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Pipeline Volatility: Lessons from the Operational Program Report (OPR)

Office of Strategic Planning and Development Effectiveness

Leopoldo Avellán
John León-Díaz

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Pipeline Volatility: Lessons from the Operational Program Report (OPR)

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Abstract

This note sheds light on specific characteristics at the project and country level that contribute to the volatility in the approval rate of Inter-American Development Bank (IDB) projects from year to year. It focuses on investment projects with sovereign guarantees included in the Operational Program Report (OPR), which lists projects to be considered for approval during the year. The variability in the approval rate depends more on specific project characteristics (such as the state or preparation of the project, the relative size of the project, and the number of projects in the pipeline) than on aggregate macroeconomic conditions faced by countries (such as political and economic cycles, and volatility in commodity prices) or errors in forecasts of economic growth and fiscal deficits.

JEL Codes: F53, O19, O22

Keywords: International organizations, role of international organizations, project analysis

1. Introduction

The lifecycle of all projects is not alike. While some projects require only a few months for preparation and approval, others require years to complete these stages, and others become inactive during the process. This volatility in the project pipeline is not costless. For example, up to March 2018, inactive projects accounted for 28 percent of the total number of projects included in the Operational Program Report (OPR) for 2010–2017.[1] The median staff time spent on these projects was equivalent to 33 percent of the staff's working time in a year.[2]

Making use of the list of projects included in the Operational Program Report (OPR), this note sheds some light on specific characteristics at the project and at the country level that contribute to the volatility in approvals observed at the Bank. The variability in the approval rate relies more on specific characteristics of the projects (such as project preparedness, and the size of projects for a given country) than on pure aggregate conditions faced by each country (such as economic cycles, and commodity price volatility). However, the global context might influence approvals through variations in the terms of trade (especially in oil prices). The analysis finds that changes in these prices have a small but positive relationship with approvals for non-oil exporters in their relatively smaller projects and for oil exporters in their larger projects.

Why the focus in the OPR? Given that the programming exercise is dynamic, and projects change status, it is necessary to define a specific point in time to use as a benchmark to measure changes in the pipeline. The OPR provides a useful picture of the stock of projects in the system for each year. This allows us to introduce a temporal dimension to the analysis of pipeline volatility and assess whether macroeconomic conditions shape the approval process at the Bank. We acknowledge the potential drawbacks and limitations associated with using the OPR, but this approach has the advantage of circumventing the problem of choosing arbitrary dates to construct the current state of operations at the Bank during a year.

This note is divided into four sections. Section 2 describes the OPR data used, section 3 presents our quantitative estimations, and section 4 concludes.

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1 A more detailed explanation of the Operation Program Report is presented in section 2.

2 However, it is important to point out that inaction in projects is not necessarily a final state. Between July 2010 and March 2018, 281 projects contained in the OPR changed status from inactive to active.

2. Operational Program Report (OPR): Data Description

Since 2010, the Bank has produced the Operational Program Report (OPR), which, among other things, consists of a list of projects to be considered for approval during the year. This list captures the results of the dialogue between the Bank and its member countries at a point in time. Thus, it is a snapshot of the priorities and needs reflected in the programming exercise.

We focus the analysis on all investment loans with sovereign guarantees (SG) in the OPR list from 2010 to 2018, excluding all regional projects from the sample. A total of 986 observations were included in the study. It is important to point out that each observation does not necessarily correspond to a single project. Several projects that were not approved in the first year they appeared in the OPR were included multiple times in the OPR list (not necessarily in consecutive years) (see figure 1). Through 2018, a total of 151 projects appeared at least twice during the period of study: 114 projects appeared twice, 31 projects appeared three times, and 6 projects appeared four times.

Each year, more than 100 investment projects are listed in the OPR, on average. The highest volume of projects (159) but the lowest rate of approval (54 percent) occurred in 2011, while the lowest volume of projects (75) but the highest rate of approval (76 percent) occurred in 2014.[3] The approval rate has fluctuated considerably over the years, as depicted in figure 2. In the whole sample up to the end of 2018, on average 6 out of 10 projects listed in the OPR were approved the first time they were included in the OPR. Among the projects that were not approved in the first year they were listed, 34 percent were approved at later stages, while the remainder are either inactive or still pending approval.

An overview of the descriptive statistics reveals that certain project characteristics might be more associated with the chances of approval. For instance, 73 percent of the projects approved had completed their project profile at the time they were listed in the OPR. Moreover, the size of the project seems to matter. For each country, 69 percent of its largest projects (measured by the share that each project had in the total value of projects in the country, in US dollars) were approved, while only 52 percent of its mid-size projects and 60 percent of its small projects were approved. The next section presents a more rigorous approach to evaluating the dimensions among which project characteristics influence approvals.

[3] The low volume of projects in 2014 can be explained by the fact that the OPR for that year listed projects for approval only in the first half of the year. This point is discussed in more detail in Section 3.2.1.1.

3. Quantitative Analysis

To better understand the factors that help explain pipeline volatility, we study the contribution that variables at the project and at the country level have on the probability that a project listed in the OPR will be approved during a particular year after it was first listed (including that first year). More specifically, we estimated a logistic model of the form:

$$\mathrm{p}(\mathrm{y}_{i,t} = 1|\mathbf{w}, \mathbf{x}) = \Phi(\boldsymbol{w}'\beta_1^P + \boldsymbol{x}'\beta_2^c)$$

where y_{it} is a binary variable that takes the value of 1 when the project is approved and 0 otherwise; $\boldsymbol{w}'$ is a vector of project-specific variables; $\boldsymbol{x}'$ is a vector of country-specific variables; $[\beta_1^p, \beta_2^c]$ is a vector of parameters; and Φ stands for a logistic function. The set of variables included in this study will be discussed in more detail in the next section. Project-specific variables include the state of preparation (preparedness) of the project, size, the number or appearances in the OPR; and age (the time elapsed between when the staff first begins working on a project and when it is listed in the OPR). Country-specific variables include the economic cycle, forecast errors, and commodity prices and volatility. In addition, we evaluate whether these aggregate conditions result in differential effects for projects of different sizes and in different sectors.

All standard errors from our estimations are clustered at the sector level for each country. However, for the regression that include only one specific sector, the cluster is made exclusively at the country level.

3.1 Project Characteristics

We examine the effect of five project-specific characteristics on the probability that a project is approved. The first is the role of project preparedness, measured as the time elapsed (in months) between the date of approval of the project's profile and the actual date of approval listed in the OPR.[4] Since the approval process entails the completion by each project of a series of milestones, we expect projects to have a higher probability of approval after they have completed certain steps. However, we also expect that projects that had completed their project profile and remain active in the pipeline for a prolonged period of time will have lower probabilities of approval. In

[4] The choice of this date is not relevant for the results. Alternative dates will only redefine the scale of measure of project preparedness without affecting its dispersion. So, the main results of this section remain unaltered.

order to account for this expected nonlinear effect of preparedness on approval, we include in the regression the measure of preparedness in levels and its square.

The second characteristic is the role of the relative project size. We test whether the distinction between bigger and smaller projects (measured in US dollars) results insignificant differences for the approval process. However, since larger countries tend to have bigger projects, it is necessary to compute the size of a given project relative to its value within each country. Thus, we compute the relative size of the project as the ratio between the value of a project over the total value of all projects combined each year for each country in the OPR.

The third characteristic is the role of country size. In particular, we consider two alternative measures. Our first measure is the relative weight of each country in the OPR. Thus, we compute the value of all projects included for each country as a fraction of the total amount under consideration for approval for all countries included in the OPR. Our second measure consists of the total number of projects that are included in the OPR for each country.

Fourth, as discussed, a project can appear several times in the OPR. We test whether there is a sizable improvement in the probability of approval when a project has already appeared in the OPR. To do this, we create a binary variable that takes the value of 1 when the project is listed for the first time in the OPR, and 0 otherwise. This variable captures any potential effect of remaining in the pipeline for a prolonged period of time that is not captured by our measure of preparedness.[5]

Our fifth measure assesses whether the age of the project affects the likelihood of approval. We measure the age of a project as the time elapsed between the project start (consider to be the point at which a predetermined number of staff hours are reported in preparing the project) and the OPR approval date. The inclusion of age in combination with our measure of preparedness helps us to assess the relevance in the approval process of the time elapsed between the start of the project and the approval of its project profile.

3.2 Baseline Results

This section presents the results of our estimation based exclusively in project characteristics. Table 1 depicts the coefficients associated with preparedness, project size, country size (in terms

[5] When a project has appeared multiple times in the OPR, the value of our preparedness measure is likely to be higher.

of value and number of projects), number of appearances in the OPR, and age. To get a better understanding on how country, sector, and project characteristics condition the probability of approval, we gradually include fixed effects in the estimation. Column (1) shows the results without including fixed effects; column (2) includes only fixed effects at the country level; column (3) includes only fixed effects at the country and sectoral level; column (4) includes country, sector, and time fixed effects. Finally, in column (5), we control for the age of the project.

Some important lessons can be extracted from our estimations. First, the preparedness of a project has a significant positive impact on approvals; this effect persists after controlling for country, sector, and time fixed effects and for the age of the project, as presented in column (1) to column (5). However, the effect of preparedness is not constant; the relevance of preparedness diminishes over time. This result is derived from the negative sign of the quadratic term of preparedness. To better understand this point, figure 3 presents the marginal effect that different levels of preparedness have on the probability of approval. As the figure shows, after 36 months have elapsed since the project profile was approved, the probability of a project approval becomes lower.

Second, for each country, relatively bigger projects have a higher probability of approval. This result persists under all alternative specifications of fixed effects. However, on average, a single project does not account for more than 20 percent of the total value of projects to be approved per country. This is evident in figure 4, which presents a scatter plot between different project sizes and the probability of approval. The figure shows that there is a positive association between higher relative size and the likelihood of approval.[6]

Third, the relative country size measured in terms of the value of the projects to approve does not have a significant effect on the probability of approval. However, the number of projects to be approved does have a negative incidence; in other words, the higher the number of projects pending approval that a country has, the lower the chances are for approval.

Fourth, projects appearing for the first time in the OPR do not have a different probability of approval compared with projects that have appeared previously. This is evident after controlling for sector and time fixed effects. This result suggests that there is no advantage in the approval process for projects that are repeatedly listed in the OPR. This is consistent with our finding that after some point more mature (in terms of preparation) projects that are potentially listed several

[6] This does not necessarily imply causality between the probability of approval and the size of the projects. It is possible that projects with higher ex-ante probabilities of approval end up having a larger size.

times in the OPR are less likely to be approved. Finally, age plays no role in explaining probabilities of approval. This result has two interpretations: first, the creation of a project in the system does not guarantee an association with approval rates; second, the time elapsed between the start of a project and the approval of the project profile does not have any effect on the probability of approval.

How successful are these models in predicting project approvals? Table 2 shows several measures of the accuracy of the models reported in table 1. Overall, specifications with only project characteristics are able to correctly classify the approval of a project with an accuracy between 64 percent and 69 percent. Project characteristics seem to be better predictors to classify the pool of approved projects; the probability that the model predicts an approval given that the project is approved ranges between 80 percent and 90 percent. However, for the pool of projects that were not approved, the probability that the model does not predict an approval given that the project is not approved is 51 percent (for the model with country, time, and sector fixed effects).[7]

3.2.1 Robustness Checks

3.2.1.1 Sample Redefinition

Thus far, we have considered the OPR to be an indicative list of the projects in the pipeline at the Bank each year. However, there are important caveats to be considered that might potentially affect the results detailed in the previous section. First, from 2010 to 2012, the OPR functioned with a different paradigm, which limited disbursements but not approvals. Thus, for those years, there were less strict conditions placed on projects listed and their priorities. Second, the OPR in 2014 included only those projects to be approved during the first half of the year. To account for these factors, we redefined our dataset in terms of two alternatives dates, denominated as Date A and Date B. Date A excludes the years 2010–2012 from the sample, while Date B excludes the years 2010–2012 and 2014 from the sample.

We re-estimate the results reported in table 1 after restricting the sample as discussed. Columns 1 and 2 in table 3 show the results excluding the years 2010–12 and 2014 from the estimation. The results in these columns indicate that preparedness still plays a sizable role in explaining the likelihood of approval. The nonmonotonic effect of preparedness observed in our baseline

[7] In the following sections we introduce macroeconomic conditions characterizing the countries in the region. We did not find any substantial variation in the accuracy of the model generated by the inclusion of aggregate variables. In fact, the levels of accuracy remain close to the ones reported in table 2.

scenario is robust to the exclusion of the years 2010–2012, but not to the exclusion of 2014 from the sample, as the coefficient in the quadratic term ceases to be significant.

The probability of approval is still higher for relatively bigger projects at the country level. This result is not driven by the inclusion of the years 2010–2012 and 2014 in the sample. On the contrary, the size of the country in terms of total number of projects is no longer significant. Two main conditions can explain this result: the period 2010–2012 was characterized by a large number of projects listed and a lower approval rate, while the year 2014 was characterized by a small number of projects listed and a higher approval rate. When we exclude these periods, the negative relationship between number of projects and approval dissipates.

3.2.1.2 Alternative Preparedness Measures

The definition of preparedness considered in this technical note has been computed using the approval date of the project profile. In this section, we evaluate the validity of this choice through the lens of an alternative measure. Specifically, we define preparedness as the time elapsed (in months) between the approval date of the proposal for operation development (POD) and the actual date of approval of the OPR.

Columns (3) and (4) in table 3 depict the results using our alternative measure of preparedness. In column (3), we consider the results making use of the entire sample, while in column (4) we restrict our results by excluding the periods 2010–2012 and 2014 from the sample. The results using the entire sample are not qualitatively different from the ones obtained in our baseline. Preparedness has a positive but diminishing effect on the likelihood of approvals. However, when we restrict the sample, the significance of preparedness disappears. We see this result as a validation of the decision to choose the project profile approval to compute preparedness of projects, given that it is more robust to the construction of the sample.

3.3 Country-Specific Conditions

Aside from project characteristics, there are important reasons to believe that macroeconomic conditions at the country level could affect project approval. On the one hand, economic cycles could change a country's priorities, and the demand for certain projects/products might shift to reflect new conditions. On the other hand, higher volatility in aggregate commodity prices or terms of trade can have differential effects on different sectors of the economy; whether to take advantage of these opportunities, or to limit the economic damage, countries might adjust their preferences toward (or away from) projects that involve specific sectors.

To account for the impact of macroeconomic factors, we include the following indicators in the analysis: (i) measures of economic cycles; (ii) measures of forecasts errors in economic growth or fiscal deficits; (iii) changes in terms of trade; (vi) changes in commodity prices; and (viii) exchange rate volatility.[8]

Notice that changes in economic conditions can disproportionally affect some specific projects in some specific sectors. Thus, we evaluate not only the direct impact on the probability of approval but also the impact over projects of different size and projects in three specific sectors: Institutions for Development (IFD), Infrastructure and Energy (INE), and Social Sector (SCL).[9] For the case of project size, we interact our measures of economics conditions with the relative project size, which is the measure that was found to be more significant and robust in the previous section. For the case of sectors, we limit the sample to include only the projects in the specific sector. This allows us to have a much cleaner interpretation of the effects, but at the cost of reducing our sample.[10]

3.3.1 Economic Cycles

Do swings in economic activity affect the chances of a project's approval? The cyclicality of economic activity (that is, the transition between tranquil times, periods of buoyant economic activity, and/or periods of economic distress) creates incentives for a country to align its operation needs to the current state of the economy. Thus, if a country has the possibility of adapting its project pipeline to the dynamics of economic activity, we could initially expect that cycles might influence the likelihood of approval for certain projects.

To get a better understanding of how the economic cycle affects the probabilities of approval, we introduce a measure of economic cycle based on the Hodrick-Prescott (HP)-filtered series of real GDP.[11] The results of introducing this measure are presented in column (1) in table 4. We did not find evidence that economic cycle affects the average rate of approvals at the Bank.

Alternatively, we identify periods of economic booms and evaluate how these affect the probability

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[8] In additional exercises not reported in this note, we assessed the role played by political cycles (such as periods of election and reelection) and the changes in the countries' strategy at the Bank. We did not find robust evidence that they play a significant role.

[9] The choice of these sectors is exclusively due to data availability.

[10] This approach allows us to assess the direct impact in each specific sector. In this way, we overcome the need to choose a category (sector) as a baseline and interpret all the results simply in terms of discrepancies between the sector in study and the sector used as a baseline.

[11] Alternative filters were also considered, such as Christiano-Fitzgerald filter, without affecting the results presented here.

of approval.[12] We compute booms as the periods in which the economy is above its long-term trend computed by the HP filter. Then, we create a binary variable that takes the value of 1 when the economy is above its long-run trend (boom) and 0 otherwise. Column (2) in table 4 reports the direct effects of periods of booms on the probability of approval. We did not find significant evidence that periods of booms either during the current year or one year later affect the average probability of a project to be approved.

Column (3) in table 4 reports the effect that economic booms have over projects of different size. The introduction of this interaction between booms and project size does not have a significant predictive power on the probability of approval. In fact, relative projects size is no longer significant in this exercise. In columns (4)–-(5), we evaluate the sectorial effect of economic booms, but the results remain unaltered. There is no significant effect on the approval of sectoral projects in IFD, INE or SCL when the economy is in the midst of a boom.

3.3.2 Forecast Errors

One of the challenges during the process of preparing a project is to forecast how economic conditions will change and how these changes will potentially affect the operation. The conditions expected when a project is conceived are not necessarily the ones observed once the project is approved or executed. In this case, given our focus in the OPR, we assume that projects to be were conceived with the information available the year before of their expected final approval.

We consider two dimensions along which discrepancies between projected and observed values can be relevant for the approval process: economic growth and fiscal deficits. The first variable reflects variations in the prospects of economic activity, while the second reflects discrepancies in government accounts. We compute forecast errors making use of several editions of the International Monetary Fund's *World Economic Outlook* (WEO); more specifically, we use the fall edition of a given year to obtain the forecast of economic growth and the fiscal deficit for the following one. We use the last edition of 2018 to obtain the observed values. The forecast error is obtained by subtracting the observed value from the forecast.

Table 5 reports the results for the forecast errors on economic growth. Column (1) in table 5 reflects the direct impact on the average likelihood of approval. We do not find a significant relationship between these two variables; this result is still present after controlling for lags of the

[12] Notice that this exercise is the mirror of the one considering periods of busts. Thus, the results can be interpreted analogously to the case of a decline in economic activity simply with a change of signs.

error to control for potential delayed effects, as depicted in column (2). Column (3) presents the results for project size; we do not find a differential effect on projects of different size. Finally, columns (4)–(6) presents the sectoral effects of growth errors. We do not find any association between the likelihood of approval and the growth error for projects in the Institutions for Development (IFD) or Social Sector (SCL) sectors. However, we find a slightly positive association between forecast errors and the probability of approval of projects in the Infrastructure and Energy (INE) sector. In other words, when growth is higher than expected, there is a higher likelihood of projects in the INE sector to be approved.

Table 6 presents the results for the forecast errors on fiscal deficits. Column (1) in table 6 reflects the direct impact on the average likelihood of approval. Based on the results reported in columns (1) and (2), there is no significant association between these two variables; this result also holds after controlling for delayed effects. Column (3) reflects the impact on the size of projects; we do not find any differential impact of fiscal errors on projects of different sizes. Finally, for the case of sectoral effects, for the results reported in column (4) to column (6), we do not find evidence support to the view that fiscal errors affect some sector disproportionally.

3.2.3 Commodity Prices

The reliance on commodities in Latin America and the Caribbean makes countries vulnerable to fluctuations in their terms of trade. Whether the country is a commodity exporter or an importer, price fluctuations will condition opportunities in the market and countries might shift their priorities to increase (minimize) the gains (losses) in this new scenario. Thus, we evaluate the predictive role of an average price index of commodities, a non-fuel commodity price index, and oil price index in determining the probabilities of approval, and whether this interaction is intermediated by either the size of projects or the sector involved.

Columns (1) to (5) in table 7 present the results for an aggregate index for commodity prices. We find a significant effect of an increase in commodity prices on the probability of approval, although the effect does not appear to differ by project size.[13] In fact, as column (2) indicates, the coefficient associated with project size is no longer significant. The sectorial analysis reveals a positive relationship between approval rates and commodity prices in the case of projects linked to Social Sector- (SCL), as reported in column (5). The case of non-fuel prices reveals a similar story, in which an increase in non-fuel prices is associated with a higher chance of approval, as reported

[13] This finding is also validated by computing the marginal effect of a change in the commodity price index at different levels of project size. We did not find a differentiated effect on projects with different sizes.

in column (6) to column (10).

Finally, we test how oil prices shape the probability of approvals. However, we do not expect a similar pattern for all countries considering their heterogeneity; some countries might benefit from a positive shock (net exporters), while others might benefit from a negative one (net importers). Therefore, we introduce a dummy variable (Oil exporter) in the estimation, which takes the value of 1 when the country is a net oil exporter and 0 otherwise.[14] In addition, to assess the differential effect of oil prices on different types of countries, we identify how these effects change by size of projects and sector.[15]

The results for oil prices are reported in columns (11) to (15) in table 7. The price of oil is positively related to the approval of projects at the Bank. As in the case of commodity prices, the inclusion of this variable reduces the significance of project size. By focusing directly in the marginal effects of oil prices (not tabulated), we find a significant distinction in the way in which oil prices affect net exporters compared to net importers. We compute the marginal effect of oil prices for oil exporters and non-exporters at percentile 5, the median, the mean, and percentile 95 of the relative size distribution of projects, as depicted in figure 5. We find a small but positive association between oil prices for relatively smaller projects for non-exporters. On the contrary, we find the marginal effect to be positive and significant for exporters only in big projects. Similar to the previous cases highlighted in this subsection, we find a positive relationship between oil prices and approval in projects linked to SCL.

3.2.4 Volatility of Commodity Prices

In a more volatile environment, the allocation of resources does not necessarily respond to the most efficient outcomes but to the need of minimize potential losses. The choice of operations at the Bank is not exempt from the potential effects generated by higher uncertainty. We test the specific role of commodity price volatility in the approval process. Two measures of volatility are used: the first makes use of the standardized residual of an Autoregressive Conditional Heteroskedasticity model (ARCH(1)). and the second computes the standard deviation of inflation using a five-year window.

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[14] Countries included as net exporters are Argentina, Bolivia, Brazil, Colombia, Ecuador, Guatemala, Mexico, Trinidad and Tobago, and Venezuela.

[15] We suppress country fixed effects in the estimation, in order to properly identify the coefficient of Oil Exports.

The results using the ARCH model are reported in column (1) of table 8. We find a statistically significant effect of volatility of commodity prices in the average likelihood of approval. Higher volatility at the country level is associated with higher approval rates. However, this result does not hold when we consider the alternative measure of standard deviations; the results reported in column (2) show no significant effect for a five-year rolling window.[16] There is no differential effect when we consider the impact on projects of different size, as reported in column (3). Finally, at the sectoral level, volatility does not seem to influence the likelihood of approvals, as indicated by the results of column (3) to column (6).

4 Final Remarks

Specific project characteristics such as preparedness (measured by the time elapsed since PP approval) and the size of a project relative to the total portfolio in a country help us better understand why some projects listed in the OPR get approved within the exercise year. However, not always more preparation time is associated with a higher likelihood of approval, as projects that reach 36 months or more of preparation time when the OPR is approved have lower approval probabilities. These results suggest then that projects with relatively longer preparation times should be assessed with extra caution when including them in the OPR as it is more likely that they will not reach the approval stage.

Overall, it was not possible to find systematic evidence pointing at country-specific changes in macroeconomic conditions that affect the projects' probability of approval. Particularly the analysis focused on economic cycles and on unexpected changes in economic growth and fiscal performance. However, this study cannot assess the responsiveness of the Bank's lending program in a country undergoing an unexpected severe deterioration in macroeconomic conditions. This limitation arises from the fact that there are few of these events[17] present within the sample period to conduct a comprehensive systematic analysis.

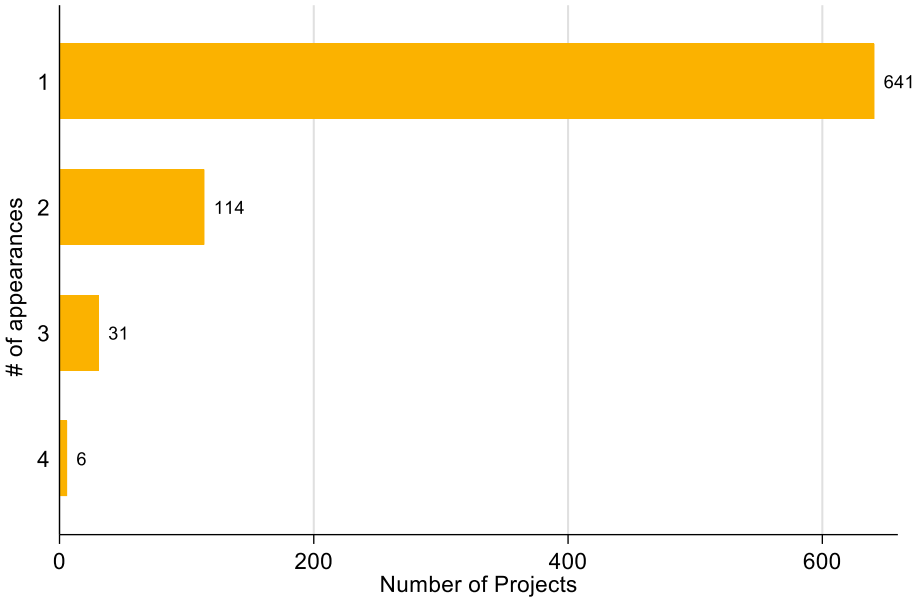
Interestingly, the study does find evidence linking changes in commodity prices with changes in projects' approval probabilities. We find a significant effect of an increase in commodity prices on the probability of approval. Furthermore, we looked at the relationship between oil prices and the projects' likelihood of approval. We find that for oil exporters, increases in oil prices increase the

[16] We repeated the same exercise using the volatility of real exchange rates. However, our sample was drastically reduced because of lack of data. For countries without sufficient data for real exchange rates, we computed the measure of volatility using a measure of inflation. We did not find any association between the volatility of real exchange rate (or inflation, for some countries) and the probability of approval.

[17] From 2010-2018 only 5 countries in the region: Argentina, El Salvador, Haiti, Honduras and Jamaica established a financing program with the International Monetary Fund (IMF).

likelihood of approval of bigger projects, while for non-oil exporters, it favors the smaller ones. We find the impact of shocks that simultaneously affect several countries in the region a promising part in our future research agenda.

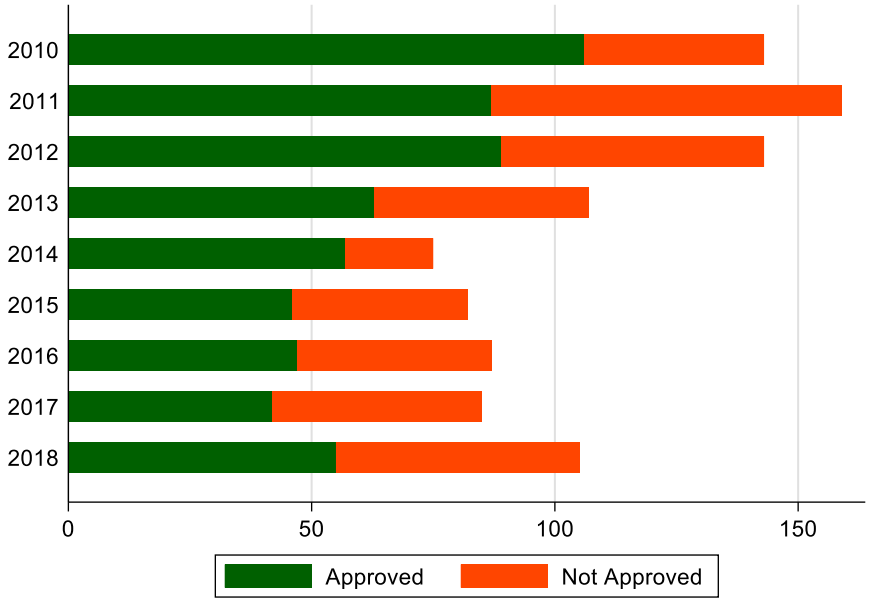
Figure 1. Number of Years Projects Are Listed in the OPR



Note: Data are from 2010 to 2018. OPR = Operational Program Report.

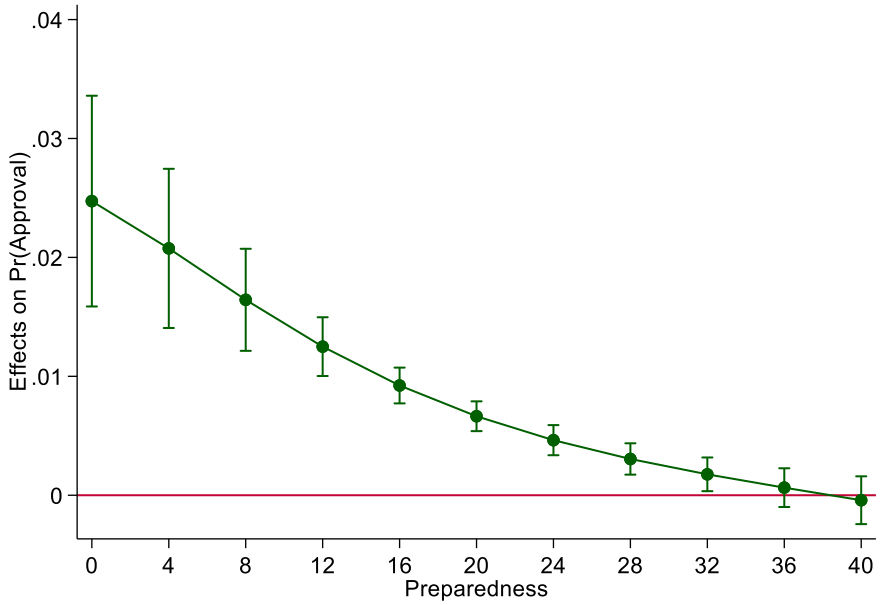
Figure 2.

Project Approvals or Nonapprovals in the OPR by Year, 2010–2018



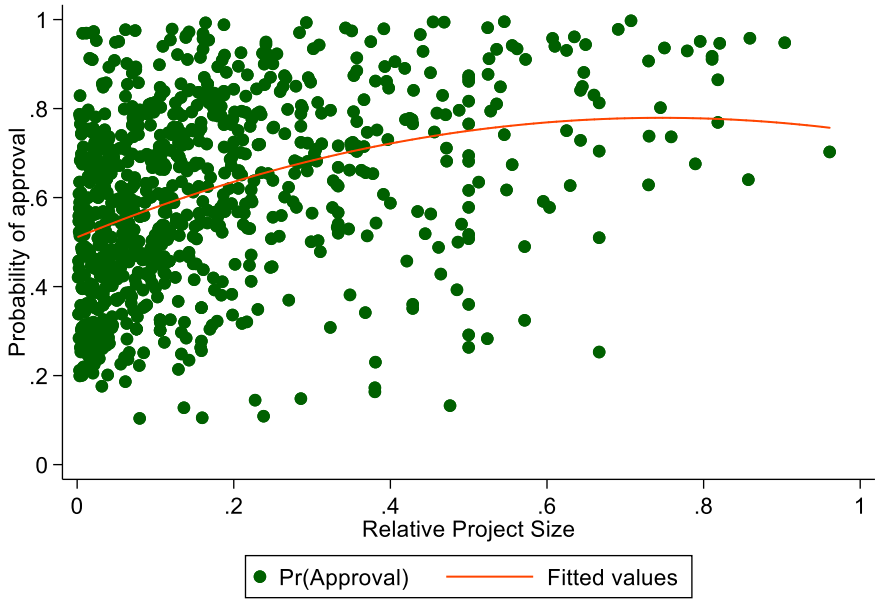
Note: for 2014 projects are reported only for the first half of the year. OPR = Operational Program Report.

Figure 3. The Marginal Effect of Different Levels of Preparedness on the Probability of Approval



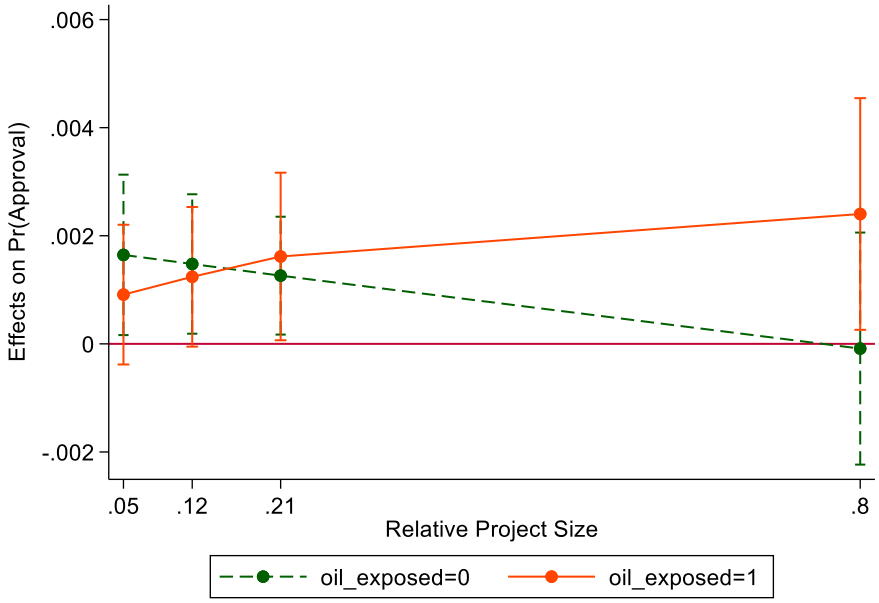
Note: the figure shows the average marginal effect of preparedness on the probability of project approval, with 95 percent confidence intervals.

Figure 4. Probability of Approval versus Size



Note: Relative project size is measured as the ratio of the value of the project (in US dollars) to all projects being considered for approval in a country.

Figure 5. Marginal Effects of Oil Prices



Note: The figure shows the average marginal effect of the aggregate level of oil prices on the probability of project approval, with 95 percent confidence interval.

Table 1. Baseline Results

	Baseline	FE (C)	FE (C+S)	FE (C+S+Y)	Incl. Age
	(1)	(2)	(3)	(4)	(5)
Preparedness	0.109***	0.119***	0.122***	0.113***	0.113***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Preparedness squared	-0.001***	-0.002***	-0.002***	-0.001***	-0.001***
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	0.868***	1.706***	1.508***	2.414***	1.635***
	(0.27)	(0.45)	(0.47)	(0.68)	(0.59)
Country size: Value	-0.414	1.819	2.062	4.968	2.426
	(1.38)	(2.22)	(3.35)	(3.07)	(2.89)
Country size: Number	-0.037**	-0.038*	-0.040*	-0.050**	-0.042*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
# of appearances	0.508***	0.391*	0.355	0.247	0.217
	(0.14)	(0.21)	(0.23)	(0.25)	(0.25)
Age					0.001
					(<0.01)
Country Fixed Effects	No	Yes	Yes	Yes	Yes
Sector Fixed Effect	No	No	Yes	Yes	Yes
Time Fixed Effecs	No	No	No	Yes	Yes
Observations	894	894	894	852	771

Note: F= fixed effects; C= country level; S=sector level; Y=time.

Standard errors are reported in parenthesis. *** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 2. Accuracy Estimations

	Baseline	FE (C)	FE (C+S)	FE (C+S+Y)	Incl. Age
Sensitivity	89.40%	82.63%	82.63%	81.55%	80.98%
Specificity	25.07%	43.52%	44.38%	51.04%	50.33%
Positive predictive value	65.29%	69.75%	70.08%	71.79%	71.64%
Negative predictive value	60.00%	61.38%	61.85%	64.42%	63.07%
Correctly Classified	64.43%	67.45%	67.79%	69.48%	68.96%

Note: FE = fixed effects; C= country level; S= sector level; Y=time.

Sensitivity refers to the probability that the model predicts an approval given that the project is approved.

Specificity gives the probability that the model does not predict an approval given that the project is not approved.

Positive predictive value is the probability that the project is approved given that the model predicts it is approved.

Negative Predicted value is the probability that the project is not approved given that the model says it is not approved.

Table 3. Robustness Checks

	Date A	Date B	All	Date B
	(1)	(2)	(3)	(4)
Preparedness	0.111***	0.120**		
	(0.03)	(0.05)		
Preparedness squared	-0.001**	-0.002		
	(<0.01)	(<0.01)		
Preparedness (Alt. Version)			0.225***	0.219
			(0.06)	(0.14)
Preparedness (Alt. Version) squared			-0.005***	-0.002
			(<0.01)	(0.01)
Relative Project Size	2.551***	2.914***	1.856***	3.160***
	(0.66)	(0.81)	(0.55)	(0.78)
Country size: Value	11.206*	8.294	2.723	2.554
	(6.09)	(5.77)	(3.19)	(5.71)
Country size: Number	-0.026	0.058	-0.049**	0.048
	(0.04)	(0.04)	(0.02)	(0.04)
# of appearances	0.39	0.268	0.109	0.012
	(0.31)	(0.35)	(0.21)	(0.31)
Country Fixed Effects	Yes	Yes	Yes	Yes
Sector Fixed Effect	Yes	Yes	Yes	Yes
Time Fixed Effecs	Yes	Yes	Yes	Yes
Observations	482	411	940	436

Note: Date A excludes the years 2010–2012 from the sample, while Date B excludes the years 2010–2012 and 2014 from the sample. "All" includes all years in the sample (2010–2018). Standard errors are reported in parenthesis.

*** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 4. Economic Cycle

	Cycle	Boom	Size	Sector		
				IFD	INE	SCL
	(1)	(2)	(3)	(4)	(5)	(6)
Preparedness	0.106***	0.105***	0.106***	0.088***	0.164***	0.151
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.14)
Preparedness squared	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.001
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	0.803*	0.813*	0.628	-0.208	1.571***	1.781
	(0.45)	(0.44)	(0.55)	(0.69)	(0.6)	(1.72)
Country size: Value	0.087	0.118	0.307	-0.952	-2.356	2.552
	(1.63)	(1.62)	(1.61)	(2.01)	(2.06)	(4.15)
Country size: Number	-0.047**	-0.048**	-0.050**	-0.043**	-0.013	-0.068
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
# of appearances	0.317	0.288	0.308	0.274	1.165***	-1.269*
	(0.24)	(0.25)	(0.24)	(0.38)	(0.29)	(0.77)
Hodrick-Prescott	0					
	(<0.01)					
Boom		0.178	0.05	0.062	0.246	0.091
		(0.2)	(0.28)	(0.37)	(0.23)	(0.4)
Boom (Lagged)		-0.176				
		(0.17)				
Boom * Project Size			0.487			
			(0.86)			
Country Fixed Effects	No	No	No	No	No	No
Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	804	804	804	287	325	138

Note: IFD=Institutions for Development Sector; INE=Infrastructure and Energy Sector; SCL=Social Sector. Standard errors are reported in parenthesis.

*** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 5. Forecast Errors of Economic Growth

	GDP Error	Lag. Error	Size	Sector		
				IFD	INE	SCL
	(1)	(2)	(3)	(4)	(5)	(6)
Preparedness	0.105***	0.106***	0.104***	0.089***	0.158***	0.152
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.14)
Preparedness squared	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.001
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	0.786*	0.793*	0.896*	-0.282	1.538**	1.675
	(0.46)	(0.45)	(0.46)	(0.69)	(0.63)	(1.77)
Country size: Value	0.02	0.114	-0.046	-1.03	-3.355	2.796
	(1.65)	(1.61)	(1.66)	(2.18)	(2.05)	(4.29)
Country size: Number	-0.046**	-0.047**	-0.044**	-0.041**	0.001	-0.072*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
# of appearances	0.338	0.346	0.326	0.283	1.223***	-1.254
	(0.25)	(0.25)	(0.24)	(0.39)	(0.3)	(0.8)
GDP Error	0.015	0.016	0.048	-0.006	0.089*	0.039
	(0.04)	(0.04)	(0.05)	(0.1)	(0.05)	(0.11)
GDP Error (lagged)		-0.015				
		(0.02)				
Forecast Error * Project Size			-0.182			
			(0.15)			
Country Fixed Effects	No	No	No	No	No	No
Sector Fixed Effects	Yes	Yes	Yes	No	No	No
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	796	796	796	286	320	137

Note: IFD=Institutions for Development Sector; INE=Infrastructure and Energy Sector; SCL=Social Sector. Standard errors are reported in parenthesis.

*** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 6. Forecast Errors of Fiscal Deficits

	FD Error	Lag. Error	Size	Sector		
				IFD	INE	SCL
	(1)	(2)	(3)	(4)	(5)	(6)
Preparedness	0.104***	0.096***	0.104***	0.089***	0.156***	0.148
	(0.02)	(0.03)	(0.02)	(0.02)	(0.04)	(0.14)
Preparedness squared	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.001
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	0.773*	0.935*	0.780*	-0.23	1.505**	1.616
	(0.46)	(0.51)	(0.47)	(0.71)	(0.63)	(1.79)
Country size: Value	-0.102	1.746	-0.02	-1.138	-3.109	1.89
	(1.6)	(1.76)	(1.58)	(2.06)	(2.31)	(4.26)
Country size: Number	-0.047**	-0.061**	-0.046**	-0.042**	-0.003	-0.066
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)
# of appearances	0.302	0.28	0.313	0.26	1.138***	-1.300*
	(0.24)	(0.27)	(0.24)	(0.38)	(0.28)	(0.77)
Forecast Error Fiscal Deficit (as % of GDP)	0.066	0.094	0.015	0.062	0.068	0.092
	(0.06)	(0.07)	(0.1)	(0.09)	(0.12)	(0.14)
Forecast Error Fiscal Deficit (as % of GDP, lagged)		-0.049				
		(0.06)				
Forecast Error * Project size			0.155			
			(0.16)			
Country Fixed Effects	No	No	No	No	No	No
Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	796	665	796	286	320	137

Note: IFD=Institutions for Development Sector; INE=Infrastructure and Energy Sector; SCL=Social Sector. Standard errors are reported in parenthesis.

*** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 7. Aggregate Index of Commodity Prices

	All Commodities Index					Non-Fuel					Oil				
			Sector					Sector					Sector		
	Price	Price-Size	IFD	INE	SCL	Price	Price-Size	IFD	INE	SCL	Price	Price-Size	IFD	INE	SCL
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Preparedness	0.120***	0.120***	0.082***	0.184***	0.166	0.118***	0.118***	0.081***	0.178***	0.171	0.112***	0.109***	0.090***	0.138***	0.19
	(0.03)	(0.03)	(0.02)	(0.05)	(0.15)	(0.03)	(0.03)	(0.02)	(0.05)	(0.15)	(0.02)	(0.02)	(0.02)	(0.03)	(0.16)
Preparedness squared	-0.002***	-0.002***	-0.001***	-0.002***	-0.002	-0.001***	-0.001***	-0.001***	-0.002***	-0.002	-0.001***	-0.001***	-0.001***	-0.002***	-0.002
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	1.489***	1.238	2.858**	1.996**	3.501*	1.509***	0.688	2.791**	1.954**	3.739*	0.791**	2.205	0.222	1.007**	1.683
	(0.5)	(1.88)	(1.12)	(0.92)	(2.11)	(0.5)	(3.83)	(1.09)	(0.9)	(2.16)	(0.4)	(1.61)	(0.53)	(0.48)	(1.45)
Country size: Value	1.219	1.213	-1.76	-5.317*	15.185**	0.787	0.818	-2.197	-5.877*	15.351**	1.036	1.376	3.566*	-4.007	6.546*
	(2.67)	(2.65)	(2.75)	(3.07)	(7.63)	(2.84)	(2.79)	(2.84)	(3.1)	(7.24)	(1.53)	(1.6)	(1.82)	(2.45)	(3.44)
Country size: Number	-0.050**	-0.050**	-0.067***	-0.006	-0.125**	-0.050**	-0.049**	-0.066***	-0.002	-0.134**	-0.047***	-0.042**	-0.071***	-0.007	-0.085*
	(0.02)	(0.02)	(0.01)	(0.02)	(0.06)	(0.02)	(0.02)	(0.01)	(0.02)	(0.06)	(0.02)	(0.02)	(0.01)	(0.02)	(0.04)
Price ind. Commod.	0.008***	0.007**	0.006	0.006	0.027**										
	(<0.01)	(<0.01)	(<0.01)	(0.01)	(0.01)										
Price ind. Commod. * Project Size		0.002													
		(0.01)													
Price Non-Fuel						0.009*	0.008	0.006	0.005	0.044**					
						(0.01)	(0.01)	(0.01)	(0.01)	(0.02)					
Price Non-Fuel * Project Size							0.005								
							(0.02)								
Price Oil											0.006**	0.009**	0.002	0	0.011**
											(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Oil Exposition											-0.037	0.57	-1.279*	0.039	-1.025
											(0.54)	(0.75)	(0.68)	(0.81)	(1.1)
Oil Exposition * Price Oil											-0.001	-0.007	0.005	0	0.002
											(<0.01)	(0.01)	(<0.01)	(0.01)	(0.01)
Oil Exposition * Price Oil * Project Size												0.036			
												(0.02)			
Price Oil * Project Size												-0.012			
												(0.01)			
Oil Exposition * Project Size												-3.749			
												(2.96)			
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Sector Fixed Effects	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No	No
Time Fixed Effect	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Observations	805	805	279	302	116	805	805	279	302	116	805	805	287	326	138

Note: IFD=Institutions for Development Sector; INE=Infrastructure and Energy Sector; SCL=Social Sector. Standard errors are reported in parenthesis. *** (**) [*] denotes significance at the 1 (5) [10] percent level.

Table 8. Volatility of Commodity Prices

	Arch	5y	5y-Size	Sector		
				IFD	INE	SCL
	(1)	(2)	(3)	(4)	(5)	(6)
Preparedness	0.121***	0.122***	0.121***	0.107***	0.256***	0.193
	(0.04)	(0.04)	(0.04)	(0.03)	(0.05)	(0.17)
Preparedness squared	-0.002**	-0.002**	-0.002**	-0.001***	-0.005***	-0.002
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Relative Project Size	1.200**	1.244**	-0.463	0.684	1.275	2.883*
	(0.58)	(0.59)	(1.23)	(1.06)	(0.96)	(1.52)
Country size: Value	0.166	1.568	1.553	1.175	-3.197	3.019
	(2.34)	(2.16)	(2.13)	(2.37)	(4.85)	(5.83)
Country size: Number	-0.054**	-0.061***	-0.055***	-0.059***	-0.019	-0.06
	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.06)
Arch measure	0.005*					
	(<0.01)					
5y measure		0.003	-0.027	0.004	0.003	0.006
		(0.01)	(0.02)	(0.03)	(0.01)	(0.01)
5y measure * Project Size			0.158			
			(0.11)			
Country Fixed Effects	No	No	No	No	No	No
Sector Fixed Effects	Yes	Yes	Yes	No	No	No
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	505	505	505	195	193	82

Note: IFD=Institutions for Development Sector; INE=Infrastructure and Energy Sector; SCL=Social Sector. Standard errors are reported in parenthesis.

*** (**) [*] denotes significance at the 1 (5) [10] percent level.