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INSTITUTIONS AND CYCLICAL PROPERTIES OF MACROECONOMIC POLICIES

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INSTITUTIONS AND CYCLICAL PROPERTIES OF MACROECONOMIC POLICIES

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Resumen

Fuertes cambios en el ciclo económico de las naciones industriales y emergentes (EMEs) han generado un mayor interés en el debate sobre la efectividad de las políticas de estabilización. Tradicionalmente se ha sostenido que las EMEs no tienen la capacidad de conducir políticas fiscal y monetaria contracíclicas debido a imperfecciones financieras y a un desfavorable equilibrio político-económico. Sin embargo, nosotros argumentamos que EMEs con rasgos institucionales similares a los de naciones industriales tienen la capacidad de aplicar políticas contracíclicas. Utilizando una muestra de 20 EMEs con datos anuales para el periodo 1990-2003, hallamos que las EMEs con instituciones fuertes son capaces de implementar políticas macroeconómicas contracíclicas —reflejado en reglas de política monetaria y fiscal.

Abstract

Strong swings in business cycle conditions in industrial and emerging market economies (EMEs) alike have renewed the debate on effectiveness of stabilization policies. Traditionally it has been argued that EMEs are unable to pursue counter-cyclical monetary and fiscal policies due to financial imperfections and unfavorable political-economy equilibriums. However, we claim that EMEs with institutional features similar to those of industrial countries may be able to conduct counter-cyclical policies. Using a sample of 20 EMEs and annual data for the 1990-2003 period, we find that the level of institutional quality plays a key role in the ability of these economies to conduct stabilizing macroeconomic policies. We show that EMEs with strong institutions are able to implement counter-cyclical macroeconomic policies —reflected in extended monetary-policy (Taylor) and fiscal-policy rules.

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1. Introduction

Macroeconomic policies are geared toward stabilizing business-cycle fluctuations. For example, in response to weak domestic conditions, U.S. fiscal and monetary policies have been extraordinarily expansionary during 2003-2004. Similar counter-cyclical activism is observed in many other industrial economies. In contrast to industrial economies, the cyclical properties of macroeconomic policies in emerging market economies (EMEs) are much more disputed. In fact, it has often been argued that emerging market economies are unable to adopt counter-cyclical macroeconomic policies. Their ability to adopt optimal (counter-cyclical) stabilization policies is hampered by domestic and external financial imperfections (*á la* Caballero, 2002, and Caballero and Krishnamurty, 2001, 2003) and recurring credit constraints in world capital markets ("sudden stops" *á la* Calvo and Reinhart, 2000). Further hindrances to adopt stabilizing policies in EMEs are attributed to political-economy constraints, weak institutions, and inappropriate exchange-rate regimes, resulting in low credibility and dynamic policy inconsistency (Calderón and Schmidt-Hebbel, 2003; Lane, 2003a).

Several researchers have argued that monetary and fiscal policies are predominantly pro-cyclical, both in Latin America and other EMEs (Hausmann and Stein, 1996; Gavin and Perotti, 1997; Gavin and Hausmann, 1998; Talvi and Végh, 2000; Lane, 2003a; Kaminsky, Reinhart, and Végh, 2004). Pro-cyclical policies are usually the result of governments in EMEs cutting taxes and raising government spending and central banks relaxing monetary policy during booms, while being forced to adopt contractionary policies during busts when domestic and external credit constraints become binding and stringent. Policy pro-cyclicality is compounded by fragile domestic financial systems, high levels of foreign-currency denominated liabilities, and other determinants of low credibility in their macroeconomic policies (Lane, 2003a). Pro-cyclical stop-and-go policies are intensified when macroeconomic policies are dynamically inconsistent (a result of weak fiscal and monetary institutions and rules) and when banking systems are weak and exchange-rate regimes are rigid (Calderón and Schmidt-Hebbel, 2003). It has also been found that countries with weak institutions may not be able to maintain exchange rate pegs and are more likely to abandon them (Alesina and Wagner, 2003). Finally, pro-cyclical fiscal policies are more intense in countries with political systems with multiple fiscal veto points

and higher output volatility (Stein *et al*., 1999; Braun, 2001; Talvi and Végh, 2000), whereas pro-cyclical monetary policies are often pursued when central banks lack credibility (Calvo and Reinhart, 2002; Mendoza, 2002).

In contrast, there is clear evidence of the ability of industrial economies to conduct counter-cyclical monetary and fiscal policies (Lane, 2003a,b). Central Banks in OECD economies —the U.S. Federal Reserve, the European Central Bank, the Bank of Japan, and the Bank of England, among others— are usually characterized by implementing counter-cyclical policies. While the evidence is less clear-cut in the case of fiscal policy, recent work has found that fiscal policies are indeed counter-cyclical in Europe (Melitz, 2000) and that the degree of counter-cyclicality has been strengthened after signing of the Maastricht Treaty and the Stability and Growth Pact by European Union members (Galí and Perotti, 2003).

Motivated by recent evidence and in contrast to most of the views presented above, our prior —to be tested here— is that macroeconomic policies should play a key role in stabilizing business cycle fluctuations in those EMEs where institutions are stronger and economic fundamentals are better –like in industrial economies.[1] We argue here that differences in the cyclical stance of macroeconomic policy across EMEs may be attributed to differences in their level of institutional quality. EMEs comprise a highly heterogeneous group of countries that exhibit large differences in government stability, socioeconomic conditions, bureaucratic quality, law and order, corruption, among other measures of institutional quality that may be significant in explaining cyclical properties of their macroeconomic policies.

The main goal of this paper is to test this proposition by using indexes of institutional quality as key determinants of cyclicality of fiscal and monetary policies in EMEs. We expect that countries with weak institutions will not be able to pursue counter-cyclical policies. On the other hand, countries with strong institutions will be able to apply contractionary policies during booms and expansionary policies during recessions —*i.e.* they will be able to pursue counter-cyclical macroeconomic policies. Empirically, we test our hypothesis using a panel data set of 20 EMEs with annual data for the 1990-2003

[1] For example, Chile, Malaysia, Korea, and Thailand adopted expansionary policies during 2001-2003, a period of cyclical weakness in these economies. On the other hand, Argentina implemented a pro-cyclical fiscal policy during the same period.

period. Our empirical results confirm that countries exhibiting stronger institutions are able to conduct counter-cyclical macroeconomic policies, while pro-cyclical policies are observed among countries with weak institutions.

This paper significantly extends and complements our previous work where we presented evidence on the role of fiscal policy credibility (proxied by country-risk premiums on sovereign debt) in the cyclical properties of policies in 10 developing economies (Calderón and Schmidt-Hebbel, 2003, and Calderón, Duncan, and Schmidt-Hebbel, 2004). Our focus in this paper is on the role of institutional quality as a broad determinant of policy makers' abilities to adopt counter-cyclical fiscal and monetary policies. Our specification for fiscal and monetary policy cyclicality is broadened here by extending standard policy rules found in the literature on monetary policy or Taylor rules (Taylor, 1993a, b; 1995) and fiscal policy rules (Braun, 2001; Lane, 2003b). Moreover, our empirical search is extended to a large panel sample of 240 country-year observations and our robustness tests comprise empirical searches over alternative measures of dependent and independent variables, and different estimation techniques.

The paper is organized as follows. In the next section we describe briefly the data to be used and some stylized facts. Then we present a model for extended monetary and fiscal policy rules and discuss our empirical strategy to assess the relationship between the quality of institutions in EMEs and the cyclical stance of their macroeconomic policies. We report the panel data evidence for the group of EMEs in section 4. Section 5 concludes briefly.

2. Data and Stylized Facts

In this section, we briefly describe the definition and sources of the data on institutions, monetary and fiscal policy indicators used in our empirical analysis. Before we carry perform our regression analysis, we report some stylized facts on macroeconomic policies and institutions for emerging market economies (EMEs).

Our set of EMEs follows the 30-country selection criteria by JP Morgan Chase & Co. However, our sample is restricted to a smaller country group due to lack of availability and/or reliability of policy measures, or due lack of independent monetary/fiscal policy — e.g. Argentina had a limited ability to pursue monetary policies during our sample period, specifically, during the convertibility period (1991-2001). Therefore, our effective sample

is reduced to 20 economies: 7 Latin American countries (Argentina[2], Brazil, Chile, Colombia, Mexico, Peru, and Venezuela), 7 Asian countries (China, Indonesia, India, Korea, Malaysia, The Philippines, and Thailand), 3 Middle Eastern countries (Israel, Jordan, and Turkey), and 3 African countries (Morocco, South Africa, and Zimbabwe).[3]

Our sample period starts in 1990 and ends in 2003. This period is characterized by higher price stability in comparison to the 1980s when high and hyper-inflationary conditions were prevalent in several sample countries, including Brazil, Peru, and Israel. The main data sources are the IMF's International Financial Statistics and the World Bank's World Development Indicators, complemented by data from the Economic Commission for Latin America and the Caribbean (ECLAC), when necessary. A detailed description of data sources and construction is provided in Appendix A.

Our indicator of the monetary policy stance is the interest rate relevant for monetary policy. For most countries we use the nominal discount rate or the interbank interest rate. When the latter are not available, we use the money market or banking rate (only for China and India). The dependent variable in our specification is the deviation of the adjusted interest rate from its long-run value. In order to avoid the significant effect of interest rate outliers, we use the adjusted interest rate defined as $r/(1+r)$, where r is the nominal unadjusted rate.

Our main indicator of the fiscal policy stance is the constant-price fiscal balance of the central government as a ratio to Gross Domestic Product (GDP).[4] The dependent variable in our specification is the deviation of the fiscal balance ratio to GDP from its long-run value. Following Kaminsky, Reinhart, and Végh (2004), we also use an alternative fiscal policy measure to perform sensitivity analysis: the cyclical component of real public expenditure.

As a proxy for institutional quality, we use the index of the International Country Risk Guide (which we denote as the ICRG index), published by the Political Risk Services (PRS) Group. The ICRG index, available for our full sample period, considers a wide array of institutional features. This index is the sum of 12 partial measures of institutional

[2] Included only for the fiscal policy analysis.

[3] We exclude Argentina from the sample used for monetary policy analysis because Argentina, under a currency board during most of the sample period, did not conduct an independent monetary policy.

[4] The constant-price fiscal balance is obtained by dividing the current-price balance by the Consumer Price Index. Positive (negative) values for the fiscal balance indicate a surplus (deficit).

quality: (a) Government Stability (with a maximum of 12 points), (b) Socioeconomic Conditions (12 points), (c) Investment Profile (12 points), (d) Internal Conflict (12 points), (e) External Conflict (12 points), (f) Corruption (6 points), (g) Military in Politics (6 points), (h) Religious Tensions (6 points), (i) Law and Order (6 points), (j) Ethnic Tensions (6 points), (k) Democratic Accountability (6 points), and (l) Bureaucracy Quality (4 points). Therefore, the ICRG index ranges from 0 (the lowest level of institutional quality) to 100 (the highest level). See table 1 for the summary statistics of this index. For our panel, the full sample average is 64.0 points (close to the sample mean of China, at 65.8), the highest country-year value is 81.3 (Chile, 1997) and the lowest is 34.3 (Zimbabwe, 2002). Table 1 reports summary statistics for the ICRG index in our sample.[5]

In Figures 1 and 2, we present a broad picture of the relation between the cyclical properties of macroeconomic policies and the quality of the institutions. Figure 1 shows the link between the degree of cyclicality of monetary policy –measured as the correlation between the stance of monetary policy (measured by the interest rate deviation from its mean) and the output gap[6]– and the quality of institutions measured by the ICRG Index. The cross-country evidence shows a positive link between countries with better institutions (a higher ICRG index) and their ability to perform counter-cyclical monetary policy (a higher correlation of interest rate and output gap). Figure 2 illustrates a similar link between fiscal policy cyclicality and institutional quality in our cross-country sample. As the quality of institutions improves in EMEs, their ability to adopt counter-cyclical fiscal policies improves. Therefore there is preliminary suggestive evidence in support of our hypothesis. However this is not conclusive evidence yet due to several specification and estimation problems that can only be addressed in the full setting and formal testing conducted in the next section.

3. Model and Empirical Strategy

We begin by introducing the empirical model and the strategy to test for the cyclical properties of monetary and fiscal policies in the panel sample of EMEs. Monetary policy is

[5] All ICRG country indexes exhibit a normal distribution (with Jarque-Bera p-values higher than 1%, 5% or 10%), except for Israel and Jordan.

[6] This is the correlation for the full sample period covering 1990-2003. The output gap is the cyclical component of actual output obtained from detrending real GDP using the Hodrick and Prescott (1997) filter.

specified as an extension of the standard policy or Taylor rule.[7] Fiscal policy follows a similar specification but omitting the inflation deviation term. To verify our hypothesis, we include in both equations an interaction term between the business cycle and the proxy of the quality of institutions. At high levels of institutional quality (i.e. higher values of the ICRG index), we expect fiscal and monetary policy to be counter-cyclical. We specify the following structural equations for the cyclical stance of monetary and fiscal policy:

$$(r_{it} - \bar{r}_i) = \alpha_0 + \alpha_1(r_{i,t-1} - \bar{r}_i) + \alpha_2(y_{it} - \bar{y}_i) + \alpha_3(y_{it} - \bar{y}_i)Q_{it} + \alpha_4(\pi_{it} - \bar{\pi}_i) + u_{it} \quad (1)$$

$$(f_{it} - \bar{f}_i) = \beta_0 + \beta_1(f_{i,t-1} - \bar{f}_i) + \beta_2(y_{it} - \bar{y}_i) + \beta_3(y_{it} - \bar{y}_i)Q_{it} + u_{it} \quad (2)$$

where subindexes *i* and *t* denote the country and the time period, respectively; $(r - \bar{r})$ is the deviation of the nominal interest rate from its long-run level, $(\pi - \bar{\pi})$ is the deviation of the inflation rate from its long-run level, and $(y - \bar{y})$ is the output gap (or business cycle measure), defined as the deviation of real GDP from its long-run trend. We should note that analogously to the interest rate, we expressed the inflation indicator as $\pi/(1+\pi)$. Also, we omitted from the monetary policy rule the expected rate of inflation, because of lack of an adequate empirical measure for the complete sample. Finally, *Q* represents the quality of institutions, which is proxied by the ICRG index; and *u* and *v* are stochastic disturbances.

According to our prior, coefficients α_2 and β_2 should be negative and statistically significant, whereas α_3 and β_3 should be statistically significant and positive. At high (low) levels of quality of institutions –a high (low) value of the ICRG index– we anticipate macroeconomic policies to be pro- (counter-) cyclical. In this case, the interaction term in each equation should dominate (be dominated by) the output-gap term. Regarding our control variables, we expect the coefficient of the lagged dependent variables, α_1 and β_1 to be between 0 and 1, and the coefficient α_4 for the inflation deviation in the monetary policy equation to be positive.

A standard measure of the degree of policy cyclicality is the serial correlation between the policy instrument (interest rates or fiscal balance) and the output gap, as we

[7] Taylor rules have been widely used in the literature since Taylor (1993, 1995).

have shown in Figure 1 and 2. Our methodology allows us to construct an alternative measure based on the estimation of the coefficients in equations (1) and (2). The specification allows for calculation of the threshold level of quality of institutions that is associated to a neutral or a-cyclical policy stance —*i.e.* a threshold level at which policy is neither counter- nor pro-cyclical.[8] The threshold level is obtained simply by dividing the negative of the output gap coefficient by the interaction term coefficient, a result of setting the partial derivative of the policy rule to the output gap to zero. For values above (below) the threshold level of the index of institutional quality, monetary or fiscal policies become counter-cyclical (pro-cyclical).

For the monetary and fiscal policy equations, the institutional quality threshold, Q^*, that guarantees policy neutrality to the cycle is:[9]

$$\left.\frac{\partial(r-\bar{r})_i}{\partial(y-\bar{y})_i}\right|_{Q=Q^*} = \alpha_2 + \alpha_3 Q^* = 0 \quad \Rightarrow \quad Q^* = -\frac{\alpha_2}{\alpha_3}$$
$$\left.\frac{\partial(f-\bar{f})_i}{\partial(y-\bar{y})_i}\right|_{Q=Q^*} = \beta_2 + \beta_3 Q^* = 0 \quad \Rightarrow \quad Q^* = -\frac{\beta_2}{\beta_3} \tag{3}$$

When countries surpass our estimated threshold value of institutional quality Q*, they would be able to adopt counter-cyclical policies. Otherwise, they would engage in pro-cyclical policies —that is, whenever they have institutional levels below Q*. As shown in equation (3), Q* will be determined by the coefficient estimates of our monetary and fiscal policy equations. We should note that the coefficient estimates of our macroeconomic policy equations —and hence Q*— are sample-specific. Below we will compare the difference between the country's estimated and actual Q* and perform inference about the cyclical properties of macroeconomic policies at the country level.

In order to infer whether monetary and fiscal policies are procyclical —given our regression estimates— we only need to compare the actual level of institutional quality, Q, with the estimated threshold level of institutions that yields policy neutrality to the cyclical conditions, Q*. In that case, monetary and fiscal policies would be procyclical, respectively,

[8] If α_3 and α_4 are not statistically significant we can also conclude that monetary policy is acyclical. For the fiscal policy applies similarly.
[9] Analogous threshold levels can be obtained for fiscal policy equation (2).

$$
\begin{aligned}
&If\ Q < Q^* = -\frac{\alpha_2}{\alpha_3} \Rightarrow \frac{\partial (r-\bar{r})_t}{\partial (y-\bar{y})_t} = \alpha_2 + \alpha_3 Q < 0 \\
&If\ Q < Q^* = -\frac{\beta_2}{\beta_3} \Rightarrow \frac{\partial (f-\bar{f})_t}{\partial (y-\bar{y})_t} = \beta_2 + \beta_3 Q < 0
\end{aligned} \tag{4}
$$

On the other hand, monetary and fiscal policies would be countercyclical, respectively,

$$
\begin{aligned}
&If\ Q > Q^* = -\frac{\alpha_2}{\alpha_3} \Rightarrow \frac{\partial (r-\bar{r})_t}{\partial (y-\bar{y})_t} = \alpha_2 + \alpha_3 Q > 0 \\
&If\ Q > Q^* = -\frac{\beta_2}{\beta_3} \Rightarrow \frac{\partial (f-\bar{f})_t}{\partial (y-\bar{y})_t} = \beta_2 + \beta_3 Q > 0
\end{aligned} \tag{5}
$$

Hence the cyclical behavior of economic policy depends on the coefficient of the output gap (α_2 for monetary policy and β_2 for fiscal policy), the coefficient of the interaction between the output gap and the quality of institutions (α_3 for monetary policy and β_3 for fiscal policy), and the proxy of the quality of institutions (Q). The inequalities in (4) and (5) simply reflect that the likelihood of conducting counter-cyclical macroeconomic policies becomes higher at higher levels of institutional quality.

Regarding our method of estimation, we use the GMM-IV system estimator for dynamic panel data models (Arellano and Bover, 1995; Blundell and Bond, 1998). This method controls for possible endogeneity of regressors and avoids biased and inconsistent estimators.[10] According to the literature, one of the explanations of why macroeconomic policies are procyclical is that we have the causality wrong. For instance, contractionary macroeconomic policies may lead to an output decline through a Keynesian mechanism. Hence, the correlation between macroeconomic policies and output gap that we observe may be reflecting the impact of macroeconomic policy changes on output instead of the reverse causality (Gavin and Perotti, 1997). Therefore, it becomes necessary to control for endogeneity in order to evaluate the causal direction of interest.

To verify the validity of the moment conditions specified by our GMM-IV system estimator, we perform the Sargan test of over-identifying restrictions, which tests the overall validity of the instruments by analyzing the sample analog of the moment conditions used in the estimation process. If we fail to reject the null hypothesis that the conditions hold, we validate our specified regression model.

In order to test for robustness of our results we perform alternative estimators. First, we use two measures of the long run level for the monetary policy rate (deviations from its sample mean and from a Hodrick-Prescott trend component). Second, we use two alternative measures of the long-run component of the fiscal balance (deviations from its sample mean and from a Hodrick-Prescott trend component. Third, we employ two alternative measures of countries' institutional quality: the ICRG index and an aggregate of three sub-components (government stability, socioeconomic conditions, and corruption[11]; the sub-components that are most related to the capability to perform counter-cyclical macroeconomic policies), which we denote as the Composite Index henceforth. Finally, we use an alternative measure for fiscal policy based on the cyclical component of real public expenditure.[12]

As a first approximation to the results, and before we present the GMM-IV results, we also run some pooled OLS regressions. The results are reported in the first two columns of Tables 2 and 3.

4. Results

Next we report estimation results for our monetary and fiscal policy equations (1 and 2) based on the data for our sample of EMEs in the 1990-2003 period. Here we test whether the ability to conduct counter-cyclical macroeconomic policies depends on the level of institutional quality.

4.1. Monetary Policy Cyclicality and Institutional Quality

Table 2 presents the results for our monetary policy equation, the extended Taylor equation. They confirm the existence of a significant relationship between macroeconomic policies, the business cycle (output gap), and its interaction with the quality of institutions that is consistent with our prior. Coefficient estimates show expected signs and are

[10] We use a constant and lags of the dependent variable and the regressors as instruments.

[11] According to ICRG, government stability is defined as government's ability to carry out its declared program, and its ability to stay in office. Socioeconomic conditions reflect pressures at work in society that could constrain government action or fuel social dissatisfaction. Corruption reflects moral erosion or decomposition within the political system.

[12] In contrast to use the fiscal balance, when using the cyclical component of public expenditure as endogenous variable we expect –besides statistical significance– that the output gap coefficient (β_2) and the interaction term coefficient (β_3) should be positive and negative, respectively.

statistically significant at standard levels.[13] The Sargan test statistic confirms that the specification adopted cannot be rejected at conventional levels of significance.

Monetary policy is significantly counter-cyclical in EMEs that exhibit high levels of institutional quality. In countries with lower indexes, monetary policy is significantly biased toward a more pro-cyclical position. In fact, monetary policy turns counter-cyclical at threshold indexes (Q^*) of 57.5 points (see table 2, column 3). This estimate is very close to the one obtained when using a stochastic mean as the long-run value of the interest rate (table 2, column 5). Note also that the neutral policy values derived from OLS estimations are smaller than those obtained from GMM estimations, probably a reflection of biased estimators under OLS.

In the 1990-2003 period, countries that exhibited institutional quality average above the threshold level were Brazil, Chile, China, Israel, Jordan, Korea, Morocco, Mexico, Malaysia, The Philippines, Thailand, Venezuela, and South Africa. Among the latter, Brazil (since 1999), Chile (1991), Israel (1992), Mexico (1998), and South Africa (2000) have adopted inflation-targeting regimes that may have contributed to strengthening policy credibility and quality of their monetary institutions.

On the other hand, below the threshold or neutral-policy level were Colombia, Indonesia, Peru, and Zimbabwe. Likewise, the economies that were under the threshold level in 2003 are Colombia, Indonesia, Venezuela, and Zimbabwe.

If we use the Composite Index as a proxy of institutional quality, we obtain a neutral-policy value of 15.3 (see table 3, column 4). In this case, countries that have shown a pro-cyclical stance are Colombia, India, Turkey, Venezuela, and Zimbabwe. Among the countries that exhibited a-cyclical monetary policy –that is, a Composite Index close to the neutral one– are Indonesia, Peru, and The Philippines.

Our result is consistent with the findings that economies with higher degrees of liability dollarization and with imperfect financial markets are unable to conduct counter-cyclical monetary policy (Céspedes et al. 2003, Choi and Cook, 2004). The argument here is that international markets will be prone to failure if monitoring is limited and costly and

[13] The only exception is the equation in column 6, a sensitivity exercise using the alternative ICRG index and a stochastic long-run value for fiscal balance.

there is imperfect contract enforceability. And, jointly with large liability dollarization, macroeconomic policies would not be able to offset adverse external shocks.

4.2. Fiscal Policy Cyclicality and Institutional Quality

Table 3 shows our empirical results for the cyclical property of fiscal policy in EMEs. The main result is reported in column 3. All relevant coefficients are statistically significant at standard levels and present the expected signs. The Sargan test verifies that the specification cannot be statistically rejected.

The neutral fiscal policy level for the ICRG index is 58.9 points. That is, economies that exhibit high institutional quality —an ICRG index above 58.9— have the ability to perform counter-cyclical fiscal policy.

Sensitivity analyses based on different endogenous variables —including the fiscal balance deviation from a stochastic long-run value (table 3, columns 5 and 6) and the cyclical component of public expenditure (columns 7 and 8)— provide estimates with expected signs and similar neutral fiscal policy levels, although coefficient estimates are not always statistically significant. When using the cyclical component of public expenditure as a regressor, we expect that the output gap (β_2) and the interaction term (β_3) should be positive and negative, respectively. That is, countries with strong (weak) institutions —high (low) ICRG index— are (not) able to increase government spending at times of cyclical weakness.

For the 1990-2003 period, countries that exhibited pro-cyclical fiscal policies —with ICRG averages below 58.9— include Colombia, Indonesia, India, Peru, and Zimbabwe. Using the Composite Index as our institutional quality measure, the set of countries with pro-cyclical government policies is reduced to Zimbabwe.

We note that the threshold or neutral policy levels obtained from our preferred monetary policy estimation (column 3 in table 2), at 57.5, is very close to that obtained from our preferred fiscal policy equation (column 3 in table 3), at 58.9. This suggests that our results are robust across different macroeconomic policies.

The evidence showed above is consistetn with some of the current explanations of procyclicality of fiscal policies: First, countries with limited access to (either domestic or external) funds are not able to implement expansionary fiscal policies in bad times

(Caballero and Krishnamurthy, 2004). Lack of policy credibility and discipline may fuel investors fears that government will act irresponsibly — that is, governments may run up huge budget deficits are may be more likely to default. Second, fiscal policy could be expansionary in the presence of positive transitory shocks to fiscal revenue. Voracity effects arise because interest groups would not like to reduce their share of the windfall in fiscal revenues (Tornell and Lane, 1997, 1999; Velasco, 1999). Therefore, any existing fiscal surplus will result in overspending (Talvi and Végh, 2000). Third, policymakers in EMEs have usually faced lack of credibility while borrowing constraints have become binding during bad times. This precarious creditworthiness prevents EMEs to conduct counter-cyclical policies (Gavin, Hausmann, Perotti and Talvi, 1996).

Finally, in Figure 3 we plot the response of the stance of macroeconomic policies to institutional quality, measured by the ICRG index. Using the GMM-IV system estimates for the monetary and fiscal policy equations, we construct the response of macroeconomic policies to output gap for different levels of institutional quality. Using the minimum and maximum values, we construct a grid of levels of institutional quality with similar range. Then we calculate the cyclical degree of macroeconomic policies conditional on the values in the grid. As we can see in Figure 3, the degree of cyclicality of fiscal policy is more sensitive to changes in quality of institutions than in the case of monetary policy.

5. Final Remarks

Our goal in this paper was to test whether the level of institutional quality among EMEs played a role in their ability to conduct counter-cyclical macroeconomic policies. To accomplish this task we use a sample for 20 EMEs, with annual data for the 1990-2003 period.

Persson (2002) has shown that political institutions —*i.e.* electoral rules and political regimes— can affect the size and the composition of government spending. Also Alesina and Wagner (2003) claim that countries with poor institutional quality may not be able to maintain their exchange rate pegs. In our paper, we test the claim that the ability of implementing counter-cyclical policies is limited in countries that exhibit low levels of institutional quality.

We find evidence in favor of our prior that macroeconomic policies in EMEs can be counter-cyclical. Our panel-data evidence shows that the relevant coefficients exhibit expected signs and are statistically significant. Our results support the hypothesis that countries with strong institutions tend to adopt fiscal and monetary policies as tool to stabilize business-cycle fluctuations On the contrary, countries that exhibit weak institutions tend to apply pro-cyclical macroeconomic policies.

A fact that reinforces our conclusions is that we find that the threshold level of institutional quality that renders neutral macroeconomic policies to the cycle is very similar for monetary and fiscal policies —with threshold values for the ICRG index at 57.5 and 58.9, respectively. Finally, we find that the cyclical behavior of fiscal policy is more sensitive to changes in the level of institutional quality than the behavior of monetary policy.

Finally, although our results show that macroeconomic policies —monetary and fiscal— are counter-cyclical whenever countries have stronger institutions, our results are more robust for monetary policy equations. This result is consistent with the findings of Tytell and Wei (2004) that international capital flows impose a disciplinary effect on emerging countries' monetary and fiscal policies. Hence, cross-border capital flows have induced EMEs to pursue low-inflation monetary policies, while the impact on fiscal discipline —that is, low budget deficits— is weaker.

Appendix A

Data, Sources, and Definitions [/a]

Variable	Description	Sources	Sample /Availability
Interest Rates (r)	Nominal Discount or Interbank Interest Rate	International Financial Statistics (IFS) of the IMF[/b]	Full sample, except some years for Jordan (2003), Morocco (1990-93).
Domestic Inflation (π)	Consumer Price Index (CPI) change	International Financial Statistics (IFS) of the IMF, World Development Indicators (WDI) of the World Bank	Full sample.
Output (y)	Constant-price GDP, base year: 1996=100	International Financial Statistics (IFS) of the IMF, World Development Indicators (WDI) of the World Bank	Full sample.
Fiscal Balance (f)	Real Fiscal Balance (CPI-deflated) as a percentage of real GDP	International Financial Statistics (IFS) of the IMF, World Development Indicators (WDI) of the World Bank, ECLAC	Full sample, except some recent years for Argentina, Indonesia, Jordan, China, Turkey, Venezuela, South Africa, Zimbabwe.
Government Expenditure (g)	Real Public Expenditure (CPI-deflated)	International Financial Statistics (IFS) of the IMF, World Development Indicators (WDI) of the World Bank	Full sample, except some recent years for Argentina, China, Colombia, Indonesia, India, Jordan, Morocco, Peru, Venezuela, South Africa, Zimbabwe.
Quality of Institutions (Q)	Quality of Institutions Index (points, 0-100)	Institutional Credit Risk Group	Full sample

Definitions	
Interest Rate deviation from its sample average	$r_{i,t} - \overline{r}_i; \quad \overline{r}_i = \sum_{t=1990}^{2003} \frac{r_{i,t}}{14}, \quad \forall i$
CPI Inflation Deviation from its sample average	$\pi_{i,t} - \overline{\pi}_i, \quad \overline{\pi}_i = \sum_{t=1990}^{2003} \frac{\pi_{i,t}}{14}, \quad \forall i$
Fiscal Balance Deviation from its sample average	$f_{i,t} - \overline{f}_i, \quad \overline{f}_i = \sum_{t=1990}^{2003} \frac{f_{i,t}}{14}, \quad \forall i$
Cyclical component of government expenditure: real government expenditure deviation from its Hodrick-Prescott-filtered trend $\overline{g}_i$, for country *i.*	$\left(\frac{g_{i,t} - \overline{g}_i}{\overline{g}_i} \right)$
Ouput gap: real GDP deviation from its Hodrick-Prescott-filtered trend $\overline{y}_i$, for country *i.*	$\left(\frac{y_{i,t} - \overline{y}_i}{\overline{y}_i} \right)$

a. Annual data from 1990 to 2003. Countries (i=): Argentina, Brazil, Chile, China, Colombia, Indonesia, India, Israel, Jordan, (South) Korea, Malaysia, Morocco, Mexico, Peru, (The) Philippines, South Africa, Thailand, Turkey, Venezuela, and Zimbabwe.

b. In the case of Chile, we used the nominalized monetary policy rate (*Tasa de Política Monetaria*) as the interest rate, published by the Central Bank of Chile.

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Figure 1. ICRG Index and the Correlation of the Interest Rate (Monetary Policy) and the Output Gap, 19 Countries, 1990-2003

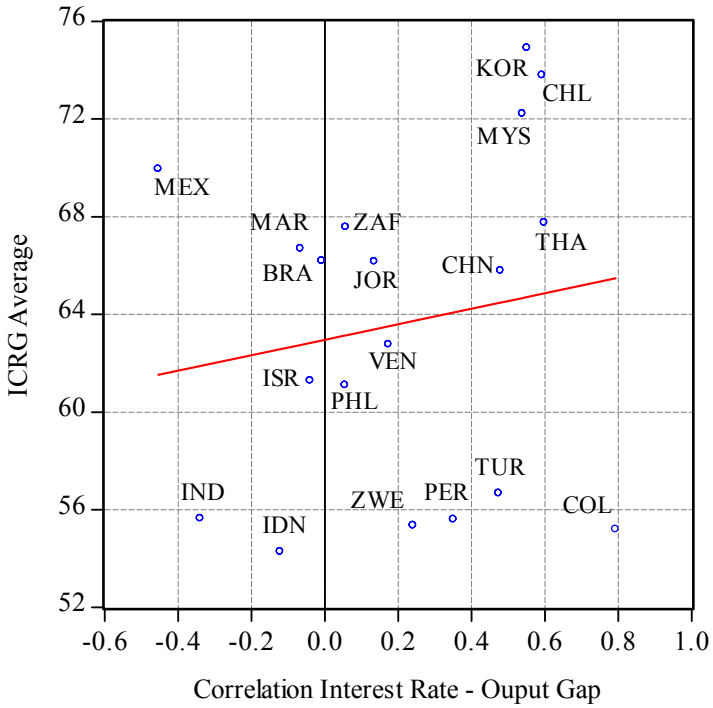

Figure 2. ICRG Index and the Correlation of the Fiscal Balance and the Output Gap, 20 Countries, 1990-2003

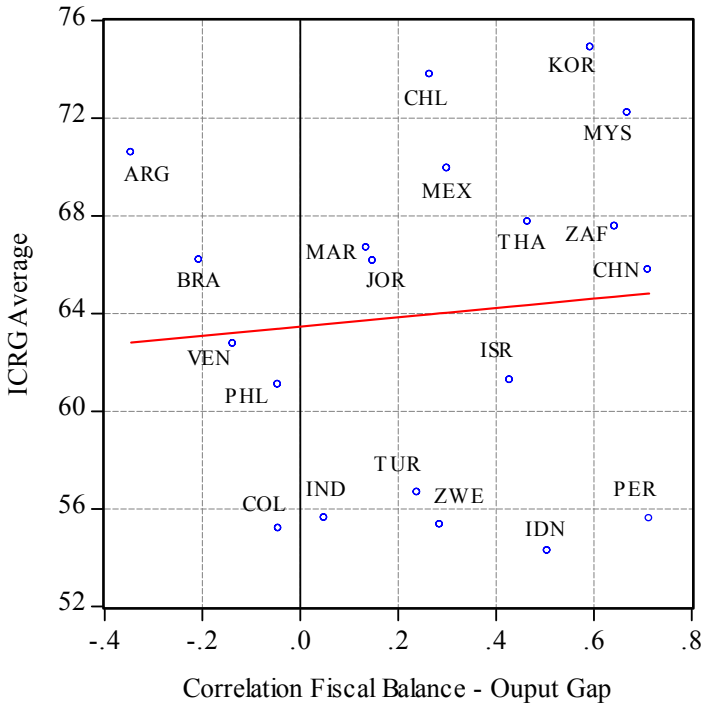

Figure 3. Cyclical Behavior of Macroeconomic Policies

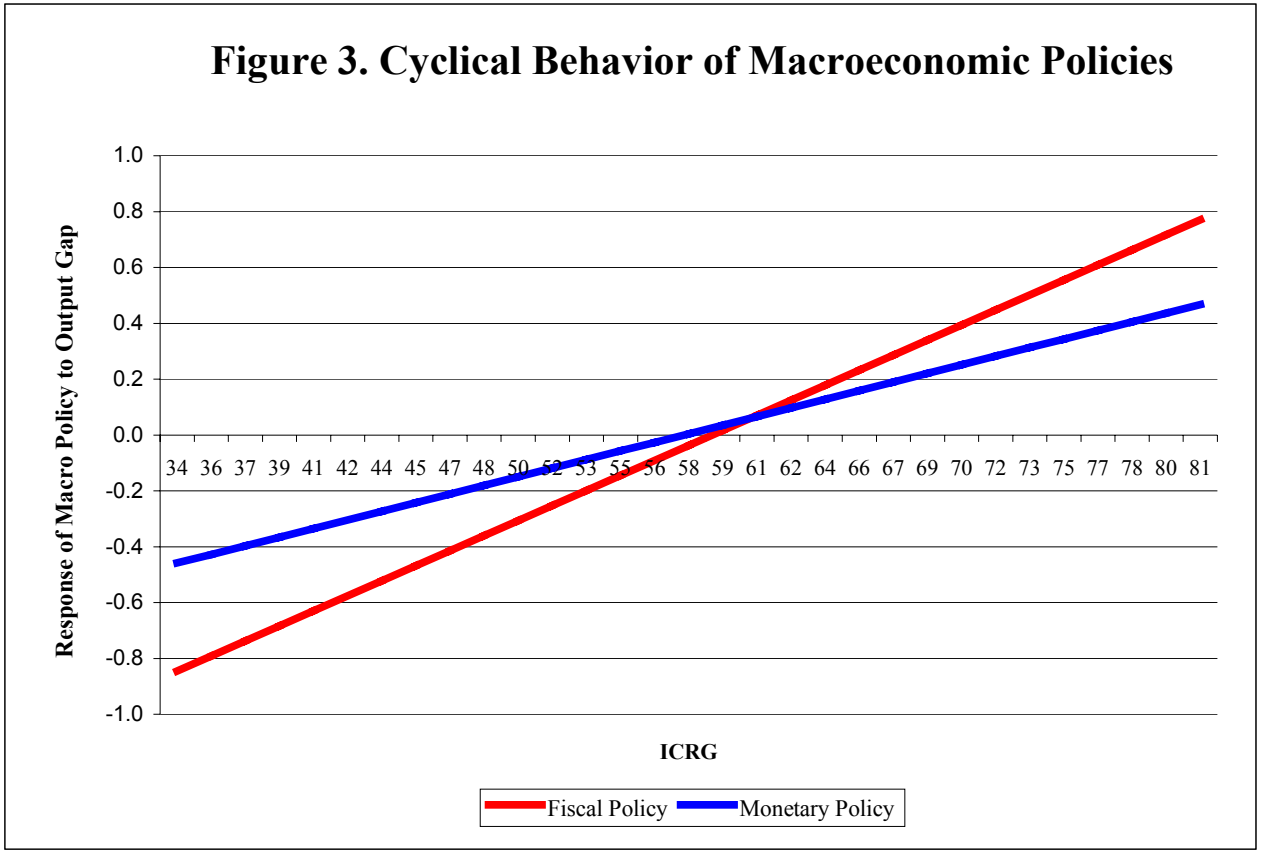

Table 1. Summary Statistics of Quality of Institutions by Countries (ICRG Index, 1990-2003)/a

Statistics	Argentina	Brazil	Chile	China	Colombia	Indonesia	India	Israel	Jordan	Korea
Mean	70.59	66.20	73.79	65.79	55.21	54.29	55.64	61.28	66.16	74.90
Median	72.65	65.46	74.17	67.02	55.54	54.21	56.54	61.17	70.56	75.58
Maximum	76.42	70.83	81.17	72.25	62.92	66.92	65.50	71.50	74.83	81.25
Minimum	59.17	62.71	64.67	56.92	48.67	43.83	34.75	36.25	41.08	63.50
Std. Dev.	5.83	2.53	5.27	4.73	5.17	8.64	9.27	8.90	10.82	4.83
Skewness	-0.78	0.35	-0.27	-0.56	0.15	0.12	-1.14	-1.60	-1.80	-1.17
Kurtosis	2.20	2.01	1.78	2.25	1.61	1.42	3.29	5.59	4.60	3.84
Jarque-Bera	1.80	0.86	1.04	1.05	1.18	1.49	3.06	9.84	9.03	3.59
Probability /b	0.41	0.65	0.59	0.59	0.55	0.48	0.22	0.01	0.01	0.17

Statistics	Morocco	Mexico	Malaysia	Peru	Philipinnes	Thailand	Turkey	Venezuela	South Africa	Zimbabwe	Average
Mean	66.70	69.95	72.21	55.61	61.10	67.76	56.68	62.77	67.57	55.35	63.98
Median	68.96	69.71	72.08	59.71	63.54	68.46	57.10	64.92	67.77	59.25	65.22
Maximum	74.00	73.58	79.42	68.25	73.58	75.33	67.42	75.83	75.00	67.17	72.66
Minimum	50.83	66.50	66.83	39.92	36.92	55.25	43.50	49.04	55.83	34.29	50.52
Std. Dev.	6.60	2.27	4.05	9.04	11.34	5.90	6.92	6.93	6.25	11.29	6.83
Skewness	-1.60	0.02	0.26	-0.54	-1.10	-0.78	-0.20	-0.47	-0.51	-0.58	-0.61
Kurtosis	4.36	1.89	2.12	1.94	3.07	2.58	2.23	3.13	2.28	1.96	2.71
Jarque-Bera	7.08	0.71	0.61	1.34	2.84	1.53	0.44	0.52	0.91	1.43	2.52
Probability /b	0.03	0.70	0.74	0.51	0.24	0.47	0.80	0.77	0.63	0.49	0.45

a. Source: ICRG Group. Authors' calculations.

b. The null hypothesis of the Jarque-Bera test is Normality.

Table 2. Cyclical Degree of Monetary Policy

$$\left(r_{i,t}-\overline{r}_i\right)=\alpha_0+\alpha_1\left(r_{i,t-1}-\overline{r}_i\right)+\alpha_2\left(\pi_{i,t}-\overline{\pi}_i\right)+\alpha_3\left(y_{i,t}-\overline{y}_i\right)+\alpha_4\left(y_{i,t}-\overline{y}_i\right)Q_{i,t}+u_{i,t}$$

Dependent Variable: Nominal Interest Rate (NIR) Deviations from its Long-Run Value
Estimation Method: Generalized Method of Moments (GMM)[a] and Ordinary Least Squares (OLS)[b]
Sample: 19 emerging economies, annual data, 1990-2003

Regressor	**Deterministic (Sample) Mean of NIR**				**Stochastic Mean of NIR**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	OLS	OLS	GMM	GMM	GMM	GMM
Constant (α_0)	-0.004014	-0.003295	0.005216	0.001074	-0.003528	-0.004988
	(0.0000)	(0.0000)	(0.200890)	(0.816261)	(0.450762)	(0.378775)
Lagged Dependent Variable (α_1)	0.914599	0.919073	0.503377	0.574025	0.356678	0.473526
	(0.0000)	(0.0000)	(0.002947)	(0.000016)	(0.015984)	(0.000466)
Output Gap (α_2)	-0.270918	-0.26204	-1.134234	-1.960719	-2.057329	-1.882265
	(0.0216)	(0.0053)	(0.095464)	(0.023908)	(0.038828)	(0.139517)
Output Gap x Quality-of-Institutions Index (α_3)						
ICRG Index	0.00609		0.019710		0.036735	
	(0.0000)	...	(0.075144)	...	(0.029587)	...
Composite Index		0.022842		0.128502		0.123861
	...	(0.0013)	...	(0.017610)	...	(0.124303)
Inflation Rate Deviation from its Long-run Value (α_4)	0.023263	0.022311	0.073947	0.050461	0.047404	0.029510
	(0.0000)	(0.0000)	(0.000013)	(0.005101)	(0.023889)	(0.296199)
Statistics						
F-Statistic (P-Value)	0.0000	0.0000				
Sargan statistic (P-Value)	...	...	0.524	0.686	0.169	0.635
Nº of observations	242	242	239	239	239	239
Neutral-Policy Index (*Q)**						
ICRG Index	44.3	...	57.5	...	56.0	...
Composite Index	...	11.5	...	15.3	...	15.2

a. GMM estimations were performed using Arellano and Bond (1991). Instrumental variables are a constant and lags of the regressors. Time effects were included. *P*-values are in parentheses.
b. Pooled EGLS (Cross section weights). White standard errors were used. *P*-values are in parentheses.

Table 3. Cyclical Degree of Fiscal Policy

$$\left(f_{i,t}-\overline{f}_i\right)=\beta_0+\beta_1\left(f_{i,t-1}-\overline{f}_i\right)+\beta_2\left(y_{i,t}-\overline{y}_i\right)+\beta_3\left(y_{i,t}-\overline{y}_i\right)Q_{i,t}+v_{i,t}$$

Fiscal Balance Deviations (as Percentage of GDP) from its Long-Run Value
Estimation Method: Generalized Method of Moments (GMM)[a] and Ordinary Least Squares (OLS)[b]
Sample: 20 emerging economies, annual data, 1990-2003

Regressor	**Deterministic (Sample) Mean of FB**				**Stochastic Mean of FB**		**Cyclical Component of Government Expenditure**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
Constant (β_0)	-0.00173	-0.000601	0.002846	0.000901	0.006373	0.003046	0.038389	0.045376
	(0.0139)	(0.279)	(0.730606)	(0.921099)	(0.398058)	(0.661434)	(0.507563)	(0.615394)
Lagged Dependent Variable (β_1)	0.510178	0.633027	0.326764	0.262301	0.268972	0.227172	0.252152	0.379889
	(0.0000)	(0.0000)	(0.049922)	(0.202844)	(0.136139)	(0.212264)	(0.084004)	(0.062509)
Output Gap (β_2)	-0.285574	-0.181376	-2.025604	-1.547762	-1.394715	-1.294178	15.140263	9.062956
	(0.2875)	(0.0613)	(0.105313)	(0.317558)	(0.143409)	(0.288381)	(0.104696)	(0.607827)
Output Gap x Quality-of-Institutions Index (β_3)								
ICRG Index	0.005126		0.034411		0.024013		-0.222831	
	(0.2077)	...	(0.078457)	...	(0.116299)	....	(0.124659)	...
Composite Index		0.012048		0.111359		0.093122		-0.523073
	...	(0.0268)	...	(0.279606)	...	(0.250751)	...	(0.646580)
Statistics								
F-Statistic (P-Value)	0.0000	0.0000						
Sargan statistic (P-Value)	...	...	0.707	0.884	0.685	0.753	0.583	0.652
Nº of observations	243	243	240	240	240	240	240	240
Neutral-Policy Index (*Q)**								
ICRG Index	55.7	...	58.9	...	58.1	...	67.9	...
Composite Index	...	15.1	...	13.9	...	13.9	...	17.3

a. GMM estimations were performed using Arellano and Bond (1991). Instrumental variables are a constant and lags of the regressors. Time effects were included. *P*-values are in parentheses.
b. Pooled EGLS (Cross section weights). White standard errors were used. *P*-values are in parentheses.

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