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Abstract: Inflation targeting has attracted attention to researchers and policy makers since the first attempt in New Zealand in 1990. This paper discusses a country's choice of inflation targeting by examining its driving forces with the dataset of 82 countries. The empirical result shows that countries' decision of adoption of inflation targeting depends highly on their development stage. For high-income or developed countries, the significant motive of monetary authority to choose inflation targeting is the desire to keep or enhance anti-inflation credibility, and inflation targeting could be a natural option under more floats with the absence of nominal exchange rate anchor. On the other hand, low-income or developing countries with the large size of public debts are not likely to choose inflation targeting, so that fiscal fragility would discourage monetary authority to adopt restrictive monetary policy under inflation targeting.

Keywords: inflation targeting; exchange rate arrangements; anti-inflation credibility; fiscal fragility.

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1 Introduction

Inflation targeting is a monetary policy framework to maintain prices or inflation rates at a target level or within a specific range by controlling policy rate and other monetary policy measures. Inflation targeting has attracted attention to researchers and policy makers since the first attempt in New Zealand in 1990. It is currently in use by central banks in many countries around the world (see Bernanke, Laubach, Mishkin, and Posen, 1999, for various case studies and empirical evidences). One important aspect is that the adoption of inflation targeting can be seen in not only developed countries but also emerging or developing countries. Indeed, as of 2013, inflation targeting is officially adopted by 28 countries, among which there are 15 OECD countries and 13 non-OECD countries. Given this fact, this study attempts to discuss a country's choice of inflation targeting by empirically identifying the specific characteristics encouraging a country to choose the framework of inflation targeting. Since monetary authorities or central banks, particularly in developing countries, have the responsibility to assure price stability, our analysis could provide some important guidance for conducting monetary policy effectively.

Many studies have investigated how inflation targeting affects macroeconomic variables, including output, interest rate, inflation, and exchange rate pass-through and volatility, although some results are still unsettled due mainly to short history of inflation targeting (see e.g., Ball and Sheridan, 2003; Levin, Natalucci, and Piger, 2004; Vega and Winkelried, 2005; Genc, Lee, Rodriguez, and Lutz, 2007; De Mendonca, 2007; Lin and Ye, 2007, 2009; Gonsalves and Salles, 2008; Gonsalves and Carvalho, 2009; Brito and Bystedt, 2010; Lee, 2011; Willard, 2012; Odria, Castillo and Rodriguez, 2012). Among them, some studies, including Goncalves and Salles (2008), suggest the

positive aspects that inflation targeting could reduce inflation rate and its fluctuation together with improved policy credibility. On the other hand, several works, such as Ball and Sheridan (2003) and Brito and Bystedt (2010), reveal the skepticism on the effects of inflation targeting on macroeconomic performance.

In contrast to works on the effect of inflation targeting, a relatively small number of studies have existed on the driving forces to adopt inflation targeting as a monetary policy measure. Amato and Gerlach (2002) discuss the roles of several preconditions for inflation targeting in transition and emerging economies, including central bank's independence, fiscal policy, and flexibility in interest rates and exchange rates. Following the method of Ball and Sheridan (2003) and the argument of Eijffinger and de Haan (1996) on monetary independence, the empirical works of Goncalves and Carvalho (2008, 2009) over OECD countries present that the low level of debts, the high inflation, and flexible exchange rate are likely to inspire the choice of inflation targeting. As the most relevant work to our study, Hu (2006) examines a country's choice of inflation targeting with the panel data set of 66 countries, including developed and developing countries, and finds that several economic and institutional conditions, such as sound fiscal position, financial depth, exchange rate flexibility, and monetary autonomy of central bank, would encourage monetary authority to choose this policy framework.

This study also examines factors encouraging monetary authorities to choose inflation targeting by applying probit models, following the methodology employed by Ball and Sheridan (2003), Goncalves and Carvalho (2008, 2009), and Goncalves and Salles (2008). Our sample covers 82 countries, among which 23 countries adopted inflation targeting up to 2010. Differently from the previous studies such as Hu (2006),

this study attempts to identify the differences in determinants of the adoption of inflation targeting between developed and developing countries by dividing our full sample into two groups of developed (high-income) and developing (low-income) countries. Our analysis enables us to discuss some important policy guidance for monetary authorities, particularly in developing countries, which are often struggling against less monetary credibility associated with higher inflation bias, large public indebtedness, and unstable political conditions.

The main results show some clear differences in the driving forces to adopt inflation targeting between developed and developing countries, which have not been identified in the past empirical studies. First, high inflation rates encourage monetary authorities of developed countries to shift their policy toward inflation targeting, while their effect on the choice of inflation targeting is insignificant in developing countries. The desire to keep or enhance anti-inflation credibility could be identified as the significant motive of monetary authority to adopt inflation targeting for developed countries, but not for developing countries. Second, developed countries adopting more floats tend to choose inflation targeting, while this tendency cannot be observed in developing countries. Inflation targeting could be considered as a natural option for developed countries which adopt more floats with the absence of nominal exchange rate anchor. Third, developing countries with large size of public debts are not likely to adopt inflation targeting, due partly to the argument that they might have incentives to reduce the real value of public debts through inflation. Fiscal fragility restricts the capability of adopting inflation targeting. On the other hand, the adoption of inflation targeting in developed countries seems to be independent of their size of public debts.

One crucial issue is that monetary authority often makes the simultaneous choice of inflation targeting and exchange rate arrangement, which is required for the stable long-run existence of the policy framework (see Brenner and Sokoler, 2010). This cannot be captured by our probit model assuming that past exchange rate arrangement is exogenous when a country chooses whether or not inflation targeting is adopted. Thus, by applying two alternative models, multinomial logit and bivariate probit models, we confirm the robustness of our estimated results derived from the probit model.

The rest of the paper is organized as follows. Section 2 presents empirical analysis, which describes data, methodology, and estimation results and examines the roles of characteristics influencing monetary policy concerning the choice of inflation targeting. In particular, we identify and discuss some clear differences in driving forces to choose inflation targeting between developed and developing countries. Final section provides conclusion.

2 Empirical analysis

Inflation targeting is a framework for monetary policy aiming at achieving and maintaining price stability, first introduced in New Zealand in 1990. It is identified by public announcement of official inflation target ranges at short- or medium-term time horizons and by fully confirmation that stable and low inflation is the primary long-run goal of monetary policy (see, e.g., Bernanke, Laubach, Mishkin, and Posen, 1999). Although the definition of inflation targeting varies among economists, it generally contains several principles, such as public disclosure of short- and medium-term targets for inflation, commitment to keep price stability as the main goal of monetary policy, and transparency of central banks on their monetary policy strategy. These

principles clarify that inflation targeting is not just public disclosure of the target. Monetary authority in developing countries typically reports the target in their economic plan for the year ahead. However, such monetary policy may not be classified as inflation targeting, since it does not satisfy other principles.

This section evaluates the specific characteristics encouraging a country to choose inflation targeting as a monetary policy framework. Our empirical analysis first examines this issue by applying binary choice models with two possible outcomes of whether or not to choose inflation targeting. Moreover, for the robustness check we consider a country's choice of inflation targeting and exchange rate regime and investigate alternative models to capture four probable outcomes: (1) inflation targeting under a floating regime, (2) inflation targeting under a fixed regime, (3) non-inflation targeting under a floating regime, and (4) non-inflation targeting under a fixed regime.

2.1 Methodology and data

To discuss how a country is encouraged to adopt inflation targeting, we empirically examine the determinants of the probability of inflation targeting adoption by applying probit model for the cross-sectional dataset of 82 countries. We classify our sampled countries into two groups, depending on whether or not to adopt inflation targeting until 2010. The first is the treatment group consisting of 23 countries adopting inflation targeting, and the second is the control group of non-inflation targeting, consisting of the remaining 59 countries (see Tables 1 and 2 for the list of countries in our sample). By applying the probit analysis, we estimate the following equation:

$$IT_i = \beta_0 + \beta_1 ERR_i + \beta_2 INF_i + \beta_3 POLIT_i + \beta_4 RGDPPC_i + \beta_5 DEBT_i + \epsilon_i,$$

where IT_i is the binary variable which equals unity if country i adopts inflation targeting and zero otherwise; ERR_i is the measure of the exchange rate regime; INF_i is inflation rate; $POLIT_i$ is the political risk measure; $RGDPPC_i$ is the income level; $DEBT_i$ is the fiscal status; and ϵ_i is the error term with standard properties. In our sample, 23 countries have adopted inflation targeting in different years (see Table 1). All independent variables are the five-year average level of the corresponding variables over the periods prior to the adoption of inflation targeting.

Following Ball and Sheridan (2003) and Goncalves and Carvalho (2008), the average levels of each independent variable for the treatment group of inflation targeting countries are computed by taking the five-year averages prior to the adoption of inflation targeting (see Table 1 for the period of adopting inflation targeting). For the control group of non-inflation targeting countries, we define the 'adoption year' as the average of the actual adopting years for all inflation targeting countries. The adoption year is identical at 2000 for all inflation targeting countries. Once we identify the adoption year, we compute the five-year averages prior to the adoption year as the hypothetical average levels of each independent variable for the control group.

Our study uses two different classifications, de jure and de facto classifications, as a measure of exchange rate regimes (ERR). As a de jure classification, this study uses self-reported exchange rate regime status of member countries as published by the International Monetary Fund (IMF annual report on exchange arrangements and exchange restrictions). However, it is well known that a country's actual choice of exchange rate regimes is often different from its self-reported status.[1] Thus, this study

[1] It is often observed that although countries officially announce the adoption of a floating regime, they often involve foreign market intervention, so that in practice their actual regime can be

also uses a de facto classification. Reinhart and Rogoff (2004) construct de facto exchange rate regime classification through two important pieces of information, extensive data on market-determined exchange rates and detailed country chronologies, differently from the de jure standard IMF classification.

We compute the five-year averages of each measure of the two exchange rate regimes prior to the adoption year (ERR_IMF1 and ERR_RR1), based on 1-5 scale of the de jure IMF classification and the de facto Reinhart and Rogoff's (2004) classification. These classifications are represented as 5 ranks from 1 to 5. The ranks start with complete pegs and show gradual direction of managed and floats up to the fifth rank in which exchange rate arrangement represents freely floats. The larger average values, ERR_IMF1 and ERR_RR1, imply more floats, i.e., more flexibility of exchange rate regimes. The high flexibility of exchange rate regimes (floats) corresponds to the absence of the nominal anchor, while the low flexibility (pegs) corresponds to the price rigidity. In addition, as alternative measures, we also compute the dummy variable (ERR_IMF2) which equals one if $\text{ERR\_IMF1} \geq 3$ and zero if $\text{ERR\_IMF1} < 3$, and the dummy variable (ERR_RR2) which equals one if $\text{ERR\_RR1} \geq 3$ and zero if $\text{ERR\_RR1} < 3$. In terms of de jure and de facto exchange rate arrangements, $\text{ERR\_IMF2} = 1$ and $\text{ERR\_RR2} = 1$ suggest that the countries have adopted floats or flexible exchange rate arrangement, while $\text{ERR\_IMF2} = 0$ and $\text{ERR\_RR2} = 0$ suggest that the countries have adopted pegs.

In addition to the measures of exchange rate regimes, several factors could affect the choice of inflation targeting by monetary authority. Following Goncalves and

considered as a managed exchange rate regime. Such a case can be recognized, particularly for developing countries facing the issue of 'fear to floating' (see Calvo and Reinhart, 2002). Hence, we also use de facto exchange rate regime classification, proposed by Reinhart and Rogoff (2004).

Carvalho (2008), our empirical model includes the averages of the measures of inflation, political stability, income level, and fiscal status to evaluate their effects on the choice of inflation targeting. Many studies, including Bernanke and Mishkin (1997), suggest that anti-inflation credibility could be an important motivation for monetary authority to adopt inflation targeting. In addition, political economy literature argues that incentives of policy makers and characteristics of political systems, such as political institutions and decentralization, play a crucial role in choosing monetary policy frameworks.[2] Recently, the study of Goncalves and Carvalho (2008) on the role of political stability in adopting inflation targeting fails to find clear evidence of the relationship in OECD countries. Moreover, monetary policy frameworks could depend on country's development stage, which might be captured by the income level. Furthermore, fiscal policy considerations should not dominate monetary policy to conduct inflation targeting. Goncalves and Carvalho (2008) find that fragile fiscal status with large public debt tends to encourage monetary authority to keep away from inflation targeting, i.e., to resort to inflationary financing.

Similar to the case of exchange rate regimes, the average levels of inflation, political stability, income, and fiscal status are computed by taking the five-year average prior to the adoption year of inflation targeting (prior to 2000 for non-inflation targeting countries). For inflation (INF), we use annual percentage of consumer price index, which is taken from the International Financial Statistics of the International Monetary Fund (IFS-IMF). To capture political stability, we use political risk rating (POLIT), which is taken from International Country Risk Guide (ICRG). Moreover, country's

[2] Many works examine the link between political institutions and central bank autonomy (see Eijffinger and de Haan, 1996, for a review on the determinants of central bank independence).

income level (RGDPPC) and fiscal status (DEBT) are respectively measured by the log of real GDP per capita and the ratio of government debt to GDP, which are taken from the World Development Indicator (WDI).

For the better understanding of the adoption of inflation targeting between developed and developing countries, we conduct empirical analysis over full sample over 82 countries and two sub-samples (high-income group and low-income group). The high-income group consists of countries with real GDP per capita larger than 6,000 US dollar (constant price of 2005), and the low-income group consists of countries with real GDP per capita less than 6,000 US dollar.

2.2 Some preliminaries

Before presenting the results of our empirical equation, this subsection briefly overviews the characteristics of economic and institutional variables and their relationships with the adoption of inflation targeting by showing summary statistics and correlation matrix. Table 1 shows the list of countries that have adopted inflation targeting, and Table 2 shows the list of countries that have not adopted inflation targeting. These tables also present the adoption year for each inflation targeting country and the IMF de jure and Reinhart and Rogoff's (2004) de facto exchange rate regimes during the pre-adoption period for each country (ERR_IMF2 and ERR_RR2). It is observed that 23 among our 82 sampled countries have adopted inflation targeting, and the exchange rate regimes for most of them were classified into floats before the adoption of inflation targeting. On the other hand, among 59 countries that have not adopted inflation targeting, many countries have adopted pegs before the hypothetical adoption year 2000.

Table 3 shows the summary of statistics of variables used in our empirical analysis. First, the exchange rate arrangement in inflation targeting countries (ERR_IMF1, ERR_RR1, ERR_IMF2, and ERR_RR2) is more floats than that in non-inflation targeting countries. This is consistent with the finding of Concalves and Carvalho (2007) in that absence of the exchange rate anchor increases the probability of adopting inflation targeting. Second, inflation rate in inflation targeting countries (INF) is higher than that in non-inflation targeting countries, so that high inflation countries tend to adopt inflation targeting. Third, the ratio of public debt to GDP in non-inflation targeting countries (DEBT) is higher than that in inflation targeting countries, so that countries with sound fiscal status tend to adopt inflation targeting. These three results can also be supported by the positive correlation between the inflation targeting dummy (DIT) and the measure of exchange rate regimes (ERR_IMF1, ERR_RR1, ERR_IMF2, and ERR_RR2), the positive correlation between DIT and inflation (INF), and the negative correlation between DIT and the ratio of public debt (DEBT), as shown in Table 4.

Relevantly to the first result in the previous discussion, which is related to the adoption of inflation targeting and exchange rate arrangements during the pre-inflation target period, we can classify all countries into four groups: inflation targeting with pegs, inflation targeting with floats, non-inflation targeting with pegs, and non-inflation targeting with floats. Table 5 presents the number of countries in each of the four groups on the basis of de jure and de facto exchange rate arrangements. Many of inflation targeting countries de jure adopted floats before the adoption. However, more than half of inflation targeting countries de facto adopted pegs before the adoption. Even if inflation targeting countries already announced floats in an official manner, their

monetary systems have actually followed pegs. Such inconsistency could not be sustainable in the long-run, as in the argument of Brenner and Sokoler (2010) that a credible monetary policy aiming at inflation targeting should be in a floating regime. This might be related to the discussion of 'fear of floating' in Calvo and Reinhart (2002) that countries announcing floats, in practice, tend to implement interventions or use other tools to peg their exchange rate to the anchor currency. In contrast to the group of inflation targeting countries, many of non-inflation targeting countries have de jure and de facto adopted pegs before the hypothetical adoption year 2000.

2.3 Results

This subsection presents empirical results to evaluate how countries' several specific characteristics, such as exchange rate regimes, inflation, and fiscal status, affect monetary authorities' choice of inflation targeting as a main monetary framework. Since our dependent variable is a binary choice, we apply the probit analysis to estimate our empirical equation.

Table 6 shows the results of our probit regressions over all countries for each measure of exchange rate arrangements (ERR_IMF1, ERR_RR1, ERR_IMF2, and ERR_RR2). The coefficients on all measures of exchange rate arrangements are significantly positive, so that the flexibility of exchange rates, based on both de jure and de facto classifications, would enhance countries' motivation to adopt inflation targeting. This result could be consistent with the findings of Hu (2006) and Goncalves and Carvalho (2008). A flexible exchange rate regime is a crucial precondition for the choice of inflation targeting. The exchange rate nominal anchor should be subordinated

to inflation targeting, since the rigidity of exchange rate is unsuitable for inflation targeting policy in the long-run (see Brenner and Sokoler, 2010).

In addition, the coefficients on DEBT are significantly negative. A sound fiscal position would encourage the country to adopt inflation targeting, which coincides with the results of Hu (2006) and Goncalves and Carvalho (2008). Hu (2006) suggests that the government facing a fragile fiscal position might put pressure on the central bank to implement expansionary monetary policy and to finance public debts, which could lead to the impossibility to adopt inflation targeting. On the other hand, the coefficients on INF, POLIT, and RGDPPC are insignificant, so that inflation, political stability, and the income level would not affect the choice of inflation targeting. The above results are based on the empirical analysis over all sampled countries.

To discuss differences in economic and institutional features between developing and developed countries, we conduct the probit analysis for each of the two sub-samples (high- and low-income groups) depending on the income level of countries. Table 7 reports the estimated results, where columns A-D and E-H correspond to the high- and low-income groups, respectively. The results suggest clear differences between the two groups. First, the coefficients on the measures of exchange rate arrangements for the high-income group are significantly positive at the 1% or 5% significance level, except column D, while those for the low-income group are insignificant, except column E. High-income or developed countries that do not have an exchange rate nominal anchor under floats tend to shift their monetary system toward inflation targeting. On the other hand, the choice of inflation targeting is generally insensitive to exchange rate arrangements for low-income or developing countries. Our analysis with the division of full samples into high- and low-income groups would

support the argument of Hu (2006), Goncalves and Carvalho (2008), and Brenner and Sokoler (2010) only for high-income countries.

The second difference between high- and low-income groups is related to the ratio of public debts to GDP (DEBT). The coefficients on DEBT for the low-income group are significantly negative. However, the coefficients for the high-income group are less clear, since columns A and B under de jure exchange rate arrangements show the significantly negative coefficients, while columns C and D under de facto exchange rate arrangements show the insignificant coefficients. Low-income countries with a sound fiscal position would be encouraged to adopt inflation targeting, while fiscal status might not matter on the choice of inflation targeting for high-income countries. These results coincide with the findings of Hu (2006) and Goncalves and Carvalho (2008) only for low-income countries. Moreover, our empirical findings for the low-income group also support the argument of Amato and Gerlach (2002) in that large public debts would discourage emerging economies to adopt inflation targeting as they provide incentives to reduce the real value of public debts through inflation.

As the third difference, the coefficients on inflation (INF) for the high-income group are significantly positive at the 1% significance level, while those for the low-income group are insignificant even at the 10% significance level. Although high-income countries generally attain the low or moderate inflation level, their monetary authorities tend to sustain the credibility of their monetary policy by adopting inflation targeting, which would help retain inflation at the current level, rather than curb it significantly. In contrast, the results show that past inflation would not affect the choice of inflation targeting in low-income countries. Our estimated results support the

argument of Goncalves and Carvalho (2008) only in high-income countries, where inflation targeting can be viewed as the policy measure attaining more credibility.

Concerning other controls, political stability (POLIT) does not affect the behavior related to the choice of inflation targeting for both high- and low-income countries. In sum, high-income or developed countries with high inflation under floats are more likely to adopt inflation targeting, while low-income or developing countries with large public debts are less likely to adopt inflation targeting. Our results derived from the probit analysis over the two sub-samples suggest that applying the arguments of Hu (2006) and Goncalves and Carvalho (2008) to all countries uniformly might lead to the misunderstanding of real determinants of inflation targeting.

2.4 Alternative methods for robustness check

The probit analysis in the previous subsections has clearly investigated a country's decision to choose inflation targeting. However, it should be noted that our probit estimations may suffer from one important shortage. The probit model has assumed that monetary authority decides whether or not to adopt inflation targeting with exchange rate arrangement as exogenously given. However, exchange rate arrangements might not be a precondition of the adoption of inflation targeting, i.e., monetary authority makes the choice of inflation targeting and exchange rate regimes simultaneously. To incorporate this feature into our analysis, we apply two alternative methods, multinomial logit and bivariate probit models, and check the robustness of our results derived from the probit analysis in the previous subsections.

2.4.1 Multinomial logit regressions

In this subsection, we apply multinomial logit model of categorical independent variables capturing the simultaneous choice of inflation targeting and exchange rate regimes for the same cross-sectional data used in the previous subsections. To discuss determinants of the choice, we estimate the following empirical model:

$$IT\_ERR_i = \alpha_0 + \alpha_1 INF_i + \alpha_2 POLIT_i + \alpha_3 RGDPPC_i + \alpha_4 DEBT_i + u_i,$$

where the categorical variable, IT_ERR_i, is the simultaneous choice of both inflation targeting and exchange rate regime; INF_i is inflation rate; $POLIT_i$ is the political risk measure; $RGDPPC_i$ is the income level; $DEBT_i$ is the fiscal status; and u_i is the error term with standard properties. All independent variables are the average level of the corresponding variables over the periods prior to the adoption of inflation targeting, as in the previous subsections. To construct the categorical variable (IT_ERR_i), we use the information about whether or not to adopt inflation targeting (IT_i) and the choice of exchange rate regime, either floats or pegs, at the timing of the adoption of inflation targeting.

One difficulty is that we need to identify which exchange rate regime each country adopted at the timing of the adoption of inflation targeting (the adoption year 2000 for non-inflation targeting countries). Since exchange rate arrangements are often changed in some countries, we use the three-year average of the measure of exchange rate arrangements after the adoption year as its approximation. To do so, we first generate the binary choice variables of exchange rate arrangements, i.e., floats or pegs, using the de jure IMF classification and the de facto Reinhart and Rogoff's (2004) classification, which are represented by the rank from 1 to 5.

We compute the three-year averages of each measure of the two exchange rate regimes after the adoption year (ERR_IMF3 and ERR_RR3). The larger average values,

ERR_IMF3 and ERR_RR3, imply more floats, i.e., more flexibility of exchange rate regimes, after the adoption year. Then we compute the dummy variable (ERR_IMF4) which equals one if ERR_IMF3 ≥ 3 and zero if ERR_IMF3 < 3, and the dummy variable (ERR_RR4) which equals one if ERR_RR3 ≥ 3 and zero if ERR_RR3 < 3. In terms of de jure and de facto exchange rate arrangements, ERR_IMF4 $= 1$ and ERR_RR4 $= 1$ suggest that after the adoption year, the countries have adopted floats, while ERR_IMF4 $= 0$ and ERR_RR4 $= 0$ suggest that the countries have adopted pegs. By using the two binary variables, the adoptions of inflation targeting (IT) and exchange rate regimes (ERR_IMF4 and ERR_RR4), we create the categorical variable (IT_ERR) as the simultaneous choice of both inflation targeting and exchange rate regime, which takes unity if the country adopts inflation targeting and floats, 2 if it adopts inflation targeting and pegs, 3 if it does not adopt inflation targeting but floats, and 4 if it does not adopt inflation targeting but pegs. In our estimations we use the category of non-inflation targeting under pegs (IT_ERR $= 4$) as the baseline of the dependent variable.

Table 8 presents the number of countries in each of the four groups (inflation targeting with pegs, inflation targeting with floats, non-inflation targeting with pegs, and non-inflation targeting with floats). Notice that the classification of exchange rate arrangements is based on the three-year averages of the measures of de jure and de facto exchange rate arrangements after the adoption year. The result is similar to that in Table 5, where the classification of exchange rate arrangements is based on the five-year averages before the adoption year. All inflation targeting countries except one country (Romania) de jure adopted floats after the adoption year, while around half of inflation targeting countries de facto adopted pegs. In contrast to the group of inflation targeting

countries, many of non-inflation targeting countries have de jure and de facto adopted pegs before the adoption year.

Tables 9 and 10 present estimated results of the multinomial logit models over the full sample and the sub-samples of high- and low-income groups, based on de jure and de facto exchange rate arrangements, respectively. It should be noted that only one country is classified into the adoption of inflation with pegs under the de jure classification. Thus, we exclude this country from our sample, so that the categorical variable in Table 9 takes only three values, one of which is the baseline category. In general, the results of the multinomial logit models are consistent with our findings from the probit models.

Concerning how fiscal status affects the choice of inflation targeting, for the low-income group, the coefficients on DEBT in the columns associated with the adoption of inflation targeting are significantly negative, irrespective of the choice of exchange rate regimes (floats or pegs), under both of the de jure and de facto classifications. On the other hand, for the high-income group, the coefficients on DEBT are insignificant under both of the de jure and de facto classifications. These results also provide the clear evidence that a sound fiscal position would encourage only low-income countries, not high-income countries, to adopt inflation targeting, as in the results from our probit analysis.

Moreover, Tables 9 and 10 also report that for the high-income group, the coefficients on INF in the columns associated with the adoption of inflation targeting are significantly positive, irrespective of the choice of exchange rate regimes, under both of the de jure and de facto classifications. On the other hand, for the low-income group, the coefficients on INF are insignificant under both of the de jure and de facto

classifications. These results also support our previous findings of the probit analysis that the high level of past inflation could push high-income countries to move towards inflation targeting, i.e., high-income countries, not low-income countries, are likely to sustain the credibility of their monetary policy by adopting inflation targeting.

2.4.2 Bivariate probit regressions

This subsection applies another alternative model, bivariate probit models, for the robustness check of the results derived from the probit and multinomial logit analysis in the previous subsections. The bivariate probit model is a generalization of the probit model to estimate two correlated binary outcomes jointly. Since it seems that the decision of the adoption of inflation targeting is correlated with the choice of exchange rate regimes, the bivariate probit model can be appropriate for jointly examining these two choices. Our bivariate probit model has the following simultaneous equations (IT and ER equations):

$$IT_i = \gamma_0 + \gamma_1 INF_i + \gamma_2 POLIT_i + \gamma_3 RGDPPC_i + \gamma_4 DEBT_i + \omega_i,$$

$$ER_i = \eta_0 + \eta_1 INF_i + \eta_2 POLIT_i + \eta_3 RGDPPC_i + \eta_4 DEBT_i + \upsilon_i,$$

where IT_i and ER_i are the binary choices of inflation targeting and exchange rate regime, respectively; and ω_i and υ_i are the error terms with standard properties. The binary choices of de jure and de facto exchange rate regimes (ERR_IMF4 and ERR_RR4) are based on the three-year average of the measures of the corresponding exchange rate regimes. All independent variables are the average level of the corresponding variables over the periods prior to the adoption of inflation targeting, as in the previous subsections.

Tables 11 and 12 present estimated results of the bivariate probit models over the full sample and the sub-samples of high- and low-income groups, based on de jure and de facto exchange rate arrangements, respectively. Similar to the results of the multinomial logit analysis, the bivariate probit models also show the clear results that are consistent with the findings of our simple probit models. Irrespective of the de jure and de facto classifications, the coefficients on DEBT for the low-income group are significantly negative in the IT and ER equations, while those for the high-income group are insignificant. Moreover, irrespective of the de jure and de facto classifications, the coefficients on INF for the high-income group are significantly positive in the IT and ER equations, while those for the low-income group are insignificant. A sound fiscal position would encourage low-income countries to adopt inflation targeting with floats, and the higher inflation would encourage high-income countries to adopt inflation targeting with floats. These results provide an additional evidence to confirm the findings of our probit analysis.

The novelty in this study is that our empirical analysis, with the division of our sample into high- and low-income groups, could provide vital monetary policy guidance for developing and developed countries, as the choice of appropriate monetary policy framework, including exchange rate regimes, is one of the most important agendas for monetary authority. In sum, our empirical analysis has presented four main results. First of all, the choice of the adoption of inflation targeting highly depends on a country's development stage. Second, high-income countries that do not have an exchange rate nominal anchor under floats tend to shift their monetary system toward inflation targeting. Third, high-income countries are more sensitive to inflation, and the high inflation would encourage high-income countries to adopt inflation targeting and to

sustain the credibility of their monetary policy. Fourth, low-income countries with a sound fiscal position would be encouraged to adopt inflation targeting. Emerging economies with large public debts might not adopt inflation targeting since they have incentives to reduce the real value of public debts through inflation.

3 Conclusion

Inflation targeting is a monetary policy framework used by monetary authorities to maintain prices or inflation rates at a target level or within a specific range by controlling policy rate and other monetary policy measures. The adoption of inflation targeting can be seen in not only developed countries but also emerging or developing countries. This study has investigated the difference in a country's motivation of inflation targeting between developed and developing countries by empirically identifying how economic and institutional factors encourage a country to choose inflation targeting.

The empirical results have shown clear evidence supporting that the determinants of inflation targeting depends on the development stage. Developed countries with high inflation are likely to adopt inflation targeting to keep or enhance anti-inflation credibility. Moreover, inflation targeting could be considered as a natural option for developed countries which adopt more floats with the absence of nominal exchange rate anchor. Furthermore, developing countries with large size of public debts would have a motivation to reduce the real value of public debts through inflation, so that they are not likely to adopt inflation targeting.

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Table 1: List of inflation targeting countries

	Country	Adoption year	Real GDP per capita	Exchange rate regime de facto	de jure
1	Albania	2009	2,620.82	float	float
2	Armenia	2006	1,625.40	peg	float
3	Australia	1993	33,947.56	float	float
4	Canada	1991	35,087.89	peg	float
5	Colombia	1999	3,392.92	float	float
6	Czech Republic	1997	12,705.61	peg	float
7	Ghana	2007	501.86	peg	float
8	Guatemala	2005	2,146.18	peg	float
9	Hungary	2001	10,936.95	peg	float
10	Iceland	2001	54,885.26	float	float
11	Indonesia	2005	1,273.47	float	float
12	Korea, Rep.	2001	17,550.85	float	float
13	Mexico	2001	7,666.70	float	float
14	New Zealand	1990	27,357.86	float	float
15	Norway	2001	65,767.02	float	float
16	Peru	2002	2,863.48	peg	float
17	Philippines	2002	1,200.94	peg	float
18	Poland	1998	7,963.02	float	float
19	Romania	2005	4,572.05	float	peg
20	Switzerland	2000	51,734.30	float	float
21	Thailand	2000	2,689.95	float	float
22	Turkey	2006	7,129.58	float	float
23	United Kingdom	1992	38,121.56	peg	float

Notes: (1) Real GDP per capita is in constant price of 2005. (2) De jure and de facto exchange rate regimes represent the IMF and Reinhart and Rogoff's (2004) classifications of exchange rate arrangements. The country's regime is regarded as floats if the five-year average during the pre-IT period is from 3 to 5, and it is regarded as pegs if the five-year average during the pre-IT period is less than 3.

Table 2: List of non-inflation targeting countries

	Country	Real GDP per capita	Exchange rate regime de facto	de jure
1	Algeria	3,013.44	peg	float
2	Argentina	4,740.07	peg	peg
3	Austria	37,067.32	peg	peg
4	Bahamas, The	23,416.90	peg	-
5	Bahrain	15,303.78	peg	-
6	Belgium	36,011.47	peg	peg
7	Botswana	5,467.27	peg	peg
8	Brunei Darussalam	25,913.58	peg	-
9	Congo, Rep.	1,718.10	peg	peg
10	Cote d Ivoire	940.75	peg	peg
11	Cyprus	22,430.61	peg	float
12	Denmark	47,546.59	peg	peg
13	Dominican Republic	3,639.38	peg	float
14	El Salvador	2,814.94	peg	peg
15	Estonia	10,330.28	peg	peg
16	Ethiopia	161.57	peg	-
17	Finland	37,318.80	peg	peg
18	France	33,818.97	peg	peg
19	Gabon	6,281.95	peg	peg
20	Germany	33,542.78	peg	peg
21	Greece	21,620.72	peg	peg
22	Guyana	1,084.18	peg	float
23	Haiti	448.58	float	float
24	India	740.12	peg	float
25	Iran, Islamic Rep.	2,737.11	float	peg
26	Italy	30,478.85	peg	peg
27	Japan	35,781.23	float	float
28	Jordan	2,326.50	peg	peg
29	Kenya	523.61	peg	float
30	Kuwait	35,185.93	peg	peg
31	Latvia	6,973.16	float	peg
32	Libya	7,864.94	-	peg
33	Luxembourg	80,925.22	peg	peg
34	Madagascar	275.48	float	float
35	Malaysia	5,553.94	peg	peg
36	Malta	14,809.93	float	peg
37	Moldova	831.16	peg	float
38	Morocco	1,948.20	peg	peg
39	Mozambique	313.11	peg	-
40	Netherlands	39,122.29	peg	peg
41	Niger	258.28	peg	peg
42	Pakistan	693.80	peg	float
43	Panama	4,594.48	peg	peg
44	Paraguay	1,479.40	float	float
45	Portugal	18,185.62	peg	peg
46	Russian Federation	5,337.07	peg	float
47	Saudi Arabia	13,303.31	peg	peg
48	Singapore	28,952.81	float	-
49	Slovak Republic	11,384.53	peg	float
50	Slovenia	17,854.64	peg	float
51	Spain	26,056.39	peg	peg
52	Sudan	669.40	peg	-
53	Suriname	3,590.54	float	float
54	Syrian Arab Republic	1,588.51	float	peg
55	Trinidad and Tobago	12,405.06	peg	-
56	Tunisia	3,218.96	peg	float
57	Uganda	313.80	float	float
58	Ukraine	1,828.72	peg	float
59	United States	42,516.39	float	float

Notes: (1) Real GDP per capita is in constant price of 2005. (2) De jure and de facto exchange rate regimes represent the IMF and Reinhart and Rogoff's (2004) classifications of exchange rate arrangements. The country's regime is regarded as floats if the five-year average during the pre-IT period is from 3 to 5, and it is regarded as pegs if the five-year average during the pre-IT period is less than 3. (3) The adoption year is assumed to be 2000 for all non-inflation targeting countries.

Table 3: Summary of statistics

Variable	No of obs.	Mean	Std. Dev.	Min	Max
Full sample					
DIT	82	0.280	0.452	0	1
ERR_IMF1	74	2.610	1.092	1	4
ERR_RR1	82	2.194	1.018	1	5
ERR_IMF2	74	0.486	0.503	0	1
ERR_RR2	82	0.317	0.468	0	1
ERR_IMF3	73	2.402	1.253	1	4
ERR_RR3	79	1.983	0.885	1	4
ERR_IMF4	73	0.534	0.502	0	1
ERR_RR4	79	0.241	0.430	0	1
INF	82	0.086	0.106	0.005	0.521
POLIT	82	70.443	11.774	30.600	90.600
RGDPPC	82	8.507	1.574	4.889	11.022
DEBT	82	62.243	41.033	0	238.216
Inflation targeting countries (DIT = 1)					
ERR_IMF1	23	3.337	0.760	1	4
ERR_RR1	23	2.643	0.670	1.8	4.4
ERR_IMF2	23	0.783	0.422	0	1
ERR_RR2	23	0.478	0.511	0	1
ERR_IMF3	22	3.485	0.703	1	4
ERR_RR3	22	2.667	0.675	1	4
ERR_IMF4	22	0.955	0.213	0	1
ERR_RR4	22	0.591	0.503	0	1
INF	23	0.094	0.074	0.008	0.246
POLIT	23	71.883	11.072	48	88.6
RGDPPC	23	8.756	1.359	6.191	10.969
DEBT	23	43.600	18.541	12.960	72.194
Non-inflation targeting countries (DIT = 0)					
ERR_IMF1	51	2.282	1.064	1	4
ERR_RR1	59	2.019	1.072	1	5
ERR_IMF2	51	0.353	0.483	0	1
ERR_RR2	59	0.254	0.439	0	1
ERR_IMF3	51	1.935	1.147	1	4
ERR_RR3	57	1.719	0.816	1	4
ERR_IMF4	51	0.353	0.483	0	1
ERR_RR4	57	0.105	0.310	0	1
INF	59	0.082	0.116	0.004	0.521
POLIT	59	69.881	12.081	30.6	90.6
RGDPPC	59	8.411	1.650	4.889	11.022
DEBT	59	69.510	45.049	0	238.216

Table 4: Correlation matrix

Variable	DIT	ERR_ IMF1	ERR_ RR1	ERR_ IMF2	ERR_ RR2	ERR_ IMF3	ERR_ RR3	ERR_ IMF4	ERR_ RR4	INF	POLIT	RGDPPC	DEBT
DIT	1.000												
ERR_IMF1	0.558	1.000											
ERR_RR1	0.365	0.583	1.000										
ERR_IMF2	0.552	0.887	0.572	1.000									
ERR_RR2	0.215	0.296	0.839	0.290	1.000								
ERR_IMF3	0.685	0.869	0.616	0.896	0.363	1.000							
ERR_RR3	0.542	0.7078	0.8236	0.7371	0.6123	0.8163	1.000						
ERR_IMF4	0.628	0.807	0.516	0.855	0.261	0.953	0.740	1.000					
ERR_RR4	0.508	0.500	0.588	0.468	0.553	0.607	0.809	0.554	1.000				
INF	0.298	0.295	0.345	0.364	0.334	0.328	0.308	0.328	0.184	1.000			
POLIT	0.036	-0.111	-0.024	-0.331	0.058	-0.193	-0.056	-0.259	0.192	-0.511	1.000		
RGDPPC	0.040	-0.182	-0.071	-0.366	0.071	-0.192	-0.073	-0.248	0.256	-0.501	0.831	1.000	
DEBT	-0.352	-0.165	-0.282	-0.191	-0.247	-0.264	-0.284	-0.227	-0.251	-0.255	-0.034	-0.015	1.000

Table 5: Inflation targeting and exchange rate regimes during the pre-IT period

	IMF de jure classification		Reinhart and Rogoff's (2004) de facto classification	
	pegs	floats	pegs	floats
Inflation targeting	5	18	12	11
Non-inflation targeting	40	11	50	9

Note: (1) De jure exchange rate regime represents the IMF classifications of exchange rate arrangement. (2) The country's regime is regarded as floats if the five-year average during the pre-IT period is from 3 to 5, and it is regarded as pegs if the five-year average during the pre-IT period is less than 3. (3) The adoption year is assumed to be 2000 for all non-inflation targeting countries

Table 6: Choice of inflation targeting (full sample)

	A		B		C		D	
	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
ERR_IMF1	0.936***	0.246	-	-	-		-	-
	(0.219)							
ERR_IMF2	-	-	1.508***	0.439	-		-	-
			(0.416)					
ERR_RR1	-	-	-	-	0.519***	0.153	-	-
					(0.177)			
ERR_RR2	-	-	-	-	-	-	0.589*	0.194
							(0.351)	
INF	0.050	0.013	-0.579	-0.174	-1.961	-0.579	-0.200	-0.062
	(1.634)		(1.783)		(1.925)		(1.712)	
POLIT	-0.012	-0.003	0.004	0.001	0.004	0.001	0.002	0.001
	(0.031)		(0.027)		(0.025)		(0.024)	
RGDPPC	0.287	0.075	0.187	0.056	-0.004	-0.001	0.016	0.005
	(0.222)		(0.200)		(0.172)		(0.172)	
DEBT	-0.023***	-0.006	-0.019***	-0.006	-0.015***	-0.004	-0.014***	-0.004
	(0.006)		(0.006)		(0.005)		(0.004)	
Constant	-3.601**	-	-2.152	-	-1.063	-	-0.282	-
	(1.793)		(1.480)		(1.416)		(1.358)	
Pseudo R-squared	0.338		0.273		0.161		0.122	
No. of IT countries	23		23		23		23	
No. of obs	74		74		82		82	

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) ERR_IMF1 and ERR_RR1 represent the five-year averages of the IMF de jure and Reinhart and Rogoff's (2004) classifications of exchange rate regimes during the adoption year, respectively. ERR_IMF2 is a dummy variable that takes 1 if ERR_IMF1 is from 3 to 5, and 0 otherwise. ERR_RR2 is a dummy variable that takes 1 if ERR_RR1 is from 3 to 5, and 0 otherwise.

Table 7: Choice of inflation targeting (high- and low-income countries)

	High income								Low income							
	A		B		C		D		E		F		G		H	
	Coef.	M.Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
ERR_IMF1	0.958*** (0.354)	0.282	-	-	-	-	-	-	0.819** (0.365)	0.187	-	-	-	-	-	-
ERR_IMF2	-	-	2.457*** (0.868)	0.720	-	-	-	-	-	-	0.847 (0.685)	0.204	-	-	-	-
ERR_RR1	-	-	-	-	0.698** (0.316)	0.197	-	-	-	-	-	-	0.459 (0.460)	0.105	-	-
ERR_RR2	-	-	-	-	-	-	0.871 (0.560)	0.299	-	-	-	-	-	-	0.611 (0.662)	0.160
INF	32.044*** (11.331)	9.421	32.347*** (11.298)	8.707	41.901*** (12.868)	11.842	44.020*** (12.058)	14.249	-3.050 (1.887)	-0.698	-3.311 (2.048)	-0.881	-5.854 (3.960)	-1.340	-4.585 (2.966)	-1.067
POLIT	0.006 (0.055)	0.002	0.105 (0.072)	0.028	-0.012 (0.046)	-0.003	-0.031 (0.045)	-0.010	-0.037 (0.037)	-0.009	-0.037 (0.038)	-0.010	-0.045 (0.035)	-0.010	-0.045 (0.035)	-0.010
RGDPPC	1.398* (0.768)	0.410	0.787 (0.892)	0.212	2.273*** (0.806)	0.642	2.512*** (0.797)	0.813	0.603 (0.509)	0.138	0.379 (0.381)	0.101	0.262 (0.397)	0.060	0.208 (0.379)	0.048
DEBT	-0.023** (0.010)	-0.007	-0.018* (0.010)	-0.005	-0.012 (0.010)	-0.003	-0.009 (0.009)	-0.003	-0.015* (0.008)	-0.003	-0.017** (0.008)	-0.005	-0.018*** (0.007)	-0.004	-0.020*** (0.007)	-0.005
Constant	-17.858*** (6.913)	-	-18.526** (7.803)	-	-25.191*** (7.326)	-	-24.909*** (7.054)	-	-3.977 (4.491)	-	-0.276 (3.242)	-	0.857 (3.316)	-	2.083 (2.870)	-
Pseudo R-squared	0.602		0.627		0.544		0.488		0.304		0.234		0.248		0.244	
# of IT countries	13		13		13		13		10		10		10		10	
# of observations	37		37		43		42		37		37		40		40	

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) The high income group consists of countries whose real GDP per capita in 2005 is higher than 6,000 US dollar, and the low income group consists of countries whose real GDP per capita in 2005 is less than 6,000 US dollar; (4) ERR_IMF1 and ERR_RR1 represent the five-year averages of the IMF de jure and Reinhart and Rogoff's (2004) classifications of exchange rate regimes during the adoption year, respectively. ERR_IMF2 is a dummy variable that takes 1 if ERR_IMF1 is from 3 to 5, and 0 otherwise. ERR_RR2 is a dummy variable that takes 1 if ERR_RR1 is from 3 to 5, and 0 otherwise.

Table 8: Inflation targeting and exchange rate regimes during the post-IT period

	IMF de jure classification		Reinhart and Rogoff's (2004) de facto classification	
	pegs	floats	pegs	floats
Inflation targeting	1	21	9	13
Non-inflation targeting	33	18	51	6

Note: (1) De jure exchange rate regime represents Reinhart and Rogoff's (2004) classifications of exchange rate arrangement. (2) The country's regime is regarded as floats if the three-year average during the post-IT period is from 3 to 5, and it is regarded as pegs if the three-year average during the post-IT period is less than 3. (3) The adoption year is assumed to be 2000 for all non-inflation targeting countries

Table 9: Choice of inflation targeting and de jure exchange rate regime

	Full sample				High income				Low income			
Inflation targeting	yes		no		yes		no		yes		no	
Exchange rate regime	floats		floats		floats		floats		floats		floats	
	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
INF	4.033	0.450	5.488	0.724	68.301**	13.735	15.392	-1.472	-6.562	-1.109	3.654	1.335
	(5.745)		(6.003)		(30.558)		(18.649)		(6.647)		(4.809)	
POLIT	-0.024	-0.005	-0.001	-0.001	-0.052	-0.014	0.045	0.009	-0.174*	-0.016	-0.108	-0.014
	(0.047)		(0.042)		(0.089)		(0.079)		(0.093)		(0.101)	
RGDPPC	0.152	0.062	-0.485	-0.097	3.901**	0.824	0.146	-0.190	-0.701	-0.001	-1.362*	-0.287
	(0.344)		(0.318)		(1.850)		(1.352)		(0.875)		(0.779)	
DEBT	-0.025***	-0.005	-0.006	0.001	-0.020	-0.004	0.001	0.001	-0.047***	-0.005	-0.016	-0.001
	(0.009)		(0.008)		(0.026)		(0.018)		(0.015)		(0.011)	
Constant	1.012	-	3.375	-	-37.457**	-	-6.985	-	19.014**	-	17.394*	-
	(2.700)		(2.621)		(16.834)		(9.379)		(9.184)		(10.500)	
Pseudo R-squared	0.127				0.292				0.270			
# of obs.	72				37				35			

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) The high income group consists of countries whose real GDP per capita in 2005 is higher than 6,000 US dollar, and the low income group consists of countries whose real GDP per capita in 2005 is less than 6,000 US dollar; (4) Exchange rate regime is based on the three-year average of the IMF de jure classification from the year of the inflation targeting policy adoption for inflation targeting countries and from the adoption year 2000 for non-inflation targeting countries; (5) The baseline category of the multinomial logit models is the non-inflation targeting with pegs; (6) Romania is excluded from the observation.

Table 10: Choice of inflation targeting and de facto exchange rate regime

	Full sample						High income						Low income					
Inflation targeting Exchange rate regime	yes floats		yes pegs		no floats		yes floats		yes pegs		no floats		yes floats		yes pegs		no floats	
	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
INF	4.636 (3.309)	0.492	-2.303 (3.668)	-0.232	-0.970 (2.338)	-0.095	80.955** (37.962)	8.132	49.438** (22.786)	3.957	-113.390 (124.720)	-0.078	-2.162 (3.553)	-0.053	-11.473 (11.813)	-0.540	1.699 (3.582)	0.084
POLIT	-0.057 (0.057)	-0.006	0.047 (0.063)	0.004	0.035 (0.065)	0.003	-0.113 (0.107)	-0.013	0.033 (0.109)	0.005	0.259 (0.173)	0.001	-0.188** (0.092)	-0.006	-0.063 (0.102)	-0.003	-0.058 (0.098)	-0.002
RGDPPC	0.871* (0.461)	0.094	-0.544 (0.417)	-0.052	-0.228 (0.372)	-0.020	5.492* (2.832)	0.573	1.851 (1.848)	0.112	-1.128 (3.109)	-0.001	1.383 (0.890)	0.048	-0.878 (0.978)	-0.040	-1.794** (0.815)	-0.064
DEBT	-0.023** (0.010)	-0.002	-0.026** (0.012)	-0.002	0.002 (0.012)	0.001	-0.019 (0.022)	-0.002	-0.005 (0.020)	-0.001	0.038 (0.024)	0.001	-0.046** (0.018)	-0.001	-0.058** (0.023)	-0.003	-0.051 (0.039)	-0.002
Constant	-4.247 (3.619)	-	1.043 (3.625)	-	-2.776 (4.535)	-	-50.104* (26.406)	-	-24.954* (13.382)	-	-12.533 (20.196)	-	2.053 (6.487)	-	12.820* (7.206)	-	16.543 (10.111)	-
Pseudo R-squared # of obs.	0.095 79						0.384 41						0.258 38					

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) The high income group consists of countries whose real GDP per capita in 2005 is higher than 6,000 US dollar, and the low income group consists of countries whose real GDP per capita in 2005 is less than 6,000 US dollar; (4) Exchange rate regime is based on the three-year average of Reinhar and Rogoff's (2004) de facto classification from the year of the inflation targeting policy adoption for inflation targeting countries and from the adoption year 2000 for non-inflation targeting countries; (5) The baseline category of the multinomial logit models is the non-inflation targeting with pegs.

Table 11: Choice of inflation targeting and de jure exchange rate regime

	Full sample				High-income				Low-income			
	Inflation targeting		Exchange rate regime		Inflation targeting		Exchange rate regime		Inflation targeting		Exchange rate regime	
	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
INF	1.320	0.426	1.311	0.522	39.297**	14.100	27.374**	10.892	-1.805	-0.475	0.746	0.289
	(1.740)		(1.617)		(15.402)		(11.035)		(1.905)		(1.997)	
POLIT	-0.010	-0.003	-0.004	-0.002	-0.062	-0.022	-0.004	-0.002	-0.045	-0.012	-0.062	-0.024
	(0.025)		(0.022)		(0.050)		(0.042)		(0.036)		(0.040)	
RGDPPC	0.123	0.040	-0.131	-0.052	2.494**	0.895	1.363**	0.543	0.169	0.044	-0.608*	-0.235
	(0.168)		(0.155)		(1.073)		(0.647)		(0.350)		(0.331)	
DEBT	-0.017***	-0.005	-0.007**	-0.003	-0.014	-0.005	-0.006	-0.002	-0.019***	-0.005	-0.013**	-0.005
	(0.005)		(0.004)		(0.011)		(0.010)		(0.007)		(0.005)	
Constant	-0.068	-	1.855	-	-21.475**	-	-14.176**	-	2.151	-	9.323**	-
	(1.256)		(1.190)		(8.991)		(5.677)		(2.621)		(3.940)	
Rho	0.882				1.000				0.679			
# of obs.	73				37				36			

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) The high income group consists of countries whose real GDP per capita in 2005 is higher than 6,000 US dollar, and the low income group consists of countries whose real GDP per capita in 2005 is less than 6,000 US dollar; (4) The dummy variable of exchange rate regime is based on the three-year average of the IMF de jure classification from the year of the inflation targeting policy adoption for inflation targeting countries and from the adoption year 2000 for non-inflation targeting countries.

Table 12: Choice of inflation targeting and de facto exchange rate regime

	Full sample				High-income				Low-income			
	Inflation targeting		Exchange rate regime		Inflation targeting		Exchange rate regime		Inflation targeting		Exchange rate regime	
	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect	Coef.	M. Effect
INF	1.155	0.363	1.572	0.480	46.901***	16.783	21.139***	6.409	-2.870	-0.660	0.421	0.089
	(1.703)		(1.527)		(11.902)		(7.277)		(2.261)		(1.554)	
POLIT	-0.001	-0.001	-0.007	-0.002	-0.038	-0.014	-0.014	-0.004	-0.052	-0.012	-0.053	-0.011
	(0.026)		(0.024)		(0.041)		(0.044)		(0.037)		(0.035)	
RGDPPC	0.068	0.021	0.166	0.051	2.516***	0.900	1.777**	0.539	0.065	0.015	-0.207	-0.044
	(0.177)		(0.171)		(0.763)		(0.788)		(0.353)		(0.295)	
DEBT	-0.014***	-0.004	-0.005	-0.001	-0.004	-0.001	0.002	0.001	-0.022***	-0.005	-0.018**	-0.004
	(0.004)		(0.004)		(0.009)		(0.009)		(0.008)		(0.008)	
Constant	-0.470	-	-1.521	-	-24.423***	-	-18.262***	-	3.594	-	4.848*	-
	(1.308)		(1.314)		(7.268)		(6.490)		(2.815)		(2.612)	
Rho	0.743				0.948				0.525			
# of obs.	79				41				38			

Notes: (1) ***, **, and * indicate significance at 1%, 5% and 10% levels, respectively; (2) Robust standard errors are in parentheses; (3) The high income group consists of countries whose real GDP per capita in 2005 is higher than 6,000 US dollar, and the low income group consists of countries whose real GDP per capita in 2005 is less than 6,000 US dollar; (4) The dummy variable of exchange rate regime is based on the three-year average of Reinhart and Rogoff's (2004) de facto classification from the year of the inflation targeting policy adoption for inflation targeting countries and from the adoption year 2000 for non-inflation targeting countries.