PERUVIAN ECONOMIC ASSOCIATION

From Inflation Targeting to achieving

Economic Growth

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From Inflation Targeting to achieving Economic Growth [†]

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Abstract:

Most economists agree that the relationship between long-run economic growth and inflation is negative. It is well documented that countries with inflation target achieve lower levels of inflation. But there is no study that relates inflation target and growth. I focus this study in identifying this relationship. I follow Sala-i-Martin (1997) and sample 45 countries that have an inflation target. This variable is then evaluated by controlling for three variables that are strongly correlated with economic growth and different subsets that belong to a set of variables that the literature agrees in being correlated with long-run economic growth. This strategy allows me to have a distribution of the parameter that captures a link between inflation target and growth. My results suggest that such effect, if any, is slightly negative.

JEL classification: E31, E58, N16

Key words: Inflation target, inflation, growth.

1. INTRODUCTION

The announcement of an inflation target is a very effective communication mechanism by which a central bank can anchor long-run inflation expectations. In the last decade, this type of announcements has become a common practice and motivate that some central banks make explicit their inflation-target announcements. Benefits from this strategy for central banks have been modeled in Walsh (1999, 2003) and estimated in Demir and Yigit (2008). On the other hand, the negative relationship between inflation and economic growth is well documented in Fisher (1993), Fernandez (2003), Burdekin et al. (2004), and Bick (2010). I aim to estimate this link between the announcements of an inflation target made by the central bank and the long-run economic growth observed in the economy.

It is common to associate inflation target and current inflation in the literature because central banks have incentives to meet their own projections. Even though there is a high correlation between inflation target and inflation, the difference between target and the observed inflation is statistically significant.[1] Whether inflation target announcements is related to the economic growth in the long run is a question of policy relevance and controversy.

An additional characteristic of this research question and, in a way, make this study different than previous research is that I consider central banks that has either explicit or implicit inflation targets. Most central banks moved from implicit to explicit inflation targets, especially when their current inflation reached one-digit values. In contrast, there are still several central banks that hold implicit targets. In this research I have found that, in average, economies that has central banks with explicit inflation target have a lower

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[1] I present am exercise on the statistically significance of the difference between inflation and inflation target on section 4.

economic growth with respect to economies in which the central bank has an implicit inflation target.

This paper intends to contribute to the existing literature of growth and monetary policy by evaluating the relationship between economic growth and the inflation target that a central bank announces. In this paper we follow the approach of Sala-i-Martin (1997) in which such relationship is tested by robust parameter values under different type of specifications.

The remaining of this paper is organized as follows: section 2 reviews the relevant literature, section 3 describes the methodology we use, section 4 presents the data and main results, and section 5 concludes.

2. LITERATURE REVIEW

This paper is part of the economic growth literature. In particular I evaluate if the announcements of inflation targeting are valid determinants of economic growth. This section shows the empty space that this paper intends to fill.

2.1 Inflation announcements

Research on credible announcements of inflation are focused on two clear benefits from reliable commitments. On one hand, a central bank can react to supply shocks that only the central bank can be aware of, without any need to make distortions over inflation expectations. On the other hand, other economic agents can improve their forecasts taking into account central bank's true preferences.

From this standpoint, inflation announcements reveal greater information to the general public regarding central bank's intentions in terms of monetary policy. Moreover, such announcements give a benchmark for the accountability of central bank's actions.

Walsh (1999) builds a model in which a central bank does not reveal its information set however inflation announcements in this environment provides enough means for economic agents to adjust their expectations and to reduce the inflation bias.[2] Walsh (2003) points out that those results of inflation targeting over output are conditional on the accountability of the central bank, and that could distort stabilization policies. In a model with imperfect information, Walsh determines what conditions are needed in terms of central bank's transparency, in other words, the capacity from the part of the general public to monitor central bank's actions.

Regarding empirical work, Demir and Yigit (2008) evaluate the effect of the spread between current inflation and explicit inflation targets over the marginal credibility of a central bank.[3] Walsh (2009) documents cases of increases in output volatility for countries with and without an inflation target scheme. Walsh argues that central banks with explicit inflation target schemes tend to give less importance for output, so that output should vary more. According to Walsh, the evidence over the last years does not support that hypothesis.

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[2] This is the case in which a central bank with discretionary behavior has incentives to reduce the unemployment level by using inflationary monetary policy. The main problem of this procedure is that less unemployment rates can be associated with an increase in the money supply in the long run while increases in inflation cannot be eliminated. On the other hand, explicit rules eliminates any increase in the inflation bias.

[3] Marginal credibility is estimated by a Kalman filter on the differential between current inflation and expected inflation. In a second stage, the variable parameter is regressed on variables that are related to the deviation of the inflation with respect to the target. Demir and Yigit study the cases of the U.K. and New Zealand, countries that have long-time experience with explicit inflation targets.

2.2 Economic growth literature

With respect to the evaluation of variables that are correlated with economic growth, new methodologies have been developed. Subject to the controls imposed in a regression analysis, one variable may have positive, negative or no correlation at all with economic growth. In this regard, several methodologies have been proposed as to evaluate the robustness of the proposed specification. The work of Levine and Renelt (1992) and Sala-i-Martin (1997) are part of this literature. Levine and Renelt propose the identification of relationships that are empirically robust in the literature of economic growth by means of the extreme bounds test,[4] while Sala-i-Martin proposes the alternative of estimating a distribution for the coefficient of the variable of interest in the growth regression.[5]

Both Levine and Renelt (1992) and Sala-i-Martin (1997) propose the estimation of seven-variable regressions that have the variable of interest (or under evaluation) and two groups of variables: (i) three variables that are common to all regressions and (ii) the combination of three variables that belong to a bigger set of variables (that the literature considers relevant determinants for economic growth).

On the other hand, Hendry and Krolzig (2004) suggest that only one regression is needed, if and only if, such regression is a parsimonious, encompassing, and consistent representation of economic growth determinants. The chosen variables in the unrestricted model satisfy some t-statistic that the parameter of each variable has to satisfy. With this procedure, Hendry and Krolzig can replicate the results obtained in Hoover and Perez

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[4] The lower extreme bounds is defined as: $\beta_{zj} - 2\sigma_{zj}$, and the upper extreme bound as: $\beta_{zj} + 2\sigma_{zj}$, for the analysis of the variable z, in the j regression. For z to be robust, both extreme values have to be of the same sign.

[5] Each regression is weighted for the fitness of the data with which they are estimated the average value and the standard deviation of the parameter that is related to the variable intended to be evaluated. Details of this methodology are presented next.

(2004) and Fernandez et al. (2001). However, Hendry and Krolzig cannot replicate the high statistically significance of the variables found in Sala-i-Martin (1997).

In Sala-i-Martin et al. (2004), it is proposed a method that can estimate the average of the parameter of interest that is similar than Sala-i-Martin (1997), by using Bayesian techniques.[6] One of the advantages of this method is that regressions can have different number of variables (and no restricted to only seven variables). Also there is not a group of variables used as controls and only requires a prior of the parameter associated with the variable under evaluation.

2.3 Literature on inflation and growth

In general, this block of the literature agrees that the effect of inflation over economic growth is negative. Recent work concludes that the relationship between these variables is not lineal.

Fisher (1993) is one of the first works that identify such non-lineal and negative relationship between inflation and economic growth. Fisher concludes that low level inflation has a positive impact on economic growth, but this relationship became negative as inflation increases.

The negative relationship between inflation and economic growth is documented in Fernandez (2003). In this paper, inflation and growth data from eight Latin-American countries is used to argue that the Baxter and King filter allows the identification of the long-run components of these time series.[7]

For Burdekin et al. (2004), the relationship between economic growth and inflation is not only negative but also asymmetric. The relationship suggested by these authors is

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[6] Bayesian Averaging of Classical Estimates (BASE).
[7] Fernandez (2003) used annual data from 1970 to 2000.

basically between the growth rate of the GDP per-capita with respect to different levels of inflation, controlling for variables such as GDP per-capita of the previous period, terms of trade, and others. Moreover, these authors find that a higher level of inflation is required in developed countries for the inflation to have a negative impact on growth (in contrast with the case of developing countries).[8]

This negative and non-lineal relationship is also found in Bick (2010) who use a balanced panel of 40 developing countries. To capture the long-run effect over economic growth, Bick takes as a dependent variable the five-year average growth of GDP per-capita. Control variables used in this paper are investment as a proportion of GDP, growth rate of population, level of GDP per-capita of previous period, and the growth and standard deviation of the terms of trade.[9]

2.4 Research agenda

At the best of my knowledge, it is missing any work on the relationship between the level of inflation target and the economic growth. The prior of many economists is that a higher target may promote a higher economic growth (sacrifice rate). However, this hypothesis does not have been properly tested yet.

With respect to the announcements of the inflation target, that is a relatively new strategy that is recently followed by central banks. The first central bank to implement it was the one in New Zealand. It started the explicit inflation target scheme on 1990. Only around 1997 explicit announcements of the target reached the highest number of new

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[8] Burdekin et al. (2004) use annual data for 21 developed countries from 1965 to 1992, and for 51 developing countries from 1967 to 1992.
[9] Bick use annual data from 1960 to 2004.

central banks that get involved in this practice. This fact limits the number of long-run studies in the subject of inflation targeting.

3. EXPLICIT AND IMPLICIT TARGETS VERSUS PROJECTIONS

In the literature, inflation target scheme refers to a mix of policy measures that anchors long-run expectations on inflation. The key point in this scheme is an explicit inflation target which is the commitment from the central bank to pursue an inflation target. An explicit inflation target normally refers to a medium-term objective for the growth rate of prices and it is announced on official sources managed by the central bank. In general, information about the inflation target is available in central bank's official web page, in its monetary policy statement, or in the letter of intentions with the IMF.

The first central bank that initiated this way of announcing explicitly an inflation target is the central bank of New Zealand. In the following years, countries such as the U.K. and Australia also joined this monetary policy scheme.

One of the characteristic of this strategy is that some developing countries have changed their announced target. For example, at the beginning of the 2000s central banks of Brazil and Colombia started with inflation target announcements of 6 and 10 percent respectively, targets that have been progressively reduced till the level of 4.5 and 3.0 percent in 2010. Other central banks that also changed their targets are the National Bank of Rumania and the central banks of Ghana and Turkey. In contrast, the central bank of Peru changed his target only once, from 2.5 to 2.0 percent, in 2007.

Regarding implicit targets, I use this term for central banks that have an inflation target for at least a year and announce it in any of their official documents or statements that are publicly available. Documents such as the monetary policy statement, central government announcements, monetary program, letters of intention with the IMF, central

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bank's public announcements and/or studies made by central bank's staff members are the ones under review.

A couple of examples of announcements made for the central government are the cases of China and Venezuela. To find out what the inflation target is in China I follow the news on Reuters. For the case of Venezuela, the main source is the announcements made in the BCVOZ Economico (for years previous to 2000) and the Annual Agreement of Economic Policies (that is presented every year in the congress).

Another source that is commonly used by the central bank is its Monetary Program. Central banks of Uruguay, Honduras, Guatemala, Costa Rica, and Dominican Republic are clear examples. The Reserve Bank of India uses three types of announcements: The Annual Report, the Monetary Policy Statement and the Reserve Bank of India Bulletin. Bank of Indonesia, Bank of Russia and the National Bank of Camboya use the Annual Report while the State Bank of Pakistan and the central bank of Kenya use the Monetary Policy Statement for announcing their medium-term targets.

For some central banks, it is more difficult to find what their inflation targets are. In such cases, it is highly recommended to look at studies made by staff members of the central bank. This is the case of the U.S., Bolivia, and Ghana.[10]

Another related fact with inflation target is the transition from implicit to explicit announcements. There is a group of central banks that started as implicit inflation targeters till the point they reach the required conditions to enter into a full explicit inflation target scheme. This is the case of, for example, Peru and Turkey.

In my review, some central banks avoid any commitment with a target and just forecast what the inflation would be this and next year. For those cases, inflation reports and official web page information mention only the stability of prices as the main task of

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[10] See Sneddon y Romano (2009), Cossío et al. (2008) and Amoah and Mumuni (2008) for reports of the implicit inflation target of the U.S., Bolivia, and Ghana, respectively.

the central bank. For the case of El Salvador, for example, the high degree of dollarization constrain what the central bank can do in terms of inflation.

4. DATA

In this paper I use the term explicit inflation target to refer to central banks that explicitly announce a target for at least the medium-term inflation. I use the term implicit inflation target to refer to those central banks that announce a target but this value needs to be recovered from different official documents. It is important to mention that, typically, the definition of explicit inflation target matches with those central banks that follow an Inflation Target scheme (IT).[11]

I use a sample of countries for which their central banks announce an inflation rate as a target. Those announcements reveal the monetary policy stance of the central bank (or projection) with a time horizon of at least a year. In this paper I consider central banks that make this announcement explicit or implicit, as previously defined. For estimations, I use data for 45 countries that have information for several years (see Table 1).

Data on economic growth, GDP per capita, and inflation is taken from the International Financial Statistics (IFS) of the IMF. The GDP per capita is valued at current prices, in American dollars.

Data on the inflation target is taken from each central bank source, other research studies, and Reuters. In that regard, and for the purposes of this paper, the inflation target corresponds to the average of the central bank's announcements of inflation target made during several years for periods of at least one year.

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[11] The only case this definition of IT does not apply is the European Central Bank.

Those indicators that are associated with economic growth are taken from the World databank of the World Bank. The sample for the average being considered is 2000 – 2010. The data for the Rule of Law are taken from Kaufmann et al. (2010).

About the data, Table 1 shows that countries with explicit inflation target announcements have also lower inflation rates (3.1 percent in average) with respect to the ones with implicit inflation target announcements (4.8 percent in average). Moreover, the growth experienced in countries with explicit announcements (3.3 percent in average) is lower than the countries with implicit announcements (5.0 in average).
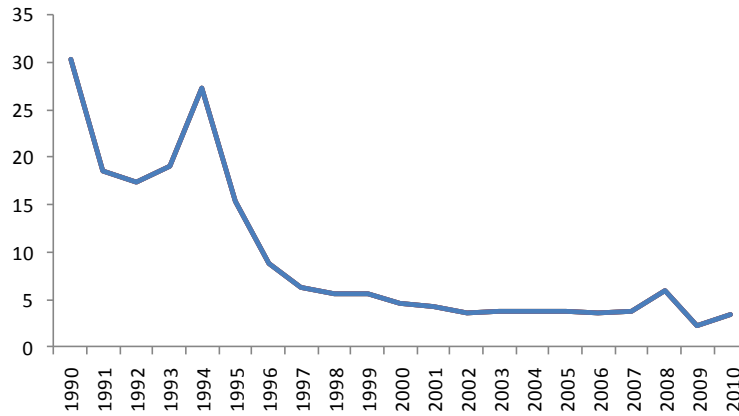
Another stylized fact is that in the last 10 years, World inflation level has been decreasing. Inflation rate in most countries has been stable and at lower rates (see Figure 1). These rates converge to a low level and it is a generalized process that is observed in developed economies as well as developing and emerging economies (see Figure 2).

Table 1
Inflation targeting and average growth 1/

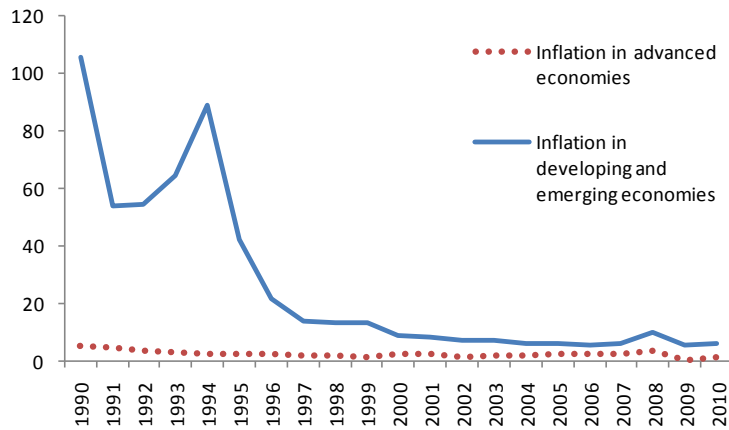| Country	Period	Inflation targeting	Average growth
With explicit inflation target			
Autralia	2000 - 2010	2,5	3,1
Brazil	2000 - 2010	4,5	3,7
Canada	2000 - 2010	2,0	2,2
Chile	2000 - 2010	3,0	3,8
Colombia	2000 - 2010	4,0	4,0
South Korea	2000 - 2010	4,0	4,6
Slovakia	2005 - 2010	2,0	5,1
Republic of the Philippines	2002 - 2010	4,5	5,0
Ghana	2007 - 2010	7,0	6,3
Hungary	2001 - 2010	3,0	1,9
Indonesia	2005 - 2010	5,0	5,7
Republic of Iceland	2001 - 2010	2,5	2,3
Israel	2000 - 2010	2,0	3,7
Japan	2006 - 2010	1,0	0,2
Mexico	2001 - 2010	3,0	1,7
Norway	2001 - 2010	2,5	1,6
New Zealand	2000 - 2010	2,0	2,5
Peru	2000 - 2010	2,3	6,3
Poland	2000 - 2010	2,5	3,9
U.K.	2000 - 2010	2,0	1,7
Czech Republic	2000 - 2010	3,0	3,3
Romania	2005 - 2010	3,8	2,9
South Africa	2000 - 2010	4,5	3,6
Sweden	2000 - 2010	2,0	2,3
Switzerland	2000 - 2010	1,0	1,8
Thailand	2000 - 2010	1,8	4,4
Turkey	2006 - 2010	7,5	3,1
European Union	2000 - 2010	2,0	1,4
With implicit inflation target			
China	2001 - 2010	3,2	10,5
U.S.	2000 - 2010	2,0	1,9
Paraguay	2005 - 2010	9,0	4,1
Uruguay	2001 - 2010	5,0	3,5

1/ Sample: 32 countries.

Figure 1
World Inflation (in %)

Source: IFS – IMF.

Figure 2
Inflation in developed and developing economies (in %)

Source: IFS – IMF.

The correlation between inflation and the target announced by central banks is up to 0.97 for the countries in this sample. This strong correlation may imply that either inflation or inflation target have similar effects over economic growth (see Figure 3). However, the difference between the announced target and inflation is positive and

statistically significant (see Figure 4).[12] Given this fact, it is interesting to evaluate what is the effect, if any, of the announcements over long-run economic growth.

Figure 3
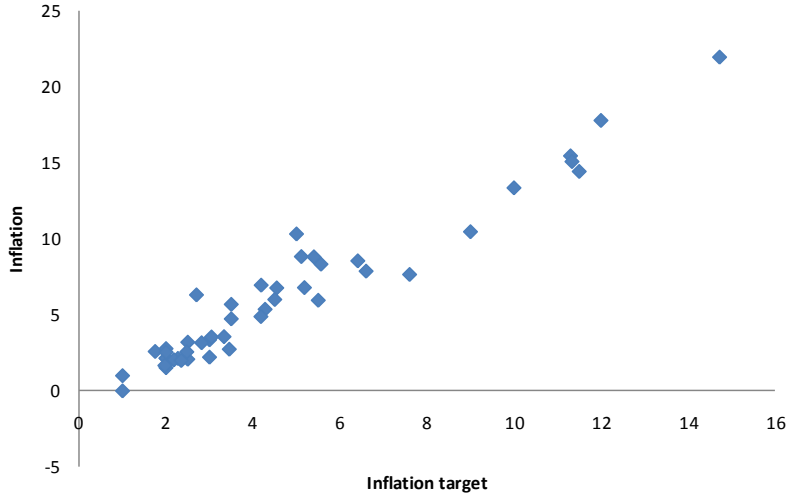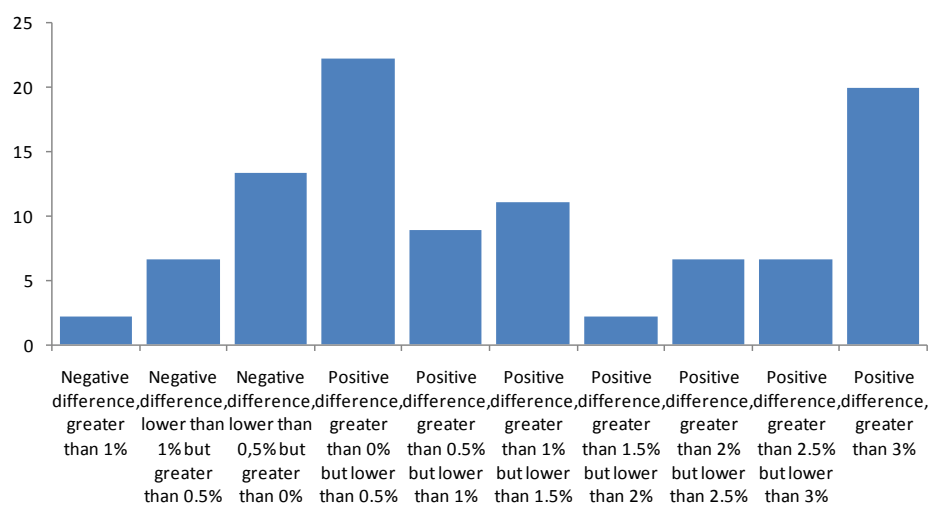Inflation versus inflation announcements (in %)

Figure 4
Difference between inflation and inflation announcements (in %)

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[12] A t-test to the difference between target and inflation shows that the difference is statistically significant.

5. EMPIRICAL RESULTS

A simple plot between economic growth and inflation target could suggest that a positive relationship between these variables exist (see Figure 5). However, in the literature of economic growth, long-run growth is associated with variables such as the GDP value at the starting point (conditional convergence hypothesis, see Figure 6).

Figure 5
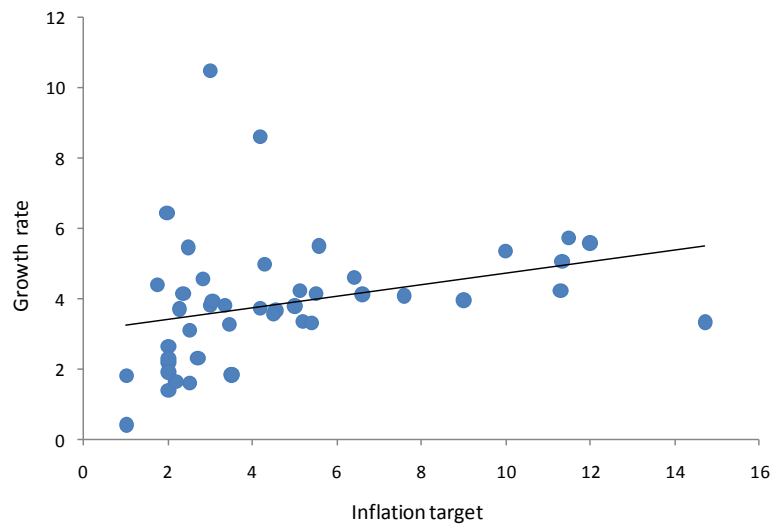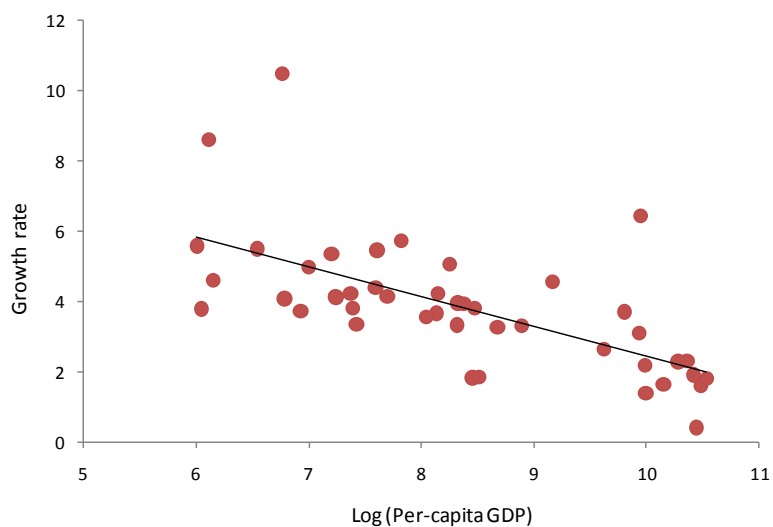Economic growth and inflation target (in %)

Figure 6
Economic growth and initial GDP value (in %)

In the context of the growth literature, the long run effect of inflation target over long-run economic growth can be estimated in the following cross-section regression:

$$y_i = \alpha + \beta\,MI_i + \varphi\,Y_{i,1999} + \nu_i \tag{1}$$

where y_i is the average growth of GDP in country i, MI_i is the average inflation target of country i, $Y_{i,1999}$ is the natural logarithm of the per-capita GDP for country i in a year that represents the beginning of the sample, and ν_i is an error term associated to country i. For those countries that started an explicit inflation announcement after the year 2000, the first announcement is considered.

The cross section analysis suggests that there is a positive relationship between economic growth and inflation target (see equation 1, Table 2). However, when I control for the initial level of the GDP, the initial relationship reported switch to slightly negative and statistically no significant (see equation 2, Table 2).

As a robustness check for endogeneity problems (countries with lower levels of inflation tend to growth faster) I follow on this strategy. To avoid simultaneity bias, it is used as a dependent variable, the growth between 2006 and 2010 and for the target the first announcement made by a central bank.[13] Results from this new regression reveal the lower importance of the target for economic growth (see equation 3, Table 2).

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[13] In this way, I study the possible effects of the initial inflation target announcement and the posterior economic growth (5 years after, in average).

Table 2
Cross Section Regressions
(Dependent variable: annual growth rate of GDP)

	Equation 1	Equation 2	Equation 3
IT_i	0,49 **	-0,43	-0,04
	(0,21)	(0.25)	(0,27)
$Y_{i,1999}$		-1,53 ***	-1,62 ***
		(0.33)	(0,37)
C	1,90 **	19,03 ***	17,78 ***
	(0.76)	(3.71)	(3,88)
R^2	0,13	0,48	0,50
F	5,43	15,50	13,70

Note: Standard errors are reported in parentheses, and
*/**/*** indicate statistical significance levels at 10, 5, and 1 percent

As suggested by Sala-i-Martin (1997), this type of analysis cannot determine if there is a relationship between inflation and economic growth. The inclusion of one or several controls could potentially switch the contribution of the target from negative or none to positive and statistically significant. Sala-i-Martin's proposal is to control for a fixed group of variables suggested in the growth literature as the most correlated with the long-run economic growth. In addition, a group of variables that belong to a bigger set of variables (also suggested in the literature) has to be included and so regress all possible combinations in order to infer the overall effect of the inflation target over economic growth.

Following Sala-i-Martin (1997) and Levine y Renelt (1992), I estimate the following relationship:

$$y_i = \alpha_i + \beta_x x_i + \beta_{MI} MI_i + \beta_z z_i + \varepsilon_i \qquad (2)$$

where: y_i is the average economic growth rate of country i, x_i is a vector that includes three fixed controls for country i, MI_i is the inflation target of country i, z_i is a vector that

includes three additional variables also associated with economic growth of country i and ε_i is an error term for country i (see Table 3).

Table 3
Cross Section Regressions: Variables and units

Var.	Description	Units
y	Annual growth rate (average)	%
x1	GDP per capita, PPP (U.S. $ constant dollars of 2005)	LN
x2	School enrollment, primary	%
x3	1 / Life expectancy at birth, total (years)	Rate
IT	Inflation target (average)	%
z1	Gross capital formation (% of GDP)	%
z2	Inflation (average)	%
z3	Trade (% of GDP)	%
z4	Fertility rate, total (births per woman)	LN
z5	Domestic credit to private sector (% of GDP)	%
z6	General government final consumption expenditure (% of GDP)	%
z7	Primary education, lenght (years)	Units

The second part of Sala-i-Martin's strategy is to capture the standard error of each parameter $\hat{\beta}_{MI}$ and the log-likelihood of every regression. Doing so allows building a weight that has the following form:

$$\omega_{MI,i} = \frac{L_i}{\sum_{j=1}^{M} L_j} \tag{3}$$

where L_i is the log-likelihood function of regression i.

These weights are used in new estimations of β_{MI} and also of those of the standard error. In this case, both indicators are corrected for the goodness of fit that each regression has. The specification suggested by Sala-i-Martin for the estimation of β_{MI} and its standard error is:
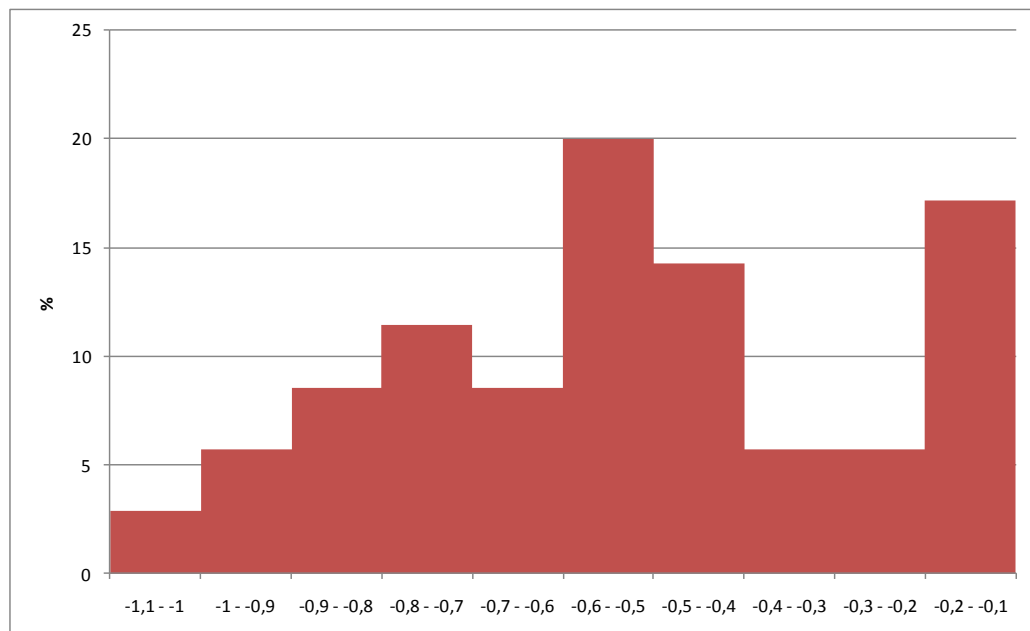
$$\hat{\beta}_{MI} = \sum_{j=1}^{M} \omega_{MI,j} \hat{\beta}_{MI,j} \tag{4}$$

$$\hat{\sigma}_{MI}^2 = \sum_{j=1}^{M} \omega_{MI,j} \hat{\sigma}_{MI,j}^2 \tag{5}$$

where $\hat{\beta}_{MI,j}$ is the estimator of β_{MI} in the regression j y $\hat{\sigma}_{MI,j}^2$ is the standard error of β_{MI} in regression j.

With this methodology, it is possible to obtain a set of $\hat{\beta}_{MI}$ estimator that belongs to each regression (each regression with seven variables each). Results from all possible combinations of the variables listed on Table 3 show a bias toward negative but small values (see Figure 7).

Figure 7
Distribution of $\hat{\beta}_{MI}$

Even though the average value of $\hat{\beta}_{MI}$ is negative, the relative high standard error suggests that this value is statistically no significant. In other words, the effects of a bigger inflation target over long-run economic growth are null (see Table 4 which is a good description of the distribution of the $\hat{\beta}_{MI}$ parameter).

Table 4
Cross Section Regressions: Parameter β_{IT}

Average	Standard error	Min.	Max.
-0,54	0,38	-1,02	-0,12

The small value of the parameter suggests that even if a central bank decides to increase its inflation value target, its contribution to the long-run economic growth is small and marginal.

6. ROBUSTNESS

To robust previous results, I consider alternative variables that can expand the criteria of effects intended to be capture in z (see Table 5).

These new set of variables are assigned in different categories so I can also avoid co-linearity problems given the fact that their behavior could be similar than the one they intend to replace. For example, z3 and z5 are variables associated with the external and financial sector of an economy.

This replacement strategy does not modify those results obtained in the first group of regressions or base regressions (see Table 6). The estimated value of β_{MI} is at some point between -0.43 and -0.57 which indicates that, in average, a higher inflation target implies a marginal decrease in the long-run growth rate. Moreover, σ_{MI} oscilates between 0.37 and 0.38, for the estimated values of β_{MI} which implies that this parameter is basically null or statistically no significant.

Table 5
Cross-sectional regressions: Additional alternatives variables

Var.	Description	Units
z11	Gross capital formation (% of GDP)	%
z12	Gross domestic savings (% of GDP)	%
z21	Inflation (average)	%
z31	Trade (% of GDP)	%
z32	Exports of goods and services (% of GDP)	%
z33	Imports of goods and services (% of GDP)	%
z34	Trade in services (% of GDP)	%
z35	Net trade in goods and services (% of GDP)	%
z41	Fertility rate, total (births per woman)	LN
z51	Domestic credit to private sector (% of GDP)	%
z52	Domestic credit provided by banking sector (% of GDP)	%
z53	Stocks traded, total value (% of GDP)	%
z61	General government final consumption expenditure (% of GDP)	%
z71	Primary education, lenght (years)	Units
z72	Secondary education, lenght (years)	Units

In other words, an increase in the inflation target value is associated with small decrease or null effect in the long-run economic growth. In the actual context of low inflation around the World, this result is consistent with a high sacrifice ratio. In a way, seems fair to say that a higher target may be associated with a higher inflation and with a small decrease in the output growth rate.

Table 6
Cross-sectional regressions: Robustness of parameter BIT

Var.	β_{IT}	σ_{IT}	Min.	Max.
Gross capital formation (% of GDP)	-0,54	0,38	-1,02	-0,12
Gross domestic savings (% of GDP)	-0,53	0,38	-1,02	0,11
Trade (% of GDP)	-0,54	0,38	-1,02	-0,12
Exports of goods and services (% of GDP)	-0,53	0,38	-0,98	-0,12
Imports of goods and services (% of GDP)	-0,54	0,38	-1,03	-0,12
Trade in services (% of GDP)	-0,52	0,38	-0,89	-0,12
Net trade in goods and services (% of GDP)	-0,48	0,38	-0,80	0,16
Domestic credit to private sector (% of GDP)	-0,54	0,38	-1,02	-0,12
Domestic credit provided by banking sector (% of GDP)	-0,57	0,37	-1,06	-0,12
Stocks traded, total value (% of GDP)	-0,43	0,37	-0,71	-0,11
Primary education, lenght (years)	-0,54	0,38	-1,02	-0,12
Secondary education, lenght (years)	-0,54	0,38	-1,02	-0,12

7. CONCLUSIONS

In this paper I study if the inflation target level announced by the central banks has an impact in the long-run economic growth. My results suggest that the overall effect is null (negative but not statistically different than zero).

In this regard, the level of the announced inflation target is not critical for the long-run economic growth. Its effect, if any, is small in terms of growth rate.

In the last decade inflation around the World has been decreasing. In a context of low inflation rates, an increase in the announced target may be associated with a marginal decrease in output in the long run.

That is why I leave in agenda the use of panels that takes into account the specific dynamics of each economy. Increase the sample of countries is another task for future research since the number of countries with explicit inflation target announcements is higher with respect to the ones with implicit announcements and that could be a source of selection bias. Finally, the use of Bayesian techniques for model selection could

improve my results regarding the independent variables and their impact on long-run economic growth.

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