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Inflation targeting and the composition of public expenditure: Evidence from developing countries

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Abstract

An important literature shows that inflation targeting (IT) adoption improves fiscal discipline. Our impact assessment analysis performed in a large sample of 89 developing countries over three decades shows that this favorable impact covers a composition effect: IT adoption is found to reduce more current expenditure compared with public investment in IT countries relative to non-IT countries. This finding is robust to various alternative specification, related to the structure of the sample, the measurement of the IT regime, or the estimation method. Consequently, aside from its acknowledged benefits for monetary policy goals, IT appears as an efficient tool to strengthen fiscal policy in developing countries towards lower and more productive public expenditure.

JEL Classification: E52, E58, E62, E63, H50

Keywords: Inflation targeting; composition effect of public expenditure; impact analysis; current expenditure; public investment.

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1 Introduction

Adopted first by the New Zealand in 1990, inflation targeting (IT) has established as a mainstream framework for conducting monetary policy. Five key elements are usually characterizing an IT monetary framework: the public announcement of medium-term numerical targets for inflation; an institutional commitment to price stability as the primary goal of monetary policy (to which other goals are subordinated); an information-inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments; increased transparency of the monetary-policy strategy through communication with the public and the markets about the plans, objectives, and decisions of the monetary authorities; and increased accountability of the central bank for attaining its inflation objectives (see e.g. [Mishkin, 2000](#); [Minea and Tapsoba, 2014](#)).

The literature on the macroeconomic effects of IT can be organized into two main blocks. The first focuses on the effect of IT on monetary policy efficiency. Based on a sample of 52 developing countries, [Lin and Ye \(2009\)](#) show that IT is an effective monetary policy tool to reduce inflation and its volatility, consistent with the conclusions of e.g. [Castellani and Debrun \(2001\)](#); [Ball and Sheridan \(2004\)](#); [Vega and Winkelried \(2005\)](#); [Gonçalves and Salles \(2008\)](#); [Lee \(2011\)](#); or [Samarina et al. \(2014\)](#). Adding to this evidence, other studies point out to a favorable effect of IT on e.g. the exchange rate level and its volatility, financial dollarization, interest rates, or monetary policy credibility (see e.g. [Pétursson, 2005](#); [Batini and Laxton, 2006](#); [de Mendonça and de Guimaraes e Souza, 2009](#); [Lin, 2010](#); [Lin and Ye, 2013](#)).

The second strand of literature analyzes the effect of IT on fiscal discipline (see e.g. [Minea and Villieu, 2009a](#); [Lucotte, 2012](#); [Minea and Tapsoba, 2014](#); [Kadria and Aissa, 2016](#); [Combes et al., 2018](#); [Ardakani et al., 2018](#); [Minea et al., 2021](#)). It appears that IT improves countries' fiscal positions by lowering debt and deficits.¹ However, despite this fruitful literature, to the best of our knowledge the impact of IT on the level and the composition of public expenditure remains unexplored. This is surprising, given that these studies insist on the large extent to which fiscal policy is dependent on monetary regimes. As a result, monetary discipline arising from IT might affect government's

1. Relatedly, some studies (see e.g. [Thornton and Vasilakis, 2016](#); [Balima et al., 2017](#)) reveal that IT reduces countries' risk through lower government bond yield spreads and higher sovereign debt ratings.

fiscal policy behavior in terms of public expenditure.

The goal of this paper is to evaluate the effect of IT on the (level and the) composition of public expenditure in a large sample of 89 developing economies over the period 1985-2016. We tackle the crucial issue of endogeneity in the adoption of an IT framework using an impact assessment analysis. We reveal that IT adoption modifies governments' fiscal behavior in IT developing countries relative to non-IT ones. Aside from significantly reducing public expenditure, IT adoption triggers a composition effect: the contraction of current expenditure is found to be stronger than that of public investment. Robust to various alternative specifications, related to the vector of covariates, the structure of the sample, the measurement of IT adoption, or the estimation method, this finding still holds when accounting for possible heterogeneity in the impact of IT on the composition of public expenditure. The policy message of our analysis is that, in addition to its various benefits for monetary policy goals, IT may work as an efficient tool to strengthen fiscal policy in developing countries towards lower and more productive public expenditure.

The paper is organized as follows. Section 2 builds our hypothesis of a composition effect of IT adoption using existing theoretical and empirical studies, section 3 presents the data, section 4 details the methodology, section 5 illustrates our main results, section 6 assesses their robustness and explores the possible heterogeneity in the effect of inflation targeting on current expenditure and public investment, and section 7 delivers some concluding remarks.

2 A possible composition effect of IT adoption

Existing studies emphasize that IT adoption significantly improves fiscal discipline (see e.g. [Minea and Tapsoba, 2014](#); [Combes et al., 2018](#); [Ardakani et al., 2018](#)). Such a favorable effect is triggered by the ability of IT to improve fiscal collection and taxes (see evidence in e.g. [Minea and Villieu, 2009a](#); [Lucotte, 2012](#); [Minea et al., 2021](#)),² but also to potentially reduce public expenditure. Indeed, following the IT adoption, the central bank deprives the government of seigniorage revenues that may be an important

2. Naturally, the fiscal resources that a government may obtain from raising taxes are not without limits; see e.g. [Minea and Villieu \(2009b\)](#) and [Ehrhart et al. \(2014\)](#) for contributions on the so-called "Laffer curve", and e.g. [Combes et al. \(2015\)](#) and [Menuet et al. \(2018\)](#) on the interplay between the tax and seigniorage financing of government spending.

source for financing public expenditure (see e.g. [Barro and Gordon, 1983](#); [Alesina and Tabellini, 1987](#); [Minea and Villieu, 2009a](#); [Minea et al., 2021](#)). As such, relative to non-IT countries, IT countries should experience a decrease in their government expenditure following the IT adoption.

Although the present study formally shows that IT adoption indeed significantly reduces public expenditure, its contribution is more focused. Specifically, we ask if the reduction of public expenditure following the IT adoption may have direct consequences for its reallocation between its main components, namely current expenditure and public investment. Such a composition effect arising from IT adoption may be defended on at least two grounds.

First, high interest rates, aimed at maintaining low inflation rates consistent with an IT framework, increase the cost of the debt, i.e. the debt burden, which may raise a debt sustainability issue. Aside from improving the primary balance following a fiscal strategy *à la* [Bohn \(2008\)](#), including through larger cuts in less productive expenditure (i.e. current expenditure) that may be more effective in controlling public debt ([Alesina and Perotti, 1995](#)), the government may equally improve the sustainability of its debt by reducing government bond spreads. According to [Combes et al. \(2021\)](#), opposite to an increase in current expenditure, an increase in public investment is found to significantly reduce government bond spreads. Consequently, the favorable impact of IT adoption on bond spreads emphasized by several contributions (see e.g. [Thornton and Vasilakis, 2016](#); [Balima et al., 2017](#)) may also be due to a composition effect that consists of reducing less public investment compared with current expenditure.

Second, a popular political economy argument suggests that, under greater constraints, a government would reduce more public investment than current expenditure that presents a high political cost for the incumbent's reelection probability (see e.g. [Roubini and Sachs, 1989](#), and its application for fiscal consolidations by [Bamba et al., 2020](#)). However, [Vinturis \(2023\)](#) reveals that the government's behavior may be different when facing a more permanent constraint. Using an impact analysis method, [Vinturis \(2023\)](#) specifically shows that the adoption of fiscal rules causes a composition effect on public spending, as the government seems to protect public investment compared with public consumption, particularly in developing countries. Capitalizing on this argument, we conjecture that a long-term reform like IT adoption (i.e. notice that

no country in our sample has abandoned the IT monetary framework) is likely to result into a lower contraction of public investment relative to current expenditure.³ In the following, we will provide an empirical test of this hypothesis.

3 Data and descriptive statistics

3.1 Data

The data covers the period 1985-2016. As shown in the [Appendix](#) (see [Table B1](#)), our sample consists of 89 developing countries,⁴ of which 20 are countries with IT (ITers) and 69 are non-ITers.

The main dependent variables are current expenditure and public investment (both in percentage of GDP). Current expenditure is defined as cash payments for government's operating activities in providing goods and services, and it includes the compensation of employees (such as wages and salaries), subsidies, grants, social benefits, and other expenses such as rents and dividends; however, current expenditure is expressed net of interest payments, given their mandatory character. Public investment consists of public gross fixed capital formation. Both variables are consolidated, i.e. they represent general government expenditure, and their source is the World Economic Outlook (WEO) database of the International Monetary Fund (IMF).

The treatment variable is inflation targeting (IT), defined as a dummy variable equal to 1 if country i in year t is under an IT regime, and to 0 otherwise. We collected data on IT using several sources including [Roger \(2010\)](#), [Hammond \(2012\)](#), [Sarwat \(2012\)](#), [Ciżkowicz-Pękała et al. \(2019\)](#), and the websites of various central banks. Consistent with existing studies, in our main analysis we consider the full-fledged IT (i.e. full or hard IT) dates as the genuine starting dates of the IT framework (see [Tables B2](#), [B3](#) and [B4](#) in the [Appendix](#) for descriptive statistics and the list and definition of the variables).⁵

3. The long tradition of distinguishing current expenditure from public investment (see e.g. [Musgrave, 1939](#)) is particularly related to possible differences in their respective economic growth and productivity effects (see e.g. [Minea and Villieu, 2009c](#); [Minea and Villieu, 2010](#); [Minea and Villieu, 2012](#); and [Hurlin and Minea, 2013](#)).

4. Since previous studies reveal that IT differently affects fiscal discipline in developing versus developed countries (see [Minea and Tapsoba, 2014](#)), we choose not to mix them and focus exclusively on developing countries, which also increases the homogeneity of our sample in terms of governments' fiscal behavior and countries' structural characteristics.

5. Similar to previous studies, we identified two starting dates. Informal IT (or soft IT) is defined by the date announced by the central bank. In this case, the central bank does not necessarily meet all the preconditions for adopting IT and its credibility in adhering to the IT principles is often questionable (for example, a country may experience difficulties in e.g. maintaining a flexible exchange rate regime, which

3.2 Descriptive statistics

Prior to a more formal analysis, we look at some descriptive statistics before and after the implementation of the treatment (namely, IT), in both IT and non-IT countries. For IT countries, we compute the average value of the various measures of public expenditure before and after IT adoption, using the year of adoption of each IT country as cutoff point. However, since such a cutoff point does not exist for non-IT countries, we follow e.g. [Minea and Tapsoba \(2014\)](#) and [Ogrokhina and Rodriguez \(2019\)](#), and define the treatment date as the mid-year between the first year when a country adopted IT and the last year of the sample (1999 and 2016, respectively), namely 2007.

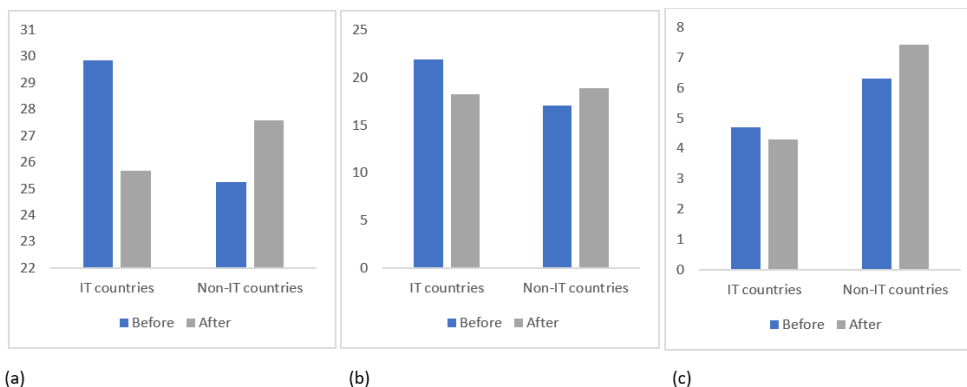


Figure 1 – Public expenditure (% GDP) in chart (a), current expenditure (% GDP) in chart (b), and public investment (% GDP) in chart (c): IT versus non-IT countries.

[Figure 1 \(a\)](#) shows that IT adoption is associated with a contraction of public expenditure in IT relative to non-IT countries. Regarding the composition effect, comparable dynamics are observed for current expenditure ([Figure 1 \(b\)](#)) and public investment ([Figure 1 \(c\)](#)). While these observations do not go against our intuition, i.e. a stronger contraction of current expenditure compared with public investment, we develop subsequently a more formal analysis to gauge the effect of IT adoption on the (level and the) composition of public expenditure.

is one of the main preconditions for IT). Conversely, hard IT is defined by the date that academia assigns to a central bank as being under IT. In this case, the country meets the preconditions for credible IT, which is why we use it in our main analysis. Nevertheless, the robustness section considers soft IT as an alternative measure for IT starting dates.

4 Methodology

The adoption of inflation targeting (IT) is most likely not a random event. For example, IT adoption may be correlated with an economic crisis (emerging countries adopted IT on a massive scale after the 1997 crisis and the abandonment of fixed exchange rate regimes, see [Sarwat, 2012](#)) or with other important imbalances such as major inflation episodes (see [Ogrokhina and Rodriguez, 2018](#)). Consequently, we must resort to methods that allow transforming IT adoption into a quasi-experimental event, and as such estimate the treatment effect of IT adoption on the composition of public expenditure. To this end, we draw upon the popular Propensity Scores Matching (PSM) impact assessment method, which consists of two steps: first, the propensity scores (PS) are estimated; second, these PS are used to match treated and untreated observations, and thus compute the treatment effect of IT adoption, namely the average treatment effect on the treated (ATT).

The ATT formally writes as

$$ATT = E[(Y_{i1} - Y_{i0})|IT_{it} = 1] = E[(Y_{i1}|IT_{it} = 1)] - E[(Y_{i0}|IT_{it} = 1)], \quad (1)$$

where the IT_{it} dummy captures the presence of IT in country i at year t , Y_{i1} is the outcome in the presence of the treatment (IT), and Y_{i0} is the outcome for a treated observation if it had not been treated. To deal with the fact that Y_{i0} is not observable, we could compute the ATT by comparing observations from the treated group (ITers) with observations from the non-treated or control group (non-ITers), provided that IT adoption is random. However, the latter assumption is unlikely, as emphasized by a large literature that insists on the existence of several preconditions for IT adoption, including e.g. [Lin and Ye \(2009\)](#), [Minea and Tapsoba \(2014\)](#), or [Balima et al. \(2017\)](#).

Following these studies, we use PSM to match the treated (ITers) and control (non-ITers) groups based on their PS (i.e. the probability of being treated, namely to adopt IT), which are assumed to depend upon several observable characteristics. Matching on PS ensures treated and control observations are identical, except for the treatment (i.e. IT adoption), under the conditional independence assumption: conditional on the vector of observable characteristics, the treatment (i.e. IT adoption) should be independent of the outcome, namely $Y_{i0}, Y_{i1} \perp IT_{it}|X_{it}$, in which case the average treatment effect (ATE) is equal to the average treatment effect on the treated (ATT). By replacing in equation (1)

the term $E[(Y_{i0}|IT_{it} = 1)]$ that is unobservable with the observable term $E[(Y_{i0}|IT_{it} = 0, X_{it})]$, we obtain

$$ATT = E[(Y_{i1}|IT_{it} = 1, X_{it})] - E[(Y_{i0}|IT_{it} = 0, X_{it})]. \quad (2)$$

Equation (2) requires introducing as many control variables as possible to explain the probability to be treated. However, including more controls raises a problem of reduced degrees of freedom, which can affect the quality of the results. To overcome these problems, [Rosenbaum and Rubin \(1983\)](#) suggest matching the treatment and control group according to their propensity scores, defined as the probability of receiving the treatment conditional to the observable characteristics: $p(X_{it}) = E[IT_{it}|X_{it}] = Pr(IT_{it} = 1|X_{it})$. Consequently, equation (2) is modified into (3) under the common support assumption requiring the availability of comparable counterfactuals for each treated unit

$$ATT = E[(Y_{i1}|IT_{it} = 1, p(X_{it}))] - E[(Y_{i0}|IT_{it} = 0, p(X_{it}))]. \quad (3)$$

We address the previously-emphasized key issue of conditional independence using several types of PSM. First, the N-nearest-Neighbors Matching consists of matching each IT observation (treated) with the N-nearest no-IT observations (non-treated) that have the closest PS. Following e.g. [Lin and Ye \(2009\)](#), [Minea and Tapsoba \(2014\)](#), or [Balima et al. \(2017\)](#), we consider the nearest (N=1), two-nearest (N=2), and three-nearest (N=3) neighbours. Second, we use the radius method of [Dehejia and Wahba \(2002\)](#), which matches treated and untreated observations located at a certain distance; based on the PS, we consider three radiuses, namely a small ($r=0.005$), a medium ($r=0.01$), and a wide ($r=0.05$) radius. Third, we retain the Kernel matching method developed by [Heckman et al. \(1998\)](#), which allows matching each treated observation with the distribution of untreated observations in the common support, with weights inversely-proportional to the gap with respect to the PS of each treated observation. Finally, we use the local linear matching method developed by [Heckman et al. \(1998\)](#), which is close to Kernel matching except for the use of a linear term in the weight function.

To ensure that the two groups are comparable, namely to check the overlap and the region of common support between the treatment and the comparison groups, we rely on minima and maxima comparison reported by [Caliendo and Kopeinig, 2008](#). The basic criterion of this approach is to drop all observations whose PS is smaller than the minimum and larger than the maximum in the opposite group.

Finally, to assess the validity of the matching procedure, we rely on the pseudo- R^2 and the Rosenbaum bounds sensitivity tests. The pseudo- R^2 is used to test the comparability of the two groups after matching (see [Sianesi, 2004](#); [Caliendo and Kopeinig, 2008](#); [Balima et al., 2017](#)), and the Rosenbaum bounds sensitivity test assesses the extent to which unobservable characteristics can bias the results of the matching (see e.g. [Aakvik, 2001](#); [Rosenbaum, 2002](#); [Minea et al., 2021](#)).

5 Results

5.1 The estimation of propensity scores

We estimate the PS using a probit model, in which the dependent variable is the presence of inflation targeting (IT). The independent variables are divided into two groups.

In the first group, following the existing literature (see e.g. [Svensson, 2002](#); [Truman, 2003](#); [Lin and Ye, 2007](#); [Lin and Ye, 2009](#); [Minea and Tapsoba, 2014](#); [Ogrokhina and Rodriguez, 2018](#)), we include variables that act as preconditions for IT adoption. Such preconditions include lag inflation, lag tax revenues, the real per capita GDP growth rate, broad money growth, working age population, financial development, lag public debt, fiscal rules, and financial openness. Lag inflation is expected to have a negative effect on the probability of adopting IT: a country should adopt IT when its inflation is at a reasonably-low level, preferably after a successful disinflation (see e.g. [Masson et al., 1997](#); [Truman, 2003](#)), since announcing a target far from the realized can hurt central bank's credibility. Next, as a tool for supplementing the loss of seigniorage revenues, we expect a positive correlation between (lag) tax revenues and IT ([Minea and Villieu, 2009a](#); [Lucotte, 2012](#); [Minea et al., 2021](#)). Besides, similar to [Lin and Ye \(2009\)](#), we expect a positive (negative) correlation between the growth rate of real GDP per capita (broad money growth) and the probability of adopting IT. Moreover, we expect a positive correlation between IT adoption and financial development ([Minea and Villieu, 2009a](#)), since the latter limits the risk of monetization through the sharing of seigniorage power between the central bank and commercial banks. In addition, the working age population ratio should positively impact the IT adoption probability: as noted by [Juselius and Takáts \(2016\)](#), a larger share of working age population in total population is expected to reduce inflation (i.e. when the working-age cohort is large, higher savings and labor supply put downward pressure on inflation, which increases the success probability of

IT adoption). Furthermore, we account for the fiscal stance: a higher public debt, which may adversely affect central bank's independence (Sargent and Wallace, 1981; Leeper, 1991), is expected to reduce the probability of IT adoption, while fiscal rules, by fostering fiscal discipline (Combes et al., 2018; Vinturis, 2023), are expected to increase it. Lastly, financial openness should reinforce the monetary policy credibility and fiscal discipline (Ogrokhina and Rodriguez, 2019), and therefore the probability of IT adoption.

The second group of variables captures the probability of adopting alternative monetary regimes. Indeed, a country cannot target both inflation and the nominal exchange rate (Brenner and Sokoler, 2009); hence, we expect a negative correlation between the fixed exchange rate regime and the IT dummy. Moreover, as the literature points out (Lin and Ye, 2009), a country with a high level of trade openness would be tempted to target the exchange rate to hedge against exchange rate volatility, which would reduce the probability of IT adoption.

Table 1 presents the results for the computation of the PS using the IT conservative starting dates (i.e. hard IT). The baseline model is reported in column [1]. All control variables have the expected signs, and the explanatory power of the model is reasonable, with a McFadden (or pseudo) R^2 of around 40%.

5.2 Preliminary results: IT and public expenditure

Before discussing composition effects, we report preliminary results on how IT affects public expenditure. Table 2 presents the ATT of IT on public expenditure for the nearest-neighbor (the first three columns), the radius (the next three columns), and the Kernel and Local Linear Regression (the last two columns) matching, together with bootstrapped standard errors (Caliendo and Kopeinig, 2008). As shown by baseline results on line [1] of Table 2, ATTs are negative and statistically significant at the 1% significance levels: adopting IT significantly reduces on average the ratio of public expenditure-to-GDP in developing IT-countries relative to non-IT countries. The magnitude of this effect is between -5.78 percentage points (Kernel matching) and -7.19 percentage points (N=2 Nearest-Neighbor matching), with an average of roughly -6.5 percentage points (pp). This long-run effect of IT on public expenditure is economically meaningful, as it represents around 25% of the unconditional mean of public expenditure in our sample.

Table 1 – Probit estimates of the Propensity Scores

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Lag inflation	-0.025** (0.0110)	-0.022* (0.0129)	-0.030** (0.0133)	-0.003 (0.0141)	-0.022** (0.0111)	-0.037*** (0.0078)	-0.033*** (0.0079)	-0.022 (0.0144)	-0.045** (0.0224)	-0.038*** (0.0080)	-0.024** (0.0105)	-0.024** (0.0113)	-0.026** (0.0114)
Lag tax revenues	0.058*** (0.0075)	0.058*** (0.0075)	0.060*** (0.0090)	0.068*** (0.0086)	0.058*** (0.0081)	0.058*** (0.0075)	0.047*** (0.0088)	0.078*** (0.0082)	0.114*** (0.0162)	0.053*** (0.0077)	0.067*** (0.0094)	0.057*** (0.0076)	0.060*** (0.0076)
Trade Openness	-0.018*** (0.0025)	-0.018*** (0.0025)	-0.016*** (0.0024)	-0.022*** (0.0028)	-0.017*** (0.0026)	-0.019*** (0.0025)	-0.014*** (0.0028)	-0.020*** (0.0027)	-0.020*** (0.0035)	-0.018*** (0.0026)	-0.017*** (0.0027)	-0.017*** (0.0025)	-0.018*** (0.0025)
Real GDP per capita growth	0.065*** (0.0107)	0.066*** (0.0116)	0.065*** (0.0119)	0.085*** (0.0135)	0.067*** (0.0114)	0.067*** (0.0113)	0.062*** (0.0116)	0.077*** (0.0119)	0.085*** (0.0176)	0.065*** (0.0112)	0.073*** (0.0120)	0.066*** (0.0107)	0.066*** (0.0107)
Broad money growth	-0.016*** (0.0040)	-0.017*** (0.0044)	-0.017*** (0.0043)	-0.020*** (0.0051)	-0.017*** (0.0043)	-0.014*** (0.0035)	-0.014*** (0.0034)	-0.023*** (0.0046)	-0.029*** (0.0058)	-0.014*** (0.0035)	-0.017*** (0.0041)	-0.016*** (0.0040)	-0.016*** (0.0039)
Working age population	0.072*** (0.0113)	0.072*** (0.0113)	0.062*** (0.0117)	0.047*** (0.0119)	0.072*** (0.0122)	0.073*** (0.0115)	0.056*** (0.0127)	0.041*** (0.0120)	0.045** (0.0198)	0.068*** (0.0117)	0.075*** (0.0123)	0.068*** (0.0111)	0.068*** (0.0114)
Lag public debt	-0.014*** (0.0021)	-0.014*** (0.0021)	-0.014*** (0.0023)	-0.019*** (0.0026)	-0.015*** (0.0023)	-0.015*** (0.0022)	-0.014*** (0.0024)	-0.021*** (0.0027)	-0.008*** (0.0020)	-0.015*** (0.0023)	-0.015*** (0.0022)	-0.015*** (0.0022)	-0.013*** (0.0021)
Financial development	0.008*** (0.0018)	0.008*** (0.0019)	0.008*** (0.0021)	0.014*** (0.0024)	0.008*** (0.0019)	0.008*** (0.0019)	0.011*** (0.0021)	0.014*** (0.0023)	0.002 (0.0026)	0.008*** (0.0020)	0.011*** (0.0020)	0.008*** (0.0019)	0.008*** (0.0018)
Fixed exchange rate dummy	-0.870*** (0.1337)	-0.902*** (0.1313)	-0.745*** (0.1399)	-1.106*** (0.1413)	-0.896*** (0.1432)	-0.916*** (0.1295)	-0.954*** (0.1415)	-1.153*** (0.1470)	-0.942*** (0.1801)	-0.912*** (0.1321)	-0.658*** (0.1405)	-0.884*** (0.1341)	-0.822*** (0.1349)
Fiscal rules	0.211* (0.1106)	0.205* (0.1107)	0.416*** (0.1284)	0.032 (0.1155)	0.236** (0.1184)	0.196* (0.1114)	0.299** (0.1253)	0.114 (0.1146)	0.454*** (0.1429)	0.257** (0.1130)	0.323*** (0.1240)	0.235** (0.1114)	0.175 (0.1116)
Financial openness	0.224*** (0.0398)	0.225*** (0.0393)	0.212*** (0.0429)	0.213*** (0.0386)	0.226*** (0.0426)	0.228*** (0.0396)	0.163*** (0.0456)	0.211*** (0.0388)	0.022 (0.0464)	0.230*** (0.0401)	0.197*** (0.0417)	0.208*** (0.0406)	0.218*** (0.0396)
Central bank independence							0.816** (0.3398)						
Primary balance								0.039*** (0.0086)					
Logarithm of unemployment rate									-0.707*** (0.1395)				
IMF program dummy										0.048 (0.1462)			
Institutional quality											-0.592*** (0.0849)		
Election years												0.077 (0.1595)	
Comm. Net Export Price Index													-0.003*** (0.0013)
Constant	-4.200*** (0.7156)	-4.148*** (0.7136)	-3.780*** (0.7608)	-2.269*** (0.7464)	-4.222*** (0.7762)	-4.085*** (0.7061)	-3.886*** (0.7690)	-1.976** (0.7752)	-1.281 (1.3232)	-3.876*** (0.7123)	-3.433*** (0.7602)	-4.003*** (0.7066)	-3.684*** (0.7386)
Pseudo R ²	0.397	0.393	0.399	0.383	0.401	0.409	0.389	0.415	0.408	0.402	0.415	0.392	0.398
Observations	1900	1833	1527	1194	1760	1866	1493	1506	900	1804	1511	1831	1886

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Column [1] shows the baseline results. Columns [2]-[6] respectively exclude hyperinflation episodes; pre-1990 years; GFC years; monetary unions, dollarized countries, and currency board countries; and new ITers.

Table 2 – ATT of IT adoption on public expenditure in % GDP (using conservative starting dates)

Dependent Variable	Nearest-Neighbor Matching			Radius Matching			Kernel	Local	Linear
							Matching	Regression	Matching
Public expenditure (% GDP)	N=1	N=2	N=3	r=0.005	r=0.01	r=0.05			
Treatment effect of IT on public expenditure (%GDP), using the conservative starting dates									
[1] ATT	-6.892*** (1.5213)	-7.185*** (1.3412)	-6.979*** (1.1930)	-6.855*** (1.0604)	-6.593*** (0.9939)	-5.799*** (0.8073)	-5.786*** (0.8197)		-5.931*** (0.7556)
Number of Treated Obs.	169	169	169	169	169	169	169		169
Number of Controls Obs.	1411	1411	1411	1411	1411	1411	1411		1411
Observations	1580	1580	1580	1580	1580	1580	1580		1580
Pseudo R ²	0.050	0.027	0.024	0.014	0.018	0.018	0.018		0.050
Rosenbaum bounds sensitivity tests	2.3	3.6	4.5	4.4	4.9	5.2	5.1		6

Bootstrapped standard errors based on 500 replications reported in brackets. *** p<0.01, ** p<0.05, * p<0.1

5.3 The main results: the composition effect of IT on current expenditure and public investment

We now focus on the composition effect of IT on public expenditure, by comparing the response of current expenditure and public investment. Prior to discussing our main findings, we report two statistics to assess the quality of the matching relative to the validity of the common support hypothesis and the conditional independence assumption. First, we test the common support hypothesis using the pseudo R^2 gap, computed as the difference between the pseudo R^2 of the matched sample and that of the unmatched sample. The results at the bottom of [Tables 3](#) and [4](#) validate the common support hypothesis, since the gap of the pseudo R^2 is close to zero. Second, we test the conditional independence assumption by gauging the extent to which unobservable characteristics may pollute the effect of IT adoption on public expenditure. The results presented at the bottom of [Tables 3](#) and [4](#) suggest that this bias is negligible, given that the bound test statistics are above minimum bounds usually used to conclude in related studies (see e.g. [Aakvik, 2001](#); [Rosenbaum, 2002](#); [Minea et al., 2021](#)). Since these tests support the quality of our matching procedure, we can now focus on our main results.

Based on the above-estimated PS, we evaluate the treatment effect of IT on current expenditure by opposing IT and non-IT countries. As shown by our baseline results on line [1] of [Table 3](#), ATTs are negative and statistically significant at the 1% significance levels: adopting IT significantly reduces on average the ratio of current expenditure-to-GDP in IT countries relative to non-IT countries. The magnitude of this effect is between -5.34 pp (wide Radius matching) and -6.59 pp (N=3, Nearest-Neighbor matching), with an average of roughly -5.7 percentage points. This result is economically meaningful, as it represents around 32% of the unconditional mean of current expenditure in our sample.

Next, using the same approach, we examine the effect of IT on public investment. Results on line [1] of [Table 4](#) indicate that IT reduces the ratio of public investment-to-GDP in IT countries relative to non-IT countries. The decrease in public investment is between -0.97 pp (N=2, Nearest-Neighbor matching) and -1.51 pp (Local Linear Regression matching), with an average of roughly -1.2 pp. This result is equally economically meaningful, as it represents around 20% of the unconditional mean of public investment in our sample.

To summarize, estimations show that IT induces a reallocation of public expenditure by modifying their composition. In light of the estimated coefficients, IT reduces current expenditure by 30-37% of their unconditional mean and public investment by 16-24% of their unconditional mean, suggesting that IT tends to reduce more current expenditure. In other words, the IT adoption is associated to a composition effect in public expenditure, which is in favor of public investment in relative terms.⁶

6. Such a conclusion is supported by the estimated ATT of IT adoption on the ratio of current expenditure to public investment, which is found to be significant and negative (between -1.07 and -1.77 pp, depending on the retained specification; estimations are available on request).

Table 3 – ATT of IT adoption on current expenditure in % GDP (using conservative starting dates)

Dependent Variable	Nearest-Neighbor Matching			Radius Matching			Kernel	Local	Linear
	N=1	N=2	N=3	r=0.005	r=0.01	r=0.05	Matching	Regression	Matching
Current expenditure (% GDP)	Treatment effect of IT on current expenditure (%GDP), using the conservative starting dates								
[1] ATT	-5.990*** (1.2907)	-6.117*** (1.2283)	-6.587*** (1.0270)	-5.585*** (0.9700)	-5.431*** (0.8344)	-5.342*** (0.6666)	-5.396*** (0.6585)	-5.381*** (0.6424)	
Number of Treated Obs.	165	165	165	165	165	165	165	165	
Number of Controls Obs.	1302	1302	1302	1302	1302	1302	1302	1302	
Observations	1467	1467	1467	1467	1467	1467	1467	1467	
	Robustness Checks								
[2] Excluding hyperinflation episodes	-5.989*** (1.3738)	-5.407*** (1.1952)	-5.627*** (1.0039)	-5.758*** (0.9492)	-5.550*** (0.8120)	-5.193*** (0.6442)	-5.259*** (0.6388)	-5.260*** (0.6478)	
[3] Excluding mon. union, dol. and CB	-4.827*** (1.4557)	-4.541*** (1.2151)	-5.177*** (1.1908)	-4.655*** (1.1130)	-4.981*** (0.9680)	-4.779*** (0.7856)	-4.858*** (0.7835)	-4.952*** (0.7606)	
[4] Post 1990s	-6.881*** (1.3258)	-6.609*** (1.1833)	-6.467*** (1.0989)	-6.092*** (0.9489)	-5.456*** (0.8093)	-5.401*** (0.6570)	-5.423*** (0.6956)	-5.364*** (0.6742)	
[5] Excluding GFC years	-6.617*** (1.4888)	-5.466*** (1.2778)	-5.334*** (1.2059)	-5.504*** (1.0684)	-5.281*** (0.9733)	-5.360*** (0.7445)	-5.299*** (0.7313)	-5.343*** (0.7231)	
[6] Excluding new ITers	-5.076*** (1.3031)	-5.281*** (1.0880)	-4.889*** (1.0594)	-5.111*** (1.0038)	-4.945*** (0.8965)	-5.017*** (0.6547)	-5.031*** (0.6524)	-4.942*** (0.6399)	
[7] Including central bank independence	-5.512*** (1.5877)	-5.657*** (1.4487)	-5.398*** (1.2142)	-5.109*** (1.2251)	-4.921*** (1.1640)	-4.996*** (0.7519)	-5.023*** (0.7982)	-5.127*** (0.6886)	
[8] Including primary balance	-5.221*** (1.2991)	-5.540*** (1.1954)	-5.222*** (0.9971)	-5.138*** (0.9779)	-5.123*** (0.8484)	-5.174*** (0.6306)	-5.154*** (0.6438)	-5.184*** (0.6424)	
[9] Including log unemployment rate	-7.162*** (1.4754)	-6.906*** (1.2916)	-6.861*** (1.1780)	-5.478*** (1.3662)	-6.201*** (1.0236)	-6.031*** (0.8706)	-6.073*** (0.8396)	-5.819*** (0.7812)	
[10] Including IMF program	-4.911*** (1.3894)	-4.913*** (1.1710)	-5.375*** (1.0906)	-4.755*** (1.0496)	-4.666*** (0.8686)	-5.418*** (0.7353)	-5.378*** (0.7622)	-5.261*** (0.7293)	
[11] Including institutional quality	-5.646*** (1.3971)	-5.911*** (1.2342)	-5.796*** (1.1502)	-5.812*** (1.1250)	-5.688*** (1.0018)	-5.665*** (0.7201)	-5.676*** (0.7173)	-6.333*** (0.8039)	
[12] Including election years	-4.968*** (1.3253)	-5.113*** (1.2371)	-5.667*** (1.0743)	-5.269*** (0.9277)	-5.622*** (0.8380)	-5.551*** (0.6722)	-5.598*** (0.6183)	-5.603*** (0.6749)	
[13] Including Comm. Net Export Price Index	-7.095*** (1.3745)	-6.118*** (1.1410)	-5.725*** (1.0500)	-4.943*** (1.0160)	-5.390*** (0.9021)	-5.778*** (0.6621)	-5.687*** (0.6805)	-5.665*** (0.6740)	
Pseudo R ²	0.046	0.028	0.031	0.012	0.014	0.016	0.016	0.046	
Rosenbaum bounds sensitivity tests	2.2	3.2	4.7	4.9	5.3	5.9	6.1	6.2	

Bootstrapped standard errors based on 500 replications reported in brackets. *** p<0.01, ** p<0.05, * p<0.1

Table 4 – ATT of IT adoption on public investment in % GDP (using conservative starting dates)

Dependent Variable	Nearest-Neighbor Matching			Radius Matching			Kernel	Local	Linear
	N=1	N=2	N=3	r=0.005	r=0.01	r=0.05	Matching	Regression	Matching
Public investment (% GDP)	Treatment effect of IT on public investment (%GDP), using the conservative starting dates								
[1] ATT	-1.129** (0.5298)	-0.971** (0.4424)	-1.155*** (0.4297)	-1.166*** (0.3341)	-1.203*** (0.3203)	-1.282*** (0.3217)	-1.313*** (0.3211)	-1.512*** (0.3512)	
Number of Treated Obs.	169	169	169	169	169	169	169	169	
Number of Controls Obs.	1533	1533	1533	1533	1533	1533	1533	1533	
Observations	1702	1702	1702	1702	1702	1702	1702	1702	
	Robustness Checks								
[2] Excluding hyperinflation episodes	-0.904* (0.5361)	-0.841* (0.4556)	-1.038** (0.4365)	-1.068*** (0.3182)	-1.116*** (0.2971)	-1.215*** (0.3237)	-1.260*** (0.3328)	-1.444*** (0.3542)	
[3] Excluding mon. union, dol. and CB	-1.123** (0.5488)	-1.235** (0.4839)	-1.265*** (0.4551)	-1.472*** (0.4111)	-1.377*** (0.3384)	-1.219*** (0.3304)	-1.213*** (0.3300)	-1.390*** (0.3432)	
[4] Post 1990s	-1.177** (0.4953)	-0.963** (0.4450)	-0.876** (0.3820)	-0.953** (0.3786)	-1.003*** (0.3310)	-0.877*** (0.2848)	-0.878*** (0.2877)	-0.933*** (0.2858)	
[5] Excluding GFC years	-1.287** (0.6043)	-1.387*** (0.4938)	-1.257*** (0.4639)	-0.982*** (0.3784)	-1.044*** (0.3601)	-1.345*** (0.3288)	-1.328*** (0.3624)	-1.508*** (0.3591)	
[6] Excluding new ITers	-1.343** (0.5795)	-1.112** (0.5086)	-1.072** (0.4496)	-1.056*** (0.3593)	-0.975*** (0.3362)	-1.242*** (0.3568)	-1.203*** (0.3982)	-1.430*** (0.3755)	
[7] Including central bank independence	-0.597 (0.4527)	-0.821** (0.4097)	-0.748* (0.3940)	-0.207 (0.3854)	-0.363 (0.3390)	-0.485** (0.2435)	-0.492** (0.2495)	-0.489** (0.2403)	
[8] Including primary balance	-0.648 (0.4965)	-0.597 (0.4084)	-0.522 (0.3569)	-0.754** (0.3295)	-0.672** (0.2946)	-0.684*** (0.2481)	-0.695*** (0.2519)	-0.727*** (0.2528)	
[9] Including logarithm of employment rate	-2.163*** (0.7517)	-1.964*** (0.7241)	-1.525** (0.6427)	-0.979** (0.4922)	-1.019** (0.4862)	-1.558*** (0.5503)	-1.509*** (0.5850)	-1.196** (0.5833)	
[10] Including IMF program	-0.398 (0.5865)	-0.675 (0.5155)	-0.661 (0.4621)	-1.009*** (0.3694)	-0.811** (0.3414)	-1.125*** (0.3687)	-1.063*** (0.3626)	-1.355*** (0.4116)	
[11] Including institutional quality	-1.784*** (0.5973)	-1.743*** (0.5642)	-1.533*** (0.4644)	-1.757*** (0.4437)	-1.545*** (0.4274)	-1.389*** (0.3924)	-1.429*** (0.4047)	-1.478*** (0.3819)	
[12] Including election years	-1.171** (0.5620)	-1.165** (0.4749)	-1.223*** (0.4469)	-1.188*** (0.3492)	-1.137*** (0.3288)	-1.244*** (0.3358)	-1.259*** (0.3520)	-1.497*** (0.3726)	
[13] Including Comm. Net Export Price Index	-1.255** (0.5614)	-1.226*** (0.4429)	-1.266*** (0.4501)	-1.372*** (0.3619)	-1.411*** (0.2957)	-1.491*** (0.3483)	-1.473*** (0.3654)	-1.584*** (0.3617)	
Pseudo R ²	0.035	0.023	0.025	0.012	0.014	0.017	0.016	0.035	
Rosenbaum bounds sensitivity tests	1.3	1.6	2.2	2.3	2.2	2.5	2.6	3	

Bootstrapped standard errors based on 500 replications reported in brackets. *** p<0.01, ** p<0.05, * p<0.1

6 Robustness and Heterogeneity

6.1 Robustness

In this subsection we test the robustness of the composition effect of IT adoption, namely a stronger contraction of current expenditure compared with public investment.

6.1.1 Alternative specifications

We first test the robustness of our findings with respect to the structure of the sample. We exclude periods that may be characterized by large structural imbalances, including hyperinflation episodes (i.e. annual inflation rates above 40%), the pre-1990 period prior to which many countries were structurally different due to the Cold War era, and the global financial crisis (GFC) period (2008-2009). Next, we exclude monetary unions, dollarized countries, and currency board countries, as a way to modify the composition of the sub-sample used as counterfactual. Moreover, we abstract from new IT countries (i.e. countries that adopted IT at most three years before the end year of our sample) to account for the fact that the effect of an IT regime may not be sizeable for countries that have just adopted it. Based on probit estimations reported in [Table 1](#) (columns [2]-[6]), the estimated effects of IT on current expenditure and public investment reported in [Tables 3](#) and [4](#) (lines [2]-[6]) are comparable with our main findings.

Second, we augment the probit model employed for computing the PS with a set of additional variables that may influence the probability of IT adoption and public expenditure composition, including the central bank's degree of independence, primary balance, unemployment rate (in log), IMF program, institutional quality, election, and commodity prices. Based on results reported in [Table 1](#) (columns [7]-[13]), estimations presented in [Tables 3](#) and [4](#) (lines [7]-[13]) show that our results remain qualitatively unchanged after controlling for these additional variables.

Third, we look at alternative estimations related to the measurement of our treatment variable (IT). We start by replacing hard IT (i.e. conservative IT starting dates) by soft IT (i.e. default IT starting dates). Based on probit estimations reported in the [Appendix](#) (see [Table A1](#)), [Tables A2-A3](#) in the [Appendix](#) show that the estimated ATTs capturing the effects of soft IT on current expenditure and public investment are negative and significant; besides, although the estimated contraction of current expenditure is somewhat weaker in absolute value, it is still above that of public investment, which

supports our main findings based on hard IT. Next, we account for the effectiveness of the IT regime in controlling inflation (see e.g. [Lin and Ye, 2009](#); [Combes et al., 2018](#)), by building a dummy variables that equals one in times of low inflation volatility (i.e. an inflation volatility below its sample median). Results presented in [Table A4](#) in the [Appendix](#) show that the contraction of current expenditure is stronger than that of public investment in IT countries relative to non-IT countries. Moreover, we look at currency crises, which have been an additional motivation to adopt IT particularly in Asian countries, by stimulating the introduction of some cornerstone conditions such as exchange rate flexibility; to do so, we construct a new treatment variable named IT-currency crisis, which is equal to one if an IT regime was enacted at most three years after a currency crisis. Estimations in [Table A5](#) in the [Appendix](#) confirm our previous findings: although the reduction of both types of spending is stronger, IT reduces current expenditure more than public investment. Furthermore, we account for IMF programs specifically designed to promote fiscal discipline ([Balima and Sy, 2021](#)), to check that the effects we estimate are genuinely those of the IT regime, and not spillovers from the adoption of an IMF program, all the more that the two may be combined. To this end, we exclude from our treatment variable the IT starting dates that occur no more than two years after an IMF program, and, alternatively, we exclude all periods of IT that overlap with IMF programs. Estimations presented in [Table A6](#) in the [Appendix](#) provide conclusions that are similar to those from our main results.

Fourth, additional robustness tests are reported in [Tables A7-A8](#) in the [Appendix](#). To preserve the stability of the control group, we remove country-year observations in which a future IT country has not yet implemented the regime. Estimations on line [1] of [Tables A7-A8](#) in the [Appendix](#) confirm our main findings: although the contraction of public investment is stronger, it still remains below that of current expenditure in IT countries relative to non-IT countries. Next, we use a placebo test on random treatment years to further test whether our results are influenced by unobserved heterogeneity. ATTs of IT on current expenditure and public investment reported on line [2] are not statistically-significant, suggesting that our findings are genuinely driven by IT adoption. Moreover, to account for sample size constraints, we implement a leave-one-out placebo analysis: we exclude control countries operating under a fixed exchange rate regime (using [Ilzetzki et al., 2019](#), classification) to check if our results are driven by

size limitations in control group. Relatedly, following [Lin and Ye \(2013\)](#), we include in the control group only non-IT countries whose real GDP per capita is at least as high as that of the poorest IT country and whose population is at least as large as that of the smallest IT country. Estimations on lines [3]-[4] of [Tables A7-A8](#) in the [Appendix](#) confirm that the contraction of current expenditure is relatively stronger than that of public investment. Furthermore, since treated observations cover a period of different world business cycles, we account for these cycles through the introduction of time-fixed effects; since the estimation of PS using a probit model can suffer from incident parameter problem (see e.g. [Balima et al., 2017](#)), we consider a logit model with time fixed effects. Estimations reported on line [5] of [Tables A7-A8](#) in the [Appendix](#) are yet again consistent with our main findings. Lastly, to further mitigate issues related with reversed causality, we compute PS using pre-treatment variables lagged by 7 years, namely half the difference between the first year of IT adoption (1999) and the start year of our sample (1985) as in [Balima et al. \(2021\)](#). To ensure that IT adoption does not influence the covariates, we remove all IT observations that occur after the sixth year of IT adoption. Estimations using this new treatment variable reported on line [6] of [Tables A7-A8](#) in the [Appendix](#) confirm our main findings. Consequently, these various robustness tests consistently point in the direction of a larger reduction in current expenditure compared with public investment in IT countries relative to non-IT countries.

6.1.2 Alternative estimation methods

We extend the analysis of the robustness of our findings based on the PSM method by relying on two alternative estimation methods. First, the Inverse-Probability-Weighted Regression Adjustment (IPWRA) is robust to a misspecification bias and non-sensitive to the sample size ([Imbens and Wooldridge, 2009](#)). Estimations in [Table A9](#) in the [Appendix](#) support our main results: IT triggers a stronger contraction of current expenditure compared with public investment in IT countries relative to non-IT countries.

Second, we draw upon the entropy balancing method, which is robust to possible misspecification of the functional form and multi-collinearity issues (see e.g. [Hainmueller, 2012](#); [Neuenkirch and Neumeier, 2016](#); [Balima and Sy, 2021](#); [Apeti, 2023](#); [Apeti and Edoh, 2023](#); or [Vinturis, 2023](#), for a presentation of the method and details about the two-step estimation procedure). After transforming in the first step the observations

from the control group in order to build a synthetic control group such as the means of the various covariates are no longer statistically-different between the treated and control groups (see [Tables A10a-b](#) in the [Appendix](#)), entropy balancing allows exploiting the panel dimension of the data to tackle unobserved heterogeneity by including country and time fixed effects in the second step of the estimation. Estimations performed in this second step, reported in [Table A11](#) in the [Appendix](#), are yet again consistent with our main findings. Altogether, this section supports—by and large—the fact that, on average, IT reduces more current expenditure compared with public investment.

6.2 Heterogeneity

We now investigate if the effect of IT on the composition of public expenditure still holds when accounting for possible heterogeneity arising from some key structural differences between countries (see e.g. [Mishkin and Savastano, 2000](#); [Svensson, 2002](#)). To this end, we draw upon the control function regression method previously used by e.g. [Lin and Ye \(2009\)](#), whose functioning is as follows. When estimating the effect of IT on current expenditure and public investment, we control for the propensity score; thus, we neutralize differences between treated and non-treated observations that may arise from observable variables whose effect is summarized by the PS. As shown by column [1] in [Tables 5](#) and [6](#), this strategy works fairly well: conditional on controlling for the effect of the PS (whose significance indicates the effective control for a selection bias, related to self-selection in IT adoption), the estimated effects of IT on current expenditure and public investment equal, respectively, -5.4 pp and 1.2 pp, namely close to our main findings based on PSM (see [Tables 3](#) and [4](#)).

Consequently, we can take advantage of this setup to account for possible heterogeneity. To this end, we add the interactive term between IT and variables that may be a source of such heterogeneity. Based on existing studies on the IT determinants, we consider several key countries' structural characteristics: the fiscal stance (captured by a dummy variable equal to one if public debt in % of GDP is above its median value), the position of the economy in the business cycle (captured by a dummy variable equal to one if the output gap is positive), natural resources (captured by a dummy variable equal to one if total resources rent in % of GDP is above its median value), the quality of the institutions (captured by a dummy variable equal to one if the level of corruption is

above its median value), and the level of economic development (captured by a dummy variable equal to one for low-income countries, and to zero for middle-income countries).

Columns [2]-[6] in [Tables 5](#) and [6](#) report the estimated effect of IT on current expenditure and public investment, depending on countries' structural characteristics. First, we observe that the government's fiscal stance affects the impact of IT: in the spirit of the unpleasant monetarist arithmetic of [Sargent and Wallace \(1981\)](#), IT adoption is less effective in reducing current expenditure in the context of a loose fiscal policy ([Favero and Giavazzi, 2004](#)). Second, the interaction between the output gap and IT is significant only for public investment, showing that the latter is further reduced when IT adoption occurs in the good phase of the business cycle. This result relates to the literature emphasizing that public investment is procyclical (see e.g. [Guerguil et al., 2017](#)); thus, our finding can illustrate the ability of the IT framework to contain a potential overspending appetite in terms of public investment during good times. Third, natural resources endowment affects the impact of IT on the two types of public expenditure; relative to the well-documented natural resource curse (see e.g. [Sachs and Warner, 2001](#)), the establishment of IT monetary institutions further reduces current expenditure and public investment in countries with relatively-higher natural resources. Fourth, the impact of corruption on the IT-expenditure relationship is imprecisely estimated: the lack of a significant effect of the interactive term may suggest that the contraction of current expenditure following the adoption of the IT monetary framework is triggered by a discipline-enhancing effect of the latter that works irrespective of the institutional environment. Lastly, some differences seem to be at work between low-income and middle-income countries: according to our estimations, IT adoption is less effective in reducing current expenditure and public investment in low-income compared with middle-income countries, probably due to a lower political support for monetary reforms in the former.

Altogether, these results show that the effect of IT on current expenditure and public investment displays some heterogeneity related to the various economic contexts. However, and more importantly, they also confirm our main finding of a composition effect: following the IT adoption, the contraction of current expenditure is stronger than that of public investment in each of the two regimes (for example, loose and tight fiscal policy; and so forth) defined by each of the five dummy variables used to seize differences in the various economic contexts.

Table 5 – IT and current expenditure: the role of structural factors

	[1]	[2]	[3]	[4]	[5]	[6]
Inflation targeting	-5.406*** (0.7228)	-6.329*** (0.7682)	-5.051*** (0.9037)	-3.895*** (0.7215)	-5.540*** (0.7266)	-5.877*** (0.7285)
PS (propensity score)	20.231*** (1.4761)	20.437*** (1.4660)	20.367*** (1.4700)	22.910*** (1.6532)	19.496*** (1.4510)	14.139*** (1.4415)
IT*Fiscal stance		2.320** (0.9450)				
IT*Output gap dummy			-0.805 (0.9359)			
IT*Resource rich dummy				-6.342*** (0.9781)		
IT*Corruption dummy					1.928 (1.4848)	
IT*Level of development						1.993** (0.8099)
Constant	15.368*** (0.2200)	14.925*** (0.2884)	15.574*** (0.3180)	15.119*** (0.2998)	15.787*** (0.2385)	18.406*** (0.2879)
Observations	1467	1467	1467	1467	1467	1467

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Columns [1]-[6] report the heterogeneity of the IT treatment effect on current expenditure (% GDP).

Table 6 – IT and public investment: the role of structural factors

	[1]	[2]	[3]	[4]	[5]	[6]
Inflation targeting	-1.233*** (0.2413)	-1.206*** (0.2696)	-0.883*** (0.2990)	-0.941*** (0.2358)	-1.324*** (0.2469)	-1.340*** (0.2438)
PS (propensity score)	-1.184** (0.5144)	-1.284*** (0.5036)	-1.251** (0.5161)	-0.500 (0.5647)	-1.483*** (0.5184)	-0.208 (0.5463)
IT*Fiscal stance		0.102 (0.3428)				
IT*Output gap dummy			-0.631* (0.3376)			
IT*Resource rich dummy				-1.024** (0.4089)		
IT*Corruption dummy					0.475 (1.0443)	
IT*Level of development						2.340*** (0.4240)
Constant	5.949*** (0.1020)	6.180*** (0.1305)	5.612*** (0.1263)	5.286*** (0.1279)	6.163*** (0.1301)	5.550*** (0.1380)
Observations	1702	1702	1702	1702	1702	1702

Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Columns [1]-[6] report the heterogeneity of the IT treatment effect on public investment (% GDP).

7 Conclusion

This paper looks at a possible effect of inflation targeting (IT) on the composition of public expenditure. Our impact assessment analysis performed in a large sample of 89 developing countries over the period 1985-2016 revealed the following. IT adoption was found to effectively change the behavior of fiscal policymakers, through a composition effect: on average, the contraction of current expenditure is stronger than that of public investment in IT countries relative to non-IT countries. This finding is robust to a wide set of specifications, including a different structure of the vector of covariates, alternative samples, various measures of the treatment variable, and concurrent impact assessment methods. In addition, we reveal that the composition effect of IT adoption on public expenditure still holds when accounting for various sources of heterogeneity, including the fiscal stance, the business cycle, natural resources, and the level of economic development.

Consequently, it appears that inflation targeting may efficiently act upon reducing public expenditure and trigger its reallocation in a direction that is relatively favorable to public investment. In addition, the sharp decline in current expenditure relative to public investment is a strong signal of credibility that IT countries could send to financial markets (see e.g. [Akitoby and Stratmann, 2008](#); [Balima et al., 2017](#)), given the high political cost of cutting current expenditure. Expenditure control, possibly coupled with tax performance (equally arising from a well-defined sovereign both market, see [Balima et al., 2016](#)), plays a key role in building fiscal space that may be a vital buffer when a rapid and effective governments' response may be needed, as for example in times of major turbulence such as e.g. financial crises, climatic shocks, or pandemics (see e.g. [Apeti et al., 2021](#)). Consequently, aside from its benefits in terms of monetary goals, IT seems to be an efficient tool for developing countries to correct their public finance imbalances and refocus their public resources towards a more productive use.

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