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# MORE ON FISCAL TRANSPARENCY: MEASURING CITIZENS' CAPABILITY OF EFFECTIVE CONTROL OVER PUBLIC BUDGET

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**Abstract.** This paper proposes an index aimed at measuring citizens' possibility of effective control over the public budget. An effective public finance monitoring power results, first of all, from the availability of clear information about the public budget content and from institutional arrangements that allow citizens' involvement in budget oversight. Our index is built using selected data from the Open Budget Initiative dataset and Non Linear Principal Component Analysis. Our analysis shows that countries differ widely in their levels of citizens' capability of effective control over public budget and that socio-economic and institutional characteristics can explain at least part of this variability. We conclude by suggesting how to redesign the international framework of norms and codes of fiscal transparency in order to include the pivotal issue of effective citizens' control on fiscal data.

**Keywords:** fiscal transparency; public budget control

**Jel codes:** H61, E62

## 1. Introduction

The upward trend of public deficit and debt-to-GDP ratios across many EU Member States and OECD countries since the mid Seventies is the historical background which gave rise to the literature on the institutional aspects of fiscal policy (Hemming and Kell, 2001)<sup>1</sup>. A part of budgetary institutions, fiscal transparency, mostly meant as "openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections" (Kopits and Craig, 1998, p.1), increases the policymakers' accountability and is considered a valuable solution to address the issue of deficit bias (Hemming and Kell, 2001; Alt and Lassen, 2006; Debrun and Kumar, 2007).

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<sup>1</sup> Similar justification for fiscal governance is provided on the official site of DGEcoFin ([http://ec.europa.eu/economy\\_finance/db\\_indicators/fiscal\\_governance/index\\_en.htm](http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/index_en.htm))

As a matter of fact, in response to the Council Directive 2011/85/EU, a very recent report of the European Commission suggests: “for the sake of accountability and transparency, government entities should report in a complete and comparable manner on their use of public resources and their performance” (EU Commission 2013, p. 6).

Moreover, since Alesina and Perotti’s 1996 paper, economic literature assumes that fiscal transparency directly affects the fiscal performance of a country by ensuring sound budgetary positions<sup>2</sup> (Kopits and Craig, 1998; Alt and Lassen, 2006; Leachman et al., 2007; Debrun and Kumar, 2007; Augustine et al. 2011).

Quantitative measures of fiscal transparency mostly assess compliance with international standards (Hameed, 2005; Bastida and Benito, 2007; Augustine et al, 2011; Weber, 2012) and have been used as a rating tool in order to assess the fiscally responsible behavior of different countries.

The majority of these studies consider the importance of fiscal transparency as a monolithic tool to address macroeconomic policy, but only very few contributes discuss possible conceptual shades of fiscal transparency. For example, Heald (2006) discusses the difference between nominal and effective transparency, which informs the problem of citizens’ ability of “processing, digesting, and using the information” (Heald, 2006, p.35).

Recalling Puviani’s idea of “material progress” to the budget (Puviani, 1903), i.e. the knowability, predictability, controllability of the budget by citizens, we propose to assess fiscal transparency by focusing specifically on the availability of clear information about the public budget content to citizens and on the existence of institutional arrangements that allow citizens’ involvement in budget oversight. Both of these characteristics contribute, in our opinion, to the determination of citizens’ capability of effective control over public budget, which in turn may ease the correspondence between citizens’ preferences and allocative choices expressed by budget items. In this perspective, fiscal transparency consists in the availability and intelligibility of budget and financial information to the public audience

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<sup>2</sup> Recent contributions on the role of institutions for sound fiscal policy can be found in Bank of Italy (2012)

and the opportunity to use these data and thus exercise the democratic right to shape governments' budget allocations (Justice and Dülger, 2009).

To the best of our knowledge, there has been no effort toward developing a measurement of citizens' capability of effective control over the public budget. Measures of fiscal transparency based on the International Budget Partnership (IBP) questionnaire, such as the budget disclosure indicators by Rios et al. (2013) and the Open Budget Index (Seifert et al. 2013), take only partially into account the availability of instruments that ease the presentation of budgetary information to the public and the extent of citizens' involvement in budget oversight.

Our analysis relies on data provided by the 2012 Open Budget Survey, which was developed by the International Budget Partnership (2012) and contains information about multiple features of budget transparency in 101 countries.

After a selection of variables useful to measure the availability of clear information about the public budget to citizens and the existence of institutional arrangements that allow citizens' involvement in budget oversight, we combined these variables in a composite index by means of Non Linear Principal Component Analysis (NLPCA; Gifi, 1990; Michailidis and de Leeuw, 1998).

The remainder of this paper is organized as follows: section two provides a review of the literature about fiscal transparency, a comprehensive analysis of indexes developed by scholars and international organizations to measure it and a discussion of the concept of citizens' capability of effective control over the public budget. The third section describes data and methodology used to devise our index of citizens' capability of effective control over the public budget. Section four contains a discussion of our results and provides an empirical analysis focused on socio-economic and institutional factors that can explain cross-country variability in our index scores. Finally, section five provides some conclusive remarks.

## 2. Literature review

The most common definition of fiscal transparency concerns the generic quality, diffusion and ease of access of fiscal data and denotes the total disclosure of financial and non financial information regarding governmental decision-making procedures and transactions, the roles of various State bodies, and the terms used in the budget law in a timely and systematic way (Kopits and Craig, 1998).

However, far from being a single principle, fiscal transparency entails multiple dimensions, which do not simply refer to different areas of the budgetary information (e.g. fiscal reports; fiscal forecasts, contingent liabilities) but also concern: upwards and downwards transparency (according to which part of the vertical relationship between principal and agent is affected by the provision of information); outwards and inwards transparency (relating to the horizontal relationships inside and outside the organization); event (measurable) and process transparency (not measurable); transparency in retrospect (ex post) versus transparency in real time (continuous surveillance); nominal versus effective transparency (which gives rise to transparency illusion, as we will explain later); the timing of introduction of transparency and the habitat of transparency<sup>3</sup>.

Far from discussing in detail the conceptualization of fiscal transparency, economic literature, with only few exceptions (Heald, 2003; Heald, 2006; Kauffmann and Bellver, 2005), focused on fiscal transparency as an institutional device “necessary for macroeconomic stability and for surveillance and policy advice” (EU Commission, 2013, p. 5). As Blöndal (2003, p. 10) clarifies, fiscal transparency belongs to the seven institutional features that are necessary to control public expenditure: “medium-term budget frameworks; prudent economic assumptions; top-down budgeting techniques; relaxing central input controls; focus on results; budget transparency; modern financial management practices. Although they are identified as seven separate features, they do in fact build on each other and must be seen as a package” (Blöndal, 2003, p. 10). In brief, fiscal transparency together with stricter fiscal rules or binding fiscal targets, the implementation of traditional institutional reforms, and the creation of

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<sup>3</sup> See Heald (2006) for a complete description.

independent fiscal authorities are invoked to overcome the problem of deficit bias (Von Hagen and Harden, 1995; Poterba and Von Hagen, 1999; Hemming and Kell, 2001; Debrun and Kumar, 2007; Deroose and Kastrop, 2008).

The importance of transparency of public finance was also underlined by the European Institution. In the Council Directive 2011/85/EU *on requirements for budgetary frameworks for the Member States*, the Council recalls that fiscal transparency increases the quality of budgetary forecasts, recommends “arrangements for independent monitoring and analysis, to enhance the transparency of elements of the budget process” (Article 1, c.f) and includes a whole chapter focused on transparency (Chapter VI).

International organizations like the International Monetary Fund (IMF) and the Organization for Economic Co-operation and Development’s (OECD) were also engaged in issuing standards on fiscal transparency (IMF, 1998, 2001 and 2007, actually under revision<sup>4</sup>; OECD, 2002) covering many aspects of budget systems and budget actors.

There are several fiscal transparency measures, provided both by international institutions and developed in academic papers. The empirical research on fiscal transparency is limited, but expanding at the same time: the majority of indexes of fiscal transparency assess levels of openness, ease of access and monitoring of governments’ fiscal decision-making (Alt and Lassen, 2006) and “typically aim at capturing all or some of the dimensions of fiscal transparency identified in Kopits and Craig (1998)” (Arbatli and Escolano, 2012, p. 6).

We can categorize these measures as such<sup>5</sup>:

- 1) Indexes based on IMF’s Fiscal Transparency Reports on the Observance of Standards and Codes (ROSC). In particular, Hameed (2005), relying on ROSC data, calculated a summary index of fiscal transparency as a mean of all the practices (data assurance, medium term

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<sup>4</sup> <http://www.imf.org/external/np/exr/consult/2012/FAD/index.htm>

<sup>5</sup> We are aware that our categorization of fiscal transparency measures may appear too simplistic because there is a certain amount of overlap between the different standards in terms of the types of documents and specific disclosures that they cover but we think it’s helpful in distinguish among the main sources of data used.

budgeting framework; budget execution reporting, and fiscal risk disclosure)<sup>6</sup>. Similarly, Dabla-Norris et al. (2010) developed a sub-index assessing transparency in low-income countries at all the three stages of the budget process (planning, approval and implementation) by using multiple sources (International Budget Partnership (IBP), Public Expenditure and Financial Accountability (PEFA) reports and ROSC)<sup>7</sup>: Augustine et al. (2012), using IMF framework and data, construct a Fiscal Transparency component which is obtained as an average score resulting from three subcomponents, namely Open Government, Autonomous Budget/Audit Process and Independent Forecasting, which mainly concern the availability of information about the government accounts;

- 2) Indexes based on compliance with OECD requirements<sup>8</sup>. Bastida and Benito (2007) put together an additive index of fiscal transparency based on OECD/World Bank Budgeting Database in order to assess to what extent OECD Best Practices (OBP) have been actually fulfilled by each country. OBP sections were split into 40 dummy variables. Each one of these variables took the value ' 0 ' when the country did not comply with each corresponding best practice and ' 1 ' when the country did. The final aggregate index is the sum of scores registered for the selected variables and ranges from 0 (country does not meet any OBP recommendation) to 40 (country meets all OBP recommendations). Bernoth and Wolff (2006)'s Audit is also based on a OECD/World Bank survey of budget practices. To each question, they assigned a value between zero and four, where four indicates the response most conducive to fiscal transparency. Again, their final index is built with a simple aggregation of scores attributed to the selected responses. Alt and Lassen's index (2006) is also partially constructed on variables belonging to the Organization for Economic Co-operation and Development (OECD) but, in

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<sup>6</sup> Each practice was assigned a category 0, 0.33, 0.66, or 1, where 0 indicates weak practices, and 1 indicates strong practices (Hameed, 2005, p. 12)

<sup>7</sup> An updated version of Hameed's index was used in Arbatli and Escolano (2012), while an index of fiscal transparency based on both Hameed (2005) and Dabla-Norris et al. (2010) can be found in Weber (2012).

<sup>8</sup> Unlike OECD, which does not produce systematic assessments of member countries, IMF assesses compliance with its Code albeit without issuing an official indicator.

order to derive an aggregate indicator (out of a maximum index value of 11), they rely on survey responses of a research specific questionnaire.

- 3) Indexes of transparency based on different frameworks and methodologies. Debrun and Kumar (2007) proposed an alternative measure of fiscal transparency defined as absence of creative accounting calculated as 1 minus the median coefficient of correlation (in absolute value, 15-year rolling correlation) between stock-flow adjustments and the overall budget balance in percentage of GDP over 2004-1990. Kaufmann and Bellver (2005) using multiple sources, construct an overall transparency index based on the weighted average of two sub-indices of transparency (namely economic/institutional transparency and political transparency), calculated by using Unobserved Component Model (UCM).

Evidence of transparency is also a reference tool for advisors and think tanks. For example, Oxford Analytica ([www.oxan.com](http://www.oxan.com)), [estandardsforum.com](http://estandardsforum.com) Freedom House ([www.freedomhouse.org](http://www.freedomhouse.org)), International Country Risk Guide ([www.prsgroup.com](http://www.prsgroup.com)), Transparency International (TI), ([www.transparency.org](http://www.transparency.org)), Global Integrity ([www.globalintegrity.org](http://www.globalintegrity.org)), and the Open Budget Initiative ([www.openbudgetindex.org](http://www.openbudgetindex.org)) by IBP (International Budget Partnership), are some of the most cited sources of indicators of transparency in the budget process, based on the compilation of survey/questionnaires by business people and on expert assessments. Since 2005 IBP organization issues general OBI (Open Budget Index) scores,<sup>9</sup> which are widely used in academic research (De Renzio and Masud, 2011; Arbatli and Escolano, 2012; Wehner and De Renzio, 2013; Rios et al., 2013).

While there is a great variety of measurements of fiscal transparency, to the best of our knowledge, there are no measures specifically and exclusively focusing on two interrelated aspects such as availability of clear information about the public budget content and from the existence of institutional arrangements that allow citizens' involvement in budget oversight.

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<sup>9</sup> A detailed description of the OBI index is provided in section 3.



Indeed, the definition of fiscal transparency must concern, on the one hand, the accessibility and availability of mechanisms that allow the civil society to scrutinize the budget process; “effective fiscal transparency entails the intelligibility and usability as well as availability of budget and financial information, to nonspecialists (most citizens and many public officials) as well as to budget analysts and other specialists and budget-process insiders. It also entails the existence of an attentive and comprehending audience, which for purposes of democratizing budgeting would have to include non-specialists” (Justice and Dulger, 2011, p.263). Similarly, Heald underlines that: “for transparency to be effective, there must be receptors capable of processing, digesting, and using the information” (Heald, 2006, p.35).

In order to solve the problem of fiscal illusion, which mostly refers to the problem of knowability of budget items by citizens, effective fiscal transparency must concern the right to the budget, i.e. the possibility that citizens/voters have a say over the choices expressed through the budget (which Puviani calls “material progress to the budget”). At the beginning of 20<sup>th</sup> century, the economist Amilcare Puviani blamed that motivations behind the modern budget are concealed to the great mass of the people, the press and the majority of Parliament (Puviani, 1903).

Transparency eliminates information asymmetry by easing information availability and enforcing democratization of the budget: fully accessible information counteracts citizens’ disillusionment following politicians’ broken promises which are the consequence of a “disconnect between what citizens expect from government and what they are willing to pay” (Ebdon and Franklin, 2006, p. 444). Hence citizens’ complete accessibility to budgeting “can be very useful in educating the public about key trade-offs and gaining valuable input from citizens about their priorities and preferences.” (Ebdon and Franklin, 2006, pp. 444-445)<sup>10</sup>. “Transparency can promote public-spirited behavior by constraining bargaining based on self-interest and promoting principled deliberation instead. Even when self-interest is universal, providing information to principals about the actions of their agents – here, elected

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<sup>10</sup> According to Salmon and Wolfersperger, we assume that 1) information is always a good and that the collective consumption dimension of information does not matter. If these assumptions hold, people should always be pleased to get more free information, but both assumptions can be questioned (Salmon and Wolfersperger, 2007, p. 13)

officials – reduces the costs of monitoring, thereby promising to improve governance in a representative democracy” (Garrett and Vermeule, 2008, p.68).

As emphasized by Philipps and Stewart (2009), the availability of budget information is linked to citizens’ engagement in the budget process. Following these authors, fiscal transparency, allows “empowering engagement of citizens to participate in establishing a fair and legitimate fiscal policy in a country, both through their representatives in a democratic legislature and more broadly” (Philipps and Stewart, 2009, p.4). They argue that the distributive and social justice impacts of budgetary decisions and the democratic oversight of government budgets by legislative and civil society actors have been widely neglected in the definition of budgetary legislation and best practices (Philipps and Stewart, 2009, p.3) However, in order to generate the political consensus which follows from the exercise of democratic control over the budget, Philipps and Stewart (2009) emphasize the need to redesign the institutional framework characterizing the fiscal process in each country<sup>11</sup>. However, given that “simply placing more budget information in the public domain will not have an impact unless citizens can understand it, and have the legal and institutional channels to use it” (Carlitz, 2010, p.3), in order to hold decision makers to account, citizens must also be able to consume the otherwise useless information. If citizens “have no means to judge, they will tend to be inattentive to the means employed by the government and also to the question of whether these means are the most appropriate to produce the outcomes they are concerned with” (Salmon and Wolfersperger, 2007, p. 15).

In sum, citizens’ capability of effective control over public budget results from two complementary aspects: i) availability of clear information about the public budget content and ii) institutional arrangements that allow citizens’ involvement in budget oversight. Both these aspects are relevant: being informed without being involved in the oversight of the budget restricts citizens’ capability to

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<sup>11</sup> The conflict-resolution role of the fiscal process was clearly described by the famous public finance scholar R.A. Musgrave (1981): “the fiscal process as much as any other democratic institution, occupies the middle ground between anarchy and absolute rule. It provides the forum on which interest groups and ideologies may clash without resort to the barricades and on which compromise and cooperation may be sought. Located at the centre of the dispute, the budget process can hardly be expected to function neatly and without error if only because it is created by the same conflicting interests which it must reconcile. Yet an orderly working of that process is essential to the conduct of public affairs and for this its multiple objectives must be understood” (Musgrave, 1981, p. 76).

affect budget choices, while being engaged in the budget process without being adequately informed does not allow an effective exercise of the oversight function.

The focus on these aspects is grounded in the idea of effective fiscal transparency described by Justice and Dulger (2011) and concerns all the actions/measures to foster democratic oversight, thanks to an effective accessibility and intelligibility of fiscal information concerning government's budget provided to the citizens. However, the link between effective transparency and citizens' participation is not straightforward as one does not automatically assure or generate the other.

There is an ongoing discussion about how fiscal transparency and public participation are related because "the conditions, factors, and mechanisms that contribute to increased transparency are likely to be somewhat different from those that contribute to greater participation or accountability" (Khagram et al., 2013, p.7). In a number of countries, extensive disclosure of fiscal information has not led to broader participation, despite opportunities for the latter. Processes of political regime change and increasing political competition, (b) fiscal and economic crises, (c) corruption scandals and the media, and (d) external (international, global, regional, and transnational) influences are all factors that may contribute, in different combinations, to explain why greater popular engagement did not automatically follow from higher fiscal transparency (Khagram et al., 2013, pp. 34-35).

Our analysis is one of the few papers which tries to measure citizens' degree of information concerning public budget, developing a new index which can be further used to investigate the factors that shape the relationship between transparency and participation.

### **3. Data and methodology**

#### **3.1 Data**

We rely on data provided by the Open Budget Survey (OBS) carried out by the International Budget Partnership in 2012. OBS is a fruitful source of budgetary-related information as it avoids the problem

of self-selection bias, provides comparative information at country level at the same point in time and is less susceptible than ROSC data to government manipulation (Wehner and De Renzio, 2013). This survey is aimed at measuring budget transparency, participation and oversight in 101 countries around the world and consists of 125 questions, which were answered by independent researchers who work in the assessed countries (International Budget Partnership, 2012a). The full list of countries covered is reported in tab. 1. Data gathered through the survey are used to construct the OBI index reported in section 2.

In order to put up our index of citizens' capability of effective control over the public budget, among the 125 questions available in the survey, we selected 16 questions that are specifically related to three topics:

- i) citizens' access to budget details and dissemination (questions 109-112 in the original questionnaire)<sup>12</sup>;
- ii) availability of non technical documentation that helps citizens to analyze public budget (question 113 in the original questionnaire).
- iii) public engagement in the oversight function (questions 114-125 in the original questionnaire);

Questions about i) and ii) are useful in order to measure the availability of clear information about the public budget content, while questions about iii) identify the existence of institutional arrangements that allow citizens' involvement in budget oversight. As we discussed in section 2, both of these elements are crucial in order to measure citizens' capability of effective control over the public budget.

The selection of questions was made according to the question–topic correspondence explicitly set by the International Budget Partnership and reported on the official website of the survey (<http://survey.internationalbudget.org>). The number of the selected questions in the original OBS database and their exact wording are reported in tab. 2.

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<sup>12</sup> A citizens' budget is a document that summarizes and explains basic public budget information by presenting it in an accessible format (International Budget Partnership, 2012b).

In the original database, answers to these questions range from 1 to 4, where 1 indicates that the international standard is fully met with regards to the type of budget information (or budget practice) assessed by the question; 2 indicates a good practice; 3 corresponds to minimal efforts to attain the relevant standard; 4 indicates that the standard is not met at all. Question 126 represents a unique exception because only two answers were possible, a first one indicating that the relevant standard is fully met and the second one representing a standard not met at all (answers were coded 1 and 2 respectively).

In order to ease the interpretation of our results, these original scales were reversed; therefore, in our analyses higher values indicate that there is a higher availability of information about the public budget or that there are better institutional arrangements to allow citizens' involvement in budget oversight.

Frequencies registered for answers to each question are reported in tab. 2. No missing data were observed, except for Sudan which was excluded from our analysis; therefore, our final dataset includes 100 countries.

[TAB.2 ABOUT HERE]

### **3.2 Methodology**

Two relevant aspects have to be considered, when using the selected questions to construct a composite index measuring institutional arrangements that favor citizens' budget supervision:

- i) all the selected questions measure qualitative dimensions by assigning numerical evaluations to their variants. While these evaluations may be considered highly rigorous, they represent an arbitrary *cardinal* coding of *ordinal* variables;
- ii) in order to ease cross-country comparison, the final composite index must preserve the maximum possible portion of total variation of the original data and, at the same time, identify those individual indicators that have the largest variation across countries.

In order to take into account both of these aspects, we decided to base our index on Non Linear Principal Component Analysis (NLPCA: Gifi, 1990; Michailidis and de Leeuw, 1998).

NLPCA performs data analysis in two steps; first, it assigns numerical values to the categories of the ordinal variables through a process of optimal scaling (or optimal scoring). In more detail, NLPCA calculates nonlinear (i.e. not necessarily equally spaced) quantifications for the ordered categories in a way that the overall variance accounted for by the transformed variables is maximized.

Secondly, these transformed variables are analyzed in a Principal Component Analysis (PCA, see Abdi and Williams, 2010 for a complete review and discussion of this method) with the aim of identifying a limited number of uncorrelated principal components that reproduce as much variance from the observed data as possible.

The application of this methodology allows to: i) keep the ordinal properties of the original data, because it produces scores that are not sensitive to the interval differences between the original numerical evaluations. The scores given to each answer are not a priori elicited and do not result in arbitrary and unsatisfactory transformations of the data made by the analyst; ii) analyze the relationships between the original variables and use their combination to build latent factors; iii) use these latent factors in order to summarize the original multivariate attributes.

Moreover, the use of NLPCA allows overcoming the problems arising when building indexes through linear additive functions, where all the considered institutional arrangements have equal weight and therefore are considered as perfect substitutes for each other (Lagona and Padovano, 2007).

#### **4. Results**

The analysis was run by means of the CATPCA module of SPSS, which was set up in order to preserve the order of categories of the observed variable in the optimally scaled variables.

Fig. 1 presents a graphical representation of the eigenvalues related to the first 5 components extracted from the data. The first principal component has an eigenvalue equal to 5.9 (explaining about 35% of the total variance); moving to the subsequent components, a big drop in eigenvalues registered. Therefore, following Cattell's rule (Cattell, 1966), we decided to retain only the first component in our analysis and consider it as an even-handed synthesis of information originally contained in our dataset.

[FIG.1 ABOUT HERE]

Tab. 4 presents the variables' loadings on this component, which are the correlation coefficients between the component and the original variables, measuring the importance of each variable in accounting for the variability in the component. With few exceptions, all the variables show high or moderate positive loadings ( $>0.50$ ), therefore supporting our idea of using this component as a synthetic index.

[TAB.3 ABOUT HERE]

Countries' scores on the first principal component, that is to say the observations' projections onto the principal component, represent our final non standardized index, which was rescaled in order to make the final index range from 0 to 100. Countries' ranking, based on final index scores, are reported in tab. 3.

[TAB.4 ABOUT HERE]

[FIG.2 ABOUT HERE]

When comparing our index of citizens' capability of effective control over the public budget with the OBI index (fig. 2), although a high level of correlation is registered (Pearson correlation= 0.68; Spearman rank correlation =0.70), some differences stand out quite clearly.

Beside South Korea, which displays the highest score (100), the top ten of our index include Brazil (50.19) and the Philippines (45.21), which register lower scores according to the OBI index. South Korea is very sensitive to budget openness, given its meaningful examples of participative budgeting (You and Lee, 2013): the same sensitivity characterizes Brazil which was the first country experiencing participatory budgeting and by the Philippines, where multiple initiatives to foster citizens' empowerment in public governance are in place (Labonne and Chase, 2009).

Czech Republic and Russia, which were at the top of the OBI rating scale, display lower scores for our index (11.69 and 12.26 respectively). This result suggests that these countries' efforts toward openness of the budget process do not concern the effective public accessibility to budget information and analysis. Relative high scoring of effective citizens' control for some developing countries (like Kenya 41.19; Botswana 37.36; Kazakhstan 35.82; Honduras 35.63; Afghanistan 28.74) require careful interpretation as these countries have just publishing a citizens' budget, which, in most cases, is aimed more at please donors than at effectively obtaining that citizens know more. Moreover, albeit we have included just the presence of public hearings on the budget by the legislature as a selected question, we, unfortunately, do not take into account how it influences budgetary decisions (in some cases, it could be irrelevant in practice).

Considering the lowest scoring countries, besides countries which appear also at the bottom of the OBI ranking (like Niger, Qatar, Equatorial Guinea, Chad, Benin, Iraq), Lebanon displays very low scores in our index (0), while the same country obtains higher results in the OBI index (32.63).

Overall, our analysis shows that countries differ widely in their levels of citizens' capability of effective control over public budget. In order to explain this variability, we attempt to identify socio-economic and institutional variables that are correlated with citizens' capability of effective control over public budget.

The existing literature has emphasized some socio-economic, political and institutional determinants which affect the level of government budget disclosure. Alt et al. (2006) analyzed budget procedures in



the U.S. and suggested that political competition and fiscal imbalance (in the form of higher surpluses or deficit) affect the level of fiscal transparency. Rios et al. (2013) searched for the determinants of central government budget disclosure and found it to be significantly correlated with internet penetration, population size, government balance, administrative culture (whether Anglo-Saxon, Nordic or Continental) and party ideology. Wehner and De Renzio (2013) found that some characteristics of the electoral system such as free and fair elections positively affect fiscal transparency (measured by the Open Budget Index), while oil and gas dependence has negative effect on fiscal disclosure<sup>13</sup>. Following a literature on aid dependency, some authors have also investigated possible linkages between aid dependency and transparency but de Renzio and Angemi (2012) do not find that fiscal transparency is negatively affected by aid dependency.

Following these examples, we selected a number of covariates which are theoretically correlated with citizens' capability of effective control over public budget and ran an empirical analysis based on OLS regression, using our index of citizens' capability of control over budget as the dependent variable.

Following Wehner and De Renzio (2013), our set of covariates includes an index of democracy (POLITYSCORE) (Marshall, Gurr and Jagers, 2010), which takes into account the strength of the executive power and the competitiveness of political participation. Geographical positions (seven categories according to the World Bank regional classification) and socio-economic characteristics, like wealth (logGDP) and size of population (logPOP), were also included following Rios et al. (2013). Finally, following the argument expressed by Schleifer et al. (2008), we distinguish five categories of legal origins (British, French, Socialist, German and Scandinavian) as variables characterizing the institutional and administrative framework of each country.

The complete list of covariates and their detailed descriptions are reported in tab. 5.

[TAB.5 ABOUT HERE]

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<sup>13</sup> On the other hand, Ross (2011) finds that oil wealth has a negative effect on budget transparency in autocracies.

Results of our regression analysis are displayed in table 6 and are mostly in line with expectations. Before looking at the results, it is worth noting that, given the nature of the data we used, our empirical analysis must be intended as the search for robust *ceteris paribus* correlations.

[TAB.6 ABOUT HERE]

The level of democracy, wealth and size of each country shows positive and significant coefficients revealing that the richer and more democratic and populated the country, the higher its citizens' capability of effective control over public budget. Middle Eastern & North African countries, as well as South Asian countries, are in general less likely to promote citizens' effective control over the budget than countries in East Asia & the Pacific region. Finally, British, German and Scandinavian origins are positively associated with higher levels of citizens' capability of effective control over public budget, confirming that there is a strong linkage between the institutional framework of the governance system and the availability of budget information, as well as between the institutional framework of the governance system and citizens' active engagement.

Our results contribute to the ongoing debate on transparency standards and codes update, which should also recommend to "ensure that external oversight institutions and citizens have the information they need to hold governments to account" (IMF, 2012, p.38). We think that, in order to encompass all the aspects related to budget decisionmaking, codes and standards must go beyond simple public openness of fiscal information and also entail the effective bottom-up control of the governmental allocative choices by means of better publicly accessible information and by means of institutional settings that allow budget oversight by citizens.

## **5. Conclusions**

The process of fiscal illusion troubles the citizens' exercise of their sovereignty and conditions their scrutiny of budget policy. Hence, in order to tear off the "veil of ignorance" between government and

citizens, alongside fiscal discipline enhancing institutions, it is necessary to provide adequate correspondence between governmental fiscal policies and citizens' right to evaluate allocative budget choices, a correspondence that, far from being automatic, must be inevitably found in the functioning of possible forms and institutes of budgetary accountability.

In this paper, we focused on citizens' capability of effective control over the public budget. We defined it as resulting from the availability of clear information about the public budget content and from the existence of institutional arrangements that allow citizens' involvement in budget oversight . In our opinion, both of these aspects measure "meaningful citizen participation in resource allocation" (Justice and Dulger, 2009, p.268) and concern the exercise of people's fiscal sovereignty at both national and supranational level (Phillips and Stewart, 2009). The focus on these aspects is therefore linked to the concept of effective fiscal transparency described by Justice and Dulger (2011).

Using data provided by the Open Budget Survey and a methodology based on Non Linear Principal Component Analysis (NLPCA; Gifi, 1990; Michailidis & de Leeuw, 1998), we built an index of citizens' capability of effective control over the public budget that allows cross-country comparisons.

Our index fills a gap in the literature by providing a measure of citizens' capability of effective control over the public budget, which has not clearly been emphasized nor assessed by previous theoretical and empirical contributions.

Our results show that there is a considerable cross-country variability in levels of citizens' capability of effective control over public budget. In order to explain this variability, we ran an OLS regression analysis, testing the correlation between our index of citizens' capability of effective control over the public budget and a number of covariates which had been identified in previous contributions as factors associated with fiscal transparency (Alt et al, 2006; Carlitz, 2010; Wehner and De Rienzo, 2013; Rios et al., 2013). We found that the level of democracy, geographical position, socio-economic characteristics and the legal origins of the country show significant correlations with our index. We finally suggest improving international fiscal transparency standards and codes by explicitly taking into

account the effective involvement of citizens in the budget process, together with the provision of publicly accessible information.

Further research will attempt at further exploring the linkages between fiscal transparency and political participation by assessing the role of citizens' capability of effective control over the public budget in the framework of political competition during elections, in order to verify if countries where citizens' capability of control is higher are characterized by lower electoral turnout, higher political activism and more affordable fiscal promises by parties during elections.

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Afghanistan, Albania, Algeria, Angola, Argentina, Azerbaijan, Bangladesh, Benin, Bolivia, Bosnia And Herzegovina, Botswana, Brazil, Bulgaria, Burkina Faso, Cambodia, Cameroon, Chad, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dem. Rep. Of Congo, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Fiji, France, Georgia, Germany, Ghana, Guatemala, Honduras, India, Indonesia, Iraq, Italy, Jordan, Kazakhstan, Kenya, Kyrgyz Republic, Lebanon, Liberia, Macedonia, Malawi, Malaysia, Mali, Mexico, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nepal, New Zealand, Nicaragua, Niger, Nigeria, Norway, Pakistan, Papua New Guinea, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, São Tomé E Príncipe, Saudi Arabia, Senegal, Serbia, Sierra Leone, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sudan (\*), Sweden, Tajikistan, Tanzania, Thailand, Timor-Leste, Trinidad And Tobago, Tunisia, Turkey, Uganda, Ukraine, United Kingdom, United States, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe

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Tab. 1: Countries considered in the 2012 Open Budget Survey (OBS) . \* excluded from our analysis due to relevant number of missing data.



Question number in the original dataset	Question	Answers			
		1	2	3	4
109	What is the most detail provided by the Citizens Budget?	74%	3%	18%	5%
110	How is the Citizens Budget disseminated to the public?	74%	8%	10%	8%
111	Are the public's priorities on budget information taken into consideration by the executive while drafting the Citizens Budget?	86%	7%	6%	1%
112	Are Citizens Budget throughout the budget process?	74%	22%	3%	1%
113	Does the executive make available to the public accessible, nontechnical definitions of terms used in the budget and other budget-related documents (for instance, in a glossary)?	48%	17%	13%	22%
114	Is the executive formally required to engage with the public during the budget process?	49%	34%	12%	5%
115	Does the executive clearly, and in a timely manner, articulate its purpose for engaging the public during the budget formulation and execution processes?	68%	24%	5%	3%
116	Has the executive established practical and accessible mechanisms to identify the public's perspective on budget priorities?	58%	29%	9%	4%
117	Has the executive established practical and accessible mechanisms to identify the public's perspective on budget execution?	78%	15%	4%	3%
118	Does the executive provide formal, detailed feedback to the public on how its inputs have been used to develop budget plans and improve budget execution?	92%	4%	4%	0%
119	Does a legislative committee (or committees) hold public hearings on the macroeconomic and fiscal framework presented in the budget in which testimony from the executive branch and the public is heard?	48%	24%	23%	5%
120	Do legislative committees hold public hearings on the individual budgets of central government administrative units (i.e., ministries, departments, and agencies) in which testimony from the executive branch is heard?	46%	25%	15%	14%
121	Does a legislative committee (or committees) hold public hearings on the individual budgets of central government administrative units (i.e., ministries, departments, and	68%	22%	7%	3%

	agencies) in which testimony from the public is heard?				
122	Do the legislative committees that hold public hearings release reports to the public on these hearings?	66%	8%	12%	14%
123	Does the supreme audit institution (SAI) maintain formal mechanisms through which the public can participate in the audit process?	58%	22%	11%	9%
124	Does the SAI maintain any communication with the public regarding its audit reports beyond simply making these reports publicly available?	71%	29%		
125	Does the supreme audit institution (SAI) provide formal, detailed feedback to the public on how their inputs have been used to determine its audit program or in audit reports?	86%	6%	5%	3%

Tab. 2: Selected questions from the Open Budget Index (OBI) and frequencies registered for related answers.

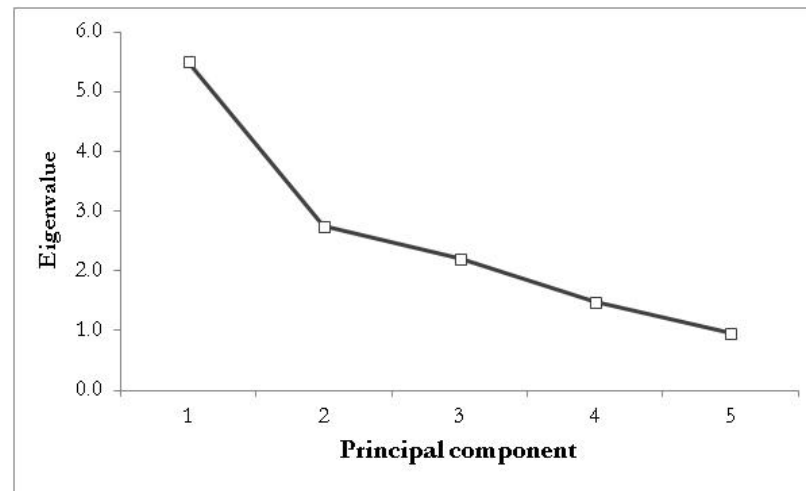


Fig. 1: Scree plot; eigenvalues from NLPKA.

<b>Variable</b>	<b>Variables loadings on component 1</b>
q109I	0.745
q110I	0.82
q111I	0.586
q112I	0.763
q113I	0.681
q114I	0.409
q115I	0.585
q116I	0.531
q117I	0.662
q118I	0.601
q119I	0.53
q120I	0.531
q121I	0.438
q122I	0.477
q123I	0.55
q124I	0.528
q125I	0.386

Tab. 3: Component loadings for the variables used in the analysis.

<b>COUNTRY</b>	<b>CITIZENS' CAPABILITY EFFECTIVE CONTROL OVER THE BUDGET</b>	<b>COUNTRY</b>	<b>CITIZENS' CAPABILITY EFFECTIVE CONTROL OVER THE BUDGET</b>
South Korea	100	Zimbabwe	9.96
Sweden	76.63	Bosnia	9.77
New Zealand	76.05	Nepal	9.77
South Africa	73.56	Venezuela	9.58
United King.	65.71	Timor-Le	9.39
Norway	60.73	Costa Rica	9
Brazil	50.19	Malaysia	8.81
Philippines	45.21	Trinidad	8.81
France	43.3	Bangladesh	7.85
United States	41.76	Burkina Faso	7.85

Kenya	41.19	Papua N.G.	7.85
Botswana	37.36	Tunisia	7.47
Slovenia	36.97	Fiji	7.09
Kazakhstan	35.82	Liberia	7.09
Honduras	35.63	Portugal	7.09
Mexico	33.91	Turkey	7.09
Italy	32.95	Vietnam	6.9
Slovakia	31.23	China	6.7
Mali	31.03	Senegal	6.7
Uganda	30.65	Zambia	6.7
India	30.27	Spain	6.51
Chile	29.5	Cameroon	6.32
Tanzania	29.31	Pakistan	6.32
Afghanistan	28.74	Albania	6.13
El Salvador	27.01	Egypt	6.13
Colombia	26.05	Sri Lanka	5.56
Guatemala	25.67	Serbia	5.36
Thailand	25.29	Angola	4.79
Georgia	23.56	Jordan	4.6
Indonesia	23.37	Mozambique	4.41
Ghana	21.46	Myanmar	4.21
Poland	20.69	Kyrgyz Rep.	4.02
Germany	19.73	Azerbaijan	3.83
Morocco	19.35	Bolivia	2.68
Malawi	19.16	Macedoni	2.68
Nigeria	19.16	Yemen	2.68
Ukraine	18.58	Tajikistan	2.3
Ecuador	17.62	Namibia	1.92
Peru	17.62	São Tomé	1.92
Croatia	17.24	Dem. Rep	1.53
Rwanda	15.9	Nicaragua	1.15
Argentina	15.71	Saudi Arabia	1.15
Sierra Leone	14.18	Cambodia	0.77
Bulgaria	13.98	Benin	0
Algeria	13.79	Chad	0
Dom. Rep	12.64	Eq. Guinea	0
Romania	12.26	Iraq	0
Russia	12.26	Lebanon	0
Czech Rep.	11.69	Niger	0
Mongolia	10.54	Qatar	0

Tab. 4: index measuring citizens' capability of control over the budget. Scores by country.  
*Source: Own calculations (see section 3 for details)*

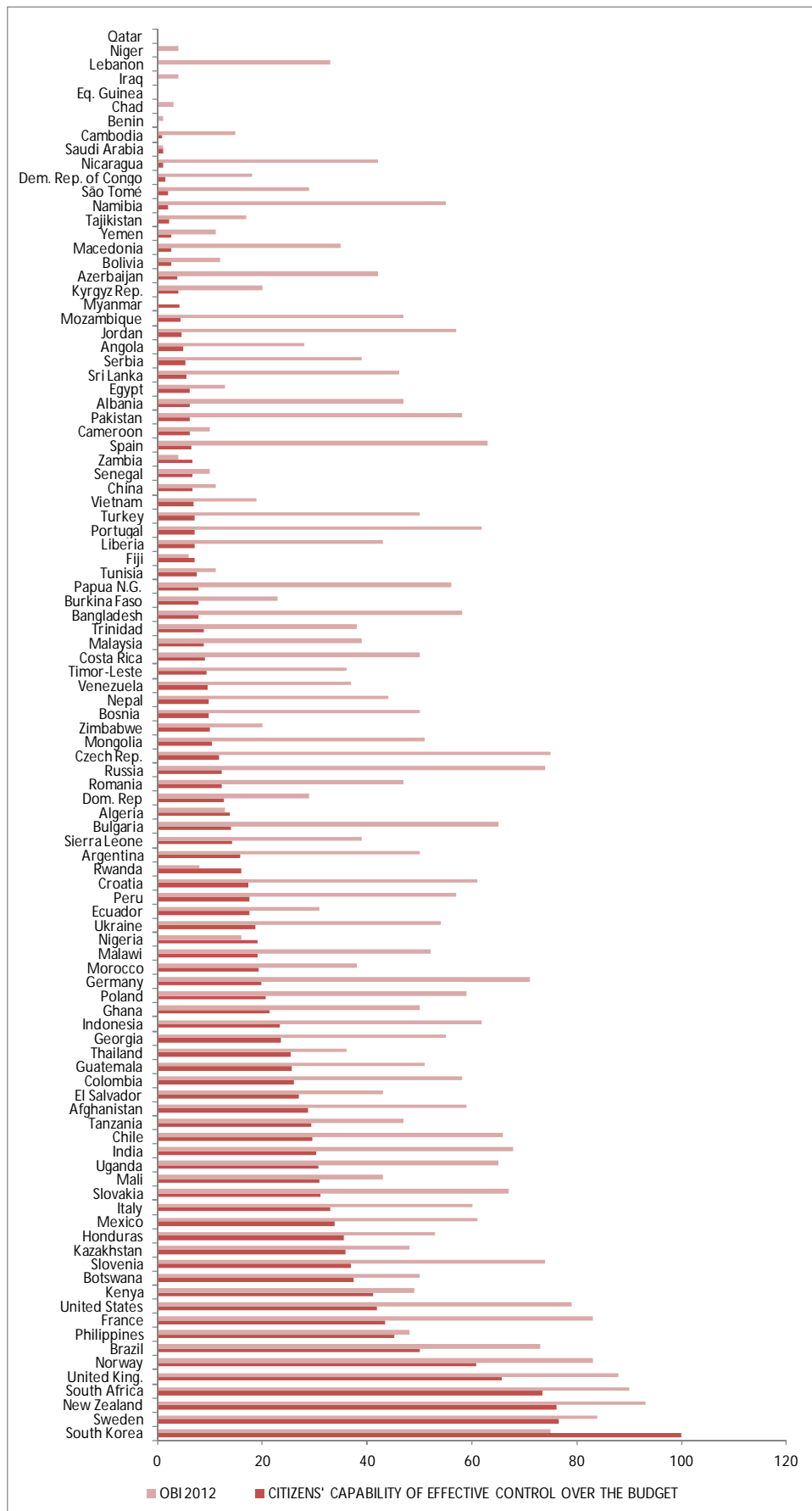


Fig. 2: Index of citizens' capability of effective control over the budget and OBI index compared

<b>Label</b>	<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>	<b>Source</b>
CITIZENS_INDEX	Index of citizens' capability of control over public budget	100	18.21	19.25	0.00	100.00	Own calculation
logPOP	log of total population	100	2.87	1.51	-1.76	7.21	World Bank Indicators
logGDP	Log GDP per capita	100	8.34	1.41	5.44	11.57	IMF Outlook Data
legal_british	Dummy variable for countries with British legal origin	99	0.27	0.45	0.00	1.00	Schleifer et al. (2008)
legal_french	Dummy variable for countries with French legal origin	99	0.48	0.50	0.00	1.00	Schleifer et al. (2008)
legal_socialist	Dummy variable for countries with Socialist legal origin	99	0.16	0.37	0.00	1.00	Schleifer et al. (2008)
legal_german	Dummy variable for countries with German legal origin	99	0.06	0.24	0.00	1.00	Schleifer et al. (2008)
legal_scandinavian	Dummy variable for countries with Scandinavian legal origin	99	0.02	0.14	0.00	1.00	Schleifer et al. (2008)
POLITYSCORE	Polity score ranging from +10 (strongly democratic) to -10 (strongly autocratic)	88	5.11	5.31	-10.00	10.00	Polity IV Project
reg_eap	Dummy variable for World Bank East Asia & Pacific region	100	0.14	0.35	0.00	1.00	World Bank regional classification
reg_eca	Dummy variable for World Bank East Europe & Central Asia region	100	0.19	0.39	0.00	1.00	World Bank regional classification
reg_ssa	Dummy variable for World Sub Saharan Africa region	100	0.26	0.44	0.00	1.00	World Bank regional classification
reg_we	Dummy variable for World Bank Western Europe region	100	0.09	0.29	0.00	1.00	World Bank regional classification
reg_lac	Dummy variable for World Bank Latin America and Caribbean region	100	0.16	0.37	0.00	1.00	World Bank regional classification
reg_mena	Dummy variable for World Bank Middle East & North Africa region	100	0.10	0.30	0.00	1.00	World Bank regional classification
reg_sa	Dummy variable for World Bank South Asia region	100	0.06	0.24	0.00	1.00	World Bank regional classification

Tab. 5: Variables used in the regression analysis. Label, description, source and summary statistics

		(1)		(2)	
		coeff.	st. err.	coeff.	st. err.
logPOP		3.592**	-1.146	4.159**	-1.268
logGDP		5.035**	-1.814	5.285**	-2.081
legal origin (a)	legal_british	7.711*	-4.358	9.303*	-4.91
	legal_socialist	-4.911	-6.311	0.641	-7.531
	legal_german	14.95*	-8.007	15.27*	-8.606
	legal_scandinavian	46.03***	-12.74	47.45***	-13.08
Region (b)	reg_eca	-6.855	-6.057	-10.69	-7.099
	reg_ssa	-1.73	-6.13	0.329	-6.731
	reg_we	-9.135	-8.448	-14.46	-8.945
	reg_lac	-2.697	-6.469	-4.722	-6.88
	reg_mena	-18.30**	-7.309	-10.14	-8.754
	reg_sa	-11.44	-8.648	-17.54*	-9.885
POLITYSCORE				0.899**	-0.405
N		99		87	
R-squared		0.37		0.48	
BIC		866.6		771	

Tab. 6: OLS estimates, the dependent variable is CITIZENS\_INDEX (see tab. 5 for details).  
*Notes on variables:* (a) the omitted category is French legal origin; (b) the omitted category is East Asia & Pacific region