

The Impact of Fixed Exchange Rates on Fiscal Discipline

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Abstract: In this paper, it is shown that, contrary to standard arguments, fiscal discipline is not substantially enhanced by a fixed exchange rate regime. This study is based on data from 116 countries from 1975 to 2004 and uses various estimation techniques for dynamic panel data, particularly a GMM estimation in the tradition of Arellano and Bond (1991). Contrary to older papers on this topic, the present paper takes into account that the consequences of a new exchange rate regime do not necessarily fully manifest immediately.

JEL: E63, F31, O24

1. Introduction

One of the essential arguments in support of fixed exchange rate regimes, especially in developing and emerging economies, is that fixed exchange rates allegedly enhance discipline in fiscal and monetary policies.

Based on data from 116 countries from 1975 to 2004 and using various estimation techniques for dynamic panel data, particularly a GMM estimation in the tradition of Arellano and Bond (1991), the present paper shows that fiscal discipline is at least not substantially enhanced by a fixed exchange rate regime. Contrary to older studies on this topic, the present paper takes into account that the consequences of a new exchange rate regime do not necessarily fully manifest immediately.

The paper is structured as follows: Section 2 reviews the current state of the discussion in the literature. Section 3 introduces the data used for estimation, focusing on the measurement of exchange rate regimes, which is based on the index developed by Reinhart and Rogoff (2004). Section 4 presents the employed methods and the basic econometric model that is tested in the present paper. The results and their interpretation are presented in section 5.

2. Literature review

The argument that political discipline is allegedly induced by fixed exchange rates has been discussed for several decades, and was critically discussed by Johnson (1969). The hope for enhanced discipline under a fixed exchange rate regime is founded in the idea that fixed exchange rates and excessive government spending are incompatible without resorting to unfavorable monetary policy. To avoid being punished for the collapse of the fixed exchange rate regime, politicians are expected to enact a policy that is compatible with the fixed exchange rate, i.e., to limit the budget deficit. This argument is mostly applied to developing countries that lack other efficient political control mechanisms (Aghevli, Montiel, Khan, 1991). However, it is sometimes also applied to industrialized nations, e.g., the member countries of the European Union in the EMS (Giavazzi, Pagano, 1988).

The majority of the relevant literature has focused on single aspects of this argument.

Cooper (1971), Edwards and Santaella (1993), and Frankel (2005) analyzed the political consequences of collapsing exchange rate regimes. They all found evidence for substantial political costs, ranging from the loss of political responsibility (Cooper, 1971; Frankel, 2005) to full-fledged political riots (Edwards and Santaella, 1993).

A further strand of the literature deals with the incompatibility of fixed exchange rates and lax fiscal policy and with the effects of fiscal policy on exchange rate movements. Especially noteworthy are the seminal papers of Krugman (1979) and Flood and Garber (1984) that formed the first generation of crisis models. Daniel (2000) showed that an increasing budget deficit causes an almost immediate collapse of a fixed exchange rate regime within the general equilibrium framework; however, this extreme result is barely supported by empirical evidence. Another analysis of the interaction of exchange rates and fiscal policy in the modern general equilibrium models is found in Annicchiarico (2002).

The most important argument against a positive impact of fixed exchange rates on fiscal discipline was brought forward in Johnson (1969): that although a fixed exchange rate regime with large budget deficits is indeed unsustainable in the long run, the fixed exchange rate regime helps to hide some negative consequences of expansive fiscal policy (e.g., the crowding out of exports following an appreciation of the domestic currency) in the short run. A formalized version of this argument is found in Tornell and Velasco (1995), for example.

Empirical evidence concerning the question of whether fixed exchange rates increase political discipline is still scarce. An analysis of the effects on monetary policy was conducted by De Grauwe and Schnabl (2004), who showed that fixed exchange rates have almost no impact on inflation.¹ The impact on fiscal discipline was analyzed by Tornell and Velasco (1995) in a brief study that was restricted to some African countries during the first half of the 1980s. One of the few attempts to use a broad set of panel data is found in Vuletin (2003). As in the present paper, Vuletin employed an Arellano-Bond estimator. However, he did not take into account that the impact of a new exchange rate regime does not necessarily manifest immediately. Thus, the transformation of the model in the first differences, as performed for the Arellano-Bond estimator, led to substantially flawed

¹ This contradicts most theoretical findings. Aizenman and Glick (2008), e.g., found that inflation can be reduced by fixed exchange rates but that regimes with the highest potential of reducing inflation with fixed exchange rates suffer the most during an exchange rate system collapse.

estimates, as will be shown in section III.

3. Data

(a) Exchange Rate Regimes

The dummy variables that are used to capture fixed exchange rate regimes are constructed based on the indicator developed by Reinhart and Rogoff (2004), which has most recently been updated by the authors (Reinhart, Rogoff, 2007). Like Levi-Yeyati and Sturzenegger (2005), Frankel (1998), and others, Reinhart and Rogoff emphasize the necessity of distinguishing the officially announced exchange rate regime and the factual exchange rate regime. Many countries that claim to have flexible exchange rates in fact intervene strongly in foreign exchange markets, while other countries that announce fixed exchange rates are not able to enforce the peg on the exchange market.

The advantage of the Reinhart/Rogoff-classification, in comparison to other classifications of “de jure” and “de facto” exchange rate regimes, is that they use data about parallel markets in addition to a five year moving average of exchange rate volatility to construct their index. This allows us to see whether a peg is truly binding for agents in the foreign exchange market and whether official attempts to peg the exchange rate can actually hinder an adaptation of the exchange rate according to market pressure.

For the present paper, I construct two dummy variables denoting “de jure” and “de facto” fixed (and very inflexible) exchange rate regimes, respectively, based on the more detailed classifications of Reinhart and Rogoff, who distinguish 16 types of exchange rate regimes. Each dummy has a value of 1 if the exchange rate is considered fixed and 0 otherwise. Following Reinhart and Rogoff, regimes are only classified as “de jure” pegs if the peg is truly enforced for some time. Although these regimes will be labeled “de jure” pegs in the remainder of the paper, they are more precisely “de jure” and “de facto” pegs at the same time. Announcements of a peg that have no actual impact are not considered “de jure” fixed. Thus, the “de jure” and “de facto” pegs only differ by the formal announcement, which is an additional condition for the former classification. Because this difference is

small, it is even more noteworthy that “de jure” and “de facto” pegs have substantially different impact on debt, as will be shown.

Table 1 summarizes the transformation of the Reinhart/Rogoff-indicator into the dummies used within the present paper. Countries which are classified as “freely falling” (15) by Reinhart and Rogoff in some years are not included in the sample in those years. If a peg has obviously failed, further consequences of the fixed exchange rate regime cannot be analyzed, even if the failure of the exchange rate system is a result of the fixed rate policy. At the same time, it is hardly legitimate to attribute the problems arising from failing fixed exchange rate regimes to flexible exchange rates.

Due to a lack of data, countries in category 16, i.e., those with missing data from parallel markets, are also excluded from the sample.

Table 1: Conversion of the Reinhart-Rogoff-classification of exchange rate regimes in dummy variables

| <i>Reinhart/Rogoff classification</i> | <i>Classification used in the present paper</i> | |
|---|---|------------------|
| | <i>„de facto“</i> | <i>„de jure“</i> |
| No separate legal tender | fix | fix |
| Pre announced peg or currency board arrangement | fix | fix |
| Pre announced horizontal band that is narrower than or equal to +/-2% | fix | fix |
| De facto peg | fix | flexible |
| Pre announced crawling peg | fix | fix |
| Pre announced crawling band that is narrower than or equal to +/-2% | fix | fix |
| De facto crawling peg | fix | flexible |
| De facto crawling band that is narrower than or equal to +/-2% | fix | flexible |
| Pre announced crawling band that is wider than or equal to +/-2% | fix | fix |
| De facto crawling band that is narrower than or equal to +/-5% | flexible | flexible |
| Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation over time) | flexible | flexible |
| Managed floating | flexible | flexible |
| Freely floating | flexible | flexible |
| Freely falling | - | - |
| Dual market in which parallel market data is missing. | - | . |

Exchange rate regimes are not further broken down by the time the systems persisted, as in Vuletin (2003). Since the ability to maintain a peg is obviously based on the compatibility

of the conducted policies, this classification of exchange rate regimes would lead to substantial endogeneity problems.

(b) Further variables

Fiscal discipline is captured by new indebtedness, measured by the change in the ratio of government debt to GDP. Income is given as the ratio of per capita income (in purchasing power parity) in that country to the highest per capita income in the relevant year. All macroeconomic data are taken from the world development indicators of the World Bank (2007) or are derived based on World Bank data.

The panel includes 116 countries. The observation period spans from 1975 to 2004. However, data is not available for all countries for all years. Data before 1975 is partly available, but it is not used for the analysis because fixed exchange rate regimes during the Bretton-Woods-era and during the collapse of the Bretton-Woods system did not necessarily have the consequences they have today.

On average, data is available for 21 years per country. There is data for at least 10 years for 105 of the 116 countries of the panel.

(c) Stationarity

For most of the methods employed for econometric analysis in the present paper, it is necessary that the variables of interest are stationary. Stationarity tests are therefore required for new debt, where the possibility of exploding, self-enforcing indebtedness has to be taken into account, and for relative income, which would not be stationary in the presence of substantial catching-up processes.

In the present paper, I use a stationarity test proposed by Maddala and Wu (1999) that is based on a test derived by Fisher (1932). Contrary to the more popular panel data stationarity test of Im, Pesaran and Shin (2003), the Fisher test is applicable to an unbalanced panel. Furthermore, Maddala and Wu (1999) showed that estimates of stationarity with a Fisher test are more precise than the estimates based on the Im-Pesaran-Shin test given the typical structure of economic datasets.

The Fisher test shows that for both, new debt and relative GDP per capita, the null

hypothesis of nonstationarity can be rejected at the 1% significance level.

The test statistics of the Fisher test are based on augmented Dickey-Fuller tests² for the separate time series of the panel. The results of these separate tests show that most of the individual time series are also stationary, with the exception of some very short time series within the panel.

Obviously, the fact that excessive government spending causes further expenses for interest payments does not cause the new debt to follow long lasting trends. Furthermore, there is no substantial catching up causing a non-stationarity of relative per capita GDP.

4. Model structure and methods

(a) Basic model structure

The basis model underlying the econometric analyses of the present paper is as follows:

$$\Delta D_{t,i} = \beta_0 + \beta_1 S_{t,i} + \beta_2 S_{t-1,i} + \beta_3 \Delta D_{t-1,i} + \beta_4 \hat{y}_{t,i} + \beta_5 \left(\frac{y}{y_{max\ i,t}} \right) + u_i + v_{i,t}$$

where D is the ratio of government debt to GDP (and ΔD analogously is the change of the debt to GDP ratio), which is used to measure fiscal discipline. S is the exchange rate system dummy denoting the presence of “de jure” or “de facto” pegs. y is (relative) real per capita income, and \hat{y} is the growth rate of real per capita income. The indices i and t represent the country and period of the observation, respectively. u is the country-specific error component, and v is the remaining stochastic error component.

Monetary policy (or inflation) is not taken into account as additional control variable, since it is highly related to the sustainability of the exchange rate system and would thus lead to substantial multicollinearity problems.

The model differs from the specification that is commonly found in the literature mainly by taking the lagged exchange rate system into account. This is necessary because most methods applicable to dynamic panel data use first differences instead of level variables. If

² Some authors have proposed replacing the Dickey-Fuller tests with Philips-Perron tests (1988). For the present data set, this does not change the results substantially.

only the present exchange rate regimes are considered, long-run effects of a new exchange rate system cannot be attributed correctly to the change in the system since only immediate effects are apparent in the differences.

The problems caused by only including the present exchange rate regime in the model specification are much less severe if estimation techniques based on the level variables are used. In a simple Least Square Dummy Variable (LSDV) estimation, the parameter estimate for the exchange rate system can (roughly) be interpreted as the average difference between new debt in a country under a fixed exchange rate regime and new debt in the same country under a flexible exchange rate regime. The new level of debt may not be reached immediately after a systemic change, however, since the impulse response function is misestimated when all relevant lagged exchange rate systems are not taken into account. However, the distortions are acceptable because most exchange rate systems exist for several years and the middle- to long-run effects are of primary interest for political questions.

This argument no longer holds if first difference estimators are used. The regression results are then driven only by the immediate impact of a changing exchange rate system. The long-run impacts are not determined correctly. To clarify this problem, the impulse response functions based on LSDV estimates and Arellano-Bond estimates, which include only the present exchange rate system or the present and the lagged exchange rate systems, are compared in section 5.

The reported results only include one lag of the exchange rate system dummy. Further lags have been tested and found to be insignificant.

(b) Methods

Since the results of LSDV estimations can be significantly biased when applied to dynamic panel data with unit specific effects (Nickell, 1981), the General Method of Moments estimator developed by Arellano and Bond (1991) has become the standard procedure for dealing with such data in the empirical literature.

However, Judson and Owen (1999) presented evidence from Monte-Carlo experiments that the Arellano-Bond estimator, which has been constructed with a short time dimension in

mind, is outperformed by the LSDV estimator for unbalanced panels of 30 years.

Thus, a LSDV estimate is legitimate for the data set used in the present paper. However, to assure methodical robustness, the econometric model is also estimated with several other methods, including the Arellano-Bond estimator and the Anderson-Hsiao estimator (Anderson, Hsiao, 1981).³

In GMM, the first difference of the lagged dependent variable is usually instrumented with all available further lags of the level of the dependent variable. Using the present panel, this would lead to a very large number of instruments. However, the power of the Sargan test (Sargan, 1959) of overidentifying restrictions, which is crucial for evaluating the estimation, diminishes with an increasing number of instruments. Since the highly lagged level variables are quite weak instruments, the results of an additional version of the Arellano-Bond estimation, where the number of instruments is limited to three periods per observation, are reported.

Because a fixed exchange rate regime might be implemented as a reaction to debt problems, a third version of the GMM results is reported where the exchange rate system dummy is considered a predetermined variable.

Since an Arellano-Bond test indicates autocorrelation of the error terms in the level equation in all specifications of the model, the level variables that are only lagged one further period are not legitimate instruments. Therefore, all GMM estimates are reported in a second version where variables from those periods are not used as instruments.⁴

In addition to the listed estimates, which are focused on the short-run impact of exchange rate regime changes, a fixed-effects vector decomposition (FEVD) (Plümper, Tröger, 2005) will be used to shed light on the long-run impact of fixed exchange rates. The sample is limited to countries that did not switch between the fixed and flexible exchange rate classifications during the entire time period covered in the sample. The fixed-effects vector

³ Anderson and Hsiao proposed to instrument the first difference of the lagged dependent variable with the level or the first difference of the dependent variable of a further lagged period. Although the most commonly employed version of their estimator in the literature employs the level variable as the instrument, based on a proposal of Arellano (1989), in the present paper the further lagged first difference is used as an instrument to guarantee a greater methodological difference from the Arellano-Bond estimator.

⁴ These estimations have been performed with the contribution to Stata presented in Roodman (2006) since the official Stata command does not allow the exclusion of specific instruments. Due to slight differences in the estimation techniques concerning the collinearity of instruments, the estimators differ marginally even if all instruments are identical.

decomposition allows us to divide the country-specific effects into unobserved effects and effects caused by the (also country-specific) exchange rate regime. Except for this difference, the FEVD estimator matches the LSDV estimator.

All estimations are performed for “de jure” and “de facto” pegs.

5. Results and interpretation

(a) Short-run effects of the “de jure” exchange rate system on debt

Tables 2 and 3 summarize the results of the estimations of the consequences of “de jure” fixed exchange rates.

Table 2: Estimation results for “de-jure” fixed exchange rate regimes (GMM-estimators w/o consideration of the autocorrelation problem)

| | LSDV | GMM (with all instruments) | GMM (max. 3 instruments) | GMM (max. 3 instruments, exchange rate regime predetermined) | Anderson-Hsiao |
|---|-------------|----------------------------|--------------------------|--|----------------|
| Exchange rate regime (in t) | -0.0784 *** | -0.0819 *** | -0.0840 *** | -0.2492 *** | -0.0903 *** |
| Exchange rate regime (in t-1) | 0.0700 *** | 0.0657 *** | 0.0730 *** | 0.2017 *** | 0.0774 *** |
| New debt (in t-1) | 0.1789 *** | 0.1492 *** | 0.1776 *** | 0.1678 *** | 0.1136 |
| Real growth (in t) | -0.6864 *** | -0.8167 *** | -0.7772 *** | -0.7551 *** | -0.8264 *** |
| Relative income (in t) | -0.0952 *** | -0.1953 *** | -0.1226 * | -0.0708 | -0.1911 |
| constant | 0.0954 *** | - | - | - | - |
| R ² | 0.1024 | - | - | - | - |
| Sargan-Test | | 0.00 | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 2 nd order autocorrelation of residuals | | 0.00 | 0.00 | 0.00 | - |
| Arellano-Bond-Test of 3 rd order autocorrelation of residuals | - | 0.64 | 0.63 | 0.52 | - |
| Dependent variable: new debt (in t) Exchange rate regime: de jure | | | | | |
| * Significant at the 10% level | | | | | |
| ** Significant at the 5% level | | | | | |
| *** Significant at the 1% level | | | | | |
| The results of the Sargan test and the Arellano-Bond test are reported as probability that the 0-Hypothesis can be dismissed. | | | | | |

While the details differ marginally, the basic results are mostly identical regardless of the chosen estimation method. The control variables have robust, significant impacts with the

expected sign. High growth rates and high income levels both reduce new debt. High new debt in a specific period usually is followed by another period of high debt. New debt seems to have a negative impact on future new debt only in the estimates where the instruments for lagged differenced new debt are limited to three periods and which exclude the second lag of the new debt due to the autocorrelation problem. This impact is insignificant, and this result is most likely due to the weakness of this limited set of instruments.

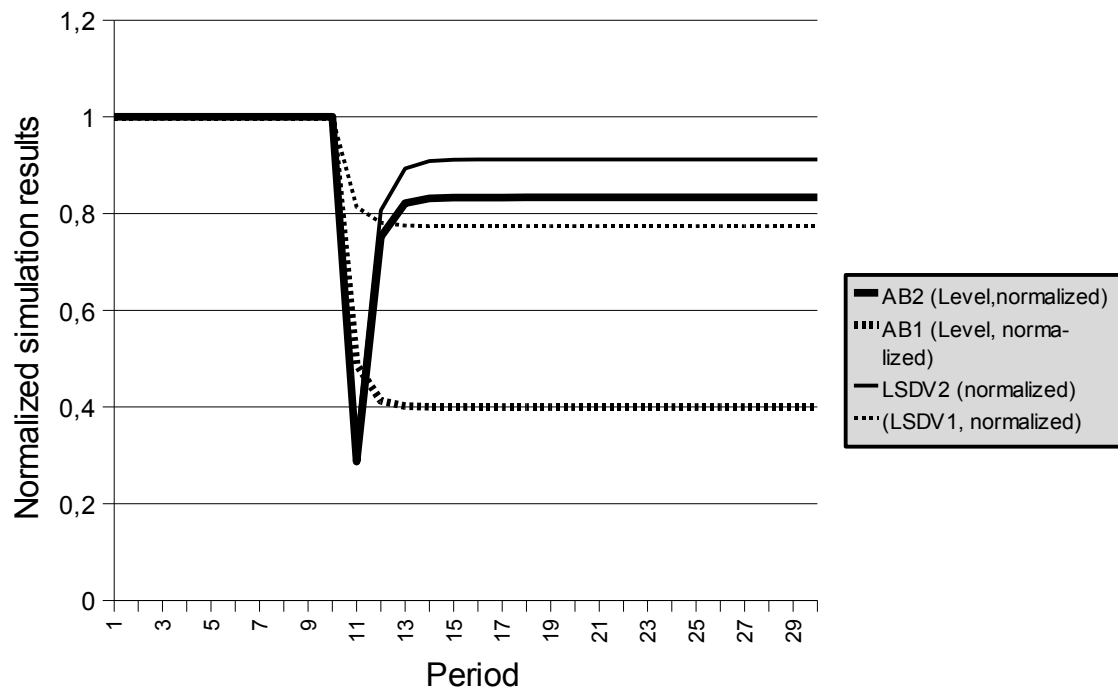
Table 3: Estimation results for “de-jure” fixed exchange rate regimes (GMM-estimators with considerations of the autocorrelation problem)

| | GMM (with all instruments) | GMM (max. 3 instruments) | GMM (max. 3 instruments, exchange rate regime predetermined) |
|--|----------------------------|--------------------------|--|
| Exchange rate regime (in t) | -0.0889 *** | -0.1005 *** | -0.4529 *** |
| Exchange rate regime (in t-1) | 0.0547 ** | 0.0536 ** | 0.3621 *** |
| New debt (in t-1) | 0.1060 *** | -0.0858 *** | -0.0424 |
| Real growth (in t) | -0.7557 *** | -0.6449 *** | -0.5758 *** |
| Relative income (in t) | -0.2153 *** | -0.2338 *** | -0.1556 *** |
| constant | - | - | |
| R ² | - | - | - |
| Sargan-Test | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 2 nd order autocorrelation of residuals | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 3 rd order autocorrelation of residuals | 0.56 | 0.26 | 0.17 |
| Dependent variable: new debt (in t) Exchange rate regime: de jure * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level The results of the Sargan test and the Arellano-Bond test are reported as probability that the 0-Hypothesis can be dismissed. | | | |

The implementation of a fixed exchange rate regime reduces new debt substantially. However, the lagged exchange rate system has a counteracting effect. That is, the improvement of fiscal discipline is not long lasting. Since the negative effect of the exchange rate regime is about the same size as the positive effect of the lagged exchange rate regime, the effect remaining in the long run is very small.

This specific development after a changing exchange rate regime causes biased results when the lagged exchange rate regime is omitted in the model specification. Figure 1 demonstrates this using the impulse response functions derived from the Arellano-Bond estimations and LSDV estimations with and without taking the lagged exchange rate regime into account.

Figure 1: Simulations of the impulse response functions based on regression results



AB2: Parameters given by a GMM estimation taking into account the present and the lagged exchange rate regime

AB1: Parameters given by a GMM estimation taking into account the present exchange rate regime

LSDV2: Parameters given by a LSDV estimation taking into account the present and the lagged exchange rate regime

LSDV1: Parameters given a LSDV estimation taking into account the present exchange rate regime

All impulse response functions are standardized to a new debt of 1 unit per period in a situation with flexible exchange rates.

It is clearly visible in the figure that the impulse response functions derived from the Arellano-Bond estimation and the LSDV estimation with the present and the lagged exchange rate system differ only marginally. A LSDV estimation that does not consider the

lagged exchange rate variable does not catch the transition period correctly, but the new level of debt is roughly the same as in the previously discussed estimates. However, if the GMM estimation without the lagged exchange rate system is used to create an impulse response function, the decline of new debt in the first year of a new exchange rate system is obviously mistaken as a permanent change. Thus, failing to consider the lagged exchange rate system dummy causes substantial biases when typical dynamic panel methods are employed.

(b) Short-run effects of the “de facto” exchange rate system on debt

Surprisingly, the results change substantially when the “de jure” exchange rate system dummy is replaced by the “de facto” exchange rate system dummy. This means that fixed exchange rates that are not officially announced are also considered to be pegs.

Tables 4 and 5 summarize the results. The results concerning the control variables do not change substantially. The noteworthy difference between these and the above results is that the lagged exchange rate system variable is no longer significant according to most estimates.

In the few estimates where the lagged exchange rate has a significant effect on new debt, the magnitude of this effect is substantially smaller than that of the present exchange rate system on new debt. In other words, the results indicate a persistent reduction of new debt due to the implementation of a “de facto” fixed exchange rate system. This is especially remarkable since the “de jure” pegs considered in the last section are a subset of the “de facto” pegs under the present definition.

Thus, a successful stabilization of the exchange rate is indeed correlated with a lower level of new debt if the stabilization attempts are not officially announced. Possibly, “de jure” pegs do not have this effect because they are often meant only to create the impression of the will to discipline fiscal policy.

Table 4: Estimation results for “de-facto” fixed exchange rate regimes (GMM estimators w/o consideration of the autocorrelation problem)

| | LSDV | GMM (with all instruments) | GMM (max. 3 instruments) | GMM (max. 3 instruments, exchange rate regime predetermined) | Anderson-Hsiao |
|--|-------------|----------------------------|--------------------------|--|----------------|
| Exchange rate regime (in t) | -0.0721 *** | -0.0616 *** | -0.0615 *** | -0.2379 *** | -0.0622 *** |
| Exchange rate regime (in t-1) | 0.0446 *** | 0.0227 | 0.0168 | 0.1334 *** | 0.0174 |
| New debt (in t-1) | 0.1724 *** | 0.1430 *** | 0.1713 *** | 0.1531 *** | - |
| Real growth (in t) | -0.6638 *** | -0.8042 *** | -0.7842 *** | -0.7189 *** | -0.8353 *** |
| Relative income (in t) | -0.0889 *** | -0.1800 *** | -0.1098 * | -0.1258 *** | -0.1909 |
| constant | 0.1064 *** | - | - | - | - |
| R ² | 0.1049 | - | - | - | - |
| Sargan-Test | - | 0.00 | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 2 nd order autocorrelation of residuals | - | 0.00 | 0.00 | 0.00 | - |
| Arellano-Bond-Test of 3 rd order autocorrelation of residuals | - | 0.58 | 0.59 | 0.31 | - |
| Dependent variable: new debt (in t) Exchange rate regime: de jure * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level The results of the Sargan test and the Arellano-Bond test are reported as probability that the 0-Hypothesis can be dismissed. | | | | | |

Table 5: Estimation results for “de-facto” fixed exchange rate regimes (GMM estimators with consideration of the autocorrelation problem)

| | GMM (with all instruments) | GMM (max. 3 instruments) | GMM (max. 3 instruments, exchange rate regime predetermined) |
|---|----------------------------|--------------------------|--|
| Exchange rate regime (in t) | -0.0584 *** | -0.0596 *** | -0.1921 *** |
| Exchange rate regime (in t-1) | 0.0355 * | 0.0223 | 0.1043 * |
| New debt (in t-1) | 0.1046 *** | -0.0397 | -0.0648 * |
| Real growth (in t) | -0.7477 *** | -0.6764 *** | -0.6469 *** |
| Relative income (in t) | -0.2047 *** | -0.2004 *** | -0.1378 *** |
| constant | - | - | - |
| R ² | - | - | - |
| Sargan-Test | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 2 nd order autocorrelation of residuals | 0.00 | 0.00 | 0.00 |
| Arellano-Bond-Test of 3 rd order autocorrelation of residuals | 0.51 | 0.26 | 0.20 |
| Dependent variable: new debt (in t) Exchange rate regime: de jure | | | |
| * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level | | | |
| The results of the Sargan test and the Arellano-Bond test are reported as probability that the 0-Hypothesis can be dismissed. | | | |

(c) The long-run effect of fixed exchange rates

Table 6 summarizes the results of a fixed-effects vector decomposition estimate using the “de jure” and the “de facto” exchange rate system dummies for a subset of countries where the exchange rate system did not switch from pegged to floating or vice versa.

There is no significant impact of “de jure” fixed exchange rates. This confirms the results in the last section. However, these results are noteworthy since the sample is restricted to countries that did not change the exchange rate system substantially. That is, there is still no restricting effect on debt even if a peg is sustained for extended periods.

Surprisingly, there is no significant effect for “de facto” pegs as well. This seems to contradict the results from the last section. The disciplining fiscal effect seems to last longer in “de facto” fixed exchange rate regimes than in “de jure” fixed exchange rate regimes, but is not persistent in the long run. Overall, countries with “de facto” fixed

exchange rates do not pursue more rigid fiscal policies than countries of comparable income with flexible exchange rates.

Table 6: Results of a fixed-effects vector decomposition with the “de jure” and “de facto” exchange rate system dummy

| | "de jure" | "de facto" |
|--|-------------|-------------|
| Exchange rate regime | 0.0102 | 0.0118 |
| New debt (in t-1) | 0.0481 * | -0.0024 |
| Real growth (in t) | -0.4645 *** | -0.5238 *** |
| Relative income (in t) | -0.1232 *** | -0.1198 *** |
| Constant | 0.1002 *** | 0.0918 *** |
| R ² | 0.1487 | 0.1673 |
| Dependent variable: new debt (in t) Exchange rate regime: as in headline * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level | | |

6. Conclusion

Although one of the most often cited arguments in favor of fixed exchange rates in developing countries is that they allegedly induce fiscal discipline, there is no empirical evidence to support lasting impacts on new debt. Although new debt initially goes down when a peg is introduced, it returns to its original level after a while. The initial decline has often been mistaken as a sign of a true disciplining effect in past studies.

The return to the original level of new debt is especially quick if the peg is officially announced. This result holds true when only those countries where the stabilization attempts were successful, at least for a certain while, are considered. In other words, this negative result persists even when highly indebted states that are unsuccessfully trying to fix their exchange rates are excluded from the sample.

Therefore, a positive effect of fixed exchange rates – especially of “de jure” fixed exchange rates – on fiscal discipline is highly unlikely.

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