ECONOMIC RESEARCH FORUM
منتدى البحوث الاقتصادية
2011

working paper series

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Working Paper No. 654

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December 2011

An earlier version of this paper was presented at the Economic Research Forum's 17th Annual Conference, Antalya, Turkey: March 18-22, 2011. Comments by participants at the conference are gratefully acknowledged. The views expressed in this paper are not necessarily those of the Dubai Economic Council or the Government of Dubai.

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First published in 2011 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Abstract

The 1990s ushered the world not only into a democracy wave, following the collapse of the former Soviet Union, but also into a wave of Fiscal Rules, where the number of countries adopting this fiscal regime steadily rose from only 10 in 1990 to 97 in 2009. Countries that depend on hydrocarbons, in general, tend to suffer from fiscal policies that are highly susceptible to energy price shocks. This provides incentives for implementing fiscal stabilization instruments in the form of fiscal rules. However, the resource-rich but largely democracy-deficient MENA region has been a fiscal rules-free region. Against this backdrop, this paper asks two fundamental questions: Why have MENA countries chosen not to adopt fiscal rules? And what role, if any, might have resource dependence and political institutions played in this outcome? We find that the lack of democracy and the weak systems of political checks and balances that characterize MENA countries appear to have outweighed the positive impacts of oil resources, so that fiscal instability persists despite ample oil revenues. The nascent Arab democracy spring might tip the scale in favor of adopting fiscal rules by emerging democratic governments in the region. However, stronger systems of political checks and balances are also needed and, unfortunately, are not necessarily a certain outcome of the current political changes. . A move toward inflation targeting regimes, as proposed for Tunisia and Egypt, might also provide additional impetus for adopting fiscal rules as the evidence of Chile and other inflation-targeting countries suggests.

ملخص

بشرت فترة التسعينيات في العالم ليس فقط بموجة الديمقراطية، في أعقاب انهيار الاتحاد السوفياتي السابق، ولكن أيضا بموجة من القواعد المالية ، حيث ارتفع عدد البلدان التي تعتمد هذا النظام المالي باطراد من 10 فقط في عام 1990 إلى 97 في 2009 . وبشكل عام تعاني البلدان التي تعتمد على الهيدروكربونات من السياسات المالية التي هي عرضة لصدمات أسعار الطاقة. وهذا يوفر الحافز لتنفيذ الاستقرار المالي في شكل قواعد مالية. ومع ذلك ، وان كانت منطقة الشرق الأوسط غنية بالموارد الطبيعية الا انها منطقة ناقصة الديمقراطية وخالية من القواعد المالية. على هذه الخلفية، فإن هذه الورقة توجه سؤالين أساسيين : لماذا اختارت بلدان المنطقة عدم اعتماد القواعد المالية؟ وما هو الدور، إن وجد، الذي لعبته كل من المؤسسات السياسية والاعتماد على الموارد في هذه النتيجة؟ نجد أن غياب الديمقراطية والنظم السياسية الضعيفة والأرصدة التي تميز بلدان المنطقة على ما يبدو تفوق الآثار الإيجابية من وجود الموارد النفطية، بحيث ان الاستقرار المالي استمر بالرغم من وفرة عائدات النفط. قد يرجح ربيع الديمقراطية العربية الوليد كفة الميزان لصالح اعتماد القواعد المالية عن طريق الحكومات الديمقراطية الناشئة في المنطقة. ومع ذلك ، هناك حاجة أيضا إلى تقوية نظم الضوابط والموازين السياسية، و هي للأسف، ليست بالضرورة النتيجة المتوقعة من التغييرات السياسية الحالية. . وقد يكون التحرك في اتجاه أنظمة استهداف التضخم، على النحو المقترح لتونس ومصر ، يمكن ايضا ان توفر حافزا إضافيا لاعتماد القواعد المالية كما يشيرالدليل على تشيلي وغيرها من البلدان التى تستهدف التضخم.

1. Introduction

The economies of the MENA region are significantly dependent on the hydrocarbon sector and as such are highly susceptible to oil price shocks. Not only do most countries of the region sit on substantial oil and gas reserves but the share of their natural resource rents to their GDPs are among the highest in the world (figure 1). Macroeconomic management is complicated by the failure of most MENA countries to use counter-cyclical policy in response to the oil cycle. Instead, fiscal policy tends to be highly pro-cyclical with respect to commodity prices, where governments typically fail to raise savings (net of expenditure) in boom times to sustain bad times when prices slow down. For oil-producing countries, for example, Medas and Zakharova (2009) show that the non-oil primary balance was negatively correlated with oil prices (figure 2). - This suggests that, when properly measured to avoid the effect of cyclical upswings in oil prices, fiscal balances actually deteriorate rather than improve during oil booms.

Literature on the topic links the observed pro-cyclicality of fiscal policy in developing countries to two main factors. First, unlike developed countries, automatic stabilizers, such as progressive taxes and cycle-sensitive transfer programs, are relatively weak in developing countries. Second, and more importantly, fiscal policy tends to be pro-cyclical in developing countries because discretionary policy is itself pro-cyclical. However, the ultimate causes are deeply political and institutional, as governments in most of these countries do not have political incentives to save in good times nor are they constrained by institutions that force them to do so. Consequently some scholars have argued that these countries need explicit fiscal rules to constrain discretionary policy, and to impose forced savings during upswings to allow for smoothing of consumption during downswing (Servén and Al Sadik 2011). Analyzing the determinants of the likelihood of adopting fiscal rules by developing countries, especially those depending on resource rents, should therefore be an important research and policy topic.

This paper attempts to contribute to this literature by assessing the factors determining the adoption (or rather the lack of adoption) of fiscal rules in MENA[1]. In our view, in no other region are the following questions more relevant than in resource-dependent MENA: What makes developing countries prone to pro-cyclical fiscal policy, what impact might fiscal rules have in mitigating this phenomenon and why do some countries adopt these rules while most others do not? The high dependence on resource rents in this region should be associated with a high demand for fiscal rules in order to deal with commodity-driven pro-cyclicality. However, MENA is essentially a fiscal rules-free region. Since fiscal rules generally require broad political consensus and political instruments for their enforcement, the glaring democracy deficit and relative weakness of political systems of checks and balances in MENA maybe among the pivotal underlying factors behind the absence of fiscal rules in this region. We will probe further into these issues in section 2.

Despite the existing theoretical ground for applying fiscal rules (since the seminal contribution of Kydland and Prescott in 1977) the available literature on their macroeconomic and institutional determinants remains limited[2]. However, a recent comprehensive empirical

[1] We adopt an extended definition of MENA that includes in addition to Iran and Turkey, all member countries of the Arab League for which data is available. In particular, this group includes the Sub-Saharan African Arab countries of Mauritania and Sudan, which are not normally included in MENA.

[2] This is perhaps due to the fact that fiscal policy as a stabilizing macroeconomic instrument has been sidelined in academic and policy debates in the years of Great Moderation, while the dominant strand of the literature emphasized the role of monetary policy as the key economic policy tool (e.g. Friedman 1968 and Taylor 1993). This, however, has started to change in the aftermath of the current global economic crisis, where the effectiveness of fiscal policy in fostering aggregate demand through to the operation of the Keynesian multiplier effects has started to gain some credence in policy circles.

paper (Elbadawi et al. 2011) finds that the likelihood of adopting fiscal rules can be explained in terms of a large set of fiscal, financial, monetary and exchange rate development variables, in addition to political institutions.

Motivated by the characteristics of MENA, in addition to its heavy dependence on oil, this paper asks two fundamental questions. First, compared to other regions, is MENA different in the sense that there exists a significant negative MENA dummy in the fiscal regime selection model that cannot be explained by the standard determinants in previous literature? And, second, assuming that MENA is different, and controlling for the standard determinants of the decision to adopt fiscal rules, can the trio of democracy deficit, limited checks and balances and heavy oil-dependence explain the MENA dummy or at least reduce its influence?

The empirical evidence indicates that there is a strong correlation between the adoption of fiscal rules and the presence of high levels of democracy and strong systems of checks and balances. Ceteris paribus, oil producing countries tend to be more prone to fiscal rules. Consequently, in oil-exporting MENA countries, the reluctance to adopt fiscal rules has been compounded by lower levels of democracy and weak systems of political checks and balances. Our results also provide deeper insights. First, the effect of democracy on the likelihood of enforcing fiscal rules is much weaker when checks and balances are weak. Second, the latter tends to have an independent and stronger effect. Third, the two variables combined reinforce each other in promoting the adoption of fiscal rules. This insight is important because democracy, which mainly measures the competitiveness of the political process, is largely but not perfectly correlated with strong checks and balances.

Section 2 undertakes a preliminary analysis of the likely impact of MENA's resource rents and democracy deficit, and its relatively lackluster institutions of political checks and balances in explaining the failure of any country in the region to adopt fiscal rules. Section 3 provides a summary description of the set of the explanatory variables employed in the empirical estimation, discusses the general specification for the probability of having a fiscal regime in place and describes the panel-data methods for discrete-choice dependent variables that are applied subsequently. Section 4 briefly describes the data, analyses and results of the econometric estimation. Section 5 concludes and suggests some broad policy implications for MENA.

2. Resource Rents, Polity and Fiscal Rules in MENA

Figure 1 makes it clear that overall MENA region is highly dependent on resource rents. In 12 of the 21 countries in the extended MENA sample, the share of resources rents over GDP was above 25% in the period 2000-2009 (the world average being only 10%). In some countries, such as Iraq, resource rents are as high as 90% of GDP while in Libya, Kuwait and Saudi Arabia they are around 50% of GDP. Turkey, the largest economy in the region, is not dependent on resource rents and a few other countries in the region either draw relatively small or declining revenues from oil and gas (e.g., Egypt and Syria). Nevertheless, the direct revenue share of resource rents actually understates their significance in MENA. For example, remittances and capital inflows originating from the resource-rich and capital-surplus GCC countries are likely to have transmitted strong oil-driven cyclicality into the recipient countries of the region. As conjectured above, since these economies are more susceptible to external cyclical shocks, it is natural to expect that there should be higher demand for fiscal rules. However, while the number of emerging market economies adopting some form of a fiscal rule has risen from less than five in 1990 to 51 in 2008, no MENA country has joined this group so far (figure 3).

Fiscal rules include budget balance rules (overall balance, structural or cyclically adjusted balance, and balance "over the cycle" aimed at putting a ceiling on the debt-to-GDP ratio); primary balance

rules (less linked to debt sustainability as they exclude interest payments and even capital expenditures from the balance); debt rules that set an explicit limit or target for public debt as a percent of GDP (most effective in terms of ensuring convergence to a debt target but unable to provide sufficient guidance for fiscal policy when debt is well below its ceiling); expenditure rules (permanent limits on total, primary, or current spending in absolute terms, growth rates, or in percent of GDP); and revenue rules (which set ceilings or floors on revenues and are aimed at boosting revenue collection and/or preventing an excessive tax burden).

However, we hasten to caution that most of the better known types of fiscal rules are not necessarily inherently counter-cyclical, though they are at least not pro-cyclical. This category includes the set of guidelines in fiscal matters contained in the Maastricht convergence criteria, and later in the Stability and Growth Pact of 1997 for European countries. These guidelines establish that the government budget deficit should not be more than three percent of GDP in each country and that the gross debt to GDP ratio should not exceed 60 percent. These can be considered as flow and stock fiscal rules, respectively. These kinds of fiscal rules have been used mainly by the developed world (e.g. United Kingdom, Switzerland, Sweden and New Zealand) as a tool for being neutral during the cycle. On the other hand, more recently Chile in 2001 adopted a structural fiscal rule that takes into account the deviation of copper price from its permanent value. As such, the Chilean fiscal rule entails explicit stock and flow elements of counter-cyclicality.

The availability of data on fiscal rules is limited. Elbadawi et al. (2011) extend the IMF (2009) database, which comprises around 80 countries with national and/or supranational fiscal rules. They classify countries using a binary variable that takes a value one if the country has any form of national fiscal rule in place and zero otherwise. We adopt this measure in the analysis of this paper. However, these authors admit that, given the above involved issues associated with fiscal rules, their measure might be criticized as simplistic and certainly not reflective of fiscal arrangements or the intensity in the enforcement of each rule.[3] However, they argue that it should be adequate for the purposes of studying the determinants of having a fiscal rule in place[4].

Compared to other high and middle-income emerging economic regions, MENA's performance is fairly similar in terms of most fiscal-rule correlates studied in the literature, except for political institutions (see table 1)[5]. This preliminary evidence is an important point of departure for a more in-depth analysis of the role of political institutions in explaining the lack of fiscal rules in MENA.

Fiscal rules are only as strong as the political consensus that can be gathered in their favor. This might require democracy as an institution that provides a platform for deliberation, processing and aggregation of information as well as mediation of strategic public policy decisions among social groups with different preferences. Therefore, democracy, we would argue, is necessary, though may not necessarily be sufficient, for fiscal rules. We use the Polity2 measure of democracy (compiled by the Polity IV Project, 2010). The Polity Index is based on two concepts: "institutionalized democracy" (DEM) and "institutionalized autocracy" (AUT). The DEM score is coded according to four measures of regime

[3] As rules cannot provide clauses for all contingencies, several loopholes are left that governments can exploit to run up deficits under some circumstances. The violation of fiscal rules in recent years attests to the ease with which fiscal rules can be modified.

[4] Elbadawi et al. (2011) also undertake sensitivity analyses with respect to the classification of countries—to see if the determinants of national rules are different than those of supranational rules— and control for elements that indicate the degree of enforcement of fiscal rules in each country. We do not undertake these robustness checks, because theirs are likely to carry over for our case since we use the same sample.

[5] Other exceptions include inflation and capital openness; with both being higher I MEA than the average for the rest of the sample.

characteristics: competitiveness of executive recruitment; openness of executive recruitment; constraints on the chief executive; and competitiveness of political participation. These measures, along with regulation of participation, contribute to the AUT score. The Polity score (POL) is computed by subtracting the AUT score from the DEM score, resulting in a score that ranges from -10 (strongly autocratic) to 10 (strongly democratic).

Moreover, fiscal rules can also be primarily thought of as the manifestation of an implicit contract with the electorate, a public signal of the commitment to maintain mutually agreed standards of fiscal discipline (Debrun and Kumar 2007). We operationalize this concept by using the recently developed index of Political Constraints (POLCON-V) developed originally by Henisz and later refined and extended by Henisz and Zelner (2010). This index is a quantitative measure of the institutional constraints faced by authorities and evaluates the extent to which any one political actor or the replacement for any one actor (e.g., the executive or a chamber of the legislature) is constrained in his or her choice of future policies.

Therefore, the rather peculiar characteristic of being a fiscal rules-free region is also mirrored in MENA's, or strictly speaking the Arab world's, dubious distinction in terms of its appallingly low standards of democracy (figure 4) as well as its lackluster system of political checks and balances (figure 5). It can be seen that, while democracy levels in MENA countries were similar to non-MENA countries in the 1970s, the democratization wave of the 1990s did not reach the region. As of the late 2000s, democracy indices have not improved at all in MENA and currently stand significantly below world standards. Likewise, checks and balances are substantially below standards in the region: MENA countries have resisted the international wave towards increasing government accountability and the minor improvement in the early 1990s had disappeared by the late 2000s. One possible explanation of these findings is that the ruling elites in this region have been largely successful in maintaining their long-reigning rule through an (implicit) "authoritarian bargain"[6] with the public over access to more oil rents or more democracy. However, the long-term viability of this authoritarian bargain is now doubtful with the advent of the current "Arab Spring".

Nonetheless, this implicit authoritarian bargain, we would argue, generates the perverse political incentive for overspending in a boom, while the absence of strong checks and balances creates an enabling environment for pro-cyclical policy. This presumed causal link between political institutions and fiscal rules will be formally tested in section 4, following the statement of the model and discussion of econometric issues in the following section.

3. Modeling the Adoption of Fiscal Rule

The few available papers in the previous literature, mostly notably the works of Kopits (Kopits 2004; Kopits and Symansky 1998), have been focused on explanatory variables associated with fiscal conditions. However, more recently Calderón and Schmidt-Hebbel (2010) and Elbadawi, Schmidt-Hebbel and Soto (2011) posit more encompassing empirical models that account for a wider class of potential determinants. We follow this paper, which accounts for five sets of variables, including institutional and political variables, monetary and exchange-rate regimes, financial environment, fiscal conditions, and overall development level.

We briefly review these variables before discussing the econometric model that we plan to estimate in the following section.

[6] See Elbadawi and Makdisi (2010).

3.1 Institutional and political variables

We already discussed democracy and checks and balances, the two pivotal political institutions that are likely to be critically important for the adoption of fiscal rule. As we argue above, democracy provides a platform for mediating strategic public policy decisions that might entail major tradeoffs for social groups in a society, such as whether or not to adopt fiscal rules. On the other hand, institutionalized checks and balances provide safeguards against potential manipulation or avoidance of rules.

Beyond political structures, another economic institution affecting fiscal responsibility relates to federalism. Federal countries have different fiscal structures and face issues that unitary countries avoid altogether by centralizing fiscal decisions (Feld and Schnellenbach 2010). We use a *de-jure* definition of a country as federal or unitary because it is clearly exogenous with respect to the fiscal rule.[7] Finally, we also include a measure of the perceived political stability of government, as measured by the ICRG index.

3.2 Fiscal conditions

The more institutional aspects of the government structure undoubtedly impinge upon the likelihood of adopting fiscal rules. These include the services it provides, the budgetary management of resources, and the flexibility in the allocation of fiscal expenditures. We include the dependency ratio (the ratio of the population that is economically inactive to the labor force) as a measure of the pressure on government expenditures to maintain the expenses and pensions of the dependent. We also include the (lagged) government budget balance as a measure of the fiscal stance. Sustained government surpluses raise the likelihood of adopting a fiscal regime— intrinsically well-behaved governments may adopt strict rules and institutions to reveal the nature of their (unobservable) preferences (Debrun and Kumar 2007). The reverse causality could also be present, because institutions are effective commitment devices that generate observed fiscal outcomes. Finally, we include the pro-cyclical stance of the government. We expect that countries with budget institutions prone to pro-cyclical expenditures would be less willing to subject themselves to the discipline of a fiscal rule. Pro-cyclical government expenditures could be the result of government's inability to access credit markets and smooth out expenditures (Gavin and Perotti 1997), corruption (Alesina and Tabellini 2005) and/or voracity effects (Talvi and Vegh 2005).

3.3 Financial environment

We use an institutional measure of the openness of the economy to international financial transactions.[8] The KAOPEN measure developed by Chinn and Ito (2008) and updated by the authors in 2009 is based on binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. It can be seen that the measure is largely of an institutional nature and, consequently, likely exogenous with respect to fiscal rules.

3.4 Monetary and exchange-rate frameworks

We include a discrete (binary) variable to capture the cases where monetary policy conduct follows an inflation targeting rule. Inflation targeting requires central banks to commit to a pre-announced, explicit target for inflation as well as developing a highly transparent set of

[7] In most cases the de-jure classification matches the de-facto fiscal structure. In a few cases, most notably Spain, while the country is de jure unitary, one could argue that to a large extent they operate fiscal structure that are so decentralized that they resemble federal economies.

[8] Measures on the depth and development of the domestic financial sector— such as financial credit to the private sector or foreign liabilities— were also included in preliminary analyses but later eliminated because their availability is somewhat limited and, more importantly, because they tend to be highly collinear with GDP per capita. The latter is preferred as an overall representative of economic development.

rules for operating monetary instruments and providing information to the public. Evidence indicates that inflation targeting may provide an incentive for governments to improve institutional quality in order to enhance tax revenue performance (Elbadawi et al. 2011).

Additionally, the exchange rate regime may affect the choice of fiscal rules. The vast majority of the literature studies the reverse causality, by which fiscal (mis)management may force countries to adopt a particular exchange regime. Giavazzi and Pagano (1988), among others, suggest that fixed regimes provide more fiscal discipline than the flexible ones. If governments adopt lax fiscal policies, under a fixed exchange rate it would lead to an exhaustion of reserves and consequently to the collapse of the currency. Because the eventual collapse of the fixed exchange rate would imply a political cost for the policy maker, fixed regimes impose discipline on the fiscal authorities. Tornell and Velasco (2000) and others stress the opposite rationale: under certain conditions (usually linked to uncertainty of fiscal authorities about their re-election and lack of access to capital markets), more discipline is achieved in flexible exchange systems where fiscal mismanagement manifests immediately in movements of the exchange rate and the price level. Under fixed regimes, on the other hand, unsound policies manifest in falling reserves or exploding debts, making their costs effective only when the situation is unsustainable.

We use the updated data of Reinhart and Rogoff (2004) on de facto classification of exchange regimes in a large sample of countries to construct a dummy variable taking a value one if the country has a fixed exchange rate regime and zero otherwise. Because our interest is mainly on institutions and government rules, we consider as fixed exchange rate systems only dollarization, currency boards, and monetary unions. To account for (unlikely) mutual causation between these extreme and largely institutional fixed exchange regimes and fiscal rules, we use lagged values in the regressions.

3.5 Overall development level

We also control in our regressions for the overall level of development, for which we use per capita GDP in real terms (US$ of 2000). Most of the literature has focused on the reverse causality, i.e., on the impact of fiscal rules on economic growth (see Castro (2011) for a survey). While in principle the choice of a fiscal rule ought not to be correlated with the degree of development of the economy, it is nevertheless intuitive that fiscal authorities in richer economies could have more resources (human and financial) available to undertake the relatively complex task of implementing, monitoring and evaluating the operation of a fiscal rule.

3.6 MENA "specific" variables

We consider here the high dependency of MENA on the hydrocarbon sector and its lack of democracy and political checks and balances as factors that are likely to be particularly influential for explaining the likelihood of adoption of fiscal rule in this region, though strictly speaking these factors are not, of course, specific to MENA. As discussed, the lack of democracy and political checks and balances are expected to reduce the likelihood of adoption of fiscal rules. Instead, heavy dependence on natural resource rents is likely to promote the choice of fiscal rule in order to stem the ensuing pro-cyclicality of fiscal policy.

It would be interesting to assess the marginal contribution of these variables after controlling for the above mentioned standard controls, for which MENA is not very different from the other regions. Moreover, another important econometric and policy question is: are these MENA "specific" factors able to fully explain the phenomena of a fiscal rule-free MENA?

3.7 The Econometric Model

The existence of a fiscal rule in a country is modeled using a discrete (binary) variable taking a value one if such rules are in place and zero otherwise. We, therefore, estimate non-linear,

discrete variable panel-data models. These type of models raise several econometric issues related to the choice of fixed versus random individual effects and between logit and probit specifications.

The conventional wisdom in linear models indicates that fixed effects estimators are preferred to random effects estimators when the individual effects themselves are thought to be correlated with the included control variables. On the other hand, the random effects estimator is more parsimonious and is thus preferred when correlation between effects and control variables is absent.

The properties of the estimators in non-linear panel data models do not necessarily follow such conventional wisdom. The fixed-effects estimator suffers from the incidental parameter problem (Neyman and Scott 1948) which makes the estimator biased when the time series dimension (T) is fixed even if the number of countries (N) increases. The incidental parameter problem arises from the fact that, in general, the estimator of the parameters of interest will depend on the estimator of the individual effects. However, when using the logistic distribution specification, the incidental parameter can be avoided altogether if one focuses on the conditional fixed-effects logit estimator. This estimator focuses only on countries that have implemented the fiscal rule and eliminates all others that do not enact a rule or have the same one for the complete period. The latter do not provide useful information. The conditional logit estimator is consistent, but has a major shortcoming: by avoiding the estimation of the fixed effects it precludes computation of the partial effects or estimates of the probabilities for the outcomes. The fixed-effects probit model, on the other hand, is not widely used because estimators are biased and it is computationally cumbersome.

Thus, in applying the fixed-effects estimator to models with qualitative dependent variables based on panel data, the conditional logit model seems to be the preferred choice. Nevertheless, it requires strict exogeneity of the regressors, and stationarity over time. Because these conditions are frequently violated in economic data, the random-effects estimator is an attractive alternative. In the panel data context, the probit model is computationally tractable while the logit model is not. The only limitation of probit models is that they require normal distributions for all unobserved components, a feature that may characterize most unobserved, random components but that is notoriously absent in cases where variables are truncated (e.g., prices must be positive).

In the light of the above discussion our preferred empirical model will be the discrete choice random-effects probit and our econometric strategy will be as follows.

Benchmark regressions:

$$FR_{it}(1 = yes, 0 = no) = f(\beta, \mu_i | x_{it}, MENA) \quad (1)$$

where $FR_{it}(1 = yes, 0 = no)$ is an indicator variable taking the value 1 if fiscal rules are in place, x_{it} is the set of all explanatory variables, except rents per capita (Rent_pc); democracy (Polity), Checks and Balances}, MENA is a dummy for the extended MENA member countries, and μ_i is a country-specific random effect.

Extended regressions:

$$FR_{it}(1 = yes, 0 = no) = f\left(\beta, \mu_i | x_{it}, MENA_i, Rents\_pc_{it}\right) \quad (2)$$

$$FR_{it}(1 = yes, 0 = no) = f\left(\beta, \mu_i | x_{it}, MENA_i, Rents\_pc_{it}, Polity_{it}\right) \quad (3)$$

$$(FR_{it}(1 = yes, 0 = no) = f\left(\beta, \mu_i | x_{it}, MENA_i, Rents\_pc_{it}, \quad Checks\ and\ Balances_{it}\right) \quad (4)$$

$$FR_{it}(1 = yes, 0 = no) = f\left(\beta, \mu_i | x_{it}, MENA_i, Rents\_pc_{it}, Polity_{it}, Checks\ and\ Balances_{it}\right) \quad (5)$$

The extended regressions are designed to account for what we loosely regard as MENA-"specific" factors.

4. Econometric Results

Guided by the above econometric strategy we estimate several pooled and random-effects discrete choice regressions. Appendix table A.1 provides a summary description and data sources of the variables used in the regression; and table A.2 provides country information on fiscal rules, inflation targeting and whether a country adopts a federal or a centralized system of government.

We start by briefly highlighting the results of the pooled probit and logit regressions (table 2). The results lend a mixed support to the conceptual framework discussed above, with most variables robustly associated with the decision probability as predicted by the conceptual framework. However, a few other determinants fail to have significant effects, including democracy, openness, fixed exchange rate regime, and GDP per capita. Moreover, resource rents per capita, which is a key feature of the MENA region is not significant, while the MENA regional dummy was found to be negatively and highly associated with the choice of fiscal rule. We do not pursue further analysis of the pooled regression results, however, because they do not account for country heterogeneity, which we find to be highly significant according to the Likelihood Ratio test (table 3).

Instead, we undertake a detailed discussion of the estimation results of the random-effects probit model of table 3, based on a large sample of at least 2,194 country-years over 1975-2008, for which data is available. The results of this model lend a much more robust support to the predictions of the model than do the pooled regressions.

4.1 The benchmark model

Starting with the benchmark regression (column 1, table 3), the results lend very strong support to this extended model, which is extensively studied by Elbadawi et al. (2011). First, GDP per capita, reflecting the level of development, is positively and robustly associated with the adoption of fiscal rules. Though there may not be an intuitive theoretical reason as to why more developed countries should have fiscal rules, this result suggests that perhaps it is easier for them to adopt such rules because, compared to developing countries, it is less challenging for them to manage the rather complex operation of this system. Second, fiscal conditions— being the most obvious correlates of fiscal rules— are not surprisingly also empirically relevant to the decision. Countries running fiscal surpluses are likely to adopt fiscal rules, while those with a high proportion of dependent people (less than 15-year and older than 64) are less likely to opt for a fiscal regime, reflecting the influence of child-care and pension programs as government responsibilities.

Third, under the monetary system and exchange rate regime, we find that countries adopting inflation targeting or fixed exchange rate regimes are likely to adopt fiscal rules and both variables are robustly estimated. Fourth, open capital account was positively associated with the adoption of fiscal rules, suggesting that countries that are highly integrated into the global financial system are also likely to adopt fiscal rules. Finally, the two institutional variables (of federalism and government stability) that are not necessarily MENA-specific are found to be robustly associated with fiscal rules, with the former reducing the likelihood of adoption of fiscal rules and the latter enhancing it.

Moreover, except for the case of fiscal federalism in one out of four regressions, even when accounting for the resources rents, democracy and political checks and balances (regressions

2-5), the standard correlates of fiscal rules remain highly significant. However, despite this we find a highly statistically and economically negative MENA effect in regression 1 as well as the other more encompassing ones. This suggests that this region is different. Next we consider the extended regressions that account for the three MENA-specific factors.

4.2 The extended MENA-specific factors model

Regression 2 (of table 3) adds lagged rents per capita to the benchmark regression 1. This effect was found to be positive and highly significant and remains so in the more encompassing models of regressions 3, 4 and 5. This confirms the key hypothesis that natural resource dependency should promote adoption of fiscal rules. Regression 3 accounts for democracy, while controlling for rents and other standard fundamentals. However, the results lend only weak support for democracy, which was found to be significant at the 10% level. On the other hand, in regression 4 checks and balances variable was found to have a highly significant and positive effect on fiscal rules. Moreover, when both political institutions (democracy and checks and balances) are accounted for (regression 5), their effects is much stronger, statistically and quantitatively. To summarize: though democracy was an important determinant, its effect is much weaker when the checks and balances variable is not included. On the other hand, the latter variable tends to have an independent and stronger effect while the two combined tend to reinforce each other in promoting the adoption of fiscal rules. This insight is important because democracy, which mainly measures the competitiveness of the political process, is largely but not perfectly correlated with strong checks and balances. This point is made very clear by figure 6, which presents a cross county average scatter (1975-2009) of the two variables.

Finally, as we successively add more variables to the benchmark regression of table 3, the quantitative impact of the MENA dummy is substantially reduced- reaching -6.8 in the most encompassing regression (5), compared to -46.6 for the benchmark regression (column 1). Moreover, the degree of significance of the effect is reduced from 1 to 5%. Nonetheless, the unexplained dummy effect is not fully accounted for by the combined effects of the resource rents and the two political institutions.

5. Conclusions and Policy Implications for MENA

The 1990s ushered the world not only into a democracy wave, following the collapse of the former Soviet Union, but also into a wave of Fiscal Rules, where the number of countries adopting this fiscal regime steadily rose from only 10 in 1990 to reach 97 in 2009, including 46 with supra-national rules in place, mostly from EU members. However, the resource-rich and largely democracy-deficient MENA region has been a fiscal rules-free region. Against this backdrop, this paper asks two important questions: Why have MENA countries not chosen to adopt fiscal rules? And what role, if any, has resource dependence and political institutions played in this outcome?

This paper contributes to a line of nascent literature, comprised of only three previous studies, by extending the analytical framework for analyzing the potential determinants of the choice of *de jure* national fiscal rules by accounting for the specific endowment and political institutions of the MENA region. We specify a benchmark model derived from the received literature, which accounts for five sets of potential determinants spanning political institutions (government stability, federalism); fiscal policy conditions; monetary and exchange rate regimes; financial market development ad overall development. To this model we also add a MENA dummy to account for the unexplained MENA-specific effect. Next, we specify the extended MENA-specific factors model, which also accounts for resource rents; democracy and political checks and balances.

Following the recommendations of Elbadawi et al. (2011), who undertake an extensive review of the state of non-linear panel data econometrics for discrete dependent variable, we

used a random-effects probit model to estimate the adoption decision probability of fiscal rules using the expanded global panel data sample developed by these authors. Our results lend strong support to the benchmark model, in that the core set of correlates were found to be robustly associated with the adoption decision of fiscal rules and according to the predictions of the conceptual framework. Moreover, these variables also survive the addition of the endowment and political variables in the extended model.

The extended model that accounts for MENA-specific factors further corroborates the main hypotheses of this paper on that resource rents should promote adoption of fiscal rules; with higher standard of democracy and stronger political checks and balances further strengthening the fiscal rule option. Moreover, our results also provide a deeper insight. First, though democracy was an important determinant, its effect is much weaker when the checks and balances variable is not included. Second, on the other hand, the latter variable tends to have an independent and stronger effect. Third, however, both combined tend to reinforce each other in promoting the adoption of fiscal rules. This insight is important because democracy, which mainly measures the competitiveness of the political process, is largely but not perfectly correlated with strong checks and balances.

It is not surprising that the standard controls were inadequate in explaining the MENA dummy, which was found to be highly negative and significant in the benchmark regression. By adding the endowment and political variables in the extended model the quantitative impact of the MENA dummy is significantly reduced, especially in the most encompassing regression, which includes rents per capita as well as both of democracy and political checks and balances. Moreover, under the latter regression the degree of significance of the unexplained MENA effect is also reduced from 1 to 5%. Nonetheless, the results suggest that MENA is still different even after accounting for joint effects of the resource rents and the two political institutions.

So what are the likely implications of this paper's findings for MENA. We think several policy issues can be gleaned. First, lack of democracy and perhaps more importantly weak systems of political checks and balances that characterize most countries in this region appear to have outweighed the positive impact of the high oil dependency, thus perhaps contributing to the failure of countries in the region to adopt fiscal rule, despite the obvious need for such fiscal institutions for promoting counter-cyclicality and insulating their non-oil economies from the high oil-driven volatility. To the extent that the nascent Arab "democracy spring" scales up and transforms the whole or most of the region, the ensuing regional democratic transformation might tip the scale in favor of adopting fiscal rules. However, this might not be enough unless the democracy wave also leads to stronger systems of political checks and balances which unfortunately is not necessarily a certain outcome. Finally, as many countries in the region, especially those with diversified economies, such as Egypt and Tunisia, move toward inflation targeting regimes, this might also provide another impetus for adoption of fiscal rules, as the evidence of Chile and other inflation-targeting countries suggests that the sustainability of the former is likely to require having fiscal rules in place.

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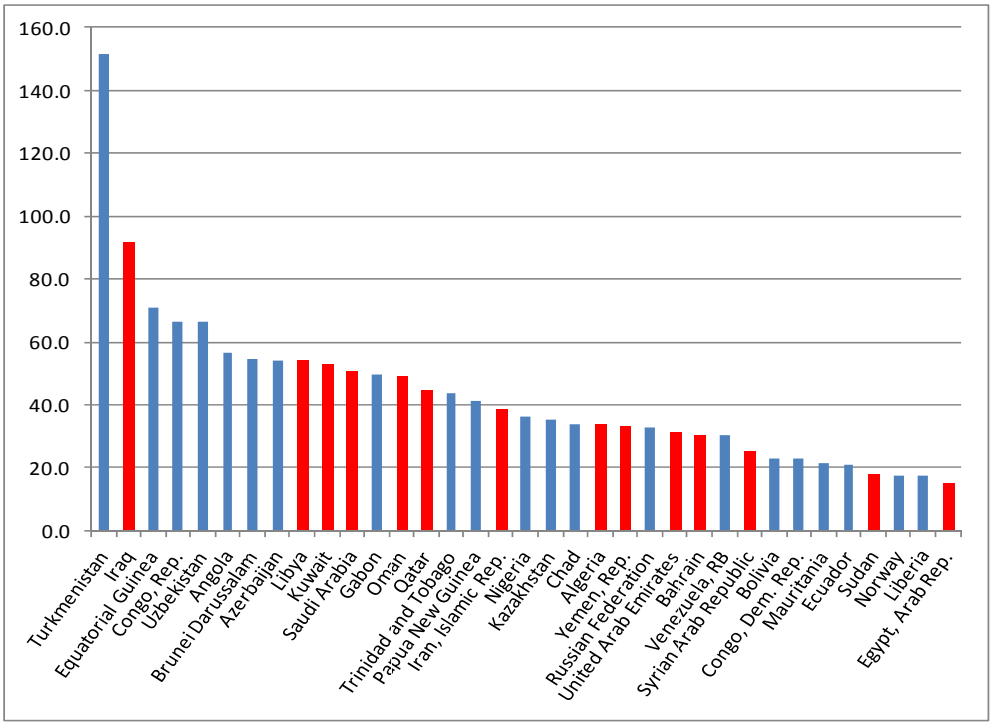
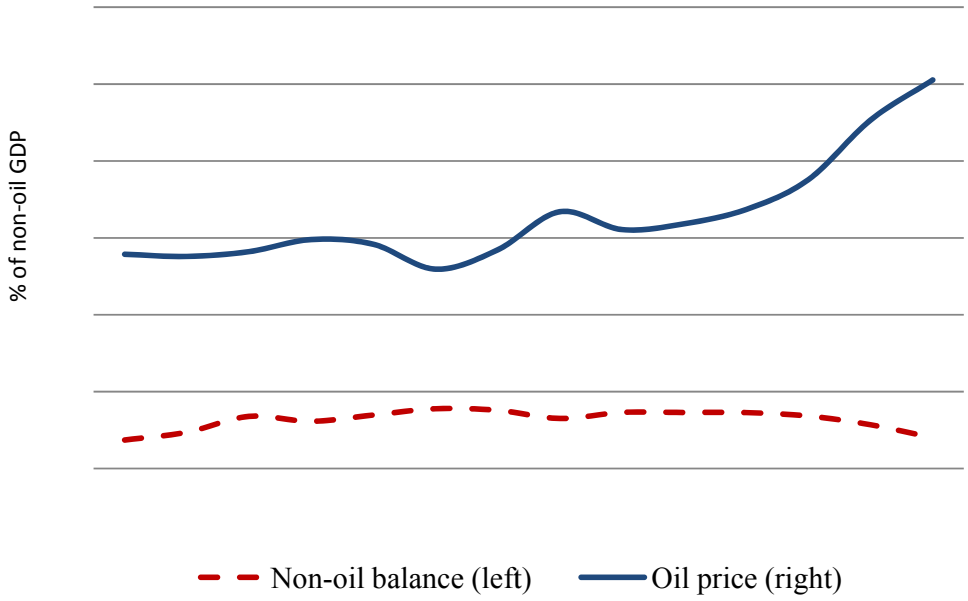
Figure 1: Natural Resource Rents (% of GDP), Average 2000-2009



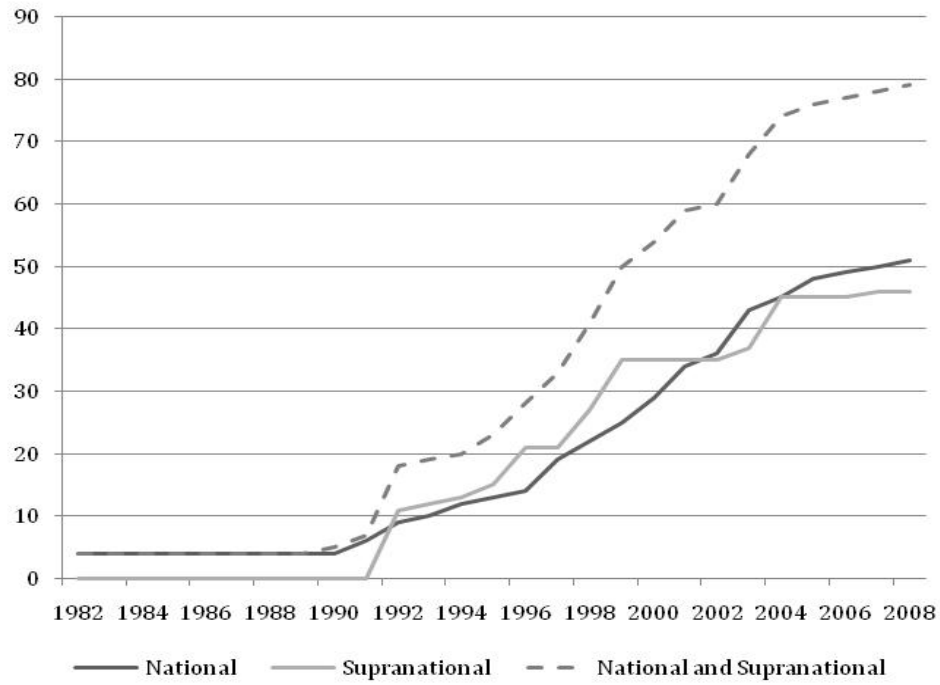
Note: MENA countries in red.
Source: World Bank Database.

Figure 2: Non-oil Primary Balance and Oil Price, 1993 – 2006



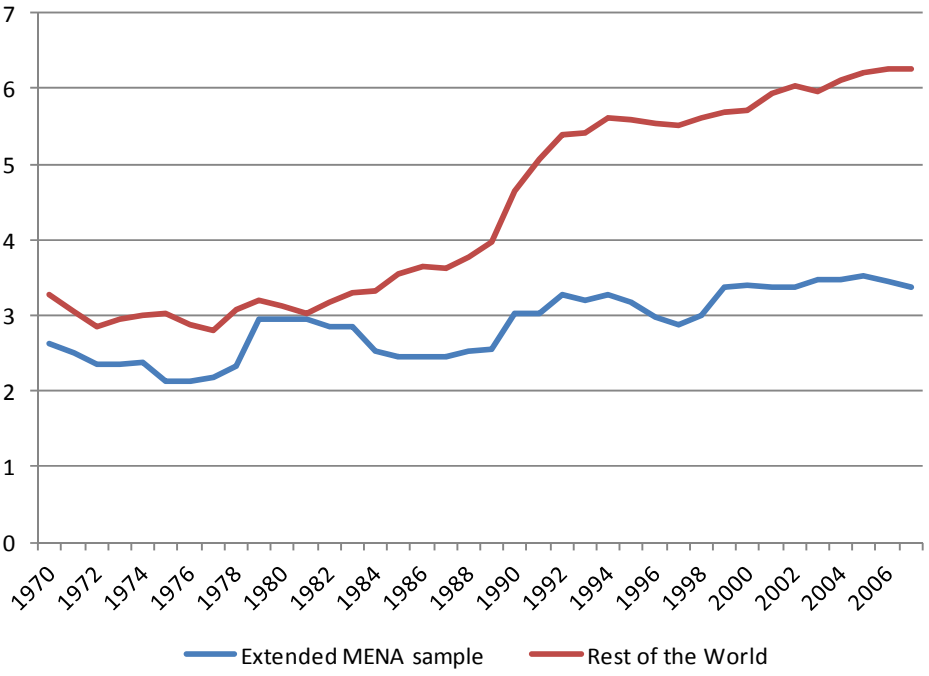
Source: Medas and Zakharova (2009).

Figure 3: Number of Countries with Fiscal Rules



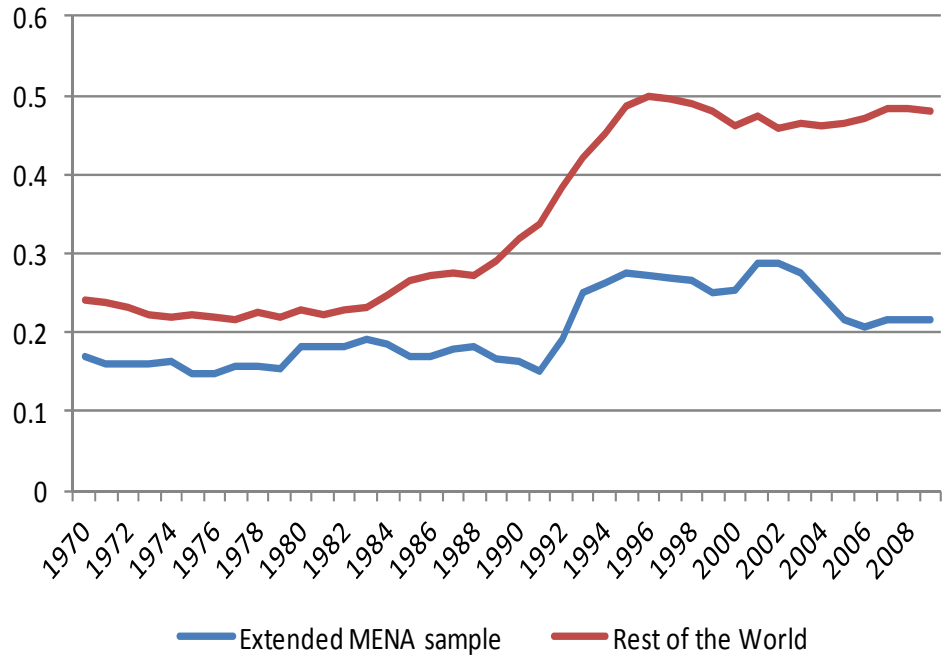
Source: Elbadawi et al. (2011).

Figure 4: The Democracy Index



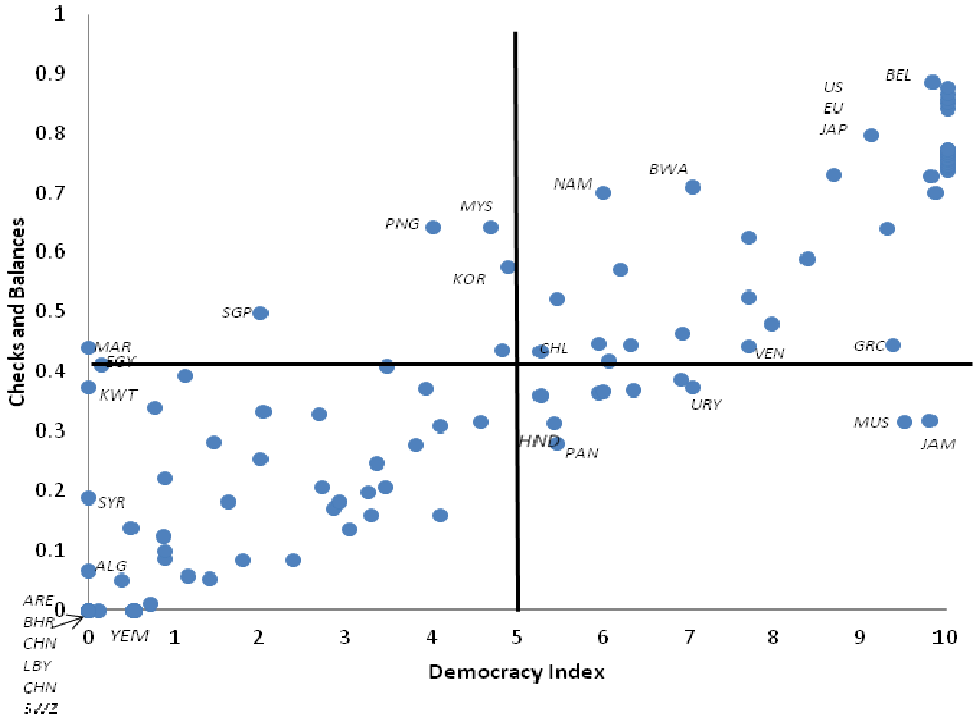
Source: Authors' elaboration based on Polity IV database.

Figure 5: Political Checks and Balances



Source: Authors' elaboration based on Henitz and Zelner (2010).

Figure 6: Scatter of political variables (average: 1975-2009)



Source: Authors' elaboration based on Henitz and Zelner (2010) and Polity IV database.

Table 1: Fiscal Rules and Correlates in and Outside MENA (average values)

	MENA countries	Non-MENA countries	Range
Checks and Balances	0.18	0.38	[0, 1]
Democracy	-3.42	1.94	[-10, 10]
Gov. Stability	7.44	7.28	[1, 12]
Inflation Target	0.31	0.05	[0, 1]
Cap. Openness	0.37	0.00	[-1.8, 2.5]
Fixed Exchange Rate	0.37	0.33	[0, 1]
Gov. Budget	-0.05	-0.05	[-13, 0.2]
Pro-cyclical Expenditures	0.20	0.16	[-1, 1]
GDP Per Capita	8.03	7.51	[4.4, 10.9]
Dependency Ratio	-0.37	-0.39	[-1.3, 0.12]
Resource Rents	1.75	0.77	[-7, 5]

Table 2: Main Econometric Results: Pooled Data

	Logit Models				Probit Models			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Menaplus	-0.58*	-0.57*	-0.94***	-0.78***	-0.33**	-0.34**	-0.53***	-0.46***
(dummy)	(0.31)	(0.31)	(0.31)	(0.31)	(0.17)	(0.17)	(0.16)	(0.16)
Checks and	2.16***	-	1.72***	-	1.22***	-	0.97***	-
Balances	(0.42)		(0.37)		(0.23)		(0.20)	
Democracy	0.02	0.01	-	-	0.01*	0.01	-	-
	(0.01)	(0.01)			(0.008)	(0.01)		
Federalism	0.74***	0.61***	0.69***	0.63***	0.48***	0.42***	0.45***	0.43***
	(0.17)	(0.17)	(0.17)	(0.17)	(0.10)	(0.10)	(0.10)	(0.09)
Government	0.10***	0.07*	0.10***	0.07*	0.06***	0.04*	0.06***	0.04*
Stability	(0.04)	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Inflation Target	1.61***	1.55***	1.64***	1.62***	0.97***	0.94***	0.99***	0.96***
	(0.18)	(0.17)	(0.18)	(0.17)	(0.10)	(0.10)	(0.10)	(0.09)
Capital Account	0.72***	0.72***	0.71***	0.70***	0.40***	0.39***	0.39***	0.38***
Openness	(0.06)	(0.06)	(0.06)	(0.06)	(0.03)	(0.03)	(0.03)	(0.03)
Fixed Exch. Rate	0.13	0.25	0.08	0.27*	0.06	0.13	0.03	0.14
	(0.18)	(0.17)	(0.17)	(0.16)	(0.10)	(0.10)	(0.09)	(0.09)
Government Budget	0.52**	0.53**	0.51**	0.54**	0.31***	0.31***	0.31***	0.32***
	(0.23)	(0.23)	(0.23)	(0.23)	(0.14)	(0.14)	(0.14)	(0.14)
Pro-cyclicality Gov.	0.31***	0.35***	0.31***	0.31***	0.18***	0.20***	0.17***	0.18***
Expend.	(0.12)	(0.12)	(0.12)	(0.12)	(0.07)	(0.07)	(0.07)	(0.07)
GDP per capita	-0.03	-0.18	-0.02	-0.16**	-0.02	-0.09*	-0.01	-0.09**
	(0.09)	(0.08)	(0.09)	(0.08)	(0.05)	(0.04)	(0.04)	(0.04)
Dependency Ratio	-2.62**	-2.26***	-2.29***	-1.92***	-1.40***	-1.18***	-1.24***	-1.02***
	(0.48)	(0.47)	(0.47)	(0.43)	(0.26)	(0.25)	(0.25)	(0.23)
Resource Rents	-0.04	-0.03	-0.07*	-0.06	-0.03	-0.02	-0.04*	-0.04*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	-3.41***	-2.78***	-3.45***	-2.68***	-1.91***	-1.64***	-1.93***	-1.56***
	(0.64)	(0.61)	(0.64)	(0.59)	(0.34)	(0.33)	(0.34)	(0.32)
Observations	2,155	2,163	2,196	2,277	2,155	2,163	2,196	2,277
Countries	89	89	89	89	89	89	89	89
Without fiscal reg.	54	54	54	54	54	54	54	54
With fiscal regime	35	35	35	35	35	35	35	35
LR statistic	603.28	580.36	597.11	618.17	613.43	589.00	607.83	627.98
Value	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likelihood	-705.21	-721.30	-716.21	-774.78	-700.13	-716.98	-710.85	-770.13

Table 3: Main Econometric Results: Random-Effects Probit Models

	(1)	(2)	(3)	(4)	(5)
Menaplus	-46.61***	-11.15***	-10.46***	-10.48***	-6.81**
	(2.25)	(1.24)	(2.46)	(1.07)	(3.22)
Checks and Balances	-	-	-	2.36***	3.54***
				(0.72)	(1.21)
Democracy	-	-	0.15*	-	0.26***
			(0.08)		(0.09)
Federalism	-2.79***	-2.66***	-2.14***	0.02	-2.81***
	(0.53)	(0.77)	(1.03)	(0.64)	(1.11)
Government Stability	0.15**	0.13***	0.16***	0.16***	0.17***
	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)
Inflation Target	1.80***	1.81***	1.90***	1.95***	2.03***
	(0.33)	(0.29)	(0.29)	(0.29)	(0.34)
Capital Account Openness	0.34**	0.48***	0.52***	0.58***	0.57***
	(0.15)	(0.13)	(0.13)	(0.12)	(0.18)
Fixed Exchange Rate	1.92***	2.09***	2.35***	2.28***	2.48***
	(0.40)	(0.35)	(0.36)	(0.31)	(0.41)
Government Budget	2.99	3.98**	3.47**	3.89**	2.90
	(2.25)	(1.94)	(1.75)	(1.83)	(2.27)
GDP per capita	5.92***	3.42***	1.78***	2.22***	4.96***
	(0.44)	(0.36)	(0.35)	(0.29)	(0.47)
Dependency Ratio	-28.17***	-20.54***	-20.74***	-20.46***	-29.07***
	(2.44)	(1.83)	(1.75)	(1.10)	(2.06)
Resource Rents	-	0.37**	0.42**	0.30**	0.41**
		(0.14)	(0.15)	(0.13)	(0.18)
Constant	-72.39***	-43.26***	-32.74***	-30.87***	-62.89***
	(3.05)	(2.13)	(2.19)	(1.83)	(2.77)
Observations	2,409	2,317	2,202	2,235	2,194
Countries	95	93	89	89	89
Without fiscal regime	58	58	54	54	54
With fiscal regime	35	35	35	35	35
LR statistic	1,070.36	973.89	874.90	852.47	886.04
Value	0.0000	0.0000	0.0000	0.0000	0.0000
Log Likelihood	-288.31	-297.04	-293.98	-299.60	-271.67

Appendix

Table A.1: Data Construction

	Variable definition	Data sources
Fiscal Rules	National rules and supranational rules were coded separately	IMF (2009)
Political Risk and Checks and Balances	Institutional constraints faced by authorities; extent to which any one political actor or the replacement for any one actor is constrained in his or her choice of future policies.	Henisz and Zelner (2010)
Democracy	Polity2 indices of the Polity IV project	Integrated Network for Societal Conflict Research (INSCR)
Government Stability	ICRG Stability Index	World Bank World Development Indicators (2011)
Inflation Targeting	Dummy	Calderon and Schmidt-Hebbel (2008) and own updates to 2010
Capital Account Openness	Chinn-Ito KAOPEN measure (based on restrictions on cross-border financial transactions as reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions.	(Chinn and Ito, 2008, updated by the authors to 2009)
Exchange Rate Regimes	Fixed exchange systems include dollarization, currency boards, and monetary unions.	Reinhart and Rogoff (2004) de-facto classification, extended to 2009 using IMF country reports.
Federalism	Dummy	Forum of Federations web page
Pro-cyclical government expenditures	Five-year rolling correlation of HP-filtered government consumption and HP-filtered GDP (both at constant prices).	World Bank World Development Indicators (2011)
Government Budget Balance	"Cash surplus/deficit (% of GDP)") complemented by data from country authorities (Ministries and central banks) to fill missing information.	World Bank World Development Indicators (2011)
Dependency Ratio:	Share of the population between 15 and 64 years of age to that of the labor force.	World Bank World Development Indicators (2011)
Real Income per capita	GDP per capita in constant 2000 US$.	World Bank World Development Indicators (2011)
Financial Development	Domestic credit to private sector (% of GDP).	World Bank World Development Indicators (2011)

Table A.2 Fiscal Rules, Federalism, and Inflation Targeting

	Fiscal Rules		Federal country	Inflation Targeting		Fiscal Rules		Federal country	Inflation Targeting
	National	Supranat				National	Supranat		
Angola	2005				**Italy**		1992		
Ant & Barb.		1998			**Japan**	1975			
Argentina	2000		1		**Kenya**	1997			
Australia	1998		1	1993	**Korea, Rep.**				1998
Austria	1999	1995	1		**Latvia**		2003		
Belgium		1992	1		**Lithuania**	1997	2004		
Benin		1999			**Luxembourg**	1990	1992		
Botswana	2003			2008	**Madagascar**	2006			
Brazil	2000		1	1999	**Mali**		1999		
Bulgaria	2003			2007	**Malta**		2004		
B. Faso		1999			**Mauritius**	2008			
Cameroon		1996			**Mexico**	1975		1	1999
Canada	1991		1	1991	**Namibia**	2001			
Cape Verde	1998				**Netherlands**	1994	1992		
CAF		1996			**New Zealand**	1994	1994		1990
Chad		1996			**Niger**		1999		
Chile	2000			1991	**Nigeria**	2004		1	
Colombia	1997			2000	**Norway**	2001			2001
Comoros	2001		1		**Pakistan**	2005		1	
Congo, Rep.		1996			**Panama**	2002			
Costa Rica	2001				**Peru**	2000			2002
Cote d'Ivoire		1999			**Philippines**				2002
Cyprus		2003			**Poland**	1997	2004		2004
Czech Rep.	2005	2004		1998	**Portugal**	2002	1992		
Denmark	1992	1992			**Romania**		2007		2005
Dominica		1998			**Senegal**		1999		
Ecuador	2003				**Singapore**	1991			
Estonia	1993	2004			**Slovak Rep.**		2004		2005
Finland*	1999	1995		1993	**Slovenia**	2001	2004		
France	1998	1992			**South Africa**			1	2000
Gabon		1996			**Spain***	2003	1992		1995
Germany	1975	1993	1		**Sri Lanka**	2003			
Ghana				2007	**St. Kitts Nevis**		1998	1	
Greece		1992			**St. Lucia**		1998		
Grenada		1998			**St. Vincent**		1998		
G.-Bissau		1999			**Sweden**	1996	1995		1993
Hong Kong	1997				**Switzerland**	2003		1	2000
Hungary	2007	2004		2002	**Thailand**				2000
Iceland	2004			2001	**Togo**		1999		
India	2003		1		**Turkey**				2006
Indonesia	1975			2005	**UAE**			1	
Ireland		1992			**UK**	1997	1992		1992
Israel	1992			1992	**Venezuela**	1999		1	

Notes: Dates reported for fiscal rules and for inflation targeting are the years when the corresponding regimes were started. (*) Finland and Spain had inflation targeting schemes but abandoned them when joining the euro.
Source: Elbadawi et al. (2011).