Francisca Guedes de Oliveira


CATÓLICA
UNIVERSIDADE CATÓLICA PORTUGUESA | PORTO

# Evidence on the Relation Between Public Capital and Government Efficiency

FCT Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR Portugal

Ciência.Inovação 2010
Programa Operacional Ciência e Inovação 2010
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

UNIÃO EUROPEIA
FSE

# Purpose

Long time preoccupation with the causes and consequences of government size

With little room to increase public spending, efficiency has to be a priority

Efficiency and “good” spending are determinant to a healthy economy

**Purpose: first steps in understanding what good spending might be. Is there an actual relation between efficiency and investment in public capital?**

# Motivation

reasons to conduct such an exercise:

1. There is some theoretical work linking public capital to government efficiency but very little on the empirical relation that might support the theoretical findings.
2. There is some empirical work about the exogenous determinants of government efficiency but very little as to the endogenous determinants of such efficiency.
3. The present context we're living makes it determinant for the survival of governments (and probably countries) that choices about spending induce efficiency.

# The paper

- Measures of Effciency
- Theoretical support for the relation we want to test.
- Regression Results
- Main conclusions

# Government Quality

- What is a good Government?
  - Literature (La Porta et al.):

Good government is a government that is good for capitalistic devlopment, namely.

Protects property rights
Intervenes litlle
Taxes lightly
Small dimension
Well functionig-bureaucracy
Free of corruption
Politically free and sustained by a democary
Provides public goods of  high quality
It is efficient

# Government Quality

- The previous list is not consensual throught the literature. Some have ideolgical content and others are dificult to measure.
- We decided to foucus on efficiency once it is consenual and easy to measure.
- In our analysis: Good Government = Effcient Government

# Government Quality

- Good Government is a government that provides services in essential sectors like health and education, in na efficient way, i.e., the relation between output indicators and the amount of resources necessary to achieve them is high.

# How do we measure efficiency

- We will use 3 indicators:

$$\frac{100 - \text{drop-out rate}}{\text{public spending on education as a \% of GDP}}$$

$$\frac{100 - \text{iliteracy rate}}{\text{public spending on education as a \% of GDP}}$$

$$\frac{100 - \text{infant mortality rate}}{\text{public spending on education as a \% of GDP}}$$

# Measures of Efficiency

- Two notes:

1. This are the two sectors that have the highest weight in terms of public budget throught OECD countires
2. We usee 100-"…" to make sure that na higher indicator means higher efficiency

# The model

- In a previous paper we introduce an endogenous growth model with government quality as an input to production
- In that model Government has to decide whether it is going to spend its resources:

1. in investment in a public capital
2. in a consumption good

The first option allows governments to “produce” quality. Quality depends on an input that has to be accumulated.

# The model

- Framework of an exogenous growth model
- Government

(a) $H_t = \theta\tau Y_t$ → Ht stands for government spending

(b) $\dot{K}_{gt} + \delta_g K_{gt} = (1-\theta)\tau\ Y_t$ → $K_{gt}$ is public capital

(c) $q_t = (K_{gt})^{\psi}$ → qt stands for government quality

- Production

(d) $Yt = (K^{\alpha}_{pt} L_t^{1-\alpha})^{\beta} (H_t q_t)^{1-\beta}$

# Regression Results

- The relation we are going to test is the one between quality and public capital.
- We will estimate the following:

$$\ln q_t = \psi \ln\left(\frac{K_{gt}}{L_t}\right) + \mu_t$$

# Regression Results

| | $logirpse$ | $logdorpse$ | $logmrihepu$ |
|---|---|---|---|
| $n - R^2$ | $24 - 0.064$ | $59 - 0.044$ | $44 - 0.151$ |
| $logKgpc$ | -0.2224 (−1.53) | 0.09949 (1.85)[b] | 0.03552 (3.36)[a] |
| $n - R^2$ | $23 - 0.9017$ | $59 - 0.1703$ | $43 - 0.3744$ |
| $logKgpc$ | 1.3601 (8.43)[a] | 0.4679 (2.63)[b] | 0.1197 (3.77)[a] |
| $loggdppc$ | 0.7467 (9.10)[a] | 0.2559 (2.18)[b] | 0.0376 (1.86)[c] |
| $ge$ | 0.0025 (0.45) | −0.0046 (−0.31) | 0.0039 (1.16) |

# Regression Results

- Exception made to infant moratlity we have a positive significant relation between public capital and our measures of efficiency
- We introuduce two controls: onte to account for a country wealth and other to account for a government wealth
- The introduction of the controls not onlu didn't undermine the statistical relevance of public capital but also allowed public capital to be relevant in the case of the health sector.

# Regression Results

- To further test robustness we also tried some measures of quality used in the related literature.

# Regression Results

| | $loglo$ | $logCorrup$ | $logBureau$ | $logPR$ |
|---|---|---|---|---|
| $n - R^2$ | $88 - 0.7695$ | $88 - 0.7682$ | $88 - 0.7710$ | $126 - 0.1553$ |
| $logKgpc$ | $0.4371$ $(12.34)^a$ | $0.4191$ $(11.98)^a$ | $0.4115$ $(12.53)^a$ | $0.0443$ $(8.32)^a$ |
| $n - R^2$ | $86 - 0.9957$ | $86 - 0.9914$ | $86 - 0.9850$ | $106 - 0.4032$ |
| $logKgpc$ | $0.0051$ $(0.61)$ | $0.0244$ $(2.86)^a$ | $0.0236$ $(2.0)^b$ | $-0.0483$ $(-2.38)^b$ |
| $loggdppc$ | $0.1739$ $(34.99)^a$ | $0.1554$ $(27.50)^a$ | $0.1623$ $(23.99)^a$ | $0.0236$ $(2.43)^b$ |
| $ge$ | $0.00004$ $(0.04)$ | $0.0057$ $(3.52)^a$ | $0.0024$ $(1.32)$ | $-0.0068$ $(-2.72)^a$ |

# Regression Results

As we can see results are basically the same.

# Conclusion

We did find na interesting and significant relation between the stock of public capital and government efficiency.

This relation survived the introduction of control variables and was valid weather we consider our measures of efficiency weather we use more qualitative measrues of performance.