability (ERS) indicator is measured as a decreasing function of the annual standard deviation of the monthly change in the logged nominal exchange rate between the home country and the base country (Aizenman et al., 2010). The financial openness index measures a country's degree of capital account openness (Chinn and Ito, 2006). Those three indices are not reported for Serbia (i.e., the number of treated EMDEs is reduced to 13 in the corresponding columns). Central bank independence is the index proposed by Garriga (2016). Irregular central bank governor turnover dummy equals 1 if the governor is replaced before the end of the legal term in office, and 0 otherwise (Dreher et al., 2010). Corruption control is related to the institutional quality that controls corruption in the political system (ICRG, PRS Group). For this monthly indicator, we calculate the average of the corresponding three months of each quarter. The financial development index is a composite that includes measures of depth, access, and efficiency for financial institutions and financial markets (Sahay et al., 2015). Positive (negative) values of the budget balance as a percentage of GDP indicate government's surplus (deficit). This variable is not reported for Iceland and Albania (i.e., the number of AEs is reduced to 8 and the number of EMDEs is reduced to 12 in the corresponding columns). Trade openness is the ratio of the sum of exports and imports as a share of GDP. For further details, see the Data Appendix.

Table 9: Covariates of IT Effectiveness: Absolute Deviations from Target

	ALL		AEs		EMDEs	
Covariates	[1]	[2]	[3]	[4]	[5]	[6]
Monetary policy independence	-0.284 *	-0.309	-0.025	0.102	-0.864 ***	-0.709 **
	(0.160)	(0.198)	(0.116)	(0.188)	(0.216)	(0.260)
Exchange rate stability	-1.348 **	-1.177 ***	-0.930	-0.025	-1.173 **	-1.436 *
	(0.562)	(0.407)	(0.706)	(0.451)	(0.492)	(0.681)
Financial openness		1.142 *		0.057		1.689 **
		(0.572)		(0.272)		(0.555)
Central bank independence		0.364		1.142 ***		0.430
		(0.389)		(0.198)		(1.055)
Irregular CB governor turnover		0.334 **		-0.318		0.322 **
		(0.121)		(0.242)		(0.142)
Corruption control		0.097		-0.063		-0.043
		(0.171)		(0.131)		(0.303)
Financial development		-0.977		-1.808		0.237
		(1.155)		(1.708)		(1.423)
Budget balance-to-GDP ratio		0.008		0.016		0.072
		(0.029)		(0.010)		(0.050)
Trade openness		-0.003		-0.003		-0.005
		(0.004)		(0.005)		(0.006)
Number of quarters under IT		-0.034		0.011		-0.021
		(0.029)		(0.007)		(0.012)
Inflation target		-0.006		0.163		0.413 ***
		(0.058)		(0.137)		(0.098)
Lagged dependent variable	0.900 ***	0.889 ***	0.833 ***	0.762 ***	0.853 ***	0.793 ***
	(0.027)	(0.019)	(0.027)	(0.032)	(0.028)	(0.022)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes
Quarter effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,548	1,458	736	665	812	793
No. of countries	22	20	9	8	13	12
R-squared	0.917	0.891	0.791	0.719	0.944	0.925

Notes: Inference: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1. Robust standard errors are reported in parentheses. The Absolute Deviations from Target is the difference between (i) the difference between actual inflation and its target point in absolute value and (ii) the difference between the synthetic inflation and its target point in absolute value, for each country and each quarter post-IT adoption. The index of monetary independence (MI) is defined as the reciprocal of the annual correlation between the monthly interest rates of the home country and the base country (Aizenman et al., 2010). The exchange rate stability (ERS) indicator is measured as a decreasing function of the annual standard deviation of the monthly change in the logged nominal exchange rate between the home country and the base country (Aizenman et al., 2010). The financial openness index measures a country's degree of capital account openness (Chinn and Ito, 2006). Those three indices are not reported for Serbia (i.e., the number of treated EMDEs is reduced to 13 in the corresponding columns). Central bank independence is the index proposed by Garriga (2016). Irregular central bank governor turnover dummy equals 1 if the governor is replaced before the end of the legal term in office, and 0 otherwise (Dreher et al., 2010). Corruption control is related to the institutional quality that controls corruption in the political system (ICRG, PRS Group). For this monthly indicator, we calculate the average of the corresponding three months of each quarter. The financial development index is a composite that includes measures of depth, access, and efficiency for financial institutions and financial markets (Sahay et al., 2015). Positive (negative) values of the budget balance as a percentage of GDP indicate government's surplus (deficit). This variable is not reported for Iceland and Albania (i.e., the number of AEs is reduced to 8 and the number of EMDEs is reduced to 12 in the corresponding columns). Trade openness is the ratio of the sum of exports and imports as a share of GDP. For further details, see the Data Appendix.

5.2. Discussion

Capital account liberalization and a degree of exchange rate flexibility have become more prevalent around the world since the 1970s, including among countries who chose to implement an IT regime. In fact, we define an ITCB in part as a monetary policy regime that is unconstrained by either monetary or, most importantly, exchange rate targets. The logic of the impossible trilemma of international finance (Aizenman, 2019) already suggests that a greater degree of exchange rate flexibility (especially when coupled with imperfect capital mobility) permits greater autonomy for the conduct of a monetary policy independent from that of the base country and because of that, arguably, also opens up more policy space for the central bank to successfully follow through with the policies required under an IT regime.

Calvo and Reinhart (2002) argue, however, that there are still multiple reasons why "countries might be reluctant to tolerate much variation in their exchange rates." They refer to this as *fear of floating* (FF), stressing how that arises from concerns about lack of credibility (as manifested in large and frequent risk-premium shocks), a high-pass through from exchange rates to prices, and inflation targeting. This strand of the literature—the models of Calvo and Reinhart (2002) and related ones—suggests, therefore, that adopting an IT regime can contribute to greater exchange rate stability.[46]

The evidence of Ball and Reyes (2008) suggests that IT "is empirically distinguishable from fixed, floating, managed floating, and fear of floating (FF) regimes. Credible IT appears to be more similar to floating and managed floating than to fixing or FF" unlike Calvo and Reinhart (2002) for whom credible IT and FF are intimately connected and therefore harder to distinguish. In any event, it should be noted that the evidence—ours as well as that of Ball and Reyes (2008)—indicate

[46] Alternatively we can look at the relationship between the implementation of IT and exchange rate volatility through the lens of two basic economic relationships. On the one hand, we can argue this through the lens of the purchasing power parity (PPP) condition. In the case where this condition holds, movements in the relative price of the home and base countries are compensated by opposing movements of the nominal exchange rate. Hence, to the extent that IT is successful at reducing the variability of domestic inflation relative to its target, it also would result in lower variability of the international price ratio and the nominal exchange rate. If deviations from PPP are permitted, the result would still hold true unless the adoption of IT contributes to aggravate the volatility arising from those PPP deviations. On the other hand, we can also reach similar conclusions based on the uncovered interest rate parity (UIP) condition, i.e., $E(\widehat{e}_{t+1}) = i_t - i_t^*$ where i (i^*) is the interest rate of the home (base) country, $E(.)$ is the expectations operator, and $\widehat{e}_{t+1} = e_{t+1} - e_t$ is the first difference of the logged nominal exchange rate e. Monetary policy in an IT regime is of the form $i_t = r + \pi_t + \phi(\pi_t - \pi^T) + \phi_x x_t$, under a standard Taylor rule with output gap x_t. The regime of the base country is analogous, i.e., $i_t = r^* + \pi_t^* + \phi(\pi_t^* - \pi^{*T}) + \phi_x x_t^*$. For simplicity, we assume that the sole objective is going to be inflation ($\phi_x = 0$), the long-term natural interest rate is identical in both countries ($r = r^*$), and the inflation targets are also the same in both countries ($\pi^T = \pi^{*T}$). Putting these elements together, we get: $E(\widehat{e}_{t+1}) = (1 + \phi)(\pi_t - \pi_t^*)$. In other words, if a country adopts an IT regime and is successful in its implementation at stabilizing inflation around its target, it must result in lower volatility of the price differential with respect to the base country and, accordingly, lower volatility of the nominal exchange rate too. Once again, allowing a premium on the UIP condition does not necessarily change this intuition so long as the adoption of IT does not exacerbate the volatility arising from the premium itself.

that the IT regime has not behaved as a "perfect substitute" for a fixed or pegged exchange rate regime.[47]

We argue—and our results are consistent with this idea—that greater exchange rate stability might contribute to enhance the effectiveness of the IT regime. Hence, causality could run both ways. The results in Tables 8 and 9, therefore, illustrate the correlation between our measures of IT effectiveness and exchange rate stability and cannot (necessarily) be interpreted in a causal way since the connection is more complex, as we have noted here.

Another related issue that should be duly noted is that of foreign exchange interventions, highlighted by Blanchard (2010) and Dancourt (2015), among others. Among EMDEs, central banks that adopt IT with a degree of exchange rate flexibility may still choose to intervene in the FX market and perhaps that is why there are some that achieve greater exchange rate stability and manage to have greater IT effectiveness. Dancourt—who was interim president of the Central Bank of Peru and promoted IT in Peru—quotes Blanchard (2010) who asks: "Isn't it time to reconcile practice with theory, and to think of monetary policy more broadly, as the joint use of the interest rate and sterilized intervention, to protect inflation targets while reducing the costs associated with excessive exchange rate volatility?" Dancourt (2015) ends by saying: "If this is the case, a monetary policy such as that put forward by Blanchard et al. (2010)—which combines a Taylor rule for managing the interest rate, directed at internal equilibrium, with an exchange rate intervention rule that leans against the wind, directed at external equilibrium—could stabilize price levels and economic activity without liquidating the long-term productive diversification so necessary to an economy such as Peru's."

Put differently, there are ITCBs among EMDEs that have relied on policy rates to implement IT plus FX interventions to stabilize fluctuations of the nominal exchange rate and, in doing so, have been successful (Peru is an example). At the same time, other IT adopters have achieved some success while not intervening much, if at all, in the FX market under fairly flexible exchange rates (like a number of AEs). Chile is an intermediate example, and perhaps for this reason the performance of its IT regime has been somewhat mixed—less successful in reducing the level of inflation compared with its estimated counterfactual, although relatively more effective bringing down its variability around the target rate. In short, an important avenue of future research would be further investigate the significance of FX interventions as a complementary instrument to facilitate the stability of fairly flexible exchange rates and help improve the efficacy of an IT regime. A better understanding of this would go a long way to bring monetary theory closer to central banking practice, as Blanchard (2010) and Dancourt (2015) remind us. Indeed, we think

[47]Although we have some reservations due to the quality of the pre-treatment fit, we also explored the effects of IT on the variability of the nominal exchange rate with SC techniques. The results are available upon request, but seem to indicate that the adoption of IT is not strongly associated with lower exchange rate volatility compared with the estimated counterfactuals. Rather, our overall findings suggest that exchange rate variability (together with the monetary policy independence of the home central bank with respect to the policy of the base country) is statistically correlated with IT effectiveness particularly among EMDEs, as shown by our analysis in Section 5.1.

that the evidence presented in this paper points out that achieving exchange rate stability can be important for the successful performance of an IT regime given that, among other reasons, we recognize that central banks must surely contend with the limitations to their ability to pursue policy imposed by the impossible trilemma of international finance.

6. Concluding Remarks

In this paper, we provide an alternative assessment of the benefits and potential pitfalls of adopting an inflation targeting (IT) regime in terms of shifts to the level of the inflation rate and its variability around the target. Our final analysis covers 23 economies jointly with an important number of comparison units. We construct counterfactuals for the countries that adopted an explicit IT regime using the demeaned synthetic control method (Abadie, 2021; Ferman and Pinto, 2021). Even though adopting an IT regime has implied a reduction in inflation rates among the economies that pursued such objective, the gains of disinflation seem to be modest when we estimate the average treatment effects, especially for AEs. Moreover, only a few of them seem to show significant treatment effects according to the permutation tests. The gains in lower inflation (namely, negative ATTs) are larger in the group of EMDEs but the statistical significance relies only on some countries. Based on these outcomes, approximately one out of three economies over the full post-intervention period shows a successful IT regime in terms of disinflationary gains compared with its estimated counterfactual.[48]

Since ATTs might not be a sufficiently informative statistic in some cases (as central banks may choose to adopt an IT regime for reasons other than shifting the inflation level), we introduce a new measure of IT effectiveness based on the differences in root mean squared deviations from the target using both actual and synthetic inflation rates. That is, we judge the effectiveness of IT in keeping inflation close to the target compared with the corresponding counterfactual. Most of the economies that implemented IT display the correct sign for this new indicator. Statistically significant differences whereby IT lowers the variability of inflation around its target are observed in nearly half of the economies, even more among EMDEs.

In addition, we explore the performance of IT during the 2007-commodity price shock and the 2007-09 Global Financial Crisis (GFC) period in search of evidence that rejects (or supports) the hypothesis that this regime leads to a lower inflationary impact of external shocks or lower inflation volatility around the target. Our estimates indicate significant disinflationary gains in one out of four economies and lowered variability around the target in one out of two that, once again, are larger among EMDEs. We identify heterogeneous effects once again. There are virtually no statistical gains in shifting the level of inflation for AEs and only one in four countries achieved lower volatility around the target than in the counterfactual. By contrast, statistical gains among

[48] A mention apart deserves the case of Japan where the adoption of IT was aimed to increase inflation and our evidence suggests that, indeed, Japan has achieved some success in that front.

EMDEs are quite sizeable reaching two out of five economies for the shift in the inflation level and two out of three economies for the volatility around the target, respectively. These findings altogether provide evidence that gains from IT can be heterogeneous, varying across countries (particularly when we distinguish between AEs and EMDEs) and within countries (notably, when we consider the time-varying performance in shifting the inflation level, building resilience and stabilizing inflation around its intended target).

Finally, we exploit the time and cross-sectional dimensions of the treatment effects on the treated units as well as the absolute deviations of inflation from target to assess the possible variables most correlated with our measures of the effectiveness of IT. We find that the relative success of IT is statistically related to the degree of independence of the central bank's monetary policy with respect to that of its corresponding base country and the stability of the exchange rate, especially among EMDEs. We, therefore, would argue that the success of an IT regime depends on and is potentially constrained by the trade-offs that arise from the impossible trilemma of international finance. In practical terms, what this means is that, in a historical time period where capital account liberalization became the norm, it is not possible to pursue an independent monetary policy such as IT would require while at the same time keeping exchange rates fixed to ensure the stability of the value of the home currency with respect to that of the base country. Hence, a feature of the central banks that we investigate is that they operated in an exchange rate regime with a degree of exchange rate flexibility. Our intuition is that in a more flexible exchange rate regime, if exchange rate stability comes into conflict with the price stability objective of the IT regime, the central bank may be limited in its ability to quell inflation and keep it stable around target (as exchange rate fluctuations pass-through into inflation) unless the central bank can lean on other instruments (sterilized FX interventions and reserves management, for instance).

We recognize that while exchange rate stability is in principle not the monetary policy objective of a central bank that adopts IT, the new regime can also deliver gains for the monetary authorities in that dimension too. We leave for future research the exploration and quantification of those collateral gains that implementing IT can produce in terms of exchange rate stability and also what the appropriate role of FX interventions might be to achieve price stability and keep the exchange rate volatility low and also what the appropriate role of FX interventions might be to achieve price stability and keep the exchange rate volatility low.

Appendix

A. Data Appendix

A.1. Final groups of treated and control units

Treated group of AEs (9 countries): Australia, Canada, Czech Republic, Iceland, Japan, Korea, Norway, Sweden, and the United Kingdom.

Treated group of EMDEs (14 countries): Albania, Chile, Colombia, Guatemala, Hungary, India, Indonesia, Peru, Philippines, Poland, Romania, Serbia, South Africa, and Thailand.

Donor pool for AEs (16 AEs and 4 EMDEs): Algeria, Austria, Bangladesh, Belgium, Cyprus, Denmark, France, Germany, Greece, Iran, Ireland, Italy, Luxembourg, Malaysia, Malta, Netherlands, Portugal, Singapore, Slovenia, and Taiwan.

Donor pool for EMDEs (50 EMDEs): Algeria, Bahrain, Bangladesh, Bhutan, Bolivia, Bulgaria, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, China, Republic of Congo, Ecuador, Egypt, El Salvador, Equatorial Guinea, Ethiopia, Fiji, Gabon, The Gambia, Guinea-Bissau, Haiti, Honduras, Iran, Jordan, Kenya, Kuwait, Madagascar, Malawi, Malaysia, Myanmar, Nepal, Nigeria, Pakistan, Panama, Papua New Guinea, Rwanda, Samoa, Saudi Arabia, Seychelles, Solomon Islands, Sri Lanka, Sudan, Suriname, Tanzania, Tunisia, Vanuatu, Vietnam, and Zambia.

A.2. Other full or quasi-ITCBs

Quasi-Inflation Targeters (3 AEs, 1 EMDE): Spain, Switzerland, the United States, and Uruguay.

Other ITCBs (countries that use inflation targets but are not included in the main sample for different reasons; see Table 1 and subsection 2.2): AEs (4): Finland, Israel, New Zealand, the Slovak Republic. EMDEs (16): Argentina, Armenia, Brazil, Costa Rica, Dominican Republic, Georgia, Ghana, Kazakhstan, Jamaica, Mexico, Moldova, Paraguay, Russian Federation, Turkey, Uganda, and Ukraine.

A.3. Exchange rate regime

In order to apply condition 3, we follow the exchange rate regime coarse classification developed by Ilzetzki et al. (2019). The coarse classification codes range from 1 to 6 and consider: (1) no separate legal tender, pre-announced peg or currency board arrangement, pre-announced horizontal band that is narrower than or equal to +/-2%, *de facto* peg; (2) pre-announced crawling peg, pre-announced crawling band that is narrower than or equal to +/-2%, *de facto* crawling peg, *de facto* crawling band that is narrower than or equal to +/-2%; (3) pre-announced crawling band that is wider than or equal to +/-2%, *de facto* crawling band that is narrower than or equal to +/-5%, moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time), managed floating; (4) freely floating; (5) freely falling; (6) dual market in which parallel market data is missing. See also `https://www.ilzetzki.com/irr-data`.

A.4. Main Covariates

Monetary policy independence. The index of monetary policy independence (MPI) is defined as the reciprocal of the annual correlation between the monthly interest rates of the home country and the base country. By construction, the maximum value is 1, and the minimum value is 0. Higher values of the MPI index mean more monetary policy independence. The base country is defined as the country that a home country's monetary policy is most closely linked with as in Shambaugh (2004). Source: Aizenman et al. (2010). See also database and further information at `https://web.pdx.edu/%7Eito/trilemma_indexes.htm`.

Exchange rate stability. The exchange rate stability (ERS) index is measured as a decreasing function of the annual standard deviation of the monthly change in the logged nominal exchange rate (NER) between the home country and the base country ($\sigma_{\Delta E}$). See Aizenman et al. (2010). The formula is given by $0.01/[0.01 + \sigma_{\Delta E}]$ and normalizes the index between 0 and 1. To avoid potential downward biases, Aizenman et al. (2010) apply a cut-off to the exchange rate variations. If the rate of monthly change in NER remains within +/–0.33 percent limits, the exchange rate regime is considered as "fixed" and the value of 1 is assigned for the ERS index. Additionally, single year pegs are removed assuming that they are possibly not intentional ones. Higher values of the ERS index denote more stable movement of the NER against the currency of the base country. See also database and further information at `https://web.pdx.edu/%7Eito/trilemma_indexes.htm`.

Financial openness. The financial openness (KAOPEN) index, a measure of a country's degree of capital account openness, is proposed by Chinn and Ito (2006, updated on 9/7/2019). KAOPEN is constructed based on information related to restrictions in the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Specifically, KAOPEN is the first standardized principal component of the variables that indicate the presence of multiple exchange rates, restrictions on current account transactions, and on capital account transactions, and the requirement to surrender export proceeds. The KAOPEN index is normalized between zero and one. Higher values of the index suggest that an economy is more open to cross-border capital transactions (Chinn and Ito, 2006; Aizenman et al., 2010). See also `web.pdx.edu/~ito/Chinn-Ito_website.htm`.

Central bank independence. The central bank independence (CBI) index is proposed by Garriga (2016). Following the author, we use the weighted average of the four components of the index: "CEO's characteristics (appointment, dismissal, and term of office of the chief executive officer of the bank); policy formulation attributions (who formulates and has the final decision in monetary policy, and the role of the central bank in the budget process); central bank's objectives; and central bank's limitations on lending to the public sector." (see Garriga, 2016, p.

8). The Central Bank Index (CBI) of Garriga (2016) has data only available up to 2012. We update the CBI index to the final year of our sample for all the countries in our dataset by collecting all the statutory changes recorded in the IMF's Central Bank Legislation Database (CBLD) at: `https://data.imf.org/cbld` (accessed through `https://cbld.imf.org/index.cshtml#/`, via `https://www-extranet.imf.org/App42`, on May 17, 2020), supplemented with national sources whenever the CBLD was insufficient. Those statutory changes were then reflected into changes of the country's CBI during the corresponding year using the CBI components, variables, coding criteria, and weights used by Garriga (2016) as reported in Table 2.1 of its online appendix at `https://drive.google.com/file/d/1iz9rr8Cj751XrGYM-mnq732pEwjCFVUM/view`. Otherwise, if no changes had been recorded, we simply keep the CBI at the previous year value. Whenever possible, we check for consistency with the data reported by the IMF's Monetary Policy Frameworks - Independence and Accountability, Policy and Operational Strategy, and Communications (IAPOC) toolkit at `https://data.imf.org/mpf`.

Irregular central bank governor turnovers. Binary variable that equals 1 if the central bank governor is replaced before the end of the legal term in office, and 0 otherwise (Dreher et al., 2010).

Corruption control index. Corruption control is a monthly proxy of the institutional quality related to the control of corruption in the political system. It is part of the International Country Risk Guide (ICRG) database, which is published by the Political Risk Services (PRS) Group (`https://www.prsgroup.com/explore-our-products/icrg`). According to the PRS Group, "(t)he most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans." We calculate the average of the corresponding three months of each quarter. It ranges from 1 to 6 points. Higher values of this proxy indicate more control of corruption.

Financial development. This is a composite index of financial development (FD) proposed by Sahay et al. (2015). Usually, financial development has been approximated by the ratio of private credit to GDP in the empirical literature. In contrast, this index includes financial institutions such as "banks, insurance companies, mutual funds, and pension funds. Financial markets include stock and bond markets." Thus, the authors define FD as "a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), and efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets)." See Sahay et al. (2015; p.5) for more details and find the data at `https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B`.

Budget balance. The estimated central government budget balance as a percentage of GDP for a given year, both expressed in the national currency, as collected by the PRS Group (`https://www.prsgroup.com/explore-our-products/icrg`). Positive (negative) values indicate government's surplus (deficit).

Trade openness. It is defined as the sum of nominal exports plus nominal imports as a share of nominal GDP, all of them expressed in U.S. dollars, and multiplied by 100. The monthly import and export data is averaged to construct the corresponding quarterly series before computing these trade openness ratios. The data source is Grossman et al. (2014) complemented with national sources in some cases and IMF data from the Direction of Trade Statistics (DOTS) database at `https://data.imf.org/dot`.

Number of quarters under IT. It counts the accumulated number of quarters under the formal IT regime for every post-intervention period. It might capture the stock of experience and learning under this monetary regime. A higher value of this variable might be associated with a more effectiveness in the application of IT.

Note: Annual data were transformed to quarterly frequency assuming the same value of year t in every quarter of year t for all the annual indicators.

References

Abadie, A., 2021. Using synthetic controls: Feasibility, data requirements, and methodological aspects. *Journal of Economic Literature*, 59 (2), pp. 391-425. https://doi.org/10.1257/jel.20191450

Abadie, A., Diamond, A. and Hainmueller, J., 2010. Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American Statistical Association*, 105 (490), pp. 493-505. https://doi.org/10.1198/jasa.2009.ap08746

Abadie, A., Diamond, A. and Hainmueller, J., 2011. Synth: An R package for synthetic control methods in comparative case studies. *Journal of Statistical Software*, 42 (13). https://doi.org/10.18637/jss.v042.i13

Abadie, A., Diamond, A. and Hainmueller, J., 2015. Comparative politics and the synthetic control method. *American Journal of Political Science*, 59 (2), pp. 495-510. https://doi.org/10.1111/ajps.12116

Abadie, A. and Gardeazábal, J., 2003. The economic costs of conflict: A case study of the Basque Country. *American Economic Review*, 93 (1), pp. 113-132. https://doi.org/10.1257/000282803321455188

Abadie, A. and Vives-i-Bastida, J., 2022. Synthetic controls in action. arXiv 2203.06279v1. https://doi.org/10.48550/arXiv.2203.06279

Acemoglu, D., Johnson, S., Kermani, A., Kwak, J. and Mitton, T., 2016. The value of connections in turbulent times: Evidence from the United States. *Journal of Financial Economics*, 121 (2), pp. 368-391. https://doi.org/10.1016/j.jfineco.2015.10.001

Adhikari, B., Duval, R., Hu, B. and Loungani, P., 2018. Can reform waves turn the tide? Some case studies using the synthetic control method. *Open Economies Review*, 29 (4), pp. 879-910. https://doi.org/10.1007/s11079-018-9490-3

Agénor, P.R. and Pereira da Silva, L.A., 2019. Integrated inflation targeting: Another perspective from the developing world. Bank for International Settlements. https://bit.ly/3F8TtOF

Aizenman, J., 2019. A modern reincarnation of Mundell-Fleming's trilemma. *Economic Modelling*, 81, pp. 444-454. https://doi.org/10.1016/j.econmod.2018.03.008

Aizenman, J., Chinn, M.D. and Ito, H., 2010. The emerging global financial architecture: Tracing and evaluating new patterns of the trilemma configuration. *Journal of International Money and Finance*, 29 (4), pp. 615-641. https://doi.org/10.1016/j.jimonfin.2010.01.005

Akyurek, C., Kutan, A.M. and Yilmazkuday, H. 2011 Can inflation targeting regimes be effective in developing countries? The Turkish experience. *Journal of Asian Economics*, 22 (5), pp. 343-355. https://doi.org/10.1016/j.asieco.2011.05.004

Alonso, P., 2018. Creation and evolution of inflation expectations in Paraguay. IDB working paper series No. IDB-WP-900. http://dx.doi.org/10.18235/0001241

Allen, M., Baumgartner, U. and Rajan, R., 2006. Inflation targeting and the IMF. International Monetary Fund, Policy Papers, 2006: Issue 006. https://doi.org/10.5089/9781498332927.007

Alpanda, S. and Honig, A., 2014. The impact of central bank independence on the performance of inflation targeting regimes. *Journal of International Money and Finance*, 44, pp. 118-135. https://doi.org/10.1016/j.jimonfin.2014.02.004

Anand R., Hong, H.G., and Hul, Y., 2019. Achieving the Bank of Japan's inflation target. IMF Working Papers WP/19/229. https://doi.org/10.5089/9781513518350.001

Angeriz, A. and Arestis, P., 2008. Assessing inflation targeting through intervention analysis. *Oxford Economic Papers*, 60 (2), pp. 293-317. https://doi.org/10.1093/oep/gpm047

Ardakani, O.M., Kishor, N.K. and Song, S., 2018. Re-evaluating the effectiveness of inflation targeting. *Journal of Economic Dynamics and Control*, 90, pp. 76-97. https://doi.org/10.1016/j.jedc.2018.01.045

Ascari, G., Florio, A. and Gobbi, A., 2017. Transparency, expectations anchoring and inflation target. *European Economic Review*, 91, pp. 261-273. https://doi.org/10.1016/j.euroecorev.2016.11.001

Ascari, G. and Sbordone, A.M., 2014. The macroeconomics of trend inflation. *Journal of Economic Literature*, 52 (3), pp. 679-739. https://doi.org/10.1257/jel.52.3.679

Balima, H.W., Kilama, E.G. and Tapsoba, R., 2020. Inflation targeting: Genuine effects or publication selection bias? *European Economic Review*, 128, pp. 1-28. https://doi.org/10.1016/j.euroecorev.2020.103520

Ball, L., 2011. The performance of alternative monetary regimes. In: *Handbook of Monetary Economics*, Vol. 3, pp. 1303-1343. Elsevier. https://doi.org/10.1016/b978-0-444-53454-5.00011-6

Ball, L.M. and Sheridan, N., 2004. Does inflation targeting matter? In: *The inflation-targeting debate*, pp. 249-282. University of Chicago Press. https://doi.org/10.7208/chicago/9780226044736.003.0007

Ball, C. and Reyes, J., 2008. Inflation targeting or fear of floating in disguise? A broader perspective. *Journal of Macroeconomics*, 30 (1), pp. 308-326. https://doi.org/10.1016/j.jmacro.2006.08.005

Barbosa, R. S., Brito, R. D. and Teles, V. K., 2018. Where did inflation targeting matter? Textos para discussão 491, FGV EESP–Escola de Economia de São Paulo, Fundação Getulio Vargas. https://bit.ly/3soHPYA

Batini, N. and Laxton, D., 2007. Under what conditions can inflation targeting be adopted? The experience of emerging markets. *Central banking, analysis, and economic policies book series*, in: Mishkin, F. S. and Schmidt-Hebbel, K., Monetary policy under inflation targeting, edition 1, volume 11, chapter 12, pp. 467-506, Central Bank of Chile. https://bit.ly/3F8QENz

Baudino, P., Sturluson, J.T. and Svoronos, J.P., 2020. The banking crisis in Iceland. FSI Crisis Management Series 1, Bank for International Settlements. https://www.bis.org/fsi/fsicms1.htm

Bean, C., 2004. Inflation targeting: The U.K. experience. *Perspektiven der Wirtschaftspolitik*, 5 (4), pp. 405-421. https://doi.org/10.1111/1468-2516.00161

Berg, C., 2005. Experience of inflation-targeting in 20 Countries. *Sveriges Riskbank Economic Review*, 1, pp. 20-47. https://bit.ly/3gtUgPX

Bernanke, B., 2003. A perspective on inflation targeting: Why it seems to work. *Business Economics*, 38 (3), pp. 7-16. https://www.jstor.org/stable/23490261

Bernanke, B.S., Laubach, T., Mishkin, F.S. and Posen, A.S., 1999. Inflation targeting. Princeton University Press. https://doi.org/10.1257/jep.11.2.97

Bernanke, B.S., Laubach, T., Mishkin, F.S. and Posen, A.S., 2018. Inflation targeting: Lessons from the international experience. Princeton University Press. https://doi.org/10.1515/9780691187396

Bernanke, B.S. and Mishkin, F.S., 1997. Inflation targeting: A new framework for monetary policy? *Journal of Economic Perspectives*, 11 (2), pp. 97-116. https://doi.org/10.1257/jep.11.2.97

Billmeier, A. and Nannicini, T., 2013. Assessing economic liberalization episodes: A synthetic control approach. *Review of Economics and Statistics*, 95 (3), pp. 983-1001. https://doi.org/10.1162/rest_a_00324

Biondi, R.L. and Toneto Jr, R., 2008. Regime de metas inflacionárias: Os impactos sobre o desempenho econômico dos países. *Estudos Econômicos* (São Paulo), 38 (4), pp. 873-903. https://doi.org/10.1590/s0101-41612008000400007

Blanchard, O., 2010. IMF Survey Magazine 12/02. https://bit.ly/3TSBksJ

Blanchard, O, DellAriccia, G. and Mauro, P., 2010. Rethinking macroeconomic policy. IMF Staff Position Note. https://bit.ly/3VW8j16

Bleich, D., Fendel, R. and Rülke, J.C., 2012. Inflation targeting makes the difference: Novel evidence on inflation stabilization. *Journal of International Money and Finance*, 31 (5), pp. 1092-1105. https://doi.org/10.1016/j.jimonfin.2011.12.012

Blinder, A.S., Ehrmann, M., Fratzscher, M., De Haan, J. and Jansen, D.J., 2008. Central bank communication and monetary policy: A survey of theory and evidence. *Journal of Economic Literature*, 46 (4), pp. 910-45. https://doi.org/10.1257/jel.46.4.910

Brito, R. D. and Bystedt, B., 2010. Inflation targeting in emerging economies: Panel evidence. *Journal of Development Economics*, 91 (2), pp. 198-210. https://doi.org/10.1016/j.jdeveco.2009.09.010

Calvo, G. A. and Reinhart, C. M., 2002. Fear of Floating. *The Quarterly Journal of Economics*, 117 (2), pp. 379–408. https://doi.org/10.1162/003355302753650274

Central Bank of Iceland, 2007. New inflation-targeting countries. *Monetary Bulletin*, 9 (2), pp. 44-47. https://bit.ly/3z3mfwb

Chinn, M. D. and Ito, H., 2006. What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics*, 81 (1), pp. 163-192. https://doi.org/10.1016/j.jdeveco.2005.05.010

Chowdhury, A. and Siregar, H., 1998. Indonesia's monetary policy dilemma: Constraints of inflation targeting. *The Journal of Developing Areas*, 37 (2), pp. 137-153. https://doi.org/10.1353/jda.2004.0023

Ĉihák, M. and Holub, T., 1998. Inflation targeting in the Czech Republic: Old wine in new bottles. *Eastern European Economics*, 36 (3), pp. 49-67. https://doi.org/10.1080/00128775.1998.11648660

Combes, J.L., Debrun, X., Minea, A. and Tapsoba, R., 2018. Inflation targeting, fiscal rules and the policy mix: Cross-effects and interactions. *The Economic Journal*, 128 (615), pp. 2755-2784. https://doi.org/10.1111/ecoj.12538

Corbo, V., Landerretche, O. and Schmidt-Hebbel, K., 2002. Does inflation targeting make a difference? *Central banking, analysis, and economic policies book series*, in: Loayza, N. and Soto, R. (eds.), Inflation targeting: Design, performance, challenges, edition 1, volume 5, chapter 5, pp. 221-270, Central Bank of Chile. https://bit.ly/3U60FQ7

Coulibaly, D. and Kempf, H., 2010. Does inflation targeting decrease exchange rate pass-through in emerging countries? Working paper 303, Banque de France. https://doi.org/10.2139/ssrn.1706025

Coulter, J., Duncan, R., and Martínez-García, E., 2022. Flexible average inflation targeting: How much is U.S. monetary policy changing?. *Economia*, 45 (89), pp. 102-149. https://doi.org/10.18800/economia.202201.005

Csermely, A., Hamecz, I. and Orbán, G., 2007. The inflation targeting regime in Hungary. National Bank of Hungary. https://bit.ly/3VS13mT

Dancourt, O., 2015. Inflation targeting in Peru: The reasons for the success. *Comparative Economic Studies*, 57 (3), pp. 511-538. https://doi.org/10.1057/ces.2015.5

Debelle, G., 1997. Inflation targeting in practice. International Monetary Fund, Working Paper WP/97/35. https://doi.org/10.5089/9781451845310.001

De Mendonça, H.F. and De Guimarães e Souza, G.J., 2012. Is inflation targeting a good remedy to control inflation? *Journal of Development Economics*, 98 (2), pp. 178-191. https://doi.org/10.1016/j.jdeveco.2011.06.011

Dotsey, M., 2006. A review of inflation targeting in developed countries. *Federal Reserve Bank of Philadelphia Business Review*, 3, pp. 10-20. https://bit.ly/3soo438

Doudchenko, N. and Imbens, G.W., 2016. Balancing, regression, difference-in-differences and synthetic control methods: A synthesis. National Bureau of Economic Research No. w22791. https://doi.org/10.3386/w22791

Dreher, A., Sturm, J.E. and De Haan, J., 2010. When is a central bank governor replaced? Evidence based on a new data set. *Journal of Macroeconomics*, 32 (3), pp.766-781. https://doi.org/10.1016/j.jmacro.2010.04.001

Dueker, M.J. and Fischer, A.M., 1996. Do inflation targets redefine central bank inflation preferences? Results from an indicator model. In: *Monetary policy in a converging Europe*, pp. 21-37. Springer, Boston, MA. https://doi.org/10.1007/978-1-4613-1249-9_2

Dueker, M.J. and Fischer, A.M., 2006. Do inflation targeters outperform non-targeters? *Review Federal Reserve Bank of Saint Louis*, 88 (5), pp. 431-450. https://doi.org/10.20955/r.88.431-450

Feenstra, R. and Taylor, A.M., 2008. International trade. New York, Worth Publishers.

Fendel, R., Frenkel, M. and Rülkea, J.C., 2011. "Ex-ante" Taylor rules and expectation forming in emerging markets. *Journal of Comparative Economics*, 39 (2), pp. 230-244. https://doi.org/10.1016/j.jce.2011.01.001

Ferman, B. and Pinto, C., 2021. Synthetic controls with imperfect pre-treatment fit. *Quantitative Economics*, 12 (4), pp. 1197-1221. https://doi.org/10.3982/QE1596

Fracasso, A., Genberg, H. and Wyplosz, C., 2003. How do central banks write? An evaluation of inflation targeting central banks. Vol. 2. London: Centre for Economic Policy Research. https://bit.ly/3TJYjGR

Fraga, A., Goldfajn, I. and Minella, A., 2003. Inflation targeting in emerging market economies. NBER Macroeconomics Annual, 18, pp. 365-400. https://bit.ly/3CZm1HK

Frascaroli, B.F. and Nobrega, W.C.L., 2019. Inflation targeting and inflation risk in Latin America. *Emerging Markets Finance and Trade*, 55 (11), pp. 2389-2408. https://doi.org/10.1080/1540496x.2018.1514297

Fratzscher, M., Grosse-Steffen, C. and Rieth, M., 2020. Inflation targeting as a shock absorber. *Journal of International Economics*, 123, 103308. https://doi.org/10.1016/j.jinteco.2020.103308

Freedman, C., and I. Ötker-Robe, 2009. Country experiences with the introduction and implementation of inflation targeting. International Monetary Fund Working Paper WP/09/161. https://doi.org/10.5089/9781451873085.001

Frömmel, M. and Schobert, F., 2011. Monetary policy rules in Central and Eastern Europe. *Journal of Macroeconomics*, 33 (4), pp. 807-818. https://doi.org/10.1016/j.jmacro.2011.05.003

Garriga, A.C., 2016. Central bank independence in the world: A new data set. *International Interactions*, 42 (5), pp. 849-868. https://doi.org/10.1080/03050629.2016.1188813

Gerlach, S. and Tillmann, P., 2012. Inflation targeting and inflation persistence in Asia-Pacific. *Journal of Asian Economics*, 23 (4), pp. 360-373. https://doi.org/10.1016/j.asieco.2012.03.002

Gómez, J., Uribe, J.D. and Vargas, H., 2002. The implementation of inflation targeting in Colombia. Borradores de Economía 202, Banco de la República de Colombia. https://doi.org/10.32468/be.202

Gonçalves, C.E.S. and Salles, J.M., 2008. Inflation targeting in emerging economies: What do the data say? *Journal of Development Economics*, 85 (1-2), pp. 312-318. https://doi.org/10.1016/j.jdeveco.2006.07.002

Gosselin, M.A., 2007. Central bank performance under inflation targeting. Bank of Canada Working Paper No. 2007-18. https://bit.ly/3SswvoW

Groeneveld, J.M., Koedijk, K.G. and Kool, C.J., 1998. Inflation dynamics and monetary strategies: Evidence from six industrialized countries. *Open Economies Review*, 9 (1), pp. 21-38. https://doi.org/10.1023/a:1008223206085

Gros, D., and Capolongo, A., 2019. The two-pillar strategy of the ECB: Ready for a review. EPRS: European Parliamentary Research Service. Belgium. https://bit.ly/3gtVWZL

Gürkaynak, R.S., Levin, A.T., Marder, A.N. and Swanson, E.T., 2007. Inflation targeting and the anchoring of inflation expectations in the western hemisphere. *Central banking, analysis, and economic policies book series*, in: Mishkin, F.S. and Schmidt-Hebbel, K. (eds), Monetary policy under inflation targeting, edition 1, volume 11, chapter 11, pp. 415-465, Central Bank of Chile. https://bit.ly/3Sz1y25

Ha, J., Kose, M.A. and Ohnsorge, F., 2019. Inflation in emerging and developing economies: Evolution, drivers, and policies. World Bank Publications. https://doi.org/10.1596/978-1-4648-1375-7

Hammond, G., 2012. State of the art of inflation targeting. *Handbooks*, Centre for Central Banking Studies, Bank of England. https://bit.ly/3VO1QFr

Hollingsworth, A. and Wing, C., 2020. Tactics for design and inference in synthetic control studies: An applied example using high-dimensional data. Available at SSRN 3592088. https://doi.org/10.2139/ssrn.3592088

Huang, H.C., Yeh, C.C. and Wang, X., 2019. Inflation targeting and output-inflation tradeoffs. *Journal of International Money and Finance*, 96, pp. 102-120. https://doi.org/10.1016/j.jimonfin.2019.04.009

Ilzetzki, E., Reinhart, C., and Rogoff, K. 2019. Exchange arrangements entering the 21st century: Which anchor will hold?, *Quarterly Journal of Economics*, 134 (2), pp. 599–646. https://doi.org/10.1093/qje/qjy033

IMF, 2006. Inflation targeting and the IMF. International Monetary Fund, Policy Papers 2006: 006. https://doi.org/10.5089/9781498332927.007

Jahan, S., 2012. Inflation targeting: Holding the line. *Finance & Development*, 72-73. https://bit.ly/3MZO4LQ

Johnson, D.R., 2002. The effect of inflation targeting on the behavior of expected inflation: Evidence from an 11 country panel. *Journal of Monetary Economics*, 49 (8), pp. 1521-1538. https://doi.org/10.1016/s0304-3932(02)00181-2

Johnson, D.R., 2003. The effect of inflation targets on the level of expected inflation in five countries. *Review of Economics and Statistics*, 85 (4), pp. 1076-1081. https://doi.org/10.1162/003465303772815952

Jonas, J. and Mishkin, F.S., 2004. Inflation targeting in transition economies experience and prospects. In: *The Inflation-Targeting Debate*, pp. 353-422. University of Chicago Press. https://doi.org/10.7208/chicago/9780226044736.003.0010

Kim, S. and Yim, G., 2020. Do inflation-targeting central banks adjust inflation targets to meet the target? *Journal of Economic Dynamics and Control*, 113, 103858. https://doi.org/10.1016/j.jedc.2020.103858

Kose, M., Matsuoka, H., Panizza, U. and Vorisek, D., 2019. Inflation expectations: Review and evidence. In: Ha, J., Ayhan Kose, M. and Ohnsorge, F. (eds.), *Inflation in emerging and developing economies*, World Bank Publications. https://bit.ly/3gpegDi

Kydland, F.E. and Prescott, E.C., 1977. Rules rather than discretion: The inconsistency of optimal plans. *Journal of Political Economy*, 85 (3), pp. 473-491. https://doi.org/10.1086/260580

Laubach, T., Mishkin, F.S., Bernanke, B. and Posen, A.S., 1999. Inflation targeting: Lessons from the international experience. Princeton University Press.

Lee, W.S., 2011. Comparative case studies of the effects of inflation targeting in emerging economies. *Oxford Economic Papers*, 63 (2), pp. 375-397. https://doi.org/10.1093/oep/gpq025

Levin, A.T., Natalucci, F.M. and Piger, J.M., 2004. The macroeconomic effects of inflation targeting. *Review Federal Reserve Bank of Saint Louis*, 86 (4), pp. 51-58. https://doi.org/10.20955/r.86.51-80

Levy Yeyati, E. and Sturzenegger, F., 2010. Monetary and exchange rate policies. *Handbook of Development Economics*, 5, pp. 4215-4281. https://doi.org/10.1016/b978-0-444-52944-2.00002-1

Leyva, G., 2008. The choice of inflation targeting. Working paper, Central Bank of Chile, 475. https://bit.ly/3f1yAuk

Lin, S. and Ye, H., 2007. Does inflation targeting really make a difference? Evaluating the treatment effect of inflation targeting in seven industrial countries. *Journal of Monetary Economics*, 54 (8), pp. 2521-2533. https://doi.org/10.1016/j.jmoneco.2007.06.017

Lin, S. and Ye, H., 2009. Does inflation targeting make a difference in developing countries? *Journal of Development Economics*, 89 (1), pp. 118-123. https://doi.org/10.1016/j.jdeveco.2008.04.006

Little, J.S. and Romano, T.F., 2009. Inflation targeting–Central bank practice overseas. Federal Reserve Bank of Boston *Public Policy Briefs*, 8. https://doi.org/10.2139/ssrn.1310712

Mahadeva, L. and Sterne, G., 2002. The role of short-run inflation targets and forecasts in disinflation. Bank of England Working Paper no. 167. https://doi.org/10.2139/ssrn.392280

Mariscal, R., Powell, A. and Tavella, P., 2018. On the credibility of inflation-targeting regimes in Latin America. *Economía*, 18 (2), pp. 1-24. https://bit.ly/3slCEZd

McDermott, J. and Williams, R., 2018. Inflation targeting in New Zealand: An experience in evolution. A speech delivered to the Reserve Bank of Australia conference on central bank frameworks, in Sydney, on 12 April 2018. https://bit.ly/3DrMU8R

Miao, Y., 2009. In search of successful inflation targeting: Evidence from an inflation targeting index. International Monetary Fund Working Paper WWP/09/148. https://doi.org/10.5089/9781451872958.001

Mishkin, F.S., 2000. Inflation targeting in emerging-market countries. *American Economic Review Papers and Proceedings*, 90 (2), pp. 105-109. https://doi.org/10.1257/aer.90.2.105

Mishkin, F.S. and Posen, A.S., 1997. Inflation targeting: Lessons from four countries. National Bureau of Economic Research No. w6126. https://doi.org/10.3386/w6126

Mishkin, F.S. and Schmidt-Hebbel, K., 2002. A decade of inflation targeting in the world: What do we know and what do we need to know?. *Central banking, analysis, and economic policies book series*, in: Loayza, N. and Soto, R. (eds.), Inflation targeting: Design, performance, challenges, edition 1, volume 5, chapter 4, pp. 171-219, Central Bank of Chile. https://bit.ly/3SsbvyA

Mishkin, F.S. and Schmidt-Hebbel, K., 2007. Does inflation targeting make a difference? *Central banking, analysis, and economic policies book series*, in: Mishkin, F.S. and Schmidt-Hebbel, K. (eds.), Monetary policy under inflation targeting, edition 1, volume 11, chapter 9, pp. 291-372, Central Bank of Chile. https://bit.ly/3Drc3R4

Mohan, R. and Ray, P., 2018. Indian monetary policy in the time of inflation targeting and demonetization. *Asian Economic Policy Review*, 14 (1), pp. 67-92. https://doi.org/10.1111/aepr.12242

Mollick, A.V., Cabral, R. and Carneiro, F.G., 2011. Does inflation targeting matter for output growth? Evidence from industrial and emerging economies. *Journal of Policy Modeling*, 33 (4), pp. 537-551. https://doi.org/10.1016/j.jpolmod.2011.03.010

Morandé, F.G., 2002. A decade of inflation targeting in Chile: Developments, lessons, and challenges. *Central banking, analysis, and economic policies book series*, in: Loayza, N. and Soto, R. (eds.), Inflation targeting: Design, performance, challenges, edition 1, volume 5, chapter 14, pp. 583-626, Central Bank of Chile. https://bit.ly/3DpVPYo

Mumtaz, H., Simonelli, S. and Surico, P., 2011. International comovements, business cycle and inflation: A historical perspective. *Review of Economic Dynamics*, 14(1), pp.176-198. https://doi.org/10.1016/j.red.2010.08.002

Neely, C.J. and Rapach, D.E., 2011. International comovements in inflation rates and country characteristics. *Journal of International Money and Finance*, 30 (7), pp. 1471-1490. https://doi.org/10.1016/j.jimonfin.2011.07.009

Neumann, M.J. and Von Hagen, J., 2002. Does inflation targeting matter? *Review Federal Reserve Bank of Saint Louis*, 84 (4), pp. 127-148. https://doi.org/10.20955/r.84.127-148

Pétursson, T.G., 2005. Inflation targeting and its effects on macroeconomic performance. SUERF Studies No. 2005/5. https://bit.ly/3VWvtnM

Pierdzioch, C. and Rulke, J.C., 2013. Do inflation targets anchor inflation expectations? *Economic Modelling*, 35, pp. 214-223. https://doi.org/10.1016/j.econmod.2013.06.042

Roger, M.S., 2009. Inflation targeting at 20: Achievements and challenges. International Monetary Fund Working Paper WP/09/236. https://doi.org/10.5089/9781451873832.001

Roger, M.S. and Stone, M.M.R., 2005. On target? The international experience with achieving inflation targets. International Monetary Fund Working Paper WP/05/163. https://doi.org/10.5089/9781451861822.001

Rose, A.K., 2007. Are international financial crisis a barbarous relic? Inflation targeting as a monetary vaccine. Center For Economic Policy Research Policy Insight no. 1. https://bit.ly/3DptWj7

Sabbán, V.C., Rozada, M.G. and Powell, A.P., 2003. A new test for the success of inflation targeting. Universidad Torcuato di Tella, Centro de Investigación en Finanzas. https://bit.ly/3TSMjm1

Sahay, R., Čihák, M., N'Diaye, P. and Barajas, A., 2015. Rethinking financial deepening: Stability and growth in emerging markets. *Revista de Economía Institucional*, 17 (33), pp. 73-107. https://doi.org/10.18601/01245996.v17n33.04

Samarina, A., Terpstra, M. and De Haan, J., 2014. Inflation targeting and inflation performance: A comparative analysis. *Applied Economics*, 46 (1), pp. 41-56. https://doi.org/10.1080/00036846.2013.829205

Shambaugh, J.C., 2004. The effect of fixed exchange rates on monetary policy. *The Quarterly Journal of Economics*, 119 (1), pp.301-352. https://doi.org/10.1162/003355304772839605

Schaechter, A., Stone, M.R. and Zelmer, M., 2000. Adopting inflation targeting: Practical issues for emerging market countries. Washington, DC: International Monetary Fund, Occasional Paper no. 202. https://doi.org/10.5089/9781557759917.084

Shirakawa, M., 2012. The Bank of Japan's efforts toward overcoming deflation. Speech at the Japan National Press Club in Tokyo. https://bit.ly/3VXygxl

Sterne, G., 2002. Inflation targets in a global context. Banco Central de Chile. *Central banking, analysis, and economic policies book series*, in: Loayza, N. and Soto, R. (eds.), Inflation targeting: Design, performance, challenges, edition 1, volume 5, chapter 2, pp. 023-078, Central Bank of Chile. https://bit.ly/3D3Du1A

Stone, M.M.R., 2003. Inflation targeting lite. International Monetary Fund Working Paper WP/03/12. https://doi.org/10.5089/9781451842920.001

Svensson, L.E., 2008. Inflation targeting. In: Durlauf, S.N., Blume, L.E. (Eds.), The new palgrave dictionary of economics. Second ed. Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95121-5_2072-1

Svensson, L.E., 2009. What have economists learned about monetary policy over the past 50 years? In: *Monetary policy over fifty years: Experiences and lessons*, The Deutsche Bundesbank (ed.), first edition, Routledge. https://bit.ly/3TPJrpI

Svensson, L.E., 2010. Inflation targeting. In: *Handbook of Monetary Economics*, 3, pp. 1237-1302. Elsevier. https://doi.org/10.1016/b978-0-444-53454-5.00010-4

Taylor, J.B., 1993. Discretion versus policy rules in practice. In: *Carnegie-Rochester conference series on public policy*, 39, pp. 195-214. North-Holland. https://doi.org/10.1016/0167-2231(93)90009-l

Tillmann, P., 2012. Has inflation persistence changed under EMU? *German Economic Review*, 13 (1), pp. 86-102. https://doi.org/10.1111/j.1468-0475.2011.00549.x

Truman, E.M., 2003. Inflation targeting in the world economy. Columbia University Press.

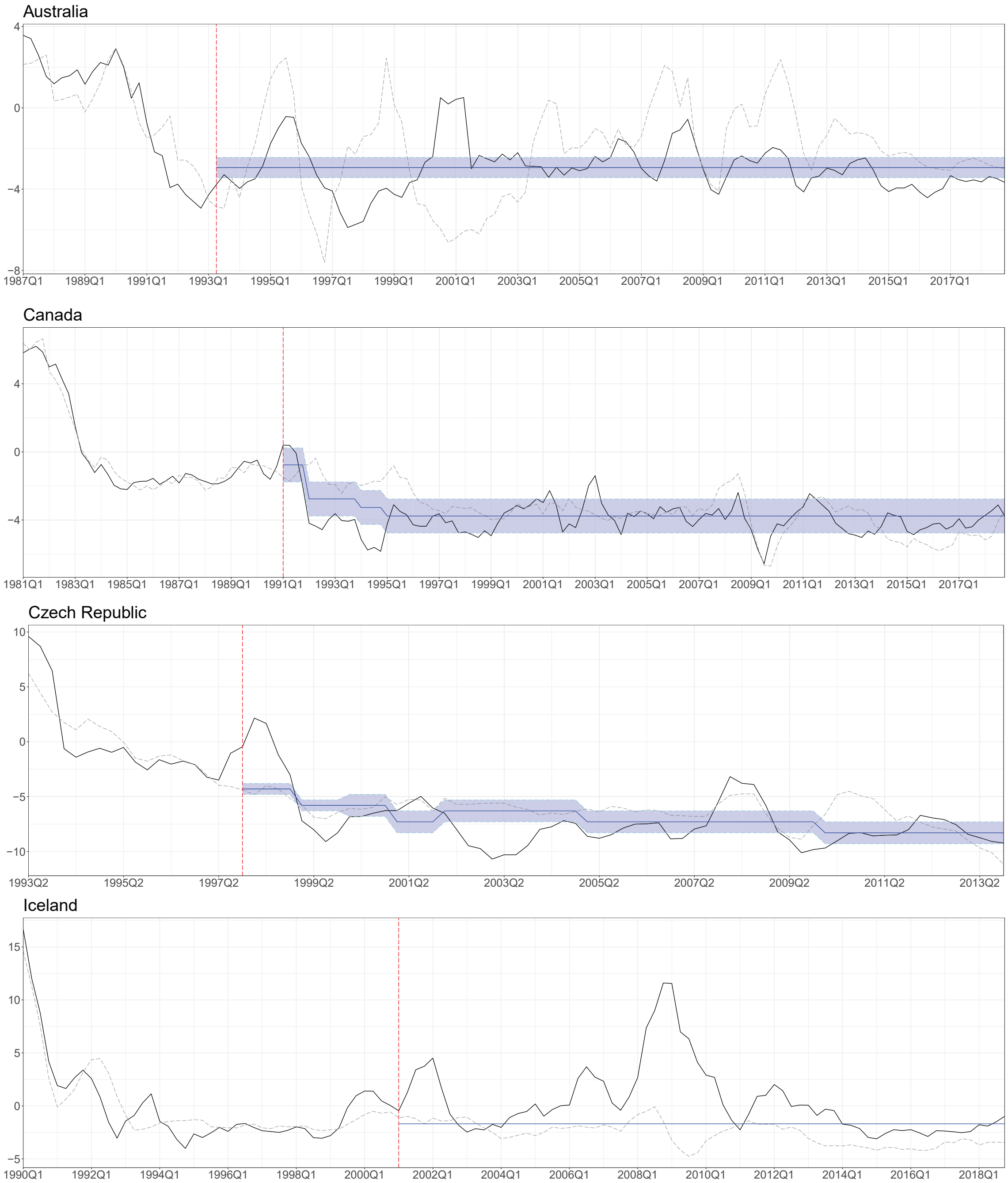
Valera, H.G.A., Holmes, M.J. and Hassan, G.M., 2017. How credible is inflation targeting in Asia? A quantile unit root perspective. *Economic Modelling*, 60, pp. 194-210. https://doi.org/10.1016/j.econmod.2016.09.004

Vega, M. and Winkelried, D., 2005. Inflation targeting and inflation behavior: A successful story? *International Journal of Central Banking*, 1 (3), pp. 153-175. https://bit.ly/3z7jcU0

Walsh, C.E., 2009. Inflation targeting: What have we learned?. *International Finance*, 12 (2), pp. 195-233. https://doi.org/10.1111/j.1468-2362.2009.01236.x

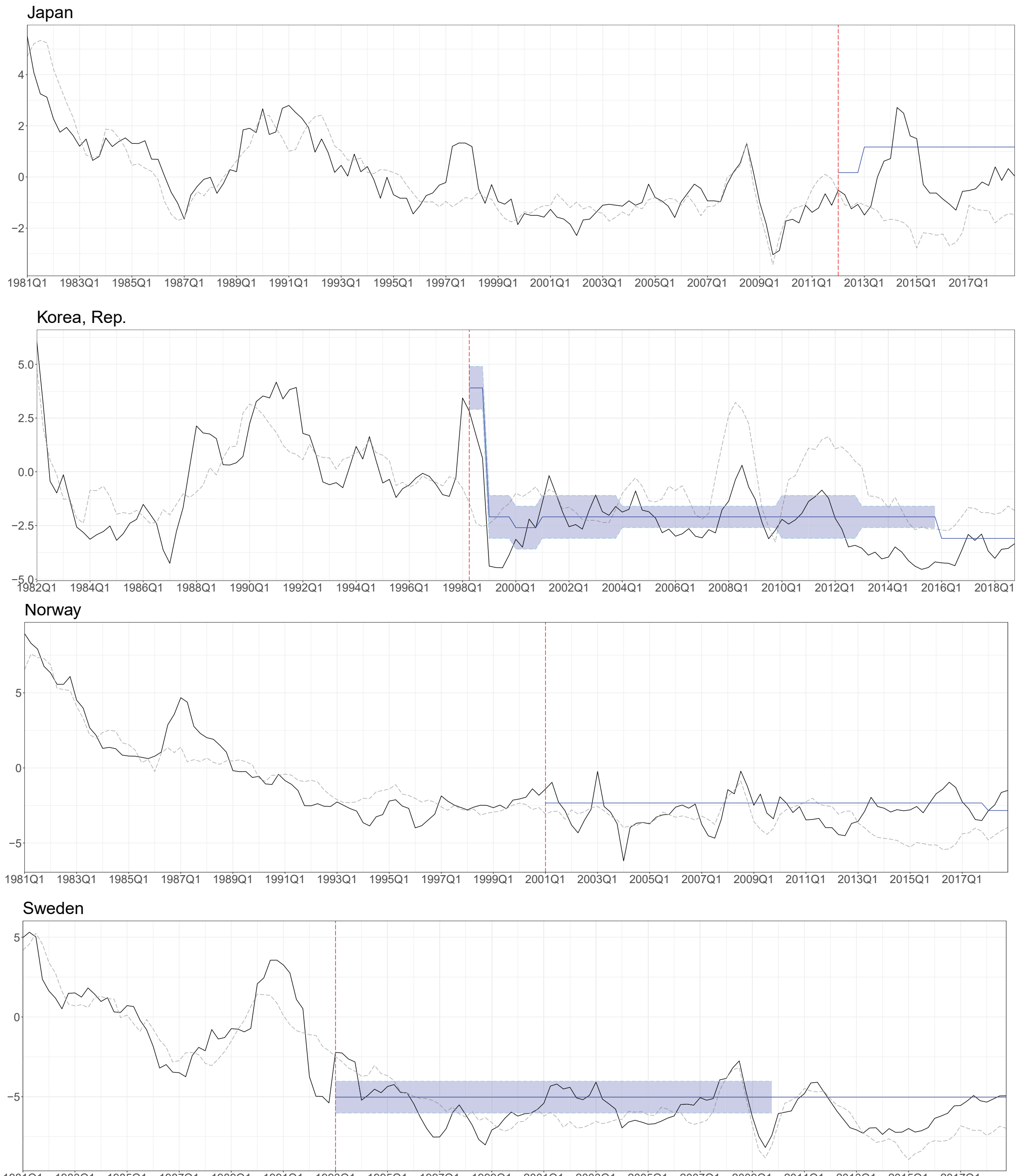
Willard, L.B., 2012. Does inflation targeting matter? A reassessment. *Applied Economics*, 44 (17), pp. 2231-2244. https://doi.org/10.1080/00036846.2011.564136

Figure A1. Actual and Synthetic Inflation Rates — AEs



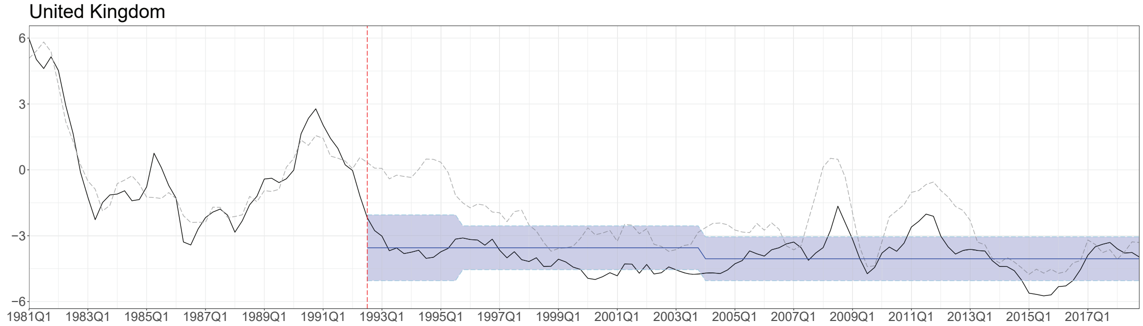
Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Figure A1. (continued) Actual and Synthetic Inflation Rates — AEs



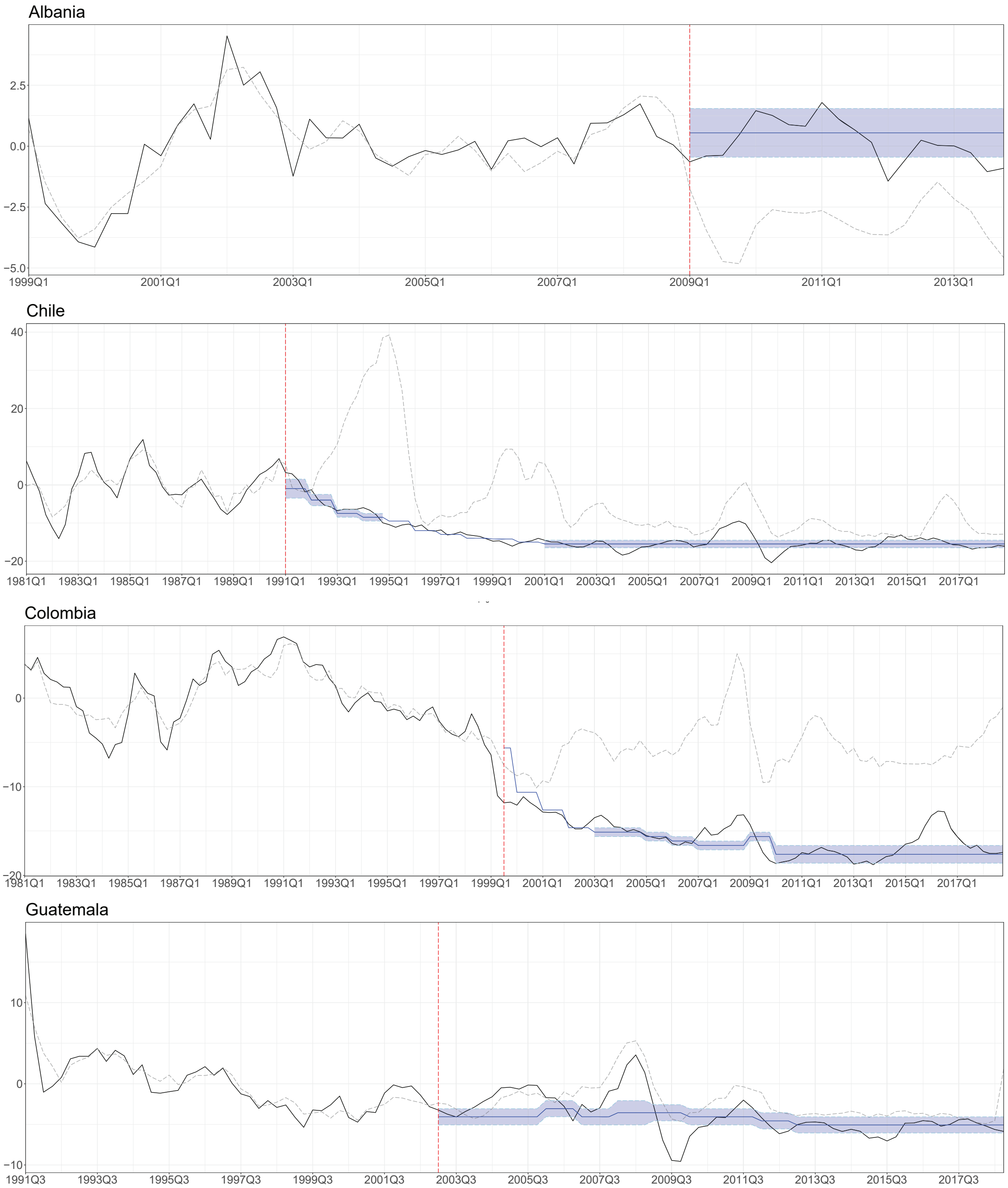
Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Figure A1. (continued) Actual and Synthetic (Demeaned) Inflation Rates — AEs



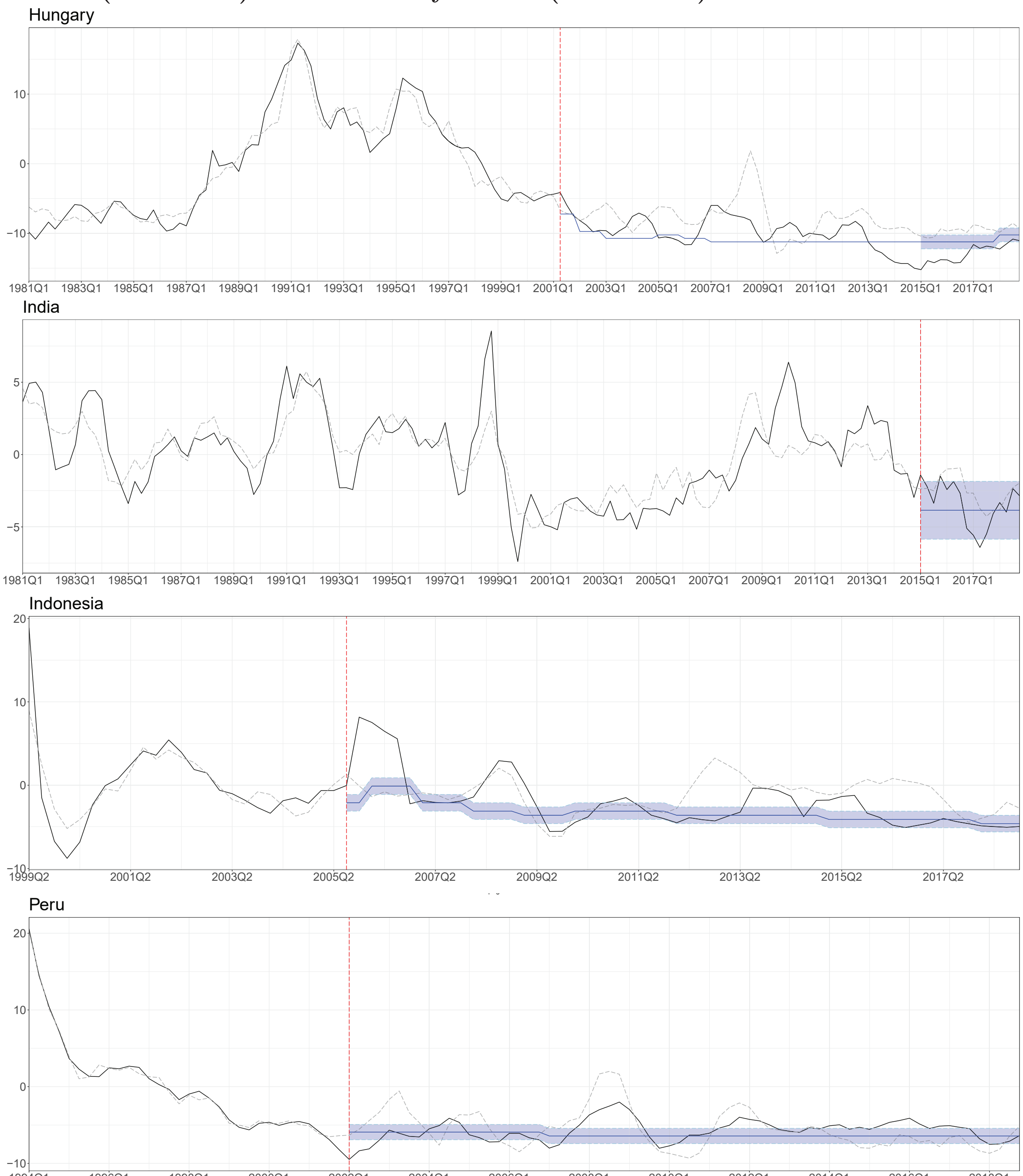
Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Figure A2. Actual and Synthetic (Demeaned) Inflation Rates — EMDEs



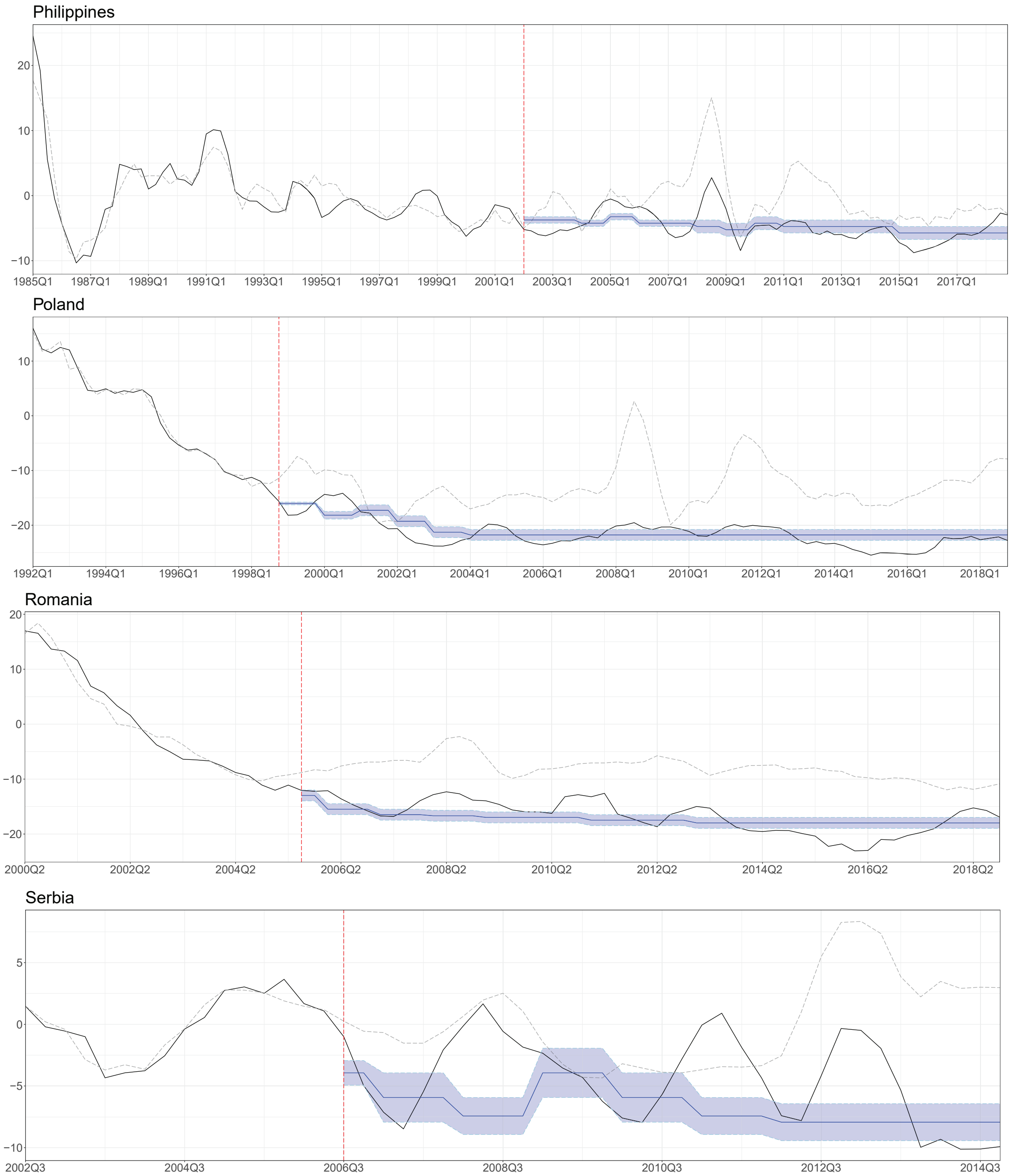
Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Figure A2. (continued) Actual and Synthetic (Demeaned) Inflation Rates — EMDEs



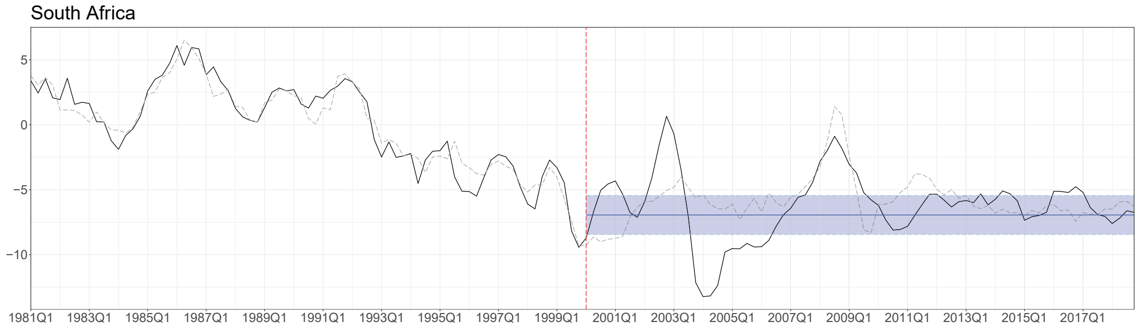
Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

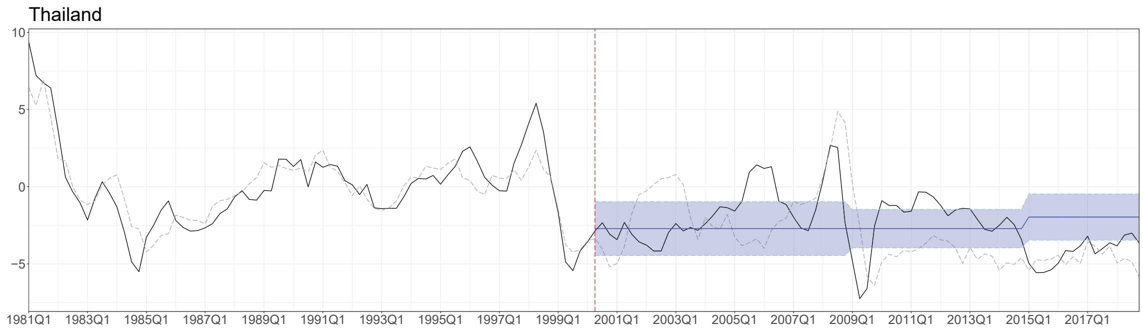
Figure A2. (continued) Actual and Synthetic (Demeaned) Inflation Rates — EMDEs



Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

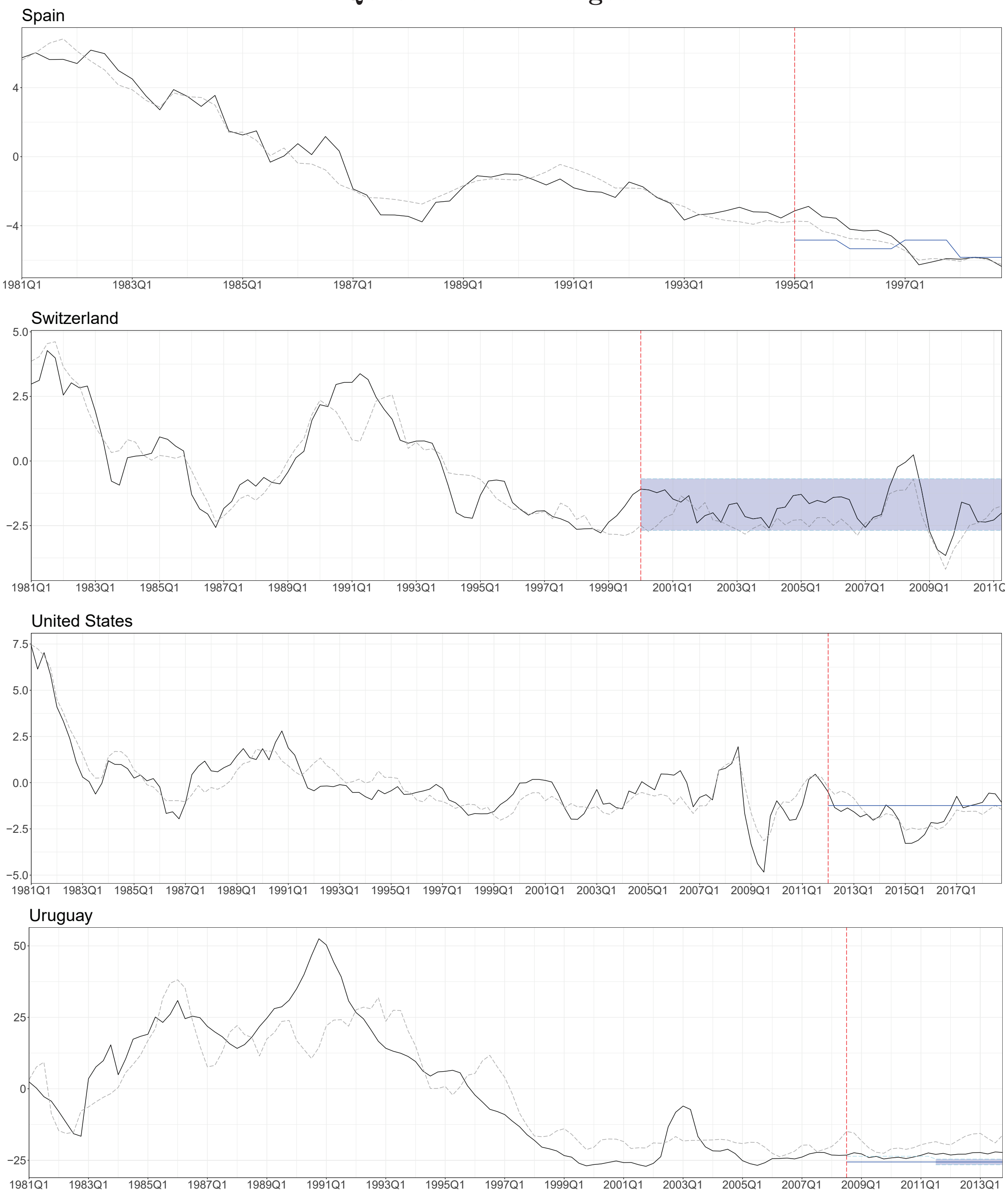
Figure A2. (continued) Actual and Synthetic (Demeaned) Inflation Rates — EMDEs





Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Figure A3. Robustness Check: Actual and Synthetic (Demeaned) Inflation Rates—Quasi-Inflation Targeters



Notes: The figures show the actual and synthetic (demeaned) inflation rates for each treated unit (black solid and black dashed lines, respectively). The figures also include the treatment period (red vertical line), the point inflation target (or midpoint of target/tolerance band if a point value is not adopted; blue solid line), and tolerance or target bands (whenever adopted; light blue shaded). The target and band limit values are also demeaned to facilitate the comparison.

Table A.1: Features of the Inflation Targeting Regimes

Country	IT adoption period	Target price index	Forecasts reported	Publishes forecasts?	Accountability mechanism	Policy rate	Exchange rate regime (Coarse classification 2019)
Albania	2009Q1-2013Q4	CPI	Inflation, GDP, others	Yes	Quarterly Report	Key interest rate	2 (09Q1-13Q4), 1 (14Q1-18Q4)
Armenia	2006Q1–2014Q4	CPI	Inflation, GDP	Yes	PH	Repo rate	2 (06Q1-14Q4), 1 (15Q1-18Q4)
Australia	1993Q2–	CPI	Inflation, GDP	Yes	PH	Cash rate	4
Brazil	1999Q1–	CPI	Inflation, GDP	Yes	PH, OL	SELIC; overnight interest rate	2 (99Q1), 5 (99Q1-99Q3), 3 (99Q3-02Q4), 4(03Q1-08Q3), 3 (08Q4-18Q4)
Canada	1991Q1–	CPI	Inflation, others	Yes	PH	Overnight interest rate	2 (91Q1-02Q1), 4 (02Q2-18Q4)
Chile	1991Q1–	CPI	Inflation, GDP	Yes	PH	Overnight interbank rate	3
Colombia	1999Q3–	CPI	Inflation, GDP	Yes	PH	Intervention interest rate	3
Czech Rep.	1997Q4–2013Q4	CPI	Inflation, GDP, others	Yes	PH	Repo, Discount, & Lombard rate	2 (97Q4-99Q4), 3 (00Q1-13Q4), 1 (14Q1-18Q4)
Dominican Rep.	2012Q1–	CPI	Inflation, GDP, others	Yes	OL	Monetary policy rate	2
Georgia	2009Q1–	CPI	Inflation	Yes	OL	Monetary policy rate	2
Ghana	2007Q1–	CPI	Inflation, others	Yes	PH	Prime rate	2 (07Q1-10Q4), 3 (11Q1-18Q4)
Guatemala	2003Q1–	CPI	Inflation	Yes	PH	Overnight interbank rate	2
Hungary	2001Q2–	CPI	Inflation, GDP, others	Yes	PH	Two-week central bank bond rate	3 (01Q2-09Q1), 2 (09Q2-18Q4)
Iceland	2001Q1–	CPI	Inflation, GDP, others	Yes	PH, OL	Short-term loan and deposit rates	3
India	2015Q1–	CPI	Inflation	Yes	Monetary Policy Report	Policy (repo) rate	3
Indonesia	2005Q3–	CPI	Inflation, GDP, others	Yes	PH	Base rate	3 (05Q3-07Q2), 2 (07Q3-18Q1)
Israel	1991Q4–	CPI	Inflation, GDP, others	Yes	PH	Overnight rate	3
Japan	2012Q1–	CPI	Inflation, GDP, others	Yes	PH, OL	Short-term policy interest rate	4
Kazakhstan	2015Q3–	CPI	Inflation, GDP, others	Yes	OL	Base rate	2 (15Q3-15Q4), 5 (15Q4-16Q4), 2 (17Q1-18Q4)
Korea, Rep.	1998Q2–	CPI	Inflation, GDP	Yes	PH	Base rate	5 (98Q2), 3 (98Q3-18Q4)
Mexico	1999Q1–	CPI	Inflation, GDP, others	Yes	PH	Overnight interbank rate	3 (99Q1-15Q4), 5 (16Q1-18Q4)
Moldova	2011Q1–	CPI	Inflation, GDP, others	Yes	OL	Monetary policy rate	2 (11Q1-14Q4), 5 (15Q1-15Q4), 3 (16Q1-18Q4)
New Zealand	1989Q4–	CPI	Inflation, GDP, others	Yes	PH, OL	Official cash rate	3
Norway	2001Q1–	CPI	Inflation, GDP, others	Yes	PH	Key policy rate	3
Paraguay	2011Q2–	CPI	Inflation, GDP, others	Yes	Annual Report	Monetary policy rate	3
Peru	2002Q1–	CPI	Inflation, GDP, others	Yes	PH	Reference interest rate	2 (02Q1-02Q4), 3 (03Q1-12Q2), 2 (12Q3-18Q4)
Philippines	2002Q1–	CPI	Inflation	Yes	OL	Key policy rates	2
Poland	1998Q4–	CPI	Inflation, GDP	Yes	PH	Reference rate	3
Romania	2005Q3-	CPI	Inflation, GDP, others	Yes	Annual Report	Monetary policy rate	3 (05Q3-06Q2), 2 (06Q3-18Q4)
Russian Federation	2015Q1–	CPI	Inflation, GDP, others	Yes	OL	Key Rate	5 (15Q1-16Q1), 3 (16Q2-18Q4)
Serbia	2006Q3–2014Q4	CPI	Inflation	Yes	PH, OL	Repo rate	2 (06Q3-14Q4), 1 (15Q1-18Q4)
Slovak Rep.	2005Q3-2008Q4	HICP	Inflation, GDP	Yes	PH	Key interest rate	2 (05Q3-08Q4), 1 (09Q1-18Q4)
South Africa	2000Q1–	CPI	Inflation, GDP	Yes	PH	Repo rate	4
Sweden	1993Q1–	CPI	Inflation, GDP, others	Yes	PH	Repo rate	3 (93Q1-98Q4), 2 (99Q1-08Q3), 3 (08Q4-18Q4)
Thailand	2000Q2–	CPI	Inflation, GDP	Yes	PH, OL	Repurchase rate	3
Turkey	2006Q1–	CPI	Inflation, GDP	Yes	PH, OL	Repo rate	4 (06Q1-08Q3), 3 (08Q4-18Q2)
Uganda	2012Q3–	CPI	Inflation	Yes	PH	Central Bank rate	3 (12Q3-16Q1), 2 (16Q2-18Q4)
United Kingdom	1992Q3–	CPI	Inflation, GDP	Yes	PH, OL	Repo rate	3 (92Q3-08Q4), 4 (09Q1-18Q4)

Addendum: Other Possible IT Candidates and Quasi Inflation Targeters (Excluded from Main IT Sample)

Country	Possible target adoption period	Target price index	Forecasts reported	Publishes forecasts?	Accountability mechanism	Policy rate/Monetary aggregate	Exchange rate regime (Coarse classification 2019)
Inflation targeters with an insufficient number of post-IT periods							
Argentina	2016Q3-2018Q3	CPI	Inflation, GDP	Yes	Annual Report	Monetary policy rate	5 (16Q3-18Q3)
Costa Rica	2018Q1–	CPI	Inflation	Yes	None	Monetary Policy Rate	1
Finland	1993Q1-1994Q4	HICP	Inflation	Yes	NA	Tender rate	5 (93Q1), 2 (93Q2-94Q4), 1 (95Q1-18Q4)
Jamaica	2018Q1–	CPI	Inflation	Yes	OL	Monetary policy rate	2
Ukraine	2017Q1–	CPI	Inflation, GDP, others	Yes	PH	Key policy rate	NA (17Q1-18Q4)
Quasi-Inflation Targeters							
Spain	1995Q1-1998Q4	CPI	None	No	None	Intervention rate	1
Switzerland	2000Q1-2011Q2	CPI	Inflation, GDP, others	Yes	SNB Annual Report	Policy rate	3(00Q1-11Q2), 1 (11Q3-14Q4), 3(15Q1-18Q4)
United States	2012Q1–	PCE	Inflation, GDP, others	Yes	PH, OL	Federal Funds Rate	4
Uruguay	2008Q3-2013Q4	CPI	None	No	None	Policy rate & mon. agregates	3

Notes: PH denotes parliamentary hearings, OL means open letter. CPI is headline/broad/standard consumer price index, CPIX is the consumer price index excluding mortgage costs, PCE is personal consumption expenditures index, HICP is harmonized (headline) index of consumer prices. We denote missing information with NAs. Thailand targeted a core CPI until 2014. South Africa used the annual average of the CPIX (2000-2003), then used CPIX from 2004 on. The UK used the Retail Price Index excluding mortgage interest payments (RPIX; 1992-2003), then used CPI from 2004 on. Sources: Debelle (1997), Mahadeva and Sterne (2002), Stone (2003), Levin et al. (2004), Roger and Stone (2005), Little and Romano (2009), Hammond (2012), and central banks' documents and websites. The exchange rate regime (coarse classification) code is registered over the IT adoption period as follows: (1) no separate legal tender, pre-announced peg or currency board arrangement, pre-announced horizontal band that is narrower than or equal to +/-2%, and de facto peg; (2) pre-announced crawling peg, pre-announced crawling band that is narrower than or equal to +/-2%, de facto crawling peg, de facto crawling band that is narrower than or equal to +/-2%; (3) pre-announced crawling band that is wider than or equal to +/-2%, de facto crawling band that is narrower than or equal to +/-5%, moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time), managed floating; (4) freely floating; (5) freely falling; (6) dual market in which parallel market data is missing (lzetzki et al. 2019). The addendum lists economies that are quasi inflation targeters, i.e., sometimes classfied as inflation targeters or inflation targeters with insufficient number of post-IT periods.

Table A.2: IT Adoption Periods According to Previous Studies

Country	Average	Mode	Median	Standard deviation	Minimum	Maximum	Number of studies or classifications
Albania	2009	2009	2009	0	2009	2009	4
Argentina*	2017	...	2017	…	2017	2017	1
Armenia	2007	2006	2006	2	2006	2009	4
Australia	1993	1993	1993	0	1993	1994	40
Brazil	1999	1999	1999	0	1999	1999	39
Canada	1992	1991	1991	1	1991	1995	45
Chile	1995	1991	1991	4	1990	2001	45
Colombia	1999	1999	1999	1	1995	2000	39
Costa Rica*	2018	…	2018	…	2018	2018	1
Czech Rep.	1998	1998	1998	0	1997	1999	39
Dominican Rep.	2012	2012	2012	0	2012	2012	2
Finland*	1993	1993	1993	1	1993	1995	22
Georgia	2009	2009	2009	1	2009	2010	3
Ghana	2006	2007	2007	2	2003	2007	13
Guatemala	2005	2005	2005	1	2003	2006	15
Hungary	2001	2001	2001	0	2001	2002	38
Iceland	2001	2001	2001	1	2001	2003	30
India	2015	2015	2015	0	2015	2015	2
Indonesia	2005	2005	2005	1	2005	2007	19
Israel	1995	1992	1992	3	1991	2004	44
Jamaica*	2018	…	2018	…	2018	2018	1
Japan	2011	2013	2013	3	2006	2013	4
Kazakhstan	2016	…	2016	1	2015	2016	2
Korea, Rep.	1999	1998	1998	1	1998	2001	38
Mexico	2000	2001	1999	2	1995	2003	45
Moldova	2011	2010	2011	1	2010	2013	4
New Zealand	1990	1990	1990	1	1988	1993	44
Norway	2001	2001	2001	0	2001	2001	31
Paraguay	2012	2011	2011	1	2011	2013	3
Peru	2000	2002	2002	3	1994	2003	41
Philippines	2002	2002	2002	2	1995	2003	34
Poland	1998	1998	1998	2	1990	2004	42
Romania	2005	2005	2005	0	2005	2006	19
Russian Federation	2015	2015	2015	0	2015	2015	2
Serbia	2007	2006	2007	1	2006	2009	8
Slovak Rep.	2005	2005	2005	2	1998	2007	17
South Africa	2000	2000	2000	0	2000	2002	35
Spain*	1995	1995	1995	0	1994	1995	25
Sweden	1994	1993	1993	1	1993	1995	41
Switzerland*	2000	2000	2000	3	1993	2009	23
Thailand	2000	2000	2000	0	2000	2000	34
Turkey	2005	2006	2006	1	2002	2006	16
Uganda	2013	…	2013	2	2011	2014	2
Ukraine*	2017	...	2017	…	2017	2017	1
United Kingdom	1992	1992	1992	0	1992	1993	38
United States*	…	…	…	…	…	…	0
Uruguay*	2008	2008	2008	…	2008	2008	1

Notes: An asterisk denotes a country whose central bank is not formally classified as ITCB in the main sample or, even though it satisfies some of the conditions that characterize an inflation targeter in our study, was excluded due to an insufficient number of post-intervention periods. The studies included are Allen et al. (2006), Ball (2011), Ball and Sheridan (2004, 2 classifications), Berg (2005), Bernanke and Mishkin (1997), Bernanke et al. (1999), Central Bank of Iceland (2007), Central Banks and other sources, Combes et al. (2018), Corbo et al. (2002), Debelle (1997), De Mendonça and De Guimarães e Souza (2012, 2 classifications), Dotsey (2006), Fendel et al. (2011), Fracasso et al. (2003), Fraga et al. (2003), Frascaroli and Nobrega (2019), Fratzscher et al. (2020), Frömmel and Schobert (2011), Gonçalves and Salles (2008), Gosselin (2007), Hammond (2012), Ilzetzki et al. (2019), IMF Annual Reports, Jahan (2012), Jonas and Mishkin (2004), Kim and Yim (2020), Lee (2011, 2 classifications), Levin et al. (2004), Leyva (2008, 4 classifications), Lin and Ye (2007, 2 classifications), Little and Romano (2009), Mishkin and Schmidt-Hebbel (2002), Mishkin and Schmidt-Hebbel (2007, 2 classifications), Mollick et al. (2011, 2 classifications), Pétursson (2005), Pierdzioch and Rülke (2013), Roger (2009), Roger and Stone (2005), Rose (2007, 2 classifications), Sabbán et al. (2003), Schaechter and Zelmer (2000), Svensson (2010), Truman (2003, 2 classifications), and Vega and Winkelried (2005, 2 classifications).

Table A.3: Control Unit Weights for each Synthetic Unit - AEs

Control units	Australia	Canada	Czech Rep.	Iceland	Japan	Korea	Norway	Sweden	UK
Algeria	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.048
Austria	0.000	0.000	0.000	0.000	0.221	0.000	0.000	0.000	0.000
Bangladesh	0.985	0.063	0.000	0.000	0.087	0.000	0.034	0.075	0.058
Belgium	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.282	0.102
Cyprus	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.000	0.106
Denmark	0.000	0.138	0.000	0.763	0.000	0.000	0.798	0.000	0.000
France	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Germany	0.000	0.240	0.032	0.000	0.230	0.000	0.000	0.000	0.000
Greece	0.000	0.060	0.864	0.000	0.038	0.000	0.143	0.216	0.072
Iran	0.000	0.051	0.000	0.000	0.000	0.000	0.025	0.000	0.000
Ireland	0.000	0.205	0.000	0.192	0.000	0.000	0.000	0.000	0.000
Italy	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Luxembourg	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Malaysia	0.000	0.000	0.000	0.000	0.154	0.000	0.000	0.000	0.000
Malta	0.000	0.213	0.000	0.000	0.037	0.271	0.000	0.000	0.230
Netherlands	0.000	0.000	0.000	0.000	0.164	0.000	0.000	0.000	0.043
Portugal	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.097	0.000
Singapore	0.000	0.000	0.000	0.000	0.000	0.566	0.000	0.198	0.336
Slovenia	0.015	0.006	0.104	0.045	0.007	0.008	0.000	0.009	0.004
Taiwan	0.000	0.000	0.000	0.000	0.000	0.152	0.000	0.123	0.000
Descriptive statistics									
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Max	0.985	0.240	0.864	0.763	0.230	0.566	0.798	0.282	0.336
#<0.010	18	12	17	17	12	17	16	14	12
#>0.01 & <0.1	1	4	1	1	4	0	2	2	4
#>0.1	1	4	2	2	4	3	2	4	4

Notes: Control units are displayed in rows, treated units are placed in columns. #<0.01 counts the number of weights lower than 0.01; #>0.01 & <0.1 indicates the number of weights between 0.01 and 0.1, and #>0.1 reports the number of weights larger than 0.1.

Table A.4: Control Unit Weights for each Synthetic Unit - EMDEs

Control units	Albania	Chile	Colombia	Guatemala	Hungary
Algeria	0.110	0.000	0.000	0.000	0.000
Bahrain	0.079	0.000	0.000	0.000	0.000
Bangladesh	0.000	0.000	0.000	0.000	0.000
Bhutan	0.000	0.000	0.000	0.000	0.000
Bolivia	0.000	0.019	0.000	0.000	0.000
Bulgaria	0.211	0.000	0.000	0.010	0.014
Burundi	0.000	0.000	0.000	0.000	0.012
Cabo Verde	0.000	0.000	0.000	0.000	0.000
Cameroon	0.000	0.000	0.000	0.000	0.000
Central African Republic	0.000	0.000	0.000	0.000	0.000
Chad	0.000	0.000	0.000	0.021	0.000
China	0.000	0.000	0.000	0.000	0.000
Congo, Rep.	0.000	0.000	0.000	0.000	0.000
Ecuador	0.000	0.059	0.000	0.000	0.027
Egypt, Arab Rep.	0.000	0.000	0.000	0.000	0.000
El Salvador	0.000	0.000	0.087	0.303	0.000
Equatorial Guinea	0.000	0.194	0.000	0.000	0.000
Ethiopia	0.000	0.000	0.119	0.000	0.104
Fiji	0.000	0.000	0.130	0.000	0.000
Gabon	0.000	0.000	0.000	0.000	0.000
Gambia, The	0.026	0.000	0.000	0.000	0.000
Guinea-Bissau	0.008	0.000	0.021	0.000	0.028
Haiti	0.075	0.000	0.000	0.000	0.000
Honduras	0.000	0.164	0.000	0.000	0.366
Iran, Islamic Rep.	0.000	0.000	0.000	0.000	0.000
Jordan	0.000	0.000	0.075	0.000	0.000
Kenya	0.000	0.000	0.000	0.059	0.000
Kuwait	0.000	0.000	0.122	0.519	0.000
Madagascar	0.093	0.000	0.044	0.000	0.000
Malawi	0.053	0.000	0.000	0.000	0.086
Malaysia	0.000	0.000	0.000	0.000	0.000
Myanmar	0.108	0.000	0.087	0.054	0.027
Nepal	0.000	0.000	0.000	0.000	0.000
Nigeria	0.137	0.000	0.000	0.000	0.000
Pakistan	0.000	0.000	0.000	0.000	0.000
Panama	0.000	0.000	0.000	0.000	0.000
Papua New Guinea	0.000	0.000	0.000	0.000	0.000
Rwanda	0.000	0.000	0.000	0.000	0.067
Samoa	0.000	0.000	0.159	0.000	0.000
Saudi Arabia	0.000	0.000	0.000	0.000	0.000
Seychelles	0.000	0.218	0.000	0.000	0.000
Solomon Islands	0.000	0.000	0.000	0.000	0.000
Sri Lanka	0.000	0.000	0.000	0.005	0.152
Sudan	0.000	0.000	0.042	0.000	0.026
Suriname	0.000	0.234	0.000	0.000	0.000
Tanzania	0.000	0.000	0.000	0.000	0.000
Tunisia	0.101	0.000	0.085	0.000	0.000
Vanuatu	0.000	0.000	0.000	0.000	0.000
Vietnam	0.000	0.022	0.012	0.028	0.000
Zambia	0.000	0.090	0.017	0.000	0.092
Descriptive statistics					
Min	0.000	0.000	0.000	0.000	0.000
Max	0.211	0.234	0.159	0.519	0.366
#<0.010	40	42	37	43	38
#>0.01 & <0.1	5	4	9	5	9
#>0.1	5	4	4	2	3

Notes: Control units are displayed in rows, treated units are placed in columns. #<0.01 counts the number of weights lower than 0.01; #>0.01 & <0.1 indicates the number of weights between 0.01 and 0.1, and #>0.1 reports the number of weights larger than 0.1.

Table A.4: (continued) Control Unit Weights for each Synthetic Unit - EMDEs

Control units	India	Indonesia	Peru	Philippines	Poland
Algeria	0.000	0.000	0.000	0.000	0.000
Bahrain	0.000	0.000	0.000	0.000	0.000
Bangladesh	0.048	0.000	0.000	0.000	0.000
Bhutan	0.024	0.198	0.000	0.000	0.000
Bolivia	0.000	0.000	0.096	0.011	0.000
Bulgaria	0.007	0.000	0.000	0.000	0.000
Burundi	0.000	0.000	0.043	0.000	0.000
Cabo Verde	0.000	0.000	0.000	0.000	0.000
Cameroon	0.000	0.000	0.000	0.000	0.000
Central African Republic	0.000	0.000	0.000	0.000	0.000
Chad	0.000	0.000	0.017	0.039	0.000
China	0.000	0.000	0.000	0.000	0.000
Congo, Rep.	0.019	0.000	0.000	0.000	0.028
Ecuador	0.000	0.000	0.000	0.000	0.107
Egypt, Arab Rep.	0.000	0.000	0.000	0.000	0.000
El Salvador	0.000	0.000	0.000	0.000	0.000
Equatorial Guinea	0.018	0.000	0.000	0.121	0.000
Ethiopia	0.000	0.000	0.030	0.243	0.260
Fiji	0.175	0.000	0.000	0.220	0.000
Gabon	0.000	0.000	0.083	0.000	0.000
Gambia, The	0.000	0.000	0.000	0.000	0.000
Guinea-Bissau	0.000	0.197	0.010	0.026	0.056
Haiti	0.000	0.000	0.000	0.000	0.000
Honduras	0.000	0.000	0.000	0.000	0.000
Iran, Islamic Rep.	0.022	0.000	0.109	0.000	0.000
Jordan	0.000	0.000	0.000	0.072	0.000
Kenya	0.000	0.000	0.309	0.000	0.068
Kuwait	0.000	0.000	0.000	0.000	0.000
Madagascar	0.000	0.000	0.000	0.000	0.000
Malawi	0.023	0.299	0.001	0.000	0.000
Malaysia	0.000	0.000	0.000	0.000	0.000
Myanmar	0.006	0.122	0.090	0.000	0.000
Nepal	0.380	0.000	0.000	0.000	0.000
Nigeria	0.000	0.185	0.000	0.000	0.000
Pakistan	0.148	0.000	0.000	0.000	0.000
Panama	0.000	0.000	0.000	0.000	0.000
Papua New Guinea	0.000	0.000	0.000	0.000	0.000
Rwanda	0.000	0.000	0.000	0.000	0.000
Samoa	0.000	0.000	0.001	0.000	0.000
Saudi Arabia	0.078	0.000	0.000	0.000	0.000
Seychelles	0.000	0.000	0.000	0.000	0.000
Solomon Islands	0.000	0.000	0.000	0.000	0.000
Sri Lanka	0.000	0.000	0.000	0.267	0.000
Sudan	0.000	0.000	0.012	0.000	0.094
Suriname	0.000	0.000	0.000	0.000	0.035
Tanzania	0.000	0.000	0.061	0.000	0.026
Tunisia	0.000	0.000	0.000	0.000	0.000
Vanuatu	0.051	0.000	0.000	0.000	0.000
Vietnam	0.000	0.000	0.000	0.000	0.258
Zambia	0.000	0.000	0.137	0.000	0.068
Descriptive statistics					
Min	0.000	0.000	0.000	0.000	0.000
Max	0.380	0.299	0.309	0.267	0.260
#<0.010	39	45	38	42	40
#>0.01 & <0.1	8	0	9	4	7
#>0.1	3	5	3	4	3

Notes: Control units are displayed in rows, treated units are placed in columns. #<0.01 counts the number of weights lower than 0.01; #>0.01 & <0.1 indicates the number of weights between 0.01 and 0.1, and #>0.1 reports the number of weights larger than 0.1.

Table A.4: (continued) Control Unit Weights for each Synthetic Unit - EMDEs

Control units	Romania	Serbia	South Africa	Thailand
Algeria	0.000	0.000	0.000	0.000
Bahrain	0.000	0.000	0.000	0.102
Bangladesh	0.000	0.000	0.000	0.000
Bhutan	0.354	0.000	0.000	0.000
Bolivia	0.000	0.000	0.003	0.001
Bulgaria	0.000	0.000	0.002	0.000
Burundi	0.000	0.000	0.000	0.059
Cabo Verde	0.000	0.000	0.088	0.000
Cameroon	0.000	0.000	0.000	0.000
Central African Republic	0.000	0.000	0.000	0.000
Chad	0.000	0.017	0.000	0.000
China	0.000	0.000	0.000	0.000
Congo, Rep.	0.000	0.000	0.000	0.000
Ecuador	0.541	0.000	0.000	0.000
Egypt, Arab Rep.	0.000	0.000	0.006	0.000
El Salvador	0.000	0.000	0.074	0.000
Equatorial Guinea	0.000	0.000	0.000	0.000
Ethiopia	0.000	0.000	0.057	0.000
Fiji	0.000	0.000	0.000	0.000
Gabon	0.000	0.000	0.026	0.000
Gambia, The	0.000	0.000	0.103	0.000
Guinea-Bissau	0.000	0.000	0.045	0.000
Haiti	0.000	0.000	0.000	0.000
Honduras	0.000	0.000	0.000	0.056
Iran, Islamic Rep.	0.000	0.000	0.000	0.000
Jordan	0.000	0.000	0.069	0.080
Kenya	0.000	0.000	0.000	0.000
Kuwait	0.000	0.099	0.000	0.000
Madagascar	0.000	0.038	0.000	0.002
Malawi	0.000	0.539	0.000	0.000
Malaysia	0.000	0.000	0.000	0.174
Myanmar	0.104	0.000	0.041	0.105
Nepal	0.000	0.000	0.219	0.037
Nigeria	0.000	0.000	0.000	0.000
Pakistan	0.000	0.000	0.000	0.000
Panama	0.000	0.000	0.000	0.000
Papua New Guinea	0.000	0.000	0.000	0.086
Rwanda	0.000	0.000	0.000	0.044
Samoa	0.000	0.000	0.073	0.177
Saudi Arabia	0.000	0.000	0.000	0.000
Seychelles	0.000	0.000	0.000	0.000
Solomon Islands	0.000	0.000	0.000	0.000
Sri Lanka	0.000	0.245	0.000	0.000
Sudan	0.000	0.000	0.000	0.000
Suriname	0.000	0.000	0.000	0.000
Tanzania	0.000	0.000	0.000	0.000
Tunisia	0.000	0.000	0.122	0.000
Vanuatu	0.000	0.000	0.057	0.063
Vietnam	0.000	0.000	0.006	0.011
Zambia	0.000	0.062	0.006	0.000
Descriptive statistics				
Min	0.000	0.000	0.000	0.000
Max	0.541	0.539	0.219	0.177
#<0.010	47	44	38	38
#>0.01 & <0.1	0	4	9	8
#>0.1	3	2	3	4

Notes: Control units are displayed in rows, treated units are placed in columns. #<0.01 counts the number of weights lower than 0.01; #>0.01 & <0.1 indicates the number of weights between 0.01 and 0.1, and #>0.1 reports the number of weights larger than 0.1.

Table A.5: Rank and P-Values – Various Post-Treatment (Sub-)Periods, AEs

	First 12Q Post-T (H1:ATT>0)	First 12Q Post-T (H1: ATT<0)	First 20Q Post-T (H1: ATT>0)	First 20Q Post-T (H1: ATT<0)	Full Post-T (H1: ATT>0)	Full Post-T (H1: ATT<0)	2007Q1-2009Q4 (H1: ATT>0)	2007Q1-2009Q4 (H1: ATT<0)
Australia								
Rank	14	8	16	8	14	11	16	9
P-value	0.737	0.444	0.842	0.421	0.667	0.524	1.000	0.600
Canada								
Rank	3	1	3	1	11	2	9	4
P-value	0.188	0.059	0.167	0.056	0.524	0.095	0.529	0.308
Czech Rep								
Rank	9	14	11	15	18	20	19	20
P-value	0.474	0.700	0.579	0.750	0.857	0.952	1.000	0.952
Iceland								
Rank	3	14	6	18	5	14	1	NA
P-value	0.167	0.778	0.316	0.900	0.238	0.667	0.053	NA
Japan								
Rank	1	14	1	16	2	11	NA	NA
P-value	0.059	0.667	0.059	0.762	0.095	0.524	NA	NA
Korea								
Rank	3	6	5	7	12	5	15	4
P-value	0.188	0.333	0.294	0.389	0.571	0.238	0.882	0.211
Norway								
Rank	7	6	12	11	8	11	14	12
P-value	0.412	0.300	0.667	0.524	0.381	0.524	0.824	0.667
Sweden								
Rank	16	14	17	14	21	19	15	15
P-value	0.889	0.778	0.944	0.700	1.000	0.905	0.882	1.000
UK								
Rank	NA	1	NA	1	20	4	17	4
P-value	NA	0.056	NA	0.056	0.952	0.190	1.000	0.308

Notes: The rank denotes the position of the treated unit in the placebo run sorted from the highest post-T RMSPE/pre-T RMSPE ratio to the lowest. The p-value is the number of ratios higher or equal than that of the treated unit as a percentage of all the units in the placebo run. The null hypothesis is that the ATT is zero (the alternative, H1, is that the ATT is strictly positive/negative). Full Post-T (ATT>0) denotes the full post-treatment period (one-sided test) for outcome gaps larger than or equal to zero. Full Post-T (ATT<0) denotes the full post-treatment period (one-sided test) for outcome gaps lower than zero. First 12Q Post-T and First 20Q Post-T cover the first 12 or 20 quarters of the post-treatment period (one-sided test). 2007Q1-2009Q4 covers statistics for such period whenever it is available for that treated unit (one-sided test). NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps, with that specific sign, during the corresponding period).

Table A.6: Rank and P-Values – Various Post-Treatment (Sub-)Periods, EMDEs

	First 12Q Post-T (H1:ATT>0)	First 12Q Post-T (H1: ATT<0)	First 20Q Post-T (H1: ATT>0)	First 20Q Post-T (H1: ATT<0)	Full Post-T (H1: ATT>0)	Full Post-T (H1: ATT<0)	2007Q1-2009Q4 (H1: ATT>0)	2007Q1-2009Q4 (H1: ATT<0)
Albania								
Rank	5	NA	NA	NA	7	29	NA	NA
P-value	0.106	NA	NA	NA	0.137	0.569	NA	NA
Chile								
Rank	35	7	39	6	46	9	NA	7
P-value	0.833	0.152	0.886	0.128	0.902	0.176	NA	0.194
Colombia								
Rank	NA	2	NA	2	44	1	NA	1
P-value	NA	0.049	NA	0.045	0.863	0.020	NA	0.026
Guatemala								
Rank	39	27	41	13	44	12	NA	10
P-value	0.886	0.659	0.891	0.289	0.863	0.235	NA	0.244
Hungary								
Rank	27	9	31	7	40	5	24	2
P-value	0.600	0.209	0.689	0.163	0.784	0.098	0.571	0.050
India								
Rank	27	10	NA	NA	21	38	NA	NA
P-value	0.659	0.217	NA	NA	0.412	0.745	NA	NA
Indonesia								
Rank	29	44	36	47	38	40	43	42
P-value	0.644	0.957	0.750	1.000	0.760	0.800	0.915	1.000
Peru								
Rank	30	1	26	1	29	7	37	8
P-value	0.698	0.024	0.578	0.024	0.580	0.140	0.881	0.242
Philippines								
Rank	37	8	42	8	44	3	NA	3
P-value	0.925	0.205	0.977	0.190	0.863	0.059	NA	0.088
Poland								
Rank	44	3	47	3	44	3	NA	1
P-value	0.957	0.083	1.000	0.073	0.880	0.060	NA	0.036
Romania								
Rank	NA	17	NA	18	44	14	NA	16
P-value	NA	0.378	NA	0.375	0.880	0.280	NA	0.364
Serbia								
Rank	NA	21	33	19	34	6	NA	24
P-value	NA	0.477	0.702	0.413	0.708	0.125	NA	0.558
South Africa								
Rank	3	30	6	2	19	2	16	7
P-value	0.070	0.714	0.133	0.043	0.373	0.039	0.390	0.175
Thailand								
Rank	20	4	27	4	18	6	16	2
P-value	0.476	0.093	0.600	0.083	0.353	0.118	0.381	0.049

Notes: The rank denotes the position of the treated unit in the placebo run sorted from the highest post-T RMSPE/pre-T RMSPE ratio to the lowest. The p-value is the number of ratios higher or equal than that of the treated unit as a percentage of all the units in the placebo run. The null hypothesis is that the ATT is zero (the alternative, H1, is that the ATT is strictly positive/negative). Full Post-T (ATT>0) denotes the full post-treatment period (one-sided test) for outcome gaps larger than or equal to zero. Full Post-T (ATT<0) denotes the full post-treatment period (one-sided test) for outcome gaps lower than zero. First 12Q Post-T and First 20Q Post-T cover the first 12 or 20 quarters of the post-treatment period (one-sided test). 2007Q1-2009Q4 covers statistics for such period whenever it is available for that treated unit (one-sided test). NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps, with that specific sign, during the corresponding period).

Table A.7: Robustness Check: Quasi-IT Cases

			Average Treatment Effect on the Treated Units				Differences in Root Mean Squared Deviations from Inflation Target (DEV ratio)			
	RMSPE	MAPE/SD	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
Spain	0.69	0.17	0.43	0.32	0.32	NA	0.66	0.57	0.57	NA
Switzerland	0.80	0.31	0.50	0.52	0.52	0.45	-0.59	-0.62	-0.56	-0.34
United States	0.79	0.37	-0.28	-0.22	-0.01	NA	-0.17	0.13	0.12	NA
Uruguay	10.23	0.36	-3.89	-4.39	-4.41	NA	-0.41	-0.46	-0.46	NA

Notes: $***$ p-value < 0.01, $**$ p-value < 0.05, $*$ p-value < 0.1, using the corresponding one-sided test. NA denotes not applicable (i.e., the unit did not adopt IT during that period; there are no outcome gaps during the corresponding period). The DEV statistic is the ratio whose numerator is the difference between (i) the root of the average squared deviations of the (demeaned) observed inflation rate from the inflation-target value (or the midpoint of the target/tolerance band) and (ii) the root of the average squared deviations of the corresponding synthetic inflation rate from the inflation-target value (or the midpoint of the target/tolerance band). The denominator is the pre-treatment RMSPE, used as penalty for pre-treatment imbalance. A negative sign would indicate that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. The statistics are calculated over various post-treatment sub-periods.

Table A.8: Robustness Check: All Pre-treatment Outcome Values as Predictors

			Average Treatment Effects on the Treated Units				Differences in Root Mean Squared Deviations from Inflation Target (DEV ratio)			
	RMSPE	MAPE/SD	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
AEs										
Australia	1.31	0.38	-0.88	-0.69	-0.84	-1.94	-1.25	-0.86	-0.90 **	-1.40
Canada	0.47	0.14	-1.12 *	-1.85 *	-0.37 *	-0.57	0.56	0.00	-0.41	-1.53
Czech Rep.	2.15	0.42	1.24	0.36	-0.72	-0.16	1.20	0.86	0.38	0.42
Iceland	1.67	0.31	1.69	1.78	3.02	7.48 *	1.58	1.09	1.46	3.84
Japan	0.81	0.41	1.53 *	1.68 *	1.57 *	NA	-1.16 **	-1.61 **	-1.59 **	NA
Korea, Rep.	1.40	0.48	-0.54	-0.42	-1.56	-2.06	-1.08 *	-0.80 *	-0.74 **	-1.53 *
Norway	1.16	0.28	0.34	0.13	0.82	0.43	0.45	0.38	-0.38 *	0.05
Sweden	1.65	0.51	0.35	0.22	1.78	1.92	0.33	0.21	-0.94 **	-0.67 *
United Kingdom	0.77	0.27	-3.52 *	-2.75 *	-1.43	-1.42	-3.98 **	-3.31 **	-1.40	-2.23 *
EMDEs										
Albania	0.77	0.34	3.66	NA	3.10	NA	-3.80 **	NA	-3.41 **	NA
Chile	3.07	0.43	-8.88	-20.24	-10.28	-9.82	-4.55 *	-8.25 *	-4.28 **	-3.03 **
Colombia	1.64	0.34	-4.56 **	-6.36 **	-9.91 **	-12.17 **	-1.42 **	-3.17 **	-5.65 **	-7.24 **
Guatemala	1.68	0.28	0.32	-0.66	-1.94	-3.62	0.24	-0.32	-0.57	-1.00 *
Hungary	2.02	0.21	-0.91	-1.49	-2.29 *	-2.43 *	-0.50	-0.56 *	-0.66 *	-1.70 **
India	1.79	0.45	-1.11	NA	-1.02	NA	-0.02	NA	-0.10	NA
Indonesia	2.62	0.32	2.08	1.55	-0.86	0.35	1.05	0.74	-0.08	0.15
Peru	0.49	0.06	-1.20 *	-0.63 *	1.31	-0.19	-0.86	-0.95 **	-2.09 **	-2.64
Philippines	2.37	0.31	-3.03	-2.83	-4.96 **	-8.06 *	-0.44	-0.73	-1.75 **	-3.10 **
Poland	1.03	0.08	-5.09	-5.64	-8.28	-9.88 *	-4.03 *	-3.19 *	-6.69 **	-11.00 *
Romania	1.93	0.17	-6.93	-7.22	-8.33	-8.06	-3.42	-3.65	-3.38	-4.05
Serbia	0.66	0.20	-2.30	-1.72	-5.22	-2.06	-1.50	-0.36	-7.04	-1.23
South Africa	0.99	0.22	2.00 *	-0.35 **	-0.68 **	-0.30	1.68	2.29	0.50	-0.83 *
Thailand	1.26	0.35	-1.33 *	-0.79 *	0.53	-1.78 *	-1.20 **	-0.87 *	-0.25	-0.78 *

Notes: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1, using the corresponding one-sided test. NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps during the corresponding period). The statistic DEV is a ratio whose numerator is the difference between the root of the average squared deviations of the (demeaned) observed inflation rate from the inflation-target value (or the midpoint of the target/tolerance band) and the root of the average squared deviations of the corresponding synthetic inflation rate from the inflation-target value (or the midpoint of the target/tolerance band). The denominator is the pre-treatment RMSPE, used as penalty for pre-treatment imbalance. A negative sign would indicate that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. The statistics are calculated over various post-treatment sub-periods.

Table A.9: Robustness Check: Advanced Economies' Donor Pool without EMEs

			Average Treatment Effects on the Treated Units				Differences in Root Mean Squared Deviations from Inflation Target (DEV ratio)			
	RMSPE	MAPE/SD	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
AEs										
Australia	1.93	0.55	-0.05	-0.97	-0.39	-0.41	0.38	0.49	0.16	0.00
Canada	0.59	0.17	-1.47 *	-1.96 *	-1.09	-1.41	0.22	0.17	-0.41	-0.85
Czech Republic	2.15	0.42	1.12	0.22	-0.52	-0.30	1.25	0.84	0.24	0.39
Iceland	1.67	0.31	1.69	1.78	3.02	7.48 *	1.58	1.09	1.46	3.84
Japan	0.87	0.45	1.73 *	1.89 *	1.72	NA	-1.43 *	-1.80 *	-1.71 *	NA
Korea, Rep.	1.56	0.54	-0.22	-0.01	-1.61	-2.38	-1.16 *	-0.85 *	-0.87 *	-1.67
Norway	1.18	0.27	0.13	-0.07	0.67	0.32	0.59	0.51	-0.27	0.16
Sweden	1.62	0.49	-0.43	-0.79	0.40	0.58	-0.13	0.14	-0.28	-0.25
United Kingdom	0.85	0.28	-3.40 *	-2.69 *	-1.77	-1.83	-3.47 *	-2.90 *	-1.45 *	-2.32 *

Notes: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1, using the corresponding one-sided test. NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps during the corresponding period). The statistic DEV is a ratio whose numerator (DEV NUM) is the difference between the root of the average squared deviations of the (demeaned) observed inflation rate from the inflation-target value (or the midpoint of the target/tolerance band) and the root of the average squared deviations of the corresponding synthetic inflation rate from the inflation-target value (or the midpoint of the target/tolerance band). The denominator is the pre-treatment RMSPE, used as penalty for pre-treatment imbalance. A negative sign would indicate that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. The statistics are calculated over various post-treatment sub-periods.

Table A.10: Robustness Check: Donor Pools with the Most Correlated Inflation Rates

			Average Treatment Effects on the Treated Units				Differences in Root Mean Squared Deviations from Inflation Target (DEV ratio)			
	RMSPE	MAPE/SD	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period	First 12Q Post-T Period	First 20Q Post-T Period	Full Post-T Period	2007-2009 Period
AEs										
Australia	0.33	0.14	1.07	2.14	6.27	6.67	-2.55	-4.46 *	-9.84 **	-9.62 **
Canada	0.26	0.15	-1.81 *	-2.59 **	-2.49 **	-4.17 *	0.36	-1.26 **	-2.90 **	-5.67 **
Czech Rep.	1.16	0.20	1.57	-0.04	-1.40	-1.63	-2.65	-2.30	-1.23 *	-0.77
Iceland	2.34	0.29	1.57	1.64	2.71	6.88 *	1.62	1.27	1.35	3.18
Israel	0.74	0.40	-2.99	-2.59	-2.74	-4.16	-0.93	-1.04	-1.19	-4.40 *
Japan	0.62	0.41	1.60 *	1.53 *	1.41 **	NA	-1.32	-1.52 *	-1.47 *	NA
Korea, Rep.	1.36	0.39	-0.30	-0.12	-1.12	-2.23 *	-0.66 *	-0.49	-0.65 **	-2.10 **
New Zealand	2.40	0.26	-0.41	-5.59	-1.43	0.01	0.09	-5.09 **	-2.72	-1.16
Norway	0.84	0.22	0.07	-0.01	0.34	-0.12	0.98	0.67	0.05	0.31
Slovak Rep.	1.53	0.34	-3.67 *	NA	-5.70 **	-9.19 *	-0.63	NA	-2.74 **	-3.82 *
Sweden	1.95	0.42	-2.05	-2.60	-2.83	-3.42	-1.27	-0.93	-0.78	-1.49
United Kingdom	0.63	0.27	-4.09 *	-3.85 *	-3.48 **	-4.13 *	-4.65 **	-4.45 **	-3.47 **	-5.22 **
EMDEs										
Albania	0.67	0.35	2.19	NA	2.08	NA	-2.00 *	NA	-2.14 *	NA
Chile	7.52	0.36	-7.05	-17.56	-7.67	-5.52	-4.35 *	-8.68 *	-4.22 *	-1.85
Colombia	2.60	0.33	-5.51 **	-6.60 **	-10.66 **	-12.08 **	-1.47 **	-2.98 **	-6.12 **	-7.09 **
Guatemala	2.85	0.28	0.47	-0.61	-1.66	-3.17	0.37	-0.38	-0.38	-0.65
Hungary	3.56	0.20	-0.90 *	-1.42 *	-2.43 **	-2.18 **	-0.61 *	-0.59 *	-0.73 *	-1.65 **
India	3.22	0.45	-1.12	NA	-1.20	NA	-0.04	NA	-0.17	NA
Indonesia	6.88	0.32	1.99	1.50	-0.86	0.35	0.94	0.73	-0.08	0.15
Peru	0.55	0.09	-2.66	-2.85 *	-2.52	-3.98	-1.91 **	-1.97 *	-3.40 **	-5.51 **
Philippines	5.26	0.31	-2.05	-2.18	-3.95 *	-7.11 *	-0.23	-0.53	-1.46 *	-2.82 **
Poland	0.95	0.08	-4.70 *	-6.74 *	-10.99 **	-12.85 **	-3.18 *	-4.15 *	-9.65 **	-14.06 **
Romania	4.32	0.18	-6.33	-6.38	-7.27	-7.13	-2.88	-2.98	-2.61	-3.35
Serbia	0.58	0.19	-2.52	-1.65	-4.87	-2.37	-2.02	-0.65	-5.59	-1.88
South Africa	0.97	0.23	2.23	-0.26 **	-0.55 *	0.44	3.21	3.08	0.96	0.36
Thailand	1.51	0.36	-2.05 *	-0.96 *	0.69	-1.52 **	-1.79 **	-1.21 **	-0.48 *	-0.74 *

Notes: *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1, using the corresponding one-sided test. NA denotes not applicable or not available (e.g., the unit did not adopt IT during that period; there are no outcome gaps during the entire corresponding period). The statistic DEV is a ratio whose numerator is the difference between the root of the average squared deviations of the (demeaned) observed inflation rate from the inflation-target value (or the midpoint of the target/tolerance band) and the root of the average squared deviations of the corresponding synthetic inflation rate from the inflation-target value (or the midpoint of the target/tolerance band). The denominator is the pre-treatment RMSPE, used as penalty for pre-treatment imbalance. A negative sign would indicate that the inflation rate was, on average, closer to its target than the estimated counterfactual inflation rate. The statistics are calculated over various post-treatment sub-periods. The donor pool of each AE (EMDE) is composed of 20 (50) units with the highest correlation coefficients between the inflation rates of the treated and the control unit calculated during the pre-treatment period from a pool of 66 AEs and EMDEs.