

Global Diffusion Through Policy Flexibility*

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Abstract

Since 1990, over 30 central banks of diverse countries—such as the UK, Colombia, and Ghana—have introduced inflation targeting, which is a monetary policy that seeks to control inflation through a pre-announced target. Fully institutionalized democracies adopted inflation targeting first because the core features of the policy are consistent with the principles of a democracy. But how could inflation targeting also spread to less-democratic countries? To answer this question, this article develops a two-stage framework of global diffusion. The framework hypothesizes that decision makers of less-democratic countries become more likely to adopt inflation targeting when they observe that nearby countries increase the flexibility of the policy. The statistical analysis of original data from 76 countries between 1989 and 2013 supports this argument. The finding that the change of a policy toward a more flexible framework drives its global spread addresses a blind spot in the more recent diffusion literature.

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1 Introduction

The seminal contribution by Dobbin, Simmons and Garrett (2007) on the diffusion of public policies starts with the observation that a large set of policies have spread globally, such as the protection of women’s rights, competition laws, and environmental standards. In the last decade, an abundant literature has generated various insights on diffusion. One fundamental question of *global* diffusion, however, remains largely unexplored—namely, why a very heterogenous group of countries, which are all confronted with distinct political and economic challenges, adopt the same policy. This article aims to shed light on this question by developing a two-stage framework of global diffusion and by applying this framework to the study of inflation targeting. The two-stage framework hypothesizes that countries whose existing institutions are consistent with the general idea of a policy adopt the policy first.

In this first stage, diffusion remains constrained to a specific spatial region. The motivating question of this study, however, is why and how a policy diffuses globally and is thus also adopted by countries that have institutions that are less compatible with the policy. The second stage of the framework explains the global spread. According to the emulation mechanism of diffusion, a policy becomes more attractive for adoption when it has established a reputation as a best practice (Dobbin, Simmons and Garrett, 2007). Historical and sociological research, following the decoupling argument of Meyer and Rowan (1977), further argues that decision-makers of countries with institutions that are less conducive for adoption have the incentive to introduce a state-of-the-art policy, while they also adjust the policy to a more flexible framework. Building on this research, this article conceptualizes the increased flexibility of a policy as the key driver of *global* diffusion. The main hypothesis on global diffusion is that the change of a policy to a more flexible framework by one country increases the likelihood of further adoptions by *other* nearby countries whose existing institutions are less compatible with the policy.

This analytical framework is applied and empirically evaluated in a study of the diffusion of inflation targeting (IT). In 1990, New Zealand introduced IT, which is a monetary policy framework that puts the management of inflation expectations front and center. By 2010, a highly heterogenous group of countries—including the UK, Armenia, Ghana, Peru, and Thailand—had adopted IT.

Singer and Mukherjee (2008, 324) rightly point out that the global spread “of IT presents a puzzle [...] that has been almost completely ignored by political scientists.”¹ Fully institutionalized democracies provide the conducive institutional setting for adoption because the key features of IT, such as separation of powers, transparency, and accountability, are reflections of the core principles of liberal democracies (Bernanke and Mishkin, 1997; Broz, 2002). The two-stage framework of global diffusion developed in this analysis hypothesizes that these countries adopt IT early in the process. The empirical investigation of original data from 76 countries between 1989 and 2013 supports the hypotheses that fully institutionalized democracies are more likely to adopt IT and that this effect is particularly strong in the first stage of diffusion.

The main hypothesis explaining the *global* diffusion of IT is that decision makers of less-democratic countries become more likely to introduce IT in the second stage of diffusion, when nearby countries increase the flexibility of the policy. The literature discusses a 2 percent target as optimal (Bernanke et al., 1999). Yet, Armenia, for example, introduced an inflation target of 3.5 to 6.5 percent. This is in line with the decoupling argument: the institutional setting of Armenia is not consistent with IT, as the president has maintained extensive powers that are only very weakly checked—and that is why Armenia adopted a flexible version of IT. According to the two-stage framework of global diffusion, the key explanation for Armenia’s adoption is that its neighbor, Turkey, used, in the years before Armenia’s adoption, very flexible frameworks with targets of 6 to 8 and 3 to 7 percent. The statistical analyses of spatial lag models support the argument that increased policy flexibility in nearby countries increases the likelihood of IT adoption in less-democratic countries.

This article contributes to the policy diffusion literature by conceptualizing global diffusion in two distinct temporal stages and by showing how the changing characteristics of a policy drives its global spread. The finding that the change of a policy is a key driver of diffusion addresses a blind spot in the more recent literature, which assumes that policies do not change as they spread. Overall, the diffusion literature may overemphasize that diffusion leads to homogenous policies by neglecting that policies are adapted to local contexts. The study of IT, which was adopted all

¹In contrast, the worldwide spread of central bank independence has been rather well studied Franzese (1999); McNamara (2002); Polillo and Guillén (2005); Bodea and Hicks (2015).

over the world but only by 30 countries, also highlights that the flexibility of a policy is a powerful dissemination strategy, but with limits: at some point, a policy loses its attraction for further adoptions when too-flexible versions undermine its general idea.

2 A Two-Stage Framework of Global Diffusion

The core question addressed by the scholarship on diffusion is why and how policy makers react to prior policy choices of other countries (Simmons, Dobbin and Garrett, 2008). Policy makers may, for example, adopt a policy because of its normative constructed properties as appropriate practice or because they observe that a policy is successful elsewhere (Shipan and Volden, 2008; Graham, Shipan and Volden, 2013). Although the literature offers a wider variety of theoretical explanations, the conventional approach of diffusion scholars is to prioritise one single diffusion mechanism, assuming that the same mechanism explains adoptions throughout the different stages of diffusion. This assumption is particularly problematic for the global spread of a policy, whereby a very heterogenous set of countries introduces the same policy. It is unlikely that the same motivation explains policy adoptions by very different countries.

In addition, diffusion scholars typically ignore the specific (and changing) content of a policy, assuming that all adoptions are essentially equivalent. Several studies address this over-simplification by showing that the framework of a policy is “reframed, reinterpreted, and modified” throughout the diffusion process (Klingler-Vidra and Schleifer, 2014, 271). Some qualitative, historical, and sociological studies analyze how policies change in diffusion processes (Radaelli, 2005; Beissinger, 2007; Howlett and Morgan, 2011; Chorev, 2012). Quite surprisingly, however, very little research has studied whether and, if so, how the varying and changing characteristics of a policy shapes the diffusion process. A notable exception is the study by Brooks (2007), who develops the argument that specific policy features of pension reforms mediate diffusion. This article aims to address both of these shortcomings of the literature by studying the mechanisms of global diffusion in two distinct stages and by showing how the changing characteristics of a policy drives its global spread in the second stage of diffusion.

A country is more likely to adopt a policy when its economic, political, and institutional features

are consistent with the framework of a policy. Several studies analyze how the fit of a policy with a specific context shapes diffusion patterns, whereas context is broadly conceptualized with arguments drawing on economic and political conditions, institutions, or the professionalisms of administrations (Swank, 2006; Neumayer and Plümper, 2012; Brooks and Kurtz, 2012; Shipan and Volden, 2014). For example, left governments are expected to react less to tax cuts or capital account liberalizations of other countries, while systems with more veto players are associated with lower responsiveness (Swank, 2006; Brooks and Kurtz, 2012). Such arguments on the conducive context for adoption are particularly relevant early in the diffusion process because, at this stage, not much is known about a new policy besides its general idea. Early adopters have very little information, if any, about the effects of a new policy. In addition, the policy does not (yet) have the standing of a state-of-the-art practice. At this stage, the policy is primarily attractive for adoption when it is consistent with the existing institutional setting.

This argument on institutional fit predicts spatially constrained diffusion. The defining feature of global diffusion, however, is widespread adoption—including countries with institutions that are less consistent with the policy. The spread of a policy to these countries is more likely to happen later in the diffusion process, when a policy has gained the standing of a state-of-the-art practice. The more international organizations, experts, and powerful countries promote a policy, establishing its reputation as appropriate policy, the more the policy becomes disconnected from a specific institutional context. The diffusion literature on the mechanism of emulation develops this argument by theorizing how policies are socially constructed as appropriate norms and adopted because policy makers aim to conform to these established norms (March and Olsen, 1998; Finnemore and Sikkink, 2001; Dobbin, Simmons and Garrett, 2007; Bearce and Bondanella, 2007).

When a policy has a reputation as a best practice, governments gain international credibility by introducing it. At this stage, policy makers of countries with less-conducive institutions also have the incentive to introduce the policy, not least because adoption signals compliance with the newly established norm to the international community. At the same time, they face the challenge that the policy comes with features that are either incompatible with their existing institutions or have potential negative consequences. In the terms of March and Olsen (2008), policy makers have to

balance the logics of appropriateness and consequence. To minimize the constraining effects of the policy, policy makers are interested in versions of the policy that are adjusted to their institutional contexts. Such adjustments usually mean that policy makers increase the flexibility of a policy framework (Wiener, 2007; Winston, 2017).

In accordance with the core argument of the emulation mechanism, the decoupling research developed by Meyer and Rowan (1977) argues that decision makers adopt a policy that is considered to be state-of-the-art to gain external legitimacy, but, at the same time, they also adapt the practice of the policy to their specific contexts. Following this strand of research, Chorev (2012, 834) shows that some countries are likely to diverge from the original version of a policy “by broadening the range of flexibilities.” As is common in the decoupling literature, Chorev (2012) studies, in detail, domestic resistance to parts of a policy framework. The main argument of this article builds on the insights of this literature, but conceptualizes the increased flexibility of a policy as a force of diffusion. Put differently, the phenomenon of decoupling and adaptation is not only interesting as a matter of domestic resistance but the change of a policy framework by one country also affects the probability of further adoptions by *other* countries.

Most importantly, the example of a policy change in one country increases the likelihood of adoptions by other countries that (also) have existing institutions that are not conducive to the original version of the policy. In this dynamic, the change of a policy towards a more flexible framework becomes itself the driver of diffusion beyond a set of homogenous countries. Policies can diffuse globally when they are successfully changed and adapted to a context for which they were not developed. This argument departs from the decoupling literature by elucidating how the increased flexibility of a policy paves the way for its own global diffusion. Figure 1 summarizes the discussed two stages of global diffusion: in the first stage, countries with conducive institutional settings adopt a policy, while, in a later stage, the global spread is driven by the increased flexibility of a policy.

	<i>Mechanism</i>	<i>Spatial Diffusion</i>
<i>First Stage</i>	Early adoptions because of institutional fit	Clustering among a set of homogenous countries
<i>Second Stage</i>	Diffusion because of policy flexibility	Global spread to a set of heterogenous countries

Table 1: *Global Policy Diffusion in Two Stages.*

3 Explaining the Diffusion of Inflation Targeting

The following applies the two-stage framework of global diffusion to the case of IT. In the late 1980s and early 1990s, leading economists reached a consensus on the main principles of central banking. The bottom line of this monetary consensus is that independent central banks should focus on providing low and stable inflation (Bernanke et al., 1999). The theory on the time inconsistency problem provided the intellectual backdrop for this argument (Kydland and Prescott, 1977; Calvo, 1978; Woodford, 2003). At the core of the time inconsistency problem is the mismatch between the announcement of a monetary policy decision and the policy actions that follow. For illustrating the theoretical argument, suppose that a monetary authority wants to reduce inflation and thus declares that low inflation is its priority. This announcement should affect the expectations of wage setters, investors, and consumers. When market participants set wages and prices in accordance with the expectation of low inflation, the monetary authority has reached the goal of lowering inflation.

The implication of the time inconsistency problem is that only an independent central bank that prioritizes the control of inflation over other macroeconomic goals can provide consistent and successful monetary policy making. The most straightforward example of an intervention damaging the effectiveness of IT is, according to the time inconsistency problem, an incumbent government that seeks to influence monetary policy making to win reelection. This became the widely supported intellectual consensus in monetary economics by the end of the 1980s and the early 1990s. At the same time, the labor government in New Zealand put together a larger reform agenda, including

a change of monetary policy to a framework that later became known as IT. The New Zealand version of IT was direct and clear: low and stable inflation was acknowledged as the primary goal of monetary policy. As such, the government announced a low inflation target range with a one-year time horizon.² The government could even dismiss the Governor of the Reserve Bank in the event that the inflation target was not met.

A few years after the introduction of IT in New Zealand in 1990, prominent academics embraced the new monetary policy as a practical framework that addressed the aforementioned time inconsistency problem. Economists advocated IT as the new state-of-the-art monetary policy and the IMF started to promote IT all over the world through conferences, research, and technical assistance (Debelle et al., 1998; Batini et al., 2006). IT, as a new monetary framework, and the intellectual consensus in the economics literature emerged roughly at the same time. The congruence between the dominant academic thinking and IT led to widespread advocacy on its behalf. Moreover, the subsequent adoptions of IT by several countries further strengthened its reputation. Reichlin and Baldwin (2013, 13) conclude that “[f]rom the late 1980s, independent central banks with inflation targets became the thinking’s person solution.” The buildup of a widely shared consensus that IT is the best practice facilitated the spread of the policy, as the emulation mechanism of diffusion suggests, but it does not explain the pattern of adoption. The two-stage framework developed in the previous section offers an analytical explanation for the global spread.

3.1 Early adoptions because of institutional fit

A key factor of adoption in the first stage of diffusion is the fit of a policy with existing institutions. The more a new policy is consistent with existing institutions and norms, the more likely a country is to introduce the policy. To identify the “most likely” early adopters, we thus need to specify what type of institutional setting fits with the framework of a new policy. In a seminal article, Broz (2002) shows that monetary policy choices depend on the extent to which a political system is democratic. His analysis focuses on central bank independence and exchange-rate pegs. As far as the latter is concerned, Broz (2002) argues that less-democratic and less-developed states are

²After a few reductions, the target was set in 1995 at 1 percent with a range between 0 and 2 percent.

more likely to adopt exchange-rate pegs because trust is imported from the anchor currency. In other words, the exchange-rate peg substitutes for the democratic deficits of a country.

In the case of central bank independence, he reverses the argument: the political system—not the monetary policy framework—provides transparency and accountability. Here, the democratic functions of the political system act as a necessary complement that makes the “opaque commitment” of central bank independence “credible” (Broz, 2002, 868). IT is very similar to central bank independence in that respect. In the case of IT, the political system has to also provide the democratic safeguards of separation of power, transparency, and accountability. The IT framework is credible and effective when the central bank can execute its mandate in an environment that fully protects its operational freedom. Constrained government powers are thus necessary for the functioning of IT. Besides the separation of powers, the democratic principles of transparency and accountability are among the most frequently mentioned arguments for IT (Bernanke and Mishkin, 1997; Svensson, 2010).

Thus, using Broz’s terms (2002, 866), a democratic system provides “the necessary monitoring and enforcement functions” in the case of IT. More broadly, the key elements of IT are consistent with the model of a liberal democracy because a) the incumbent government is not in a position to skew elections in its favour through activist monetary policy; b) the broader society is addressed with predictable policy decisions that follow a clearly defined framework; and c) regulatory, monetary, and economic policy making are assigned to different institutions that control each other. Therefore, IT adoptions are more likely in fully institutionalized democracies, and the two-stage framework of global diffusion expects that the fit with existing institutions is a particularly strong explanatory factor in the first stage of diffusion. Based on this, the first hypothesis on the spread of IT is that

IT adoption is more likely, the more institutionalized a democracy is; while this effect is particularly strong for early adopters (and thus decreases over time).

3.2 Global spread because of policy flexibility

As more and more countries adopt IT in the first stage of diffusion, the policy further establishes its reputation as an appropriate policy option. The strong backing by academics and the IMF strengthens the standing of IT as a best practice, which creates a strong incentive for adoption. Besides the incentive to signal adherence to this newly established norm, the introduction of the IT framework comes with costs for less developed countries that are not fully institutionalized democracies (Epstein and Yeldan, 2009). Eichengreen et al. (1999, 28–33) question whether such countries meet the “institutional prerequisites” for IT, among others, because governments of less-democratic countries may be less willing to constrain their fiscal options, and they are confronted with larger external shocks that make it more difficult to control inflation.

According to the decoupling research and the the two-stage framework of global diffusion, policy makers of countries whose institutions are not consistent with a policy may want to adopt a policy that has the standing as a best practice, but they also aim to constrain the potential negative consequences of adoption. To minimize the constraining effects, they adopt versions of the policy that are adjusted to their institutional contexts. As far as IT is concerned, the main operational constraints are the inflation target and the range of the target. In the original version, the inflation target is set at 2 percent, and, if there is a range at all, it is very narrow (± 1 percent). The most straightforward way to adjust IT to a more flexible framework is to increase the target and range. A good proxy for the flexibility of IT is thus the sum of the point target and the range: the higher the target and range, the higher the flexibility of the IT framework.

Two empirical implications follow from the decoupling research. First, less-democratic countries should adopt more flexible versions of IT, and the average flexibility of all adopted IT frameworks should increase over time, as more countries introduce IT throughout the process of global diffusion. The empirical evidence supports these expectations. The flexibility of IT is substantially larger for less-democratic countries compared to fully institutionalized democracies and increases as the policy diffuses globally (see Appendix A2 for detailed empirical results on this). These findings support the arguments that countries with an institutional misfit increase the flexibility of a policy and that they adopt later, but they do not address the main argument on global diffusion developed in

Section 2, namely that increased policy flexibility also affects the probability of further adoptions by *other* countries that are (also) less democratic.

Although geography is a rather unspecific measure of diffusion when it serves as a measure of the pattern of adoption (Beck, Gleditsch and Beardsley, 2006), spatial proximity is a good proxy for the availability of policy information because policy makers are more familiar with the specific details of policy frameworks of nearby countries (see Gilardi (2015) for a similar use of spatial distance data). The basic assumption of this argument is that policy makers are more likely to be aware of fine-grained policy changes in countries that are geographically close because of more exchange among experts and greater media coverage increase awareness. Thus, policy makers are more informed about quite detailed policy changes of frameworks that have already been introduced in nearby countries (not the adoption itself, which will be widely noticed). In other words, the change of IT toward a more flexible policy in one country will be most visible for policy makers of nearby countries. As policy makers of nearby countries take notice of these changes, they become more likely to adopt IT if they govern less-democratic countries. The empirical implication of this argument on diffusion through increased policy flexibility is that

less-democratic countries become more likely to adopt IT when nearby countries change IT to a more flexible framework by increasing targets and ranges.

3.3 Alternative explanations of IT adoptions

Besides the hypothesis derived from the two-stage framework of global diffusion, alternative explanations may explain the adoption of IT. Another institutional explanation is based on the observation that IT and central bank independence share important similarities. Whereas the institutional independence shields a central bank from political influence, IT, as the guiding monetary policy making framework, is supposed to provide clear signals to market participants. The conventional view of monetary economists, emerging in the late 1980s, advocates that the conduct of monetary policy making should be independent from political pressure, with a focus on low and stable inflation. Thus, one might expect that *IT adoption is more likely the more a country grants independence to its central bank.*

However, the institutional independence of a central bank may also substitute for IT because institutional independence already addresses the time inconsistency problem by shielding central banks from political influence. To prevent that monetary policy decisions are adjusted to the election cycle, there is no need to constrain the decision making of a central bank with an IT framework in case a central bank is already institutionally independent from political influence. Several independent central banks, such as the FED, have some discretion in the conduct of monetary policy, and they explicitly seek to influence other economic indicators besides inflation, such as unemployment. In the abundant economics literature on rules, discretion, and independence some economists argue that an “optimal central bank contract” in the form of an IT framework is necessary for monetary policy credibility (Walsh, 1995; Svensson, 1997). I will not further discuss the nuances of this debate. For the purpose of this article, it is sufficient to note that central bank independence and the introduction of IT are related but are not, per se, complementary. Thus, there are good reasons to question the hypothesis that central bank independence and the adoption of IT are positively correlated.

Finally, the Mundellian trilemma highlights that the choice of a monetary policy framework is inherently a trade-off decision. Under the condition of free international capital mobility, a country cannot simultaneously fix the exchange rate and conduct autonomous monetary policy making that is targeted at domestic goals such as inflation control. The Mundellian trilemma suggests that, in the international monetary system of free capital flows, central banks can either peg the exchange rate to an anchor currency or target domestic macroeconomic indicators. Pegging the exchange rate is an interesting monetary policy option for developing countries as a means to provide monetary credibility and stability. However, pegs can come under attack from investors. A central bank that cannot keep up a fixed exchange-rate regime has to shift to a new monetary policy regime. The main alternative for an exchange-rate peg is IT. Therefore, IT can only be introduced when a currency is not pegged, and the adoption of IT is very likely when a central bank has to change from a fixed to a freely floating exchange-rate regime. Accordingly, *the presence or enactment of a freely floating exchange-rate regime increases the likelihood of IT adoption.*

4 Data and Empirical Model

The data for the empirical analysis starts in 1989, a year before the first IT introduction, and ends, for data availability reasons, in 2013. The analysis includes all countries that are minimally democratic and for which data on standard legal central bank independence is available (Cukierman, Webb and Neyapti, 1992). Like other research, I consider countries to be minimally democratic when they are not under foreign occupation and have an average positive polity score over the investigated time period (see, for example, Besley and Reynal-Querol, 2011).³ Applying these selection criteria, I end up with 76 countries in the data set of which 30 have adopted IT. Following standard modeling practice that builds on event history analysis, I analyze time-series-cross-section logit models predicting the probability of IT adoption. To account for the event history structure of the data, all country-year observations are dropped from the sample after a country adopts IT because the country is no longer at risk of introducing the policy. Also, the models include t , t^2 , and t^3 to control for time dependence (Carter and Signorino, 2010). The following describes the coding of the main variables (see Appendix A1 for more information on the variables, sources, and coding).

Dependent variable The theoretical arguments developed in the previous section explain the introduction of the IT framework (not the practice). Therefore, I code as dependent variable the formal adoption of IT—that is, a central bank officially declares that it is introducing IT as its monetary policy framework. For the coding of IT adoptions, I relied on monetary policy and inflation reports of central banks and double-checked these primary sources with IMF working papers and additional secondary literature. Figure 1 plots the 30 IT adoptions under investigation. The pattern of IT adoptions lends support for the hypothesis that fully institutionalized democracies are more likely to introduce IT in the first stage of diffusion. From 1991 to 1995, a rather homogeneous group of liberal market economies with highly institutionalized democratic systems followed the example of the first adopter, New Zealand. The global spread of IT started in 1997, and it particularly took off in 1999, with its first introductions in Latin America, Asia, and Africa.

³Source: Polity IV Project, Political Regime Characteristics and Transition, 1800–2013, Monty G. Marshall et al., Center for Systemic Peace.

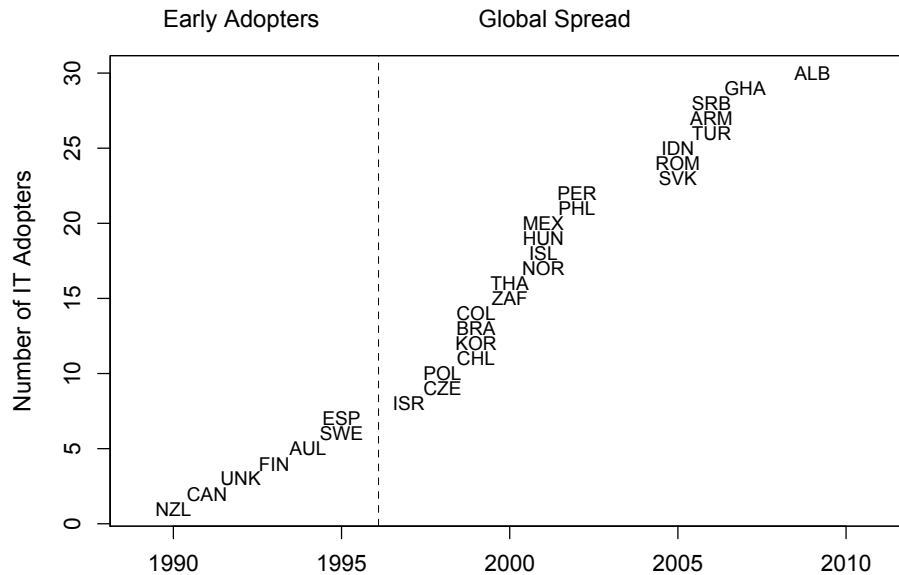


Figure 1: *IT adoptions from 1990 to 2013.*

Institutional variables To evaluate the hypothesis that IT adoption is more likely the more institutionalized a democracy is, I investigate the polity score as a predictor of IT adoption. Although the polity score is a fairly aggregate variable, it includes measures of the most relevant institutional dimensions that are consistent with IT, such as the separation of powers. To analyze the time dependence of the effect of democratic institutions on IT adoption, I interact the polity score with time t . As additional institutional variables, I use measures of central bank independence, the monetary policy regime, and the political system. First, I rely on the most recently updated measure on legal central bank independence from Bodea and Hicks (2015), which follows the Cukierman, Webb and Neyapti (1992) classification.⁴ Second, to investigate whether the adoption of IT is dependent on the presence or enactment of a freely floating exchange-rate regime, I use a standard exchange-rate classification index, which codes the extent to which a currency is freely floating or pegged to another currency.⁵ Finally, to control for the effects of the political

⁴One of the elements of this index is the extent to which a central bank mandate prioritizes price stability as its main policy objective. I exclude this item because of its obvious overlap with the dependent variable. Instead, I use only the items that code whether a central bank is independent in the formulation (not the execution) of monetary policy, in the appointment and dismissal of the heads of the central bank, and in its lending to the government.

⁵Source: Ilzetzki, Ethan, Carmen M. Reinhart and Kenneth S. Rogoff (2010), Exchange Rate Arrangements Entering the 21st Century: Which Anchor Will Hold?

system, I use a variable separating between parliamentary, assembly-elected president, and presidential systems. Busch (1994) argues that governments in presidential systems are reluctant to cede powers to central banks.⁶ According to this hypothesis, IT adoptions should be more likely in parliamentary systems.

Measuring IT flexibility in nearby countries To analyze the main hypothesis—that less-democratic countries become more likely to adopt IT when nearby countries change the IT framework by increasing targets and ranges—I estimate a measure of the flexibility of the IT framework. The flexibility of IT is calculated as the sum of the point target and the range, which is a straightforward estimate of both the room for maneuver of monetary policy makers and of the extent to which the policy framework has changed (as compared to the original rigid version adopted in New Zealand). To empirically evaluate whether policy makers react to observations that nearby countries use more flexible versions of IT, I multiply the IT flexibility index with a row-standardized spatial distance connectivity matrix, using the the inverse of the geographic distance between capitals.⁷ In substantive terms, the IT flexibility spatial lag gets higher values, the more a nearby country increases its IT target and range.

In principle, this variable is similar to a conventional spatial lag used in the diffusion literature. The only—yet important—difference is that the spatial connectivity matrix is not multiplied with the dependent variable (i.e., the adoptions of IT), but with the flexibility of IT.⁸ Therefore, I do not investigate whether policy makers are responsive to IT adoptions in nearby countries. Rather, I empirically evaluate whether policy makers are more likely to introduce IT when nearby countries change their IT policy to a more flexible framework. To empirically test the hypothesis that increased policy flexibility in nearby countries has a positive effect on the likelihood of IT adoption in countries that are not fully institutionalized democracies, I interact the IT flexibility spatial lag with the polity score and expect a positive coefficient of the IT flexibility spatial lag for not fully institutionalized democracies.

⁶Source: Philip Keefer et al. (2012), Database of Political Institutions, World Bank.

⁷The spatial distance data come from the R package `cshapes`. Appendix A4 reports the empirical analysis with the target and the range investigated separately.

⁸Gilardi (2015) uses a similar specification to analyze whether women are more likely to run for office when they observe that other women in nearby jurisdictions have been elected.

Control variables The statistical analysis also controls for a set of variables. Given that the IMF has been a strong advocate of IT, one might expect that countries under IMF arrangements are more likely to introduce IT. To account for that effect, I coded the sum of all IMF program dummies provided by Dreher (2006). I also introduce a series of economic indicators to the model. First, I use a measure of FDI (in percent of GDP). The adoption of IT signals to the international community that a country follows modern economic practice. This may be more valuable, the more a country's economy depends on foreign investment. Accordingly, countries with a higher share of FDI may be more likely to introduce IT (Polillo and Guillén, 2005). Second, the share of exports (in percent of GDP) should, if anything, be negatively correlated with the likelihood of IT adoption, as more export-dependent countries are focused on the exchange rate. Finally, I control for the overall economic development of a country with GDP per capita.⁹ Appendix A3 further reports results for models, including government orientation and the rolling average of inflation over the last five years. Governments on the right may be more likely to introduce IT, and a period of high inflation may increase the likelihood of IT adoption. The main models of the article do not include these variables because of a very low coverage in the sample, but the findings reported in the next section are robust to the inclusion of these variables.

5 Empirical Findings

Table 2 presents the empirical findings. Model 1 includes all main variables and Model 2 and 3 add the interaction terms. As expected, the polity variable is a positive and significant predictor of IT adoption: the more institutionalized a democracy is, the more likely it is that IT will be introduced. This finding further supports the argument that an institutionalized democratic system provides the conducive institutional context for the adoption of IT. The positive and significant predictor of the exchange-rate classification index also lends support to the argument that IT is more likely to be introduced when a currency is not pegged and when a central bank has to give up a fixed exchange-rate regime because of pressure from the financial markets.

Central bank independence and the political system, however, are not systematically correlated

⁹All economic variables are taken from the World Bank's World Development Indicators.

with IT adoption. Thus, the findings do not corroborate the argument that the introduction of IT is a direct consequence of increased central bank independence and that parliamentary democracies are more likely to introduce IT as compared to countries with presidential systems. The share of FDI is a positive (and weakly significant) predictor of IT introduction, which provides some evidence for the argument that policy makers from countries with a high share of FDI are more likely to introduce IT. Finally, GDP per capita, export dependence, and IMF conditionality are not systematically correlated with the introduction of IT.

Model 2 includes the interaction of the polity score with the time variable t . The significant and negative coefficient of the interaction term shows that the explanatory power of the democracy score decreases over time. Figure 2 plots the decreasing marginal effect of the polity score over time. As hypothesized, the effect that fully institutionalized democracies were more likely to adopt IT was strong during the first stage of diffusion in the 1990s. After the year 2002, the effect fades away. This finding supports the argument of the two-stage framework that the fit of a new policy with existing institutions and norms is a powerful predictor of policy adoption in the first stage of global diffusion.

	Model 1	Model 2	Model 3
INTERCEPT	-11.556*** (2.545)	-24.940*** (6.069)	-19.398*** (4.030)
POLITY	0.410*** (0.158)	1.763*** (0.582)	1.204*** (0.355)
EXCHANGE RATE CLASSIFICATION	0.206*** (0.070)	0.237*** (0.072)	0.234*** (0.072)
CENTRAL BANK INDEPENDENCE	0.611 (1.091)	0.444 (1.106)	0.497 (1.098)
POLITICAL SYSTEM	0.068 (0.226)	0.017 (0.236)	0.039 (0.238)
FDI (% OF GDP)	0.098* (0.057)	0.113* (0.058)	0.116** (0.058)
EXPORTS (% OF GDP)	-0.012 (0.015)	-0.011 (0.015)	-0.018 (0.015)
GDP PER CAPITA	-2.263 (1.881)	-2.851 (2.033)	-2.496 (1.953)
IMF CONDITIONALITY	-0.946 (0.747)	-0.942 (0.756)	-0.914 (0.758)
IT FLEXIBILITY IN NEARBY COUNTRIES	-0.236 (0.636)	-0.414 (0.645)	5.406*** (1.843)

POLITY \times t		-0.086*** (0.031)	
IT FLEXIBILITY \times POLITY			-0.691*** (0.215)

t	0.296 (0.485)	0.259 (0.487)	1.123** (0.545)
t^2	0.039 (0.402)	0.104 (0.419)	0.117 (0.418)
t^3	-0.058 (0.102)	-0.073 (0.106)	-0.092 (0.107)

AIC	262.180	256.604	254.632
BIC	328.923	328.481	326.509

N	1254	1254	1254

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: Estimates of IT adoption logit models (standard errors in parentheses) with interaction terms analyzing the conditional effects of the polity score (Model 2) and the flexibility of IT in nearby countries (Model 3).

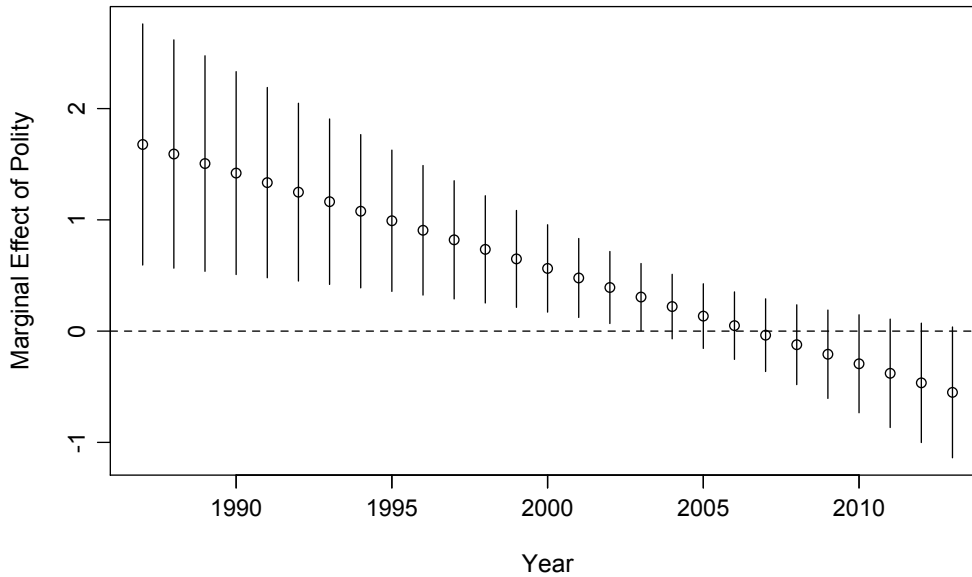


Figure 2: Marginal effect of the polity score on the probability of IT adoption with 95% confidence intervals over time, based on the estimates of Model 2 (see Table 1).

The estimates reported in Model 1 of Table 2 on the flexibility of the IT framework in nearby countries suggests that there is no average effect of policy change in nearby countries for the whole sample. Model 3 of Table 2, however, includes the interaction of the IT flexibility spatial lag with the polity score to evaluate the hypothesis that the more nearby countries increase the flexibility of the framework, the more likely are decision makers from less-democratic countries to adopt IT. The positive and significant coefficient of the IT flexibility spatial lag and the negative and significant coefficient of the interaction term suggest that examples of more flexible IT frameworks in nearby countries indeed have a positive effect on the likelihood of adoption for less-established democracies. This result supports the main hypothesis of this analysis that policy change in nearby countries is an important predictor of IT adoptions in countries with less-conducive institutional environments, which eventually explains the global spread.

Figure 4 plots the marginal effects of IT flexibility in nearby countries for the polity scores from 0 to 10 with 95 percent confidence intervals. The effect is positive and statistically significant for about 1 out of 5 observations in the analysis (19 percent of the observations in the sample

have a polity score of 5 or less, and 29 percent have a score of 6 or less). A typical case in point is Armenia, in which the president has maintained extensive powers that are only very weakly checked (the polity score of Armenia over the investigated time period is 4.18). Shortly before Armenia adopted IT in 2005, Turkey and Romania, which are located close to Armenia, changed their IT policies to more flexible frameworks with ranges from 6 to 8 and 6.5 to 8.5 percent. Moving from low to higher polity scores, the positive marginal effect of changes in nearby countries to more flexible IT frameworks decreases and eventually fades away for high polity scores. Figure 4 also shows that the effect almost turns negative for fully institutionalized democracies with a polity score of 10. This may suggest that increasing the flexibility of a policy decreases the attractiveness of adoption for countries that have a conducive institutional setting for its original version.

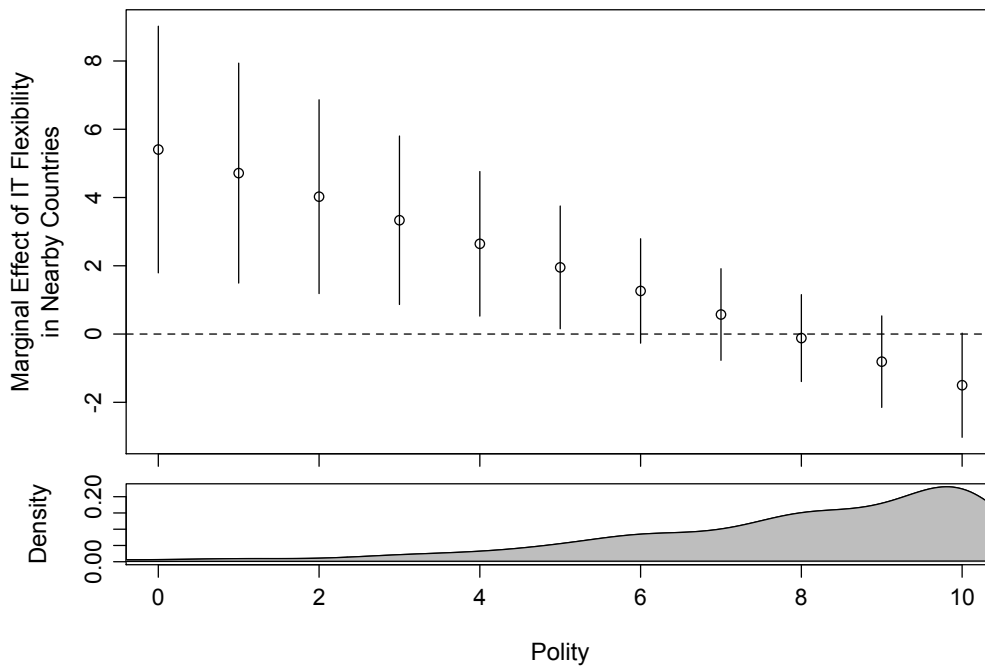


Figure 3: *Top Plot: Marginal effect of IT flexibility in nearby countries on the probability of IT adoption with 95% confidence intervals for polity scores from 0 to 10, based on the estimates of Model 3 (see Table 1). Bottom Plot: Density of polity score in the sample.*

6 Conclusion

The motivating question of this study is why very distinct countries adopt the same policy. This puzzle applies to any global diffusion process because, by definition, a policy that has spread globally has been adopted by a very heterogeneous group of countries. The findings of this analysis show that early adopters in the first stage of global diffusion are the “most likely” candidates—and the most likely adopters are countries whose institutions are consistent with the general idea behind a policy framework. In the case of the IT framework, fully institutionalized democracies provide a conducive institutional context for early adoptions (Broz, 2002). The empirical finding that the polity score is a very strong predictor of IT adoption, particularly in the first stage of diffusion, supports this hypothesis on institutional fit.

The institutional fit argument, however, does not explain why countries that are less established democracies also adopted IT. According to the two-stage framework of global diffusion developed in this analysis, policy makers of countries whose existing institutions are not consistent with the original version of a policy adopt a policy only after it has established a reputation as best practice, and when they observe that nearby countries adjust the policy to a more flexible framework. Through this mechanism, the policy spreads, in the second stage of diffusion, beyond the institutional environment for which it was developed. The findings of the statistical analyses also support this hypothesis on global diffusion through policy flexibility.

In the final stage of a diffusion process, the rate of additional adoptions goes down. In the case of IT, this fading away started around the financial crisis of 2008. Since then, some of the conventional thinking in central banking has been questioned. Central bankers in the developed world started to use so-called non-conventional measures to stabilize financial markets and to boost economic activity, while developing countries have reintroduced policies to stabilize the exchange rate and restrict international capital movements. Against this backdrop, there is an ongoing discussion among monetary economists about whether IT is obsolete. Some argue that IT should be adapted, not abandoned, whereas others advocate more fundamental change (Eichengreen et al., 2012; Reichlin and Baldwin, 2013). The more general implication of this fading away for global policy diffusion may be that the flexibility of a policy is a powerful dissemination strategy, but with

limits: when the core of a policy is questioned, marginal adaptations of the framework may not work anymore. The policy loses its genuine attraction, and global diffusion fades away also because the increased flexibility of the policy undermines the general idea of the original framework. All of this highlights that the main argument of this study is about global, not universal diffusion. A very heterogeneous set of countries from all continents introduced IT, but the total number of adoptions is at 30, still at a low level.

Finally, the focus of this article on how policies change is not only important for our broader understanding of global diffusion patterns but also for assessing the policy implications of global diffusion. The practical effects of more flexible and adapted policy frameworks depend on the motivation of policy makers. The effects may be positive, when the adaptation of a policy is carefully tailored to specific social, political, and economic contexts. However, decision makers may also change policies precisely because they want to undermine the effectiveness of the policy, as their main interest is in symbolic imitation. To address global challenges, increased policy flexibility may thus be problematic, because multiple versions of the same policy framework can complicate global governance if some consistency in the implementation is required for international cooperation. This is the case, for example, in the fields of climate change, health, or human rights. Therefore, the decoupling and increased flexibility of a policy framework can lead to dysfunctional policies and ineffective global governance.

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A1 Summary Statistics and Coding

Variables	Source	Min.	Max.	Mean	S.D.
IT ADOPTION	Own coding	0	1	0.02	0.14
IT FLEXIBILITY (INDEX)	Own coding	2	16.5	5.15	2.31
IT FLEXIBILITY SL (INDEX)	Own coding	0	3.24	0.73	0.71
IT FLEXIBILITY SL (RANGE)	Own coding	0	1.23	0.25	0.26
IT FLEXIBILITY SL (TARGET)	Own coding	0	2.01	0.48	0.46
POLITY	Polity IV Project	-9	10	7.06	3.94
POLITICAL SYSTEM	DPI 2012 Database	0	2	0.95	0.97
GOVERNMENT PARTY	World Bank	0	3	1.94	0.94
LEGAL CBI	Bodea and Hicks (2015)	0	0.93	0.43	0.20
EXCHANGE RATE CLASSIFICATION	Ilzetzki et al. (2010)	1	15	8.18	3.77
FDI (% OF GDP)	World Bank	-6.90	31.80	2.61	2.97
EXPORTS (% OF GDP)	World Bank	5.51	126.00	33.79	18.60
GDP PER CAPITA	World Bank	153	87998	8907	12603
INFLATION (5-YEAR AVERAGE)	World Bank	-0.59	2408	44.90	213
IMF CONDITIONALITY	Dreher (2006)	0	2	0.16	0.38

Table A1: *Descriptive statistics and data sources.*

Three major variables have been coded for the empirical analyses of this article: IT ADOPTION, IT FLEXIBILITY, and IT FLEXIBILITY IN NEARBY COUNTRIES (the spatial lags abbreviated in Table A1 as SL). The dependent variable of the main models presented in the article, IT ADOPTION, is the coding of the year when a country adopted IT as official monetary policy framework. The adoption is only coded when countries explicitly introduced IT as monetary policy framework (not when they just added a reference to inflation control to their operational goals). This is consistent with the IMF literature on IT targeting. Of the 76 countries in the sample, 30 adopted IT. The coding of IT ADOPTION is based on monetary policy and inflation reports of central banks, which usually list the year of IT introduction in the discussion of their monetary policy. The yearly monetary policy and inflation reports of central banks discuss macroeconomic indicators and central bank policies with references to the mandate and the year of IT introduction. The information from these primary sources were double-checked with IMF working papers and additional secondary literature.¹⁰

¹⁰All primary and secondary sources are available upon request.

Note that `IT ADOPTION` codes the year of introduction as a binary variable, rather than the conduct and design of the policy. This information is coded with the `IT FLEXIBILITY (INDEX)`, which is defined as the sum of the point target and range. The `IT FLEXIBILITY (INDEX)` is coded for each year after the adoption of the framework. All of the information on the targets and ranges also come from central banks' monetary policy and inflation reports. The minimum value of this variable is 2 (that is, a 2 percent target with no range). The central banks of Finland, Sweden, and the United Kingdom operated under this rigid version of IT. The most flexible IT framework, with a value of 16.5, is coded for Ghana in 2010. The `IT FLEXIBILITY (INDEX)` varies strongly across countries and also within countries over time. Appendix A2 shows some further descriptive analyses of this variable.

To measure the flexibility of IT in nearby countries (i.e., the spatial lags), I used data on the inverse of the distance between capital cities in 2012 from the R package `cshapes` by Nils B. Weidmann and Kristian Skrede Gleditsch. I multiplied this spatial connectivity matrix with the vector coding the `IT FLEXIBILITY (INDEX)` discussed above. This variable codes, for each year, the weighted average of the IT flexibility of all countries operating under the IT framework by assigning higher weights to nearby countries. Appendix A4 reports the findings using the IT flexibility measures that rely only on the targets and the ranges, that is, the `IT FLEXIBILITY SL (RANGE)` and the `IT FLEXIBILITY SL (TARGET)`.

A2 Variation of the IT Flexibility Variable

The analysis of the IT FLEXIBILITY (INDEX) variable is interesting for evaluating the argument that less-democratic countries should adopt more flexible versions of IT and that the average flexibility of all adopted IT frameworks should increase as more countries introduce IT throughout the process of global diffusion. The left box plots of Figure 4 show that fully institutionalized democracies with a polity score of 10 operate with more rigid versions of IT, while inflation-targeting countries with a polity score below 6 use more flexible versions. The right box plot of Figure 4 reports the distribution of IT frameworks in the two temporal stages. The findings show that the flexibility of the frameworks increases as the diffusion of IT reaches global coverage in the second stage.

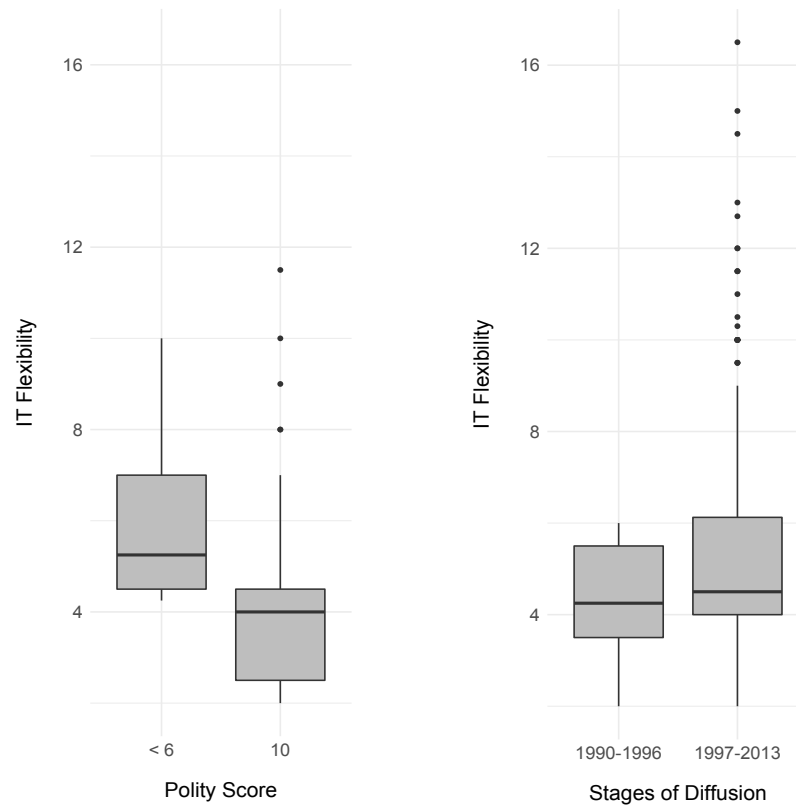


Figure 4: *Box plots of the IT Flexibility variable for less-democratic countries with polity scores below 6 and fully institutionalized democracies with polity scores of 10 and for the two temporal stages of diffusion: early adoptions (1990–1996) and global spread (1997–2013).*

A3 Adding Government Orientation and Inflation as Controls

Besides the introduced control variables, I also add government orientation (categorized as right, center, and left) and the rolling average of inflation over the last five years to the main models of the article. The conventional expectations are that governments on the right are more likely to introduce IT and that a period of high inflation may increase the probability of IT adoption. Both variables come from the World Bank and are not added to the main models of the articles because the data coverage is too low. The sample size of the analysis shrinks by one third because of missing values if we introduce these variables to the model (the N drops from 1254 to 840). The estimates reported in Table A3 show that all of the discussed main findings of the article are robust to this model specification and that neither government orientation nor inflation are systematically correlated with the adoption of IT.

	Model 6	Model 7	Model 8
INTERCEPT	-12.279*** (3.120)	-24.046*** (7.847)	-18.311*** (4.707)
POLITY	0.377* (0.194)	1.581** (0.757)	0.998** (0.407)
EXCHANGE RATE CLASSIFICATION	0.248*** (0.086)	0.258*** (0.086)	0.258*** (0.086)
CENTRAL BANK INDEPENDENCE	0.055 (1.307)	-0.078 (1.343)	0.039 (1.347)
POLITICAL SYSTEM	-0.032 (0.262)	-0.063 (0.270)	-0.039 (0.273)
FDI (% OF GDP)	0.078 (0.084)	0.084 (0.085)	0.082 (0.084)
EXPORTS (% OF GDP)	-0.000 (0.018)	-0.001 (0.019)	-0.003 (0.019)
GDP PER CAPITA	-1.189 (2.423)	-1.587 (2.552)	-0.962 (2.510)
IMF CONDITIONALITY	-0.532 (0.765)	-0.553 (0.775)	-0.540 (0.777)
INFLATION (5-YEAR AVERAGE)	-0.001 (0.002)	0.000 (0.002)	-0.000 (0.002)
GOVERNMENT PARTY	0.042 (0.244)	0.002 (0.245)	-0.018 (0.245)
IT FLEXIBILITY IN NEARBY COUNTRIES	-0.640 (0.824)	-0.799 (0.818)	4.391* (2.433)

POLITY \times t		-0.079* (0.044)	
IT FLEXIBILITY \times POLITY			-0.609** (0.284)

t	0.457 (0.586)	1.284* (0.722)	0.467 (0.591)
t^2	-0.058 (0.499)	-0.063 (0.495)	0.025 (0.509)
t^3	-0.034 (0.126)	-0.046 (0.126)	-0.064 (0.130)
AIC	206.278	204.585	203.944
BIC	277.099	280.128	279.487

N	830	830	830

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A3: Main models of the article (see Table 2) including inflation average of the past 5 years and government orientation as additional controls).

A4 Separating the Effects of the Target and the Range

As discussed in the article, the economics literature identifies inflation targets of 2 percent and ranges of 1–3 percent as optimal (Bernanke et al., 1999). The main analysis of the article uses the sum of both of these quantitative dimensions of IT to construct the IT flexibility index (see also Appendix A1). The models reported in Table A4 check whether the main finding of the article—that the diffusion effect of the IT flexibility spatial lag is conditional on the polity score—is not exclusively driven by one of the policy’s dimensions, namely, the target or the range. To that end, I separate these two dimensions of the IT flexibility index and construct two variables following the estimation procedure discussed in the article and in Appendix A1 by multiplying both measures with the row-standardized spatial distance connectivity matrix. Model 4 in Table A4 shows the results for the IT flexibility variable using only the range, whereas the measure in Model 5 uses the target. The findings in both of these models with alternative specifications of the IT flexibility variable are robust: the coefficients of the IT flexibility variables are positive and significant, and the coefficients of the interaction terms are negative and significant.

	Model 4	Model 5
INTERCEPT	-17.598*** (3.746)	-19.632*** (4.045)
POLITY	1.055*** (0.332)	1.217*** (0.352)
EXCHANGE RATE CLASSIFICATION	0.231*** (0.070)	0.235*** (0.072)
LEGAL CBI	0.177 (1.115)	0.625 (1.080)
POLITICAL SYSTEM	0.026 (0.240)	0.052 (0.237)
FDI (% OF GDP)	0.115* (0.059)	0.112* (0.058)
EXPORTS (% OF GDP)	-0.018 (0.016)	-0.016 (0.015)
GDP PER CAPITA	-2.108 (1.915)	-2.723 (1.969)
IMF CONDITIONALITY	-0.897 (0.753)	-0.925 (0.757)
IT FLEXIBILITY IN NEARBY COUNTRIES (RANGE)	12.599** (5.215)	
IT FLEXIBILITY (RANGE) × POLITY	-1.794*** (0.619)	
IT FLEXIBILITY IN NEARBY COUNTRIES (TARGET)		8.474*** (2.715)
IT FLEXIBILITY (TARGET) × POLITY		-1.025*** (0.315)

t	0.247 (0.478)	0.319 (0.497)
t^2	0.207 (0.414)	0.136 (0.423)
t^3	-0.103 (0.105)	-0.096 (0.109)
AIC	255.62	254.62
BIC	327.50	326.50
N	1254	1254

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A4: Estimates of the main IT adoption logit model with alternative measures of IT Flexibility separating the IT target and range (standard errors in parentheses).