Local Governments and the Management of Resources Generated by Extractive Industries in Peru

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What factors determine how well local governments manage public resources? Previous research regarding democratic governance and decentralization suggests that in weak institutional contexts where local governments lack managerial and technical expertise, municipalities inefficiently spend resources and fail to provide local populations with necessary goods and services. Local governments’ performances are further shaped by factors such as fiscal regulations, political competition, and economic development. This article assesses the importance that such factors play in the performance of local Peruvian governments. Peru provides an interesting case study due to the sharp increase of governmental transfers resulting from the exploitation of natural resources.

Introduction

What factors determine how well local governments manage public resources? Previous research regarding democratic governance and decentralization suggests that in weak institutional contexts where local governments lack managerial and technical expertise, municipalities inefficiently spend resources and fail to provide necessary goods and services to citizens. In developing countries, such risks are heightened due to a scarcity of highly-qualified human resources, a lack of capacity-building opportunities, and civil servants’ isolation from professional networks (Bradhan 2002).
Local governments’ performances are further shaped by factors such as fiscal regulations, political competition, citizen participation, and economic development. Peru provides an interesting case study for the factors that influence local public resource management. After 2000, government transfers related to natural resources exploitation experienced a sharp increase. Natural resources and customs transfers from the central government to municipalities totaled 216 million PEN\(^1\) in 2000, and increased to 3,751 million PEN in 2010 mainly due to the exploitation of natural resources (Radics 2012: p. 3). It is important to note that such transfers, also known as *canon*, can almost exclusively be used for local investment projects. The growth in available resources during the early 2000’s challenged Peruvian local governments that lacked the expertise necessary to manage larger expenditures. Municipalities’ low rates of budget execution on the years when substantial increases in resource transfers occurred led to a discussion among politicians, technocrats and academics about the lack of municipal capabilities to manage these resources.

This study aims to contribute to the discussion, assessing how different factors can influence local governments’ performances. In particular, this study aims to assess the importance and effects of technical and management capabilities in addition to other budgetary, administrative and political factors on municipal performances, measured as execution rates of investment budgets. This rate is the percentage of the investment budget that was spent over the budgetary year (execution rate = actual expenditure / budget) and aims to reflect local government’s management efforts.

Although the municipal execution rate of investment budgets cannot show whether resources are well invested, the concept speaks to the complex tasks undertaken by the municipality and can then be used as a partial measurement of performance. The execution rate also represents a minimum threshold: if a local government cannot spend the resources received, then it cannot implement projects that benefit local populations. Using the execution rate, then, recognizes that spending an investment budget requires that local governments design and implement investment projects while managing and planning larger budgets and carrying out complex procurement processes. Investment in public expenditures is further complicated by national administrative systems that set specific rules.

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1. Constant 2002 prices in Peruvian Soles
and regulations that municipalities must follow. In 2007, the difficulties to deal with such complexities were manifested when canon transfers increased and municipalities were not able to spend the large amount of resources transferred to them.

It is worth highlighting that spending all the budget may not be an ideal situation for municipalities that receive large canon transfers. Taking into account the volatility of canon transfers, it is possible that the municipalities' objectives are to save resources for later years. Municipalities, however, are usually pressured by their communities and the central governments to spend their entire budgets (Arellano 2010). Therefore, it is very plausible that a mayor's main objective is to spend the entire budget received. Since this study cannot account for the intentions or relevant pressures present in each municipality, the expenditure measure used in this paper—despite its limitations—is a useful indicator of local government’s managerial performance.

There are two levels of local government in Peru: Provincial and District. Currently, the country is divided into 195 provinces and 1639 districts, each unit controlled by a municipal government. Due to information limitations, our analysis will only include the 195 provincial municipalities. In order to perform the analysis, we will use budgetary data obtained from Peru’s Integrated Financial Management System that covers the expenditure of provincial municipalities on investment projects from 2007–2012. Moreover, we will use demographic, electoral, and municipal data from each province. This data will allow us to assess the effect of budgetary, political, administrative, and local capability variables on municipal investment project expenditures. This analysis is relevant for developing countries such as Peru where resources made available to local governments are increasing because the analysis can help inform the design of policy incentives and technical assistance programs that seek to improve local government performance.

This paper proceeds as follows. First, I present a review of the literature on investment budget expenditure in Peru. Next, I present the data used and the analysis proposed. Then, I present the results of the statistical analysis of the effect of budgetary, political, administrative, and local capability variables on the level of expenditure. Last, I present the main conclusions from my analysis.
Literature Review: Local Government Expenditure

Several studies analyze the management capabilities of Peruvian local governments and highlight relevant management and implementation limitations in sound investment projects (Herrera and Francke 2007, MEF 2009, CIUP 2010, BCRP 2011). On the specific issue of the municipal investment budget’s execution rates, the most systematic studies are those by Aragón and Casas (2008); Loayza, et al. (2011); Arellano (2010); and Radics (2012).

Aragón and Casas (2008) use data on municipal capital expenditure between 2000 and 2006 to assess whether a lack of local government capabilities had a negative effect on local government expenditure. The authors use a fixed effect regression of the capital expenditure of 1627 municipalities on those municipalities’ budgets and different measures of municipal management capabilities, controlling for poverty and population. The study finds that from 2000 to 2006 local governments’ public expenditures were negatively linked with their project management, accountability, finance, and planning capabilities, limitations on such capabilities reduced capital expenditure. The study also assesses whether the experience of mayors has an effect on expenditure by including an interaction between heads’ previous experiences as mayors and capital budgets. The authors find that mayors’ experiences have a positive, albeit indirect impact on local government expenditures.

In a more recent study, Loayza et al. (2011) analyze the factors that influence local government expenditures. The authors use data from 2007 to 2009 to assess how local budgets, capacities, needs, and other political economy variables impact current, capital, and capital-defined expenditures. Regarding the impact of budgetary variables, the authors find that the percentage of budgets that come from natural resource transfers has a considerably positive and significant effect on capital defined expenditures. Furthermore, the researchers find that allocated budget and project size were related to lower execution rates. In terms of local government

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2. The majority of local governments’ capital expenditure are made on investment projects.
3. Capital defined expenditures are financed by transfers that come from the central government but that can be retained even if local governments do not spend such transfers over the course of the budgetary year. Canon transfers are a type of capital defined expenditure.
capabilities, the analysis shows that education at the district level and the amount of white collar municipal employees positively and significantly affect budget execution rate. Finally, they find that the percentage of votes for the current mayor have a positive and significant effect on execution rates. Among these factors, the one that has the largest effect on capital-defined expenditure is the size of the budget.

In addition to fiscal and technical capacity factors on budget expenditure, scholars also note the importance of politics. Arellano (2010) produced a Municipal Capacity Index that allows him to assess municipal planning, information management, and personnel policy. He assesses the capabilities of 18 municipalities that received a considerable amount of canon transfers in three regions of Peru. Arellano finds that there is no apparent relationship between the percentage of capital investment budget used and municipal capabilities. He also suggests that political factors such as pressures to spend the entire budget and the use of investment projects to attract as many voters as possible determine municipal spending patterns.

Using data up to 2010, Radics (2012) shows that local governments increased their expenditures between 2007 and 2010. The author suggests that in 2007, execution rates were low due to two main factors: (1) the sharp increase in the natural resource-related transfers distributed to municipalities that did not know how to manage large budgets, and (2) the renewal of local authorities due to elections in 2007, bringing unexperienced municipal teams to the municipalities. In 2008 local government expenditure started to increase, and in 2009 and 2010, local government expenditures exceeded the resources transferred in those years and were financed by the resources not spent in previous years. Radics suggests that the increase of expenditure in the last years occurred because municipal teams, especially in municipalities that received high amounts of mining transfers, gained managerial experienced after a couple of years working in the municipality.

This paper seeks to expand on the above-cited work by analyzing the expenditure on public investment of 195 provincial municipalities from 2007–2012. Given that municipalities are spending a larger share of their budgets, it is important to reassess the factors that explain the rate of local government expenditure.
Data and Analysis

In order to assess provincial municipalities’ expenditure capabilities, I use data from Peru’s Ministry of Economy and Finance. Specifically, I use budgetary data from the Integrated Financial Management System. This data covers the entirety of 2007–2012 budgetary periods and is divided into two categories, (1) project investment and (2) activities. Socioeconomic data was obtained from the 2007 Census, published by the National Institute of Statistics and Informatics (INEI). I use the National Survey of Municipalities to obtain data regarding their organizational characteristics. Information regarding which municipalities were enrolled in the Public Investment National System is taken from the Ministry of Economy and Finance’s website. Finally, information about mayoral incumbency status is obtained from the National Jury of Elections’ website. The abovementioned sources provide a balanced panel database that covers years 2007 through 2012.

This paper analyzes which factors determine the expenditure capabilities of provincial municipalities. Formally, the basic model proposed is a panel regression model with random effects that include budgetary, administrative, local government capabilities, political as well as other variables:

\[
\text{EXP}_i = \beta_1 \ln(\text{Budget} - \text{IP}_i) + \beta_2 \ln(\text{Budget} - \text{A}_i) + \beta_3 \text{Natural Resources}_i + \beta_4 \text{Snip}_i + \beta_5 \text{Educ}_i + \beta_6 \text{Staff}_i + \beta_7 \text{Int}_i + \beta_8 \text{Plan}_i + \beta_9 \text{Sist}_i + \beta_{10} \text{Reelec}_i + \beta_{11} \ln(\text{Population 2007}) + \beta_{12} \text{Poverty}_i + \beta_{13} \text{Year}_i + \alpha + \mu_i + \epsilon_i
\]

\(\text{EXP}\) refers to the execution rate of the budget for investment projects or municipality \(i\)’s activities in year \(t\). \(\text{Budget} - \text{Investment Projects}\) (Budget - IPit) is the budget for public investment projects for each municipality in a year, and \(\text{Budget} - \text{Activities}\) (Budget - IPit) is the budget allocated for municipal activities. As with the findings of Loayza et al. (2011), I expect to find that larger budgets entail lower execution rates. \(\text{Natural Resources}\) is the share of the total transfers received from the central government that are related to natural resources. As stated in the introduction, local governments are legally required to spend transfers relating to natural resource exploitation (canon) on investment projects.

4. These data are available at http://www.mef.gob.pe/index.php?option=com_content&view=article&id=504&Itemid=100944
It is important to note that the largest share of municipal budgets comes from central government transfers. Therefore, a larger share of canon transfers forces the municipality to place more money on investment projects. It means that a lower proportion of the budget can be used to fund activities that support the implementation of projects, e.g. procurement, monitoring, and budgeting activities. Therefore, I expect that the restriction of larger canon transfers will correlate with lower execution rates of investment projects.

Snip is a binary variable that indicates whether or not a municipality is included in the Public Investment National System (SNIP). When the National Public Investment System became mandatory for certain local governments in 2003, critics suggested that it lowered the execution rates of municipalities because it placed constraints and requirements on spending for public investment projects. In response, the SNIP was decentralized and policy makers expected this shift to facilitate public investment; however it raised concerns about losing control over local governments’ public investment. The inclusion of this administrative variable will allow us to assess the effect of being part of the SNIP on execution rates.

To assess the effect of local government capabilities on the execution rates, we include a set of variables that relate to human resources, planning, management instruments and informatics systems. Educ is the percentage of the population that had attained at least some higher education in 2007. Staff is the total number of white collar municipal employees as a share of the population of the province. Through including the abovementioned variables, the study assesses if the lack of sufficient and qualified human resources in the municipality negatively impacts the rates of expenditure (Loayza et al 2011).

Int is the number of management instruments that the municipality has developed to guide its activities; it includes an operation plan, administrative procedures and participatory budget. Plan is the number of provincial plans that the municipality has prepared and includes road plans, urbanization plans, and rural development plans, among others. Sist is the number of informatics systems that the municipality has implemented to support its management procedures. These three variables—Int, Plan and Sist—will help us assess the administrative capacity of the municipality. Hence, the level of organizational capabilities should be reflected in
the accomplishment of both the instruments and plans recommended by the national government as well as in the informatics systems that support administrative procedures. The information for these variables was obtained from the National Survey of Municipalities.

The regression also includes the reelection variable, Reelec as a binary variable to indicate whether or not the current mayor was reelected. The intuition behind the inclusion of this variable is that reelected mayors are more likely to have high execution rates because they are experienced managers and will not require adjustment periods during their new terms.

Variables relating to poverty rates and population were also included as control variables. Poverty is the percentage of population under the poverty line in each province in 2007. Population 2007 is the number of people living in the province in 2007. It is important to control for these variables because the population of districts with higher rates of poverty could pressure for faster expenditure, and the municipality can identify the needs of the district more easily (Loayza et al. 2011). In the same line, a larger population means that the municipality has more necessities to attend. Finally, I include the variable Year, the year when an expenditure is made, to assess the effects of one more years on the municipality’s spending.

In addition to the regression equation above, the regression will be tested with fixed effects. This type of analysis reduces the possible bias created due to stable characteristics of each provincial municipality and allows us to focus only on the variations that occur within each observation, in this case within each municipality. The fixed effects model uses the same variables listed above, but drops variables that do not change over time:

\[
\text{EXP}_{it} = \beta_1 \ln(\text{Budget} - \text{IP}_{it}) + \beta_2 \ln(\text{Budget} - \text{A}_{it}) + \beta_3 \text{Natural Resources}_{it} + \\
\beta_4 \text{Staff}_{it} + \beta_5 \text{Int}_{it} + \beta_6 \text{Plan}_{it} + \beta_7 \text{Sist}_{it} + \beta_8 \text{Snip}_{it} + \beta_9 \text{Reelec}_{it} + \beta_{10} \text{Year}_{it} + \\
\alpha_i + \mu_{it} + \epsilon_{it}
\]

**Results**

We begin by presenting the evolution of public expenditures of provincial municipalities between 2007 and 2012. As shown in Figure 1, the available budget for public investment increased after 2007, reaching its highest value in 2009. The available budget then decreased between 2010 and 2011, but grew again in 2012. Despite relative differences, total public
investment expenditure for this group of municipalities increased steadily until 2010. In 2011, expenditure fell almost to the 2008 level. In 2012, though, public investment expenditures recovered.

Table 1 shows the results of the panel regression model with random effects for all the provincial municipalities. The first two rows show results for the regressions that have the budget execution rate of activities as the dependent variable. The third and fourth rows show the results for the regressions that have the budget execution rate of investment projects as the dependent variable. We are mainly interested in the results of the latter models. However, the results regarding the budget execution of activities allow us to make comparisons and, therefore, to observe the particular characteristics of investment expenditure.

As mentioned above, the complexities surrounding the budget process would make one expect that there is a negative relationship between size of budget and budget expenditure rate, since larger budgets are more difficult to spend. As expected, the first and third rows show that larger activity budgets and investment budgets are related to a decrease of around 6 percent on the budget execution rate of activities and project investment, respectively. Controlling for the rest of the variables, a budget increase for projects is related to a decrease of 5 percent of the budget execution rate of public investment. It is also not surprising that the natural resources...
variable is negatively related to the budget expenditure rate of investment projects, although this relationship is only significant at the 0.1 level.

To test whether municipal capability is positively related to expenditure, we included: *Internal Instruments, Provincial Plans* and *Informatics systems* variables as proxies of municipal capabilities. As stated above, *Staff*
and education variables were added to assess if available white collar staff in the municipality and/or the percentage of individuals with higher education was related with higher municipal expenditure.

In the second row of Table 1, we can observe that in the regression with budget expenditure rate of activities as the dependent variable only the Staff and Management Instruments variables have a positive coefficient, although only significant at the 0.1 level. However, in the regression with budget expenditure rate of investment projects as the dependent variable (fourth row of Table 1), Management Instruments and Provincial Plans have a larger positive effect and are significant at the 0.05 and 0.01 level respectively. The Staff variable has a similar coefficient as in the previous regression but is significant at the 0.05 level. These results are aligned with the assumption that investment project expenditure execution is more challenging for local governments than activities expenditure execution, which means that that higher project expenditure execution is more closely related to variables that reflect local governments’ capabilities. Information systems are found to be negatively related to larger, public investment expenditures rates. It can be attributed to a more complex relationship between these two variables than what we expected. It is possible that, while information systems can ease administrative duties, they can also restrain officials’ discretion regarding those activities; therefore they can also hinder expenditure.

The municipalities included in the Public Investment National System show, on average, a 4 percent lower budget expenditure rate for investment projects at the 0.5 significance level. Regarding activities expenditure, this variable has coefficients that are both smaller and positive, but only at the 0.1 significance level. The regression also shows that municipalities with incumbent mayors have a higher rate of expenditure of their activities budgets by 2.5 percent.

In order to understand the year effect on expenditures, indicator variables for each year were introduced in the random effects regression. The results are shown in the first and second rows of Table 2. The year 2009 is excluded to avoid multicollinearity. The coefficients for each year, then, are related to year 2009. The third and fourth rows show the results of the same regression but with fixed effects, in which we remove the variables that are invariant over time.
Table 2: Random and fixed effects models

<table>
<thead>
<tr>
<th></th>
<th>% expenditure / budget for activities</th>
<th>% expenditure / budget for projects</th>
<th>% expenditure / budget for activities</th>
<th>% expenditure / budget for projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget – IP (logs)</td>
<td>−0.342</td>
<td>−6.165***</td>
<td>−0.728</td>
<td>−5.819***</td>
</tr>
<tr>
<td></td>
<td>(0.557)</td>
<td>(1.472)</td>
<td>(0.591)</td>
<td>(1.270)</td>
</tr>
<tr>
<td>Budget – A (logs)</td>
<td>−7.394***</td>
<td>1.872</td>
<td>−15.607***</td>
<td>0.144</td>
</tr>
<tr>
<td></td>
<td>(1.358)</td>
<td>(2.149)</td>
<td>(1.490)</td>
<td>(3.203)</td>
</tr>
<tr>
<td>Natural resources share (%)</td>
<td>−0.079</td>
<td>−4.020</td>
<td>−2.315</td>
<td>−8.415</td>
</tr>
<tr>
<td></td>
<td>(1.877)</td>
<td>(4.333)</td>
<td>(3.000)</td>
<td>(6.449)</td>
</tr>
<tr>
<td>Population 2007</td>
<td>8.283***</td>
<td>3.054</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.361)</td>
<td>(2.084)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education (%)</td>
<td>−0.008</td>
<td>−0.213</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.188)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty (%)</td>
<td>−0.022</td>
<td>0.044</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.034)</td>
<td>(0.068)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management instruments</td>
<td>0.727</td>
<td>1.396</td>
<td>0.034</td>
<td>0.787</td>
</tr>
<tr>
<td></td>
<td>(0.534)</td>
<td>(1.129)</td>
<td>(0.527)</td>
<td>(1.132)</td>
</tr>
<tr>
<td>Provincial plans</td>
<td>−0.050</td>
<td>0.543</td>
<td>0.126</td>
<td>0.615</td>
</tr>
<tr>
<td></td>
<td>(0.207)</td>
<td>(0.397)</td>
<td>(0.201)</td>
<td>(0.433)</td>
</tr>
<tr>
<td>Information systems</td>
<td>−0.279</td>
<td>−1.001**</td>
<td>−0.286</td>
<td>−1.055**</td>
</tr>
<tr>
<td></td>
<td>(0.211)</td>
<td>(0.510)</td>
<td>(0.240)</td>
<td>(0.515)</td>
</tr>
<tr>
<td>Staff</td>
<td>0.865</td>
<td>0.696</td>
<td>−0.128</td>
<td>−0.652</td>
</tr>
<tr>
<td></td>
<td>(0.580)</td>
<td>(0.508)</td>
<td>(0.357)</td>
<td>(0.768)</td>
</tr>
<tr>
<td>SNIP</td>
<td>1.932*</td>
<td>−4.450**</td>
<td>2.708**</td>
<td>−4.920*</td>
</tr>
<tr>
<td></td>
<td>(0.993)</td>
<td>(2.093)</td>
<td>(1.360)</td>
<td>(2.922)</td>
</tr>
<tr>
<td>Reelection</td>
<td>2.664**</td>
<td>3.839*</td>
<td>2.777***</td>
<td>2.668</td>
</tr>
<tr>
<td></td>
<td>(1.074)</td>
<td>(2.167)</td>
<td>(0.987)</td>
<td>(2.122)</td>
</tr>
<tr>
<td>Year 2007</td>
<td>2.838***</td>
<td>−11.378***</td>
<td>−0.037</td>
<td>−11.978***</td>
</tr>
<tr>
<td></td>
<td>(0.933)</td>
<td>(1.838)</td>
<td>(1.039)</td>
<td>(2.230)</td>
</tr>
<tr>
<td>Year 2008</td>
<td>4.238***</td>
<td>−1.597</td>
<td>2.955***</td>
<td>−1.806</td>
</tr>
<tr>
<td></td>
<td>(0.741)</td>
<td>(1.501)</td>
<td>(0.853)</td>
<td>(1.834)</td>
</tr>
<tr>
<td>Year 2010</td>
<td>3.736***</td>
<td>11.597***</td>
<td>4.261***</td>
<td>11.824***</td>
</tr>
<tr>
<td></td>
<td>(0.683)</td>
<td>(1.404)</td>
<td>(0.812)</td>
<td>(1.745)</td>
</tr>
<tr>
<td>Year 2011</td>
<td>−3.484***</td>
<td>−3.395*</td>
<td>−1.927**</td>
<td>−3.003</td>
</tr>
<tr>
<td></td>
<td>(0.819)</td>
<td>(1.885)</td>
<td>(0.865)</td>
<td>(1.859)</td>
</tr>
<tr>
<td>Year 2012</td>
<td>2.535***</td>
<td>3.379*</td>
<td>5.955***</td>
<td>4.420**</td>
</tr>
<tr>
<td></td>
<td>(0.950)</td>
<td>(1.941)</td>
<td>(1.003)</td>
<td>(2.157)</td>
</tr>
<tr>
<td>Constant</td>
<td>108.459***</td>
<td>99.082***</td>
<td>337.080***</td>
<td>159.412***</td>
</tr>
<tr>
<td></td>
<td>(10.218)</td>
<td>(16.710)</td>
<td>(24.601)</td>
<td>(52.887)</td>
</tr>
</tbody>
</table>

N                                      1,152            1,153            1,152            1,153
R² overall                              0.19             0.21             0.27             0.19

* p < 0.1; ** p < 0.05; *** p < 0.01
Compared to Table 1 results, the two first rows of Table 2 show that the coefficient of budget size is similar for both the expenditure rates of activities and projects. However, the variables relating to local government capabilities ceased to be significant, with the exception of the coefficient from the informatics system variable. The coefficient of Snip and reelection also remain similar, although now the positive coefficient of reelection on public investment expenditure is significant at the 0.1 level.

Regarding the effects of the year variables, the expenditure rates for activities is higher in 2007 and 2008, when compared to 2009. Years 2010 and 2012 also have a positive effect on expenditure rates whereas 2011 shows negative effects on the expenditure rate for activities. In terms of the budget expenditure rate for investment projects, year 2007 shows large, negative, and significant effects in contrast to 2008’s smaller, negative, and insignificant effects; year 2010 shows large, positive, and significant effects; year 2011 shows negative and significant effects; and 2012, the final year, shows effects that are both positive and significant. These findings indicate that expenditure on investment projects was negatively impacted in 2007 and 2011 by the change in municipal authorities. This result is likely a consequence of the adjustment period for the newly elected authorities. Additionally, 2007 was a particularly difficult year due to the large increase in canon transfers (Radics 2012). After 2007, however, expenditure rates increased until 2010. This effect might be due to authorities’ learning more about the administrative tasks required for effective project execution since 2010 was the last year of government of authorities elected in 2007. In 2011, new authorities elected in 2010, begin the learning process again.

It is also possible that the positive trend towards 2010 reflects elected authorities’ reactions to political incentives. As the 2010 electoral year grew closer, elected authorities may have pushed their own organizations to increase public expenditures relating to projects, spending more resources. In any case, the expenditure pattern is clearly related to the political cycle. After 2010, the new authorities start a new governmental cycle which is reflected in 2011’s lower expenditure rates.

It is important to note that 2011’s negative effects on the public investment expenditure rate are lower than the coefficients of 2007. This difference indicates that there is likely municipality-level “organizational learning” across governmental cycles, despite any changes in management.
or leadership. In the case of activity expenditures, the changes over years are smaller than those found in project expenditures and do not follow their pattern. This pattern could indicate that expenditures on activities do not require a learning process comparable to projects, as remarked by Casas and Aragon (2006). Furthermore, this finding indicates that this kind of expenditure is not significantly affected by the governmental cycle, probably because it is less discrentional than the public investment expenditure.

As we can see in the third and fourth rows of Table 2, the coefficients of the fixed effects regression with budget expenditure rate of investment projects as the dependent variable are consistent with the results of the random effects model, for most of the variables. However, the coefficients of reelection and the year 2011 are no longer significant at the 0.1 level.

Discussion
As previously noted, local governments have increased their expenditure in absolute terms but also as a percentage of their budgets since 2007. The extraordinary increase of municipalities’ investment budgets due to an increase of natural resources-related transfers made this increase in total expenditure a difficult process. Nonetheless, nowadays municipalities are the level of government that executes the largest amount of public investment throughout all branches of government. Municipalities’ increased expenditure rates, however, do not necessarily mean that the local government has invested in sound projects. Notwithstanding, an increase in spending—given the complexity of the administrative systems that are involved in the execution of an investment project—can be seen as a good sign.

This is a new scenario that needs to be analyzed. Previous studies focused on explaining why local governments were not able to spend the allocated budget, but it is now necessary to reassess which factors impact local government in a context of higher expenditure rates. This paper analyzes such relevant factors using data from 2007 to 2012. Although the results listed above do not offer a final conclusion regarding the determinants of local public expenditure, they do offer some insights. Among the variables included in the regressions, the larger and more consistent effects related to: budgetary variables, the effects of different years, and whether or not the municipality was included in the public investment system (SNIP). Overall, these findings suggest that the design of the fiscal
transfers, administrative systems, and governmental cycle factors may be more important than local government capabilities to explain the management of the investment budgets in the case of Peru.

The size of the budget for investment projects had a significant and negative effect in every regression. These unsurprising findings are in line with those of Loayza et al (2011): the larger the allocated budget, the more difficult it is for the local governments to spend it. The Information systems variable was negatively and consistently correlated with investment project expenditure rates, as was being a municipality included in SNIP. These findings indicate that information and administrative systems place restrictions on municipal spending discretion that then makes it difficult for local governments to effectively execute their budgets.

Specifically, regarding SNIP, our findings indicate that although the Public Investment National System was decentralized in 2007, the system remains a constraint for local governments. The effects of this system should be interpreted carefully, since the variable, as defined above, may be confounded with an increase of municipalities’ organizational complexities. Larger and more complex municipalities tend to be incorporated into the SNIP sooner and the effects a municipality’s admittance to the system versus its municipal complexity cannot be separated with the data available for this study.

Some variables that reflect municipal capabilities did have a positive effect on budget expenditure. Provincial planning and managerial instruments were both positively related to higher expenditure on investment projects. These positive coefficients are in accordance with the previously established literature that shows a positive correlation between local capabilities and expenditure (Casas and Aragon 2009 and Loayza et al 2011). However, the findings of the present study show that such effects were small and not significant in most regressions. The lack of significance in the fixed effect model may be due to a lack of variance of these variables within the municipalities over time; however, it seems that the effect is small regardless of the type of analysis used. These findings cast a doubt regarding the importance of municipal capabilities as an explaining factor of local government expenditure.

The year effect results in both the random effect and the fixed effects regressions showed an increase in local governments’ investment
expenditure since 2007. The descriptive analysis and the regression results show an interesting pattern that reflects the electoral cycle of the period of government of elected authorities in the municipalities. Local government expenditure was low in 2007—the first year of government of the elected mayor—and continued to increase until 2010. The following year expenditure fell, only to increase again in 2012.

This pattern reflects the electoral cycle and may be explained by alternative causes. The learning process for new authorities and staff may delay expenditures during the first years of the governmental term. New authorities may also have to make political decisions about which projects should be implemented and which require relevant stakeholder involvement, such as supporters of the new authorities, civil society organizations, and other political factions. This process would then necessitate that new authorities take significant time to decide which projects will be implemented. It is also probable that as the election year looms mayors press their staff to increase spending so that they will be reelected.

Such possible explanations, however, require further analysis and it is possible that the year effects are related to other variables that are also changing over time. For example, in 2009 the central government issued a set of measures aiming at incentivizing public investment expenditure to confront the 2009 economic crisis. These incentives included measures to streamline the investment procedure. Therefore, such measures could explain the increase of expenditures in 2009 and 2010. Incentives to increase public investment expenditure were also implemented in 2011, but do not appear to have had the same effect, since public investment was considerably reduced. As such, subsequent analysis regarding the effects of elections on local government spending should use more relevant data, up to 2014, when governments again underwent elections. Additional field research is necessary to identify and differentiate the mechanisms at play.

**Conclusion**

This analysis uses panel data on Peruvian local governments’ expenditures in order to assess the effects of administrative, socioeconomic, fiscal and political factors on public investment. It is evident that expenditures are negatively related to the size of the budget, belonging to the Public Investment National System (SNIP), and having information systems.
Furthermore, robust effects of local capabilities on expenditure are not found. Finally, the effects of electoral years and years when new mayors take office both have large and significant effects on expenditure.

Although these results cannot be taken as conclusive, they indicate that the role of factors that are not controlled by municipalities, such as fiscal variables, administrative central systems and the electoral cycle may be playing a more important role in explaining public expenditure than municipal capabilities.

The relationship between budget expenditures and the electoral cycle is particularly interesting in the context of government decentralization. These findings suggest that elected authorities play a major role in public investment management, since the level of expenditures is considerably related to the year when mayors begin and end their terms in office. As such, the role of elected officials should be taken into consideration for the implementation of policies that foster effective municipal investment management. For instance, mayors and their teams would be logical targets for capacity-building programs. Moreover, such programs should take place in the early stages of the new mayor’s term in office. During this time, elected authorities seem to be planning the investment programs for terms in office, and programs would have the greatest impacts.

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