Fiscal transparency, its determinants and consequences for developing countries

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Abstract

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This thesis has addressed the issue of fiscal transparency for developing countries in three essays. The first essay provided an overview of the existing literature on fiscal transparency and related questions, focusing on different angles and measurement methodologies involved. Our review was structured around four principal axes that include the determinants of fiscal transparency; the links between fiscal transparency and some selected institutional factors relating to international capital markets, and fiscal discipline, corruption, and economic growth. One of the major shortcomings discovered in the literature is the lack of exclusive attention devoted to developing countries on this important issue of fiscal transparency and how this could affect their growth potential.

The second essay proposed a new, replicable and more objective index of fiscal transparency based on criteria of developing countries as used by the World Bank in 2009. We also provided an analysis of the determinants of fiscal transparency based on information from 27 developing countries, taking into account a number of institutional and socio-economic determinants of fiscal transparency. For example, we examined the impacts of natural resources (wealth), quality of institution, openness on the above-mentioned index of fiscal transparency by the means of OLS and Two-Stage Least Square methods. Our empirical findings indicated that the performance of our proposed index appeared to be consistent with other existing indices.

The third essay presented an analysis of some potential consequences of fiscal transparency for developing countries. More specifically, based on the availability of data across the 27 countries of the sample, it was found that fiscal transparency can have some impact on the structure of government spending, education and health outcomes, attraction of international capital, but not economic growth.

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I dedicate this dissertation to God almighty for this opportunity, to my wife, to my daughter and to my late father, Victor Tehou.

Contribution of Author

Essay 1: Tehou contributed to a large review of the literature, investigating several angles undertaken by the authors in the new field.

Essay 2: Tehou conceived the study of the determinants of fiscal transparency for developing countries. He developed a new index of fiscal transparency, designed the methodology, conducted data management, performed the estimation, interpreted the results and wrote the essay.

Essay 3: Tehou conceived the study of consequences of fiscal transparency for developing countries, developed the study design and methodology, conducted data management, performed the estimation, interpreted the results and wrote the essay.

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GENERAL INTRODUCTION

The objective of this thesis is to explore the extent to which a specific definition and a measure of fiscal transparency (based on a new index) can exclusively be applied to developing countries. Such approach is consistent with the methodology used by international organizations such as the International Monetary Fund (IMF) and the World Bank. For example, based on the Report on the Observance of Standards and codes (ROSC), we build a new and replicable index of fiscal transparency that can be used to evaluate the determinants as well as the consequences of fiscal transparency in a sample of twenty-seven developing countries[1]. The issue of fiscal transparency has recently become an important aspect of public governance, particularly, after the Mexican and the Asian crises at the end of 1990s. This has generated a lot of attention on the definition and measures of fiscal transparency. Moreover, a number of studies have emerged that distinguish among countries on the basis of their respective political, financial, and fiscal discipline outcomes of fiscal transparency. Most of these studies show that different definitions or measures of fiscal transparency produce not only different determinants but also different policy outcomes for different groups of countries.

Although a comprehensive literature review is among the essays of my thesis, it may be necessary to present some of the weaknesses of the existing literature that justify my work. First, the available data on fiscal transparency are too general, as they tend to cover not only developed countries and emerging countries, but also developing countries together. In addition, the existing literature tends to evaluate the performance of a country's fiscal transparency on the basis of a set of criteria related to its fiscal budget performance (including its degree of adherence to a set of international principles) without taking into account the country's stage of economic development. However, as far as developing countries are concerned, it seems appropriate to consider their relative stage of economic development in any performance evaluation exercise. In

[1] Low-income and middle-income economies, such as classified by the World Bank in 2009. See http://web.worldbank.org/. That classification reflects well the development statuses that most of the countries of our sample have at the time their ROSCs were published, even though the statute of some of them, such as Croatia, have changed since then. My focus is on developing countries that are either democratic or undemocratic.

other words, consideration should be given to the stage of a developing country's economic development as the most fundamental way of differentiating among the developing countries and their levels of fiscal transparency. Because past studies do not focus on the role of this criterion, the existing literature has tended to conclude that developing countries generally represent the group of countries with low levels of fiscal transparency.

Second, the analytical framework in the literature does not tend to be completely applicable to the case of developing countries. For example, several past studies conclude that fiscal transparency is associated with political budget cycles. Such a conclusion may be biased because the studies do not consider either the weakness or the absence of democratic regimes that characterize most developing countries. Furthermore, the literature finds that the level of fiscal transparency of a country negatively affects its perception by international markets measured by the credit ratings given by formal agencies like Standard & Poors or Moody's. All such conclusions are questionable on many grounds: first, the studies do not consider the fact that when it comes to investment in developing countries, one must emphasize the role of foreign direct investment (FDI) (which have been shown to depend, to a large extent, on the availability of natural resources), rather than other types including portfolio investment. Second, whereas in the past, developed countries like US or UK were the types of countries that would undertake foreign direct investment in developing countries, now, these investments emanate mostly from emerging countries like China, Brazil or India. Certainly, the latter countries are less careful in the area of public governance. Lastly, instead of their investment performance being assessed by formal agencies like Standard & Poors or Moody's, developing countries are covered by such institutions as Euro money, Institutional Investor, or Economist Intelligence Unit.

Accordingly, this thesis seeks to investigate how socioeconomic circumstances in developing countries would affect the level of fiscal transparency and how their economic performances might differ under alternative levels of transparency. In particular, we seek to determine how differences in magnitude of fiscal transparency would influence their respective economic outcomes. To achieve these objectives, the thesis is organized around three separate but interlinked essays.

Essay one presents the different directions taken by the existing literature on the topic of fiscal transparency. It is structured around four principal axes that include the determinants of fiscal transparency; the links between fiscal transparency and such variables as institutional issues, international capital markets, and fiscal budget discipline, corruption and economic growth. The general finding for most of the studies tend to support the view that the lack of transparency in most countries is due to poor quality of administration and institutions, and to high level of corruption.

However, some studies also focus on the analyses of the effect of fiscal transparency on the scale of government and gubernatorial popularity, and the electoral cycle of debt management. In particular, we examine several other theoretical and empirical frameworks that also address the effects of fiscal transparency on public decisions and public actions, by identifying conditions under which different levels of fiscal transparency can be associated with different levels of population welfare.

When it comes to the relationship between fiscal transparency and investor-behaviour in financial markets, most of the studies assume that the riskiness of a country's financial securities and therefore the interest rate attached to these instruments are highly determined by its level of fiscal transparency. Accordingly, it is concluded that fiscal transparency can help to support the external borrowing facilities of countries, thereby improving their sovereign ratings and preventing them from potential financial crises. In other words, fiscal transparency can improve the credit-worthiness of a country.

Overall, because fiscal transparency is defined and measured differently by different authors, Essay one finds that there is lack of consensus concerning the relationship between fiscal transparency and fiscal discipline, corruption and economic growth.

In Essay two, we intend to focus attention on the determinants of fiscal transparency with regard to only developing countries. To that end, we construct a new index of fiscal transparency (consistent with the definition provided by the IMF in both its 2001 and the 2007 Manuals of Fiscal Transparency) and describe additional determinants of fiscal transparency that are exclusively relevant in the study of developing countries. In particular, we introduce such factors as natural resources, the

openness of the economy, the literacy rate of the population, and the quality of institutions.

After specifying a model based on the above determinants, we perform regression estimations of the resulting equation using the ordinary least squares (OLS) approach using our newly-constructed index for fiscal transparency. However, we did not find the model to perform nicely because of possible endogeneity arising from interdependence among some variables. Accordingly, we applied the two-stage least squares (2SLS) method to ensure that the estimators are consistent. As a robustness check, the same estimation procedure was replicated by replacing our index of fiscal transparency with respectively the index of Andreula et al. (2009) and the Open Budget Index, both of which use a significant similar number of developing countries in our selected sample. Interestingly, the results provide additional credence to our suggested procedure.

Essay three provides an estimation framework to determine the potential consequences of fiscal transparency on the objectivity of government spending, education and health, attraction of foreign direct investment (FDI), and economic growth for a sample of twenty-seven developing countries. In the empirical analysis, we adopt the same estimation techniques (i.e., OLS and two-stage least squares methods) used in Essay two, first, to determine the extent to which fiscal transparency can impact the objectivity of government spending, measured as the ratio of government spending on education and health to its spending on defence. Second, since it is a moot question as to whether fiscal transparency can independently affect education and the health status of the population, separate regressions are estimated for these two variables. For simplicity, spending on education is measured as the literacy rate of adults and the rate of primary school enrollment; and health outcomes considered are the life expectancy at birth and the infant mortality rates[2].

[2] As a robustness check, we once again replicated the same estimation procedures, by replacing our fiscal transparency index respectively by the index of Andrula et al.'s (2009) and the Open Budget Index, for the reason mentioned above. The results are very similar to the findings obtained using our index of transparency, in terms of the direction and the significance of the relationships.

Essay 1

The Issue of Fiscal Transparency: Where is the literature headed?

1.1. Introduction

Fiscal transparency is becoming one of the most discussed topics in economics and finance since lack of transparency was cited as a factor of financial crises. Precisely, several international organizations such as the IMF and OECD considered fiscal transparency as an important feature of fiscal policy. These organizations widely believe that a lack of transparency was among the causes of these crises**,** according to authors like Jarmuzek et al. (2006). In this regard, the IMF initiated the Code of Good Practices on Fiscal Transparency - Declaration on Principles in 1998 (revised in 2007), followed in 2001 by the OECD's Best Practices for Budget Transparency and by the multistakeholder Extractive Industries Transparency Initiative (EITI), which was launched in 2002 to address resource revenue transparency issues in resource-rich countries. Furthermore, the IMF and the World Bank have been jointly publishing the "Reports of the Observance of Standards and Codes" (ROSCs), in which they undertake a large number of summary assessments of the observance of standards relevant to private and financial sector development and stability, and public sector transparency. So far, there is growing academic research in the field, most of which supports the importance of fiscal transparency in both developed and developing countries.

Fiscal transparency can be defined as the public availability of information regarding governments' decision-making procedures and transactions. But the most cited definition in the literature is that provided by Kopits and Craig (1998 p.1-2). According to these authors, fiscal transparency can be defined as the openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections. It involves ready access to reliable, comprehensive, timely, understandable and internationally comparable information on government activities – whether undertaken inside or outside the government sector – so that the electorate and financial markets can accurately assess the government's financial position and the true costs and benefits of government activities, including their present and future economic and social implication.

From this definition, it follows that budgets that include numerous special accounts and that fail to consolidate all fiscal activity into a single "bottom line" measure are not transparent (Poterba and von Hagen, 1999). In contrast, budgets that are easily available to the public and to participants in the policymaking process, and that do present consolidated information, are transparent.

In the same order, Alt and Lassen (2006a) distinguish four main characteristics of transparent procedures: (1) openness and ease of access and monitoring, in the sense that more transparent procedures should process more information in fewer documents, other things equal. (2) The content and the release of information, in which words and classifications should have clear, shared, and unequivocal meanings. (3) The possibility of independent verification, which has been shown experimentally to be a key feature in making communication persuasive and/or credible. (4) The presence of more justification to make the budget document easily understandable.

Therefore, budget transparency becomes a matter of actors in the socio-political system. In fact, if it is accepted as the systematic and timely release of all relevant fiscal information, fiscal transparency requires the presence of two important actors: an effective legislation that scrutinizes budget reports, and discusses budget policy; an effective civil society through the media and nongovernmental organizations that can influence budget policy and hold government accountable, such as defined by Bernardino and Bastida (2009). This is why, based on the principal-agent framework, Prat (2005) defines fiscal transparency as the ability of the principal (population) to observe both how the agent (government) behaves and the consequences of the agent's behaviour.

However, despite the great theoretical analysis developed to present the causes and the impacts of fiscal transparency, the construction of a unique index measuring different dimensions of fiscal transparency is still one of the most important challenges of the empirical literature on the topic. The indices proposed by the literature differ from each other on a number of points including the reference documents used, the methodologies of construction, the coverage in terms of countries and aspects. This partly explains the relative disparity or subjectivity of conclusions drawn from these indices. De Simone (2009) shows that there is no significant correlation among these indices. Moreover, the ranking of countries varies considerably across indices.

The present paper discusses different directions taken by the literature on this topic. The objective is to provide an overview and a critical comparison of a set of works related to fiscal transparency as well as the measurement of fiscal transparency done to date. One justification for such activity is that the subject of fiscal transparency is still very new. Thereby a review of previous research on this issue gives background information that helps to identify aspects that require further investigation.

It is clear from the above that the topic of fiscal transparency is still developing and evolving in several directions. Some authors bring fiscal transparency into the area of bureaucratic behaviour, according to which the lack of transparency is caused by the poorness of the administration and the institutions, which in turn explains several political decisions. Another angle consists of showing that fiscal transparency affects financial markets, as it can help some emerging countries to support their external borrowings by increasing their sovereign ratings and prevent them from financial crises by reducing spreads or by fostering more international capital inflows. In addition, several scholars show that fiscal transparency leads to other important economic outcomes, such as fiscal discipline, sustained growth rate of output, stable inflation rate, and development.

This survey is organized as follows. The first section presents literature on the determinants of fiscal transparency. The next four sections discuss the literature on the respective links between fiscal transparency and institutional and political issues; budget cycles; international capital markets; and other economic outcomes, including fiscal discipline, corruption, and growth. Section six concludes by raising a few of the points that deserve further attention.

1.2. The determinants of fiscal transparency

The following analyses consider that some political, institutional and socio-economic facts should be seen as determinants rather than outcomes of fiscal transparency.

Alt et al. (2006) investigate, conceptually and empirically, the political and economic determinants of fiscal transparency. In other words, they analyze the causal effects of political and fiscal factors on transparency in the United States. Using a model of accountability, they explore two broad sets of explanatory factors under which

politicians might implement more transparent budget procedures: the political setting and the fiscal environment.

For the political setting, these authors define political polarization within a state measured by the liberal-conservative axis as a dependent variable. As such, they calculate average ideology scores based on roll-call voting in the U.S. Congress (following Hanssen, 2004), according to the data taken from Poole and Rosenthal (1997). For each year and state, they measure policy distance by the absolute difference between average ideology scores. The fiscal variables of interest include the deficit, debt, and general revenues, all of which are measured in real per capita terms. Socioeconomic controls include real per capita income, income squared, population size, population squared, percent elderly, and percent school-aged.

Alt et al. (2006) construct an index of fiscal transparency by extending Alt et al.'s (2002) index data back in time. In doing so, they obtain an annual score for each year between 1972 and 2002 based on survey responses to a questionnaire previously sent to the budget officers of 38 states. This allows them to estimate the model with a panel data analysis with a state fixed. Then they consider a dynamic panel data analysis estimated by GMM for the robustness check.

As a result, they find that both political and fiscal outcomes affect the level of transparency; that political competition tends to increase the level of fiscal transparency; and that fiscal imbalance, in the form of higher surpluses or deficits, also contributes to higher transparency.

Andreula et al. (2009) extend the above analysis, but focus on the relation between institutional factors and fiscal transparency. The specification of the paper considers fiscal transparency as the dependant variable and the explanatory variables include the quality of the institutions associated with GDP, inflation, and some political controls.

To measure fiscal transparency, Andreula et al. (2009) use the IMF Manual (2007) and define four sub-indices dealing with clarity and assurances of information, roles and responsibility, open budget preparation, and public availability of information (following Hameed, 2005). These main aspects guide them in extracting information from each of 82 countries' ROSCs corresponding to the divisions of these sub-indices. The authors then defined an index as the mean of the marks assigned to each practice: 0

(code not observed at all), 2 (minimal adherence to IMF suggestions), 4 (adherence limited), 6 (Code partly followed), 8 (Code mostly followed), and 10 (Code totally followed).

For the quality of institutions, the authors relay to the governance indicators developed by Kaufmann, Kraay, and Zoido-Lobatón (2002), who combine both large opinion surveys and measures based on polls of experts and define governance using six clusters of variables: voice and accountability, political instability and violence, government effectiveness, regulatory burden, rule of law, and control of corruption. The governance indicators are the aggregate of each of the six dimensions mentioned, for each of the 82 countries.

Andreula et al. (2009) apply OLS and two-stage least square (2SLS) regressions to control for the endogeneity problem encountered also in much of the earlier studies. They find that higher levels of institutional quality or governance give way to better fiscal transparency indicators. This may be the reason why several authors explicitly or implicitly link the lack of fiscal transparency to corruption (see Mauro, 1995; Hameed, 2005; Ellis and Fender, 2006).

The main instructions recommended in order to achieve a greater level of fiscal transparency are proposed by the IMF Manuals on Fiscal Transparency (2001 and 2007), which contain the *Code of Good Practices on Fiscal Transparency (the Code)*. The organizational framework for the Code is provided in four interlocking general principles that aim to capture the essential elements of fiscal transparency: (1) the clarity of roles and responsibilities, which requires clear identification of the boundary between public and private sectors, and of the roles within the government, together with a clear legal and administrative framework for fiscal management. (2) The public availability of information, which covers the need for the timely provision of information. (3) The openness of the budget preparation, execution, and reporting, which deals with budget process, and thus goes to the core of fiscal transparency and specifies that budget data should be presented in a way that promotes accountability; procedures for the execution and monitoring of approved expenditures should be clearly specified; and fiscal reporting should be timely, comprehensive, and reliable. (4) The independent assurances of integrity, which requires that fiscal information (including related

statistical and macroeconomic information) should be open to independent external scrutiny.

1.3. Fiscal transparency, budget cycles, and institutional issues

The common point of the works presented in this section is the analysis of the issue of fiscal transparency using the bureaucratic behaviour models or the theory of fiscal illusion (see Benito and Batista, 2009). First, the lack of transparency is connected to the bureaucratic behaviour model, as bureaucratic management hides inefficiency by means of poor financial reporting, such as stated by Bennett and String (2005). Second, the theory of fiscal illusion may explain the failure to disclose the future consequences of current expenditure policies, which is an outcome of information asymmetry, such as studied by Puviani (1897), Niskanen (1974), Kress (1989). The result can be expressed in terms of the moral hazard problem between voters and politicians, as voters' ability to control the actions of their elected representatives may be eventually improved by fiscal transparency.

Alt et al. (2002) analyze the effect of fiscal transparency on the scale of government and gubernatorial popularity for 48 states in the United States. They estimate a formal model of accountability, which was divided into two sub-models. The first considers the scale of the government as the dependent variable; the independent variables are the fiscal transparency and control variables, including real per capita income, unemployment, and government ideology index. Both the total revenues and the total spending per capita measure the scale of government. Fiscal transparency is measured by an index that sums the number of transparent procedures that each state has out of the nine measures published by the National Association of State Budget Offices (1995, 1999) and the National Conference of State Legislatures (1998). Then the authors code states as having low transparency with an index value of less than 4, medium transparency with an index value of 4 or 5, and high transparency with an index value of 6 or greater.

The dependent variable in the second sub-model is the popularity of the government, whose data are taken from the Job Approval Ratings (JAR) [3] database.

[3] The approval ratings also called Gallup ratings was introduced by George Gallup in the late 1930s to gauge public support for the President of the United States during his term.

From the variety of different question types contained in the JAR database, Alt et al. (2002) analyze only the "standard job performance" question, the ratings for which were then redefined as "positive" for "excellent," and "good" and "negative" for "fair" and "poor," respectively. Then the popularity of the governor is the (average) percentage rating the governor "positive" out of all responses. The estimations are based on cross-sectional data averaged over 1986-1995. The explanatory variables are the transparency index as defined above and several economic and institutional controls.

Alt et al. (2002) find that fiscal transparency increases both the scale of government and the gubernatorial popularity. In others words, institutions (that define the transparency of the budget process) affect the popularity or the average job performance ratings of the state governors in the long run. However, along with Poterba and Reuben (1999), the paper does not solve the endogeneity problem concerning fiscal institutions at the state level due to the lack of panel data.

In the same vein, Alt and Lassen (2005, 2006a) analyze whether and how the transparency of fiscal policy affects the scope for electoral cycles. In their specification, the authors consider the central government fiscal surplus (as a percentage of GDP) as the key dependent variable. The main independent variables are binary "pre" and "post" election measurements which are respectively equal to one in the year of and the year following an election for the executive, and zero otherwise.

The transparency index is used in the first model as interacting with the above "post" and "pre" election variables. But in the second model, the transparency index is used as a separated independent variable. That transparency index is constructed based on four distinct categories that are: the ease to access and monitor fewer documents or places, the commitment to non-arbitrary language, the presence of more justifications of decisions, and the independent verification of the above. Based on these criteria, Alt and Lassen (2005, 2006a) define eleven items, ten of which are taken from OECD's *Best Practices for Budget Transparency* (OECD, 2001) to which the authors add a measure of whether financial statements are prepared using accrual accounting. The other control variables include real GDP per capita; the share of population aged 15 to 64; the share above age 64; trade openness (exports plus imports as a share of GDP); and the output gap, a measure of country-idiosyncratic shocks constructed as the deviation from the country's trend of real GDP.

Alt and Lassen (2005, 2006a) estimate the dynamic panel data model using first-differences for 19 advanced industrialized OECD economies over the 1990s. The main results of the paper are that the scope for electoral cycles in fiscal balance depends on the degree of fiscal policy transparency and that the access to information about fiscal policy impacts the existence of electoral cycles in public finances. In other words, the authors found that there exists a persistent pattern of electoral cycles in low transparency countries, while no such cycles can be observed in high transparency countries and that these electoral cycles are larger in more politically polarized countries. In addition, Alt and Lassen (2005) end with an important question of whether fiscal transparency also affects policy outcomes such as participation rates.

Furthermore, Alt and Lassen (2006b) analyze the effects of fiscal transparency on public debt accumulation. The paper investigates whether and how greater levels of fiscal transparency are associated with lower debt, whether a higher degree of political polarization is associated with higher debt, and whether governments that prefer low public spending also have more public debt. Before empirical testing, they present a career-concerns theoretical model with political parties (referring to Persson and Tabellini, 2000; Shi and Svensson, 2002). In that model, the authors integrate three important results of the literature on deficit and debt accumulation. The results that (1) fiscal transparency decreases debt accumulation at least by reducing an electoral cycle in deficits; (2) right-wing governments tend to have higher deficits than left-wing governments; (3) increasing political polarization increases debt accumulation.

The theoretical model considers an economy that consists of voters and political parties: the voters who want more competent politicians and the incumbent (a political party), which has at its disposal two policy instruments: taxes and debt. A political party can use both instruments to appear competent, even when it is not. This situation holds only if transparency is low, that means the probability that debt is observed before voters decide whether to re-elect the current incumbent or not is also low. In the equilibrium of the model, the authors show that transparency unambiguously decreases deficits and debt, which are costly and have no other function than transmitting information about incumbent competence. But this has no effect, as voters correctly foresee it, which implies the existence of an electoral cycle in fiscal imbalance.

The empirical analysis that follows is twofold. First, Alt and Lassen (2006b) test the existence of an electoral cycle in debt and its relationship with budget process transparency. For that aim, the authors replicate the Persson–Tabellini (2003) regression as described in Alt and Lassen (2006a). Second, using instrumental variable regressions, the authors examine the long-run relationship between budget transparency and general government debt in more detail by controlling for additional factors. Here, the dependent variable is the general government debt (as a percentage of GDP). In addition to the fiscal transparency index, the model includes two other key independent variables: the measure of political polarization and the average frequency of right-wing governments. The transparency index used is the same as in Alt and Lassen (2005, 2006a). The measure of political polarization comes from party-by-party raw scores, such as in Laver and Hunt (1992), while the average frequency of right-wing governments comes from the 1998 European Journal of Political Research Political Yearbook. The authors control for political and economic variables, such as the federalism, the effective number of legislative districts, the economic openness and the terms of trade, the proportions of young and old in the population, the income inequality, the income per capita, and the level of spending. To correct the problem of endogenity associated with fiscal transparency, the authors estimate a system of two equations using both two-stage and three-stage least squares estimations.

The prediction of the theoretical model (according to which fiscal transparency leads to substantially lower deficits and debt accumulation) received a strong empirical support. In other words, Alt and Lassen (2006b) determine that increasing the level fiscal transparency is an important way to improve fiscal performance. They also find that fiscal institutions significantly affect fiscal outcomes. In addition, they claim that incumbents in reasonably competitive political systems, such as common law countries and presidential systems, have incentives to establish fiscal transparency.

A solution to such a situation of information asymmetry may come from Fox (2007), who analyzes the potential interaction between fiscal transparency and informational asymmetries between office holders and the public. He uses a two-period model of lawmaking and elections to identify conditions under which government transparency can actually lower the voter's welfare. To do so this author analyzes two different situations. In the first situation, the electorate knows the state of the world and

the incumbents are not better informed than the electorate about the relationship between policies and outcomes. In the second situation, the electorate does not know the state of the world and the incumbents have a better understanding of the effects of policies than the public. Fox (2007) determines that when incumbents have a better understanding of the effects of policies compared to the public, and most politicians share the electorate's policy preferences, transparency can have negative consequences. This result supports that under these conditions, the public may be better off delegating policymaking to office holders such as judges with lifetime appointments, civil servants, or politicians limited to few terms in office, whose tenure does not depend on public opinion.

Prat (2005) also supports that point of possible negative consequence of fiscal transparency. In that way, he distinctively studies the effects of fiscal transparency on consequences of public decision and public actions. Relating his work to Prendergast (1993) and Avery and Meyer (1999), Prat constructs a career concerns model where both voters and the politician are assumed to be uncertain about the politician's type. Also, the author assumes that improving the transparency of the consequences public actions is always beneficial to voters. But in this model, more information about the agent's actions can be detrimental if it causes the agent to disregard private informative signals in order to appear a certain way to the public. Prat's results support the informal arguments that have been used to justify certain forms of secrecy, according to which transparency on (fiscal) decisions should go hand in hand with transparency on the consequences of these decisions. In other words, citizens should not have the right to obtain information about a public decision until that decision is implemented, following Frankel (2001).

Gavazza and Lizzeri (2008) follow the same idea of defining the conditions under which fiscal transparency can be counterproductive. The authors study the impact of transparency on budget deficits, on the size of government spending, and on the timing and efficiency of taxation system. These authors consider the static model of redistributive politics provided by Lindbeck and Weibull (1987). The paper introduces endogenous labour supply and considers two elections with an intertemporal linkage provided by debt. Also, in order to understand the role of transparency, the authors assume that voters imperfectly observe the electoral promises made to other voters. In

this way, an economy is assumed to be populated by voters who have the same utility function over consumption and labour, pay distortionary taxes on labour, and receive lump-sum transfers. These voters are divided into groups of the same number of individuals. The candidates are in turn identified according to their strategies in terms of tax rates or in terms of tax revenues. In this way, the issue of fiscal transparency is also divided into transparency of spending and transparency of revenues. Therefore, Gavazza and Lizzeri (2008) show that transparency of the political system does not unambiguously improve efficiency since transparency of spending is beneficial while transparency of revenues can be counterproductive because it leads to increased wasteful spending.

Benito and Bastida (2009) provide an answer to the question raised by Alt and Lassen (2005) as to whether fiscal transparency also affects political outcomes. To do so, the authors explore empirically the relationships between budget transparency, fiscal outcome, and political turnout. That empirical analysis is twofold: first, it focuses on the univariate relationships between fiscal transparency and respectively government debt, government balance, voter turnout in parliamentary elections, using a parametric correlation analysis. Then a multivariate analysis, such as OLS regressions, is applied to study the relationship between these variables as a whole, using fiscal transparency as the dependent variable. Second, the paper explores a cluster analysis in order to get groups of homogeneous countries by means of ANOVA tests for the "between-clusters" heterogeneity significance.

The voter turnout in parliamentary elections data comes from International Institute for Democracy and Electoral Assistance (IDEA). But to measure transparency, Benito and Bastida (2009) construct an index by matching the World Bank Budgeting Database questionnaire items with the "OECD Best Practices for Budget Transparency" features based on a sample of 41 countries. That led to 40 dummy variables, each of which takes the value 1 when the country accomplished the corresponding best practice and 0 otherwise. The transparency index for each country is then obtained simply by the sum of the 40 values. Therefore, that index ranges from 0, when the country does not meet any recommendation, to 40, when the country does meet all recommendations.

The authors find a positive relationship between the national government fiscal balance and budget transparency: The more information the budget discloses, the less

the politicians can use fiscal deficits to achieve opportunistic goals. The authors agree with Reviglio (2001) that improving public expenditure management by enforcing budgetary procedures and removing gimmicks that bypass fiscal constraints will foster transparency, improve budgetary credibility, and encourage further public expenditure reform.

Andersen and Nielsen (2010) also set a theoretical model and subsequently testing its implications (following the approach of Alt and Lassen (2006b)) to analyze the conception of fiscal transparency. The paper uses fiscal transparency to explain the procyclical nature of fiscal policy. In other words, the objective of the study is to use fiscal transparency to propose a new explanation of the procyclical nature of fiscal policy in both developed and developing countries.

The theoretical approach uses a model of retrospective voting, following Barro (1973), with two periods. In this model an incumbent politician sets fiscal policy and faces a trade-off between pleasing voters and abusing his or her powers for personal gain. In the first period, the incumbent chooses fiscal policy and the voters decide whether or not to re-elect the politician for the second period. After the second period, the incumbent has no possibility of re-election. The lack of transparency in the budget process is introduced by assuming that the size of the deficit is not necessarily observable to the voters. As a result, the government can hide information about its borrowing needs from the public. But Andersen and Nielsen (2010) assume that a deviation between the true deficit and the officially reported deficit is detected with a positive probability, which does everyone know and which becomes a measure of the degree of fiscal transparency. The result of this model is that fiscal policy is only procyclical in good times because the temptation to cheat voters is stronger in booms. This means that when the level of income rises, the incumbent can deliver the same levels of consumption with less effort, requiring a less careful conduct of fiscal policy and with more room for superfluous spending on "ego-boosting" projects.

To test the implications of the theoretical model, Andersen and Nielsen (2010) apply the panel data analysis on two sets of countries. The first set covers 21 OECD countries in the period 1989-2003 and the second set covers 59 countries in the years between 1980 and 1998. They regress a fiscal indicator variable (government expenditure) on a cyclical indicator (output gap) interacted with fiscal transparency and

a range of control variables using OLS and GMM. The fiscal transparency index used is the one proposed by Alt and Lassen (2006a). The authors find that a lack of fiscal transparency gives scope for rent-seeking behaviour in fiscal policymaking. In addition, the procyclical bias of fiscal policy in good times should be less severe in countries where fiscal transparency is high[4], since a transparent budget practice reduces the moral hazard problem between voters and politicians by improving voters' ability to monitor the actions of their elected representatives.

In sum, as suggested by Alt et al. (2006b), politicians might dislike fiscal transparency for several possible reasons: Rent-seeking politicians do not wish to be disciplined; bad politicians do not wish to be distinguished from good politicians; re-election-minded politicians want to generate political business cycles; myopic politicians want to run bigger deficits than the public would like. These factors militate against improving fiscal transparency and might even motivate discourage transparency. However, more transparency might trade off the value of sunlight with the danger of over-exposure, such as claimed by Heald (2003). According to this author, too high degree of transparency can produce excessive "politicization" and reduce flexibility.

1.4. Fiscal transparency and international capital markets

The analysis of the impact of fiscal transparency on the behaviour of capital markets is based on the fact that capital inflows, such as aid and foreign direct investments, may be negatively correlated with opacity, such as stated by Alesina and Weder (1999), or Drabek and Payne (2001). In theory, firms should be less likely to enter a non-transparent country because of the increased risks, uncertainty, and high costs of doing business. The analogous situation is that countries that maintain and promote transparent policies and structures will attract more investments. Linking corruption and international aid, Alesina and Weder (1999) even recommend that donors should rethink their aid policies if they are truly serious about fighting against corruption and encouraging good governance.

Drabek and Payne (2001) evaluate the effects of transparent policy regimes on Foreign Direct Investments (FDI) inflows. The authors assume that transparency in economic policy-making and in the activities of government institutions are vital in

[4] Related analysis is in Alesina et al., (2007)

attracting foreign investment. To test that, they develop a simple econometric model that considers foreign investment inflows as depending on the degree of transparency, the level of economic activity, the level of interest rates, the inflation and exchange rate changes, and the level of openness of the trade regime in the host country.

For the FDI variable, Drabek and Payne (2001) pooled the aggregate bilateral FDI flow data from 52 countries between 1991 and 1995. Their transparency measure is obtained by combining two measures into a unique index. One is the Political Risk Services (PRS) ranking that considers the level of corruption, law and order, bureaucratic quality, and contract viability and the other one is the risk of government expropriation of private assets. A higher number indicates higher transparency in the host country. The paper uses ordinary least square (OLS) and two-stage least square (2SLS) estimations.

Despite the elusiveness their transparency index, Drabek and Payne (2001) obtain from the estimation that lack of transparency is negatively correlated with the level of FDI inflows into a host country. More specifically, on average, a country could expect a 40 percent increase in FDI from a one-point increase in their transparency ranking. Thus, a lack of transparency in a host country affects FDI inflow. In this way, the more the country is transparent, the more the FDI inflows into that country are important.

Gelos and Wei (2002) also support that conclusion. The paper provides a very detailed analysis of the behaviour of international investors, well strengthened by a great theoretical literature on information asymmetry as discussed in corporate finance literature. The paper is concerned with four key questions: The first is whether, relative to a benchmark, funds tend to be undervalued in less transparent countries; The second is whether herding is more prevalent in less transparent countries; The third is whether the funds react differently to a country's news about the degree of transparency; The fourth is whether transparency help to explain the size of fund outflows across countries during the Asian and Russian crises. For each of these questions, the authors present a specific empirical analysis.

For the first question, Gelos and Wei (2002) present a panel data regression model for almost 40 emerging market economies with fund-fixed effect and country random effect where the country weights on the benchmark index depend on a measure

of transparency. The country weights are computed in terms of implied flows from the asset position data. Here the authors assume that funds hold a portfolio of stocks that is well approximated by International Finance Corporation (IFC) total return investable index. They use the Morgan Stanley Capital International (MSCI) index for the countries not covered by IFC.

For the fiscal opacity, Gelos and Wei (2002) build two separated indices: the cooperate opacity index and the macro policy opacity index. The first is constructed based on the yearly Global Competitiveness Report produced by the World Economic Forum. The second is obtained by summing the two measures of macroeconomic policies transparency produced by Oxford Analytica, and the corresponding value is subtracted from ten. In addition to these two opacity variables, the authors consider a composite opacity index generated by Price water house Coopers (2001) based on survey bureaucratic practice, legal system, government macroeconomic policies, accounting standards and practices, and regulatory regime. The authors control for the following variables: the average turnover given by the average monthly value traded divided by the mean market capitalization; the variable on minority shareholder rights; the measure of closely held shares; the GDP per capita; the economic, financial, and political risk produced by the International Country Risk Guide; and a three-year moving average of mean returns to capture the possibility that fund managers are return chasing. Their results suggest that corporate and macro-policy opacities impact asset allocation.

For the second question, Gelos and Wei (2002) compute an indicator of herding using the statistic of trading comovement initially introduced by Lakonishok et al. (1992). This is to determine whether funds move in the same direction more often than expected if they are traded independently and randomly. That indicator is a function of the proportion of buyers out of all funds active in the country. The authors then analyze the correlation between herding and transparency using the same control variables. The paper finds that herding is higher in less transparent countries.

For the third question, Gelos and Wei (2002) regress changes in country portfolio weights on revision in consensus GDP forecasts that they multiply with the various opacity variables. The consensus GDP forecasts are obtained by computing a weighted average of the current year and the year-ahead. Again, the authors strengthen their estimation with the use of almost the same controls as in the previous estimations. The

results here show in general that fund reaction to news is more muted in more opaque countries.

For the forth concern, Gelos and Wei (2002) link the cumulative net outflows of individual funds during the Asian and Russian crises to the opacity indices across countries. Particular attention is paid to the months of largest outflows by emerging market equity funds, meaning September to December 1997 for the Asian crisis and May to September 1998 for the Russian crisis. Controlling for the same variables, they find a strong link between the degree of opacity and the size of net outflow in both crisis.

In sum, Gelos and Wei (2002) show that international markets equity funds prefer to hold more assets in more transparent countries' markets and that herding among funds is somewhat less prevalent in transparent countries. In addition, their paper supports the point that international investors tended to flee more opaque markets during the Russian and Asian crises. Gelos and Wei (2005) confirm the latter result even with new measures of transparency.

Indeed, Gelos and Wei (2005) further examine whether and how the holdings of international investors can be affected by country transparency and whether this effect can become more pronounced during crises. To analyze the first part of the question, the authors consider the international capital asset pricing model, where the dependent variable is a country's weight in a given fund's portfolio and the main independent variable is transparency (opacity).

As an empirical proxy for the world market portfolio, the authors choose the Morgan Stanley Capital International (MSCI); Emerging Markets Free (EMF) Index produced by Morgan Stanley. The transparency variables are constructed in the same way as in Gelos and Wei (2002), distinguishing government transparency from corporate transparency. But, for government transparency, they now cover two separate aspects. One is the data transparency index obtained by scoring the IMF survey responses for frequency and timeliness on a scale of 0–10, with 10 being the most transparent, meaning conformation with the IMF's Special Data Dissemination Standards (SDDSs). The other aspect is the macroeconomic policy transparency, for which they construct two separate indices. The first one, called "Macro policy opacity I", is obtained by summing the two measures of macroeconomic policies transparency produced by Oxford Analytica and subtracting the corresponding value from ten. The

second one, called "Macro policy opacity II", is obtained by using the standard deviation of the expected inflation rates. This index is based on the dispersion of beliefs about macroeconomic outcomes. For the corporative opacity, they first form two variables: one is obtained by subtracting from 8 the numbers that correspond to the level of Financial Disclosure provided by the Global Competitiveness Report for 2000 and 1999. The second is obtained by subtracting from 8 the numbers that correspond to the level of availability of information, still for 2000 and 1999. Then the Corporate Opacity Index is the simple average of the two indices. For the composite opacity, they use a composite index provided by PricewaterhouseCoopers (2001), following Christofides et al. (2003).

The main control variable is the MSCI weight. Once again, for robust estimation, the authors control for low liquidity, capital controls, limited float of shares, closely held ownership, transaction costs and taxation, or insufficient protection of minority shareholders, among others. In addition, the paper includes the exchange rate regimes to capture the fact that fund managers may have a preference for certain exchange rate arrangements. The estimations methods include OLS regression, vector auto regression, and many other techniques.

For the second part of the question, that is whether transparency measures explain the differential loss of confidence across countries during crisis, Gelos and Wei (2005) combine the size of monthly fund flows during the Asian and Russian crises to their measures of country transparency. But the independent variable is an interaction term of the opacity indices with a dummy variable, which takes the value of 1 during the crisis period and 0 otherwise.

The overall result confirms the results of Gelos and Wei (2002). In other words, the paper finds that international funds prefer to hold more assets in more transparent markets and that international investors tend to flee more opaque markets during a crisis. In this way, becoming more transparent can be an effective way for countries to benefit from international financial integration while avoiding excessive volatility during turbulent times.

Glennerster and Shin (2003) specifically analyze the effect of a move towards transparency procedures introduced by the IMF on emerging market bond spreads. More specifically, these authors examine three issues: (1) the medium-term effect of the transparency reforms on the spreads and volatility; (2) the short-term effect or news

effect of these reforms; and (3) the reason why markets might respond to the adoption of these reforms.

For the first issue, that is to test the relationship between the level of transparency and the volatility in the sovereign debt market, Glennerster and Shin (2003) specify a quarterly panel model. The dependent variable is the sovereign bond spread provided by the JP Morgan's Emerging Market Bond Index (EMBI) spread data. As independent variables, Glennerster and Shin (2003) construct three zero/one dummies, which take the values of one for any quarter after a country has published an Article IV report or the Reports on the Observance of Standards and Codes (ROSCs), or has come into compliance with the Special Data Dissemination Standard (SDDS). They also include interaction variables between the different measures of transparency. Empirically, the authors apply a quarterly panel estimation with a country fixed effect, strengthened by the use of two-stage least squared for 23 (and after for 32) emerging market economies. In addition and for robustness check, they control for the price inflation, the current account balance as percentage of GDP, the fiscal balance as share of GDP, the size of debt market, the rule of law, voice and corruption, and the regional dummies.

For the second issue, Glennerster and Shin (2003) use the same EMBI spread data in another panel regression with 32 emerging market economies and they test whether greater transparency leads to lower spreads. Now the specification considers two equations: the first is a stationary auto regression that relates the dependant variable, the absolute value of the percent change in daily credit spread, to its own lags. The second equation is the law of motion for the conditional variance of the error term of the first equation to which they add as independent variables the dummy variable (that is equal to one for both the publication date and the day after and zero otherwise) and the lagged dependent. This time, they apply the GARCH model estimation, as the credit spread data exhibits volatility clustering and fat-tails.

Glennerster and Shin (2003) use two ways to approach the third issue, which is whether there is a difference in news effect for different types of countries and for different types of documents: First, they examine whether markets respond to the content of reports or to the decision to publish. Second, they test whether the information on the likely actions of the IMF about disbursement (program) is the

primary reason why the published documents affect the markets. More specifically, they estimate separate coefficients for the publication effect of documents for program and nonprogram countries. A program country is either those that have a program with the IMF during their sample period or those that have a program at the time the document was issued. They use is almost the same specification as in the second issue. The paper also analyzes the impact of end-of-mission press conferences and mission statements on the price of emerging market bonds, as well as the impact of publication of a change in a country's credit rating on emerging market sovereign bond spreads.

The results of this paper support the evidence that transparency can reduce borrowing costs in capital markets in some cases by substantial amounts, that the IMF recommended reforms have contributed to better-informed markets, and that improving fiscal transparency in transition economies can help to lower their borrowing cost. The paper concludes that the movement in spreads immediately following publication is largely a response to the content of the report rather than the decision to publish. According to these findings, Glennerster and Shin (2003) suggest that the IMF should be a provider of information to the market on behalf of transparent countries with smaller debt market where the private sector may have less incentive to undertake its own research.

Christofides et al. (2003) also obtain the same result. These authors propose an empirical analysis of the link between the adoption of standards proposed by IMF and the cost of capital in the case of emerging market economies. More specifically, they analyze the link between adherence to IMF standards and both the foreign exchange spreads and the sovereign ratings. For the first relation, the authors propose a panal data analysis where the country foreign exchange spread is a function of a range of fundamental macroeconomic variables, including inflation, investment, GDP growth rate, fiscal balance, inflation, terms of trade, external debt ratio, and indicators of adherence to IMF standards. These indicators were obtained from a full range of measures most closely related to the authors international standards categorized as transparency and as the financial sector or market integrity. Particularly, the authors transparency indicators are found by matching the international standards such as Special Data Dissemination Standard (SDDS); the fiscal and monetary codes as compiled by many sources such as Wilshire Associates, Price Waterhouse-coopers (PWC),

Transparency International, World Economic Forum (WEF), Oxford Analytica. The paper uses iterated feasible general least squares to estimate a panel regression based on 29 emerging market economies.

For the second relation, Christofides et al. (2003) use a model of emerging-market ratings developed by Mulder and Perrelli (2001). The specification considers the country ratings index as the dependent variable and the macroeconomic variables that may help drive ratings as well as the same standard related variables as the dependent variables. For the country rating, they still follow Mulder and Perrelli in constructing a linear mapping using semi-annual data. Then the authors code the positive watch or outlook qualification with a -0.3 and a negative watch or outlook with a +0.3. The paper uses iterated Feasible General Least Squares to estimate a panel regression based on 29 emerging market economies.

As result, the paper provides a support to the idea that SDDS subscription may reduce spreads. Also the paper finds that fiscal transparency counts for a large difference in rating when comparing the lowest and highest rated countries. In whole, this study suggest that improved adherence to standards (and the higher ratings that result), could help a country to lower the impact of an external crisis by supporting continued access to external borrowing. Moreover, it shows that adherence can help prevent crisis by reducing the spreads and helping the government remain solvent in those cases where otherwise it might not have remained solvent.

Closely related to the same context, Bernoth and Wolff (2008) investigate the effects of creative accounting and fiscal transparency on risk premia in government bond markets. The analysis in this paper is based on the argument that markets can be more certain about a fiscally transparent government's ability and willingness to serve its obligation. To test this assumption, the authors specify a regression model in which the spread between a bond issued in an European Union (EU) country (Germany) and a benchmark country (United States), both denominated in the same currency, depends on a number of fiscal variables, creative accounting signals, and fiscal transparency measures, which all influence the probability of default.

The government bond data are taken from Capital Data Bondware. Bernoth and Wolff (2008) use the lagged debt to GDP and deficit to GDP ratios as fiscal variables. For creative accounting, the authors use two different measures. The first one is a noisy

measure of creative accounting or stock-flow adjustments that are calculated as the difference between the change in the debt level and the deficit, all in percent of GDP. The second measure is a "fiscal gimmickry," which is a nonexhaustive inventory of events that have become public knowledge through media coverage. The data are present in Koen and van den Noord (2005). Bernoth and Wolff (2008) construct two measures of fiscal transparency. One is an index of auditing, calculated on the basis of the answers collected by an OECD and World Bank survey in 2003. It measures the independent external audition of the governments. The second index is based on a part of the indicators developed by Hallerberg et al. (2001), and Hallerberg et al. (2004). It measures the assessment of transparency given by government officials; the degree to which special funds are included in the budget document draft; and whether the budget consists of one document or more, whether it is linked to national accounts, and whether it includes government loans.

Their results confirm the hypothesis that creative accounting increases risk premia. In other words, fiscal transparency reduces spreads through lowering the uncertainty of fiscal policy, as more transparent countries probably provide more reliable official data.

1.5. Fiscal transparency, fiscal discipline, corruption, and growth

The disciple in the management of the public budget, reduction of corruption and growth are outcome of fiscal transparency the most defended by international organizations. Thus is because their role of transmitter of the impact of fiscal transparency on other variables. Following analyses explain how fiscal transparency can bring better informed economic decisions (within and outside of government), increase the accountability of public officials, or to make the detection of corruption easy.

Allan and Parry (2003) analyze the degree of complementarity between the requirements of European Union (EU) membership and the implementation of key principles of the IMF's Fiscal Transparency Code. The objective of the paper is to examine the role of the IMF's Code in promoting practices that help candidates for EU accession meet their own and the EU's fiscal management goals. Without any empirical or theoretical support, they argue that the Code helps the EU candidates identify features of fiscal management that go well beyond the least necessary to meet the UE

requirements. In addition, this paper advises the EU members to use the Fiscal Transparency Code if they want to achieve the implementation of the four reforms it recommends.

Ellis and Fender (2006) analyze corruption, the level of output in their relationship with fiscal transparency. For that end, the authors develop a theoretical Ramsey-type model where they consider an economy consisting of the government and two identical consumers/producers who produce the effective labour. The latter is used to produce the output according to the Cobb-Douglas production technology. The public capital is a public good that is supplied to the economy by the government. The consumers (or producers) maximize the discounted present value of utility derived from consumption and leisure, subject to the instantaneous budget constraint of taxes paid at a given interval of time of the production. That length of the production lag describes the level of transparency. On the other hand, Ellis and Fender (2006) assume that the government maximizes a discounted present value of corruption payments that depends on the nature of the political process. In the model, corruption is considered to endogenously depend on deep economic parameters, including the degree of transparency of the fiscal system. In addition, all economic agents (government, the bureaucracy, and the private sector) are rational agents.

As a result, Ellis and Fender (2006) show that as the economic system converges to the steady state, there is a negative relationship between the rate of growth of output and the level of corruption, such as studied by Mauro (1995) or Tanzi and Davoodi (1997). But that relationship depends most particularly on the degree of transparency of the fiscal system. Such predictions correspond well to the key finding of the empirical literature on growth. The particularity of this paper compared to other analyses of the link between corruption and growth is the integration of transparency. Thus, it shows that lower levels of fiscal transparency translate into higher corruption to affect output ratios at every point in time.

More concretely, Parry (2007) argues that strengthening fiscal transparency in twelve countries in Latin America can play a critical role in sustaining growth and stability. After reviewing many weaknesses of the fiscal and administrative systems in these countries, he proposes ROSC observations and recommendations that are directly relevant to improving fiscal management in these countries. In this way, these countries

should promote a transparent business environment, identify fiscal risks, keep the public informed, strengthen the oversight of fiscal activities, extend the coverage of the budget and fiscal reports, develop a medium-term budget framework, and promote transparent intergovernmental relations. These measures would be an important step toward sustaining stable and higher quality growth in the region.

Hameed (2005) in turn analyses whether countries with more transparent fiscal practices have more credibility in the market, better fiscal discipline, and less corruption. He uses three different models in order to test if transparency is related to the variables of interest that are respectively credit ratings, fiscal balance, and control of corruption, after accounting for selected control variables. The transparency index is constructed by Hameed (2005) previously.

In fact, Hameed (2005) proposes the construction of an index of fiscal transparency by converting the textual information provided in the ROSCs to numerical data and by classifying the different practices in transparency over numerical categories. He considers 57 countries over a range of geographic locations, development stages, and institutions. Based on the IMF code as published in 1998, Hameed (2005) develops four different sub-indices that are data assurances, medium-term budgeting, budget execution reporting, and fiscal risk disclosure. These four main aspects serve as guides to extract, from each country's ROSC, a set of information. The author then assigns a value varying among 0 (less transparent), 0.33, 0.66, and 1 (highly transparent) to that set of information. The summary index for each country is obtained by summing all the individual non-missing aspects of transparency considered. Because the fiscal transparency index has no time variation, his empirical estimations are also limited to a cross-section analysis.

The model for credit ratings includes current GDP per capita, growth, inflation, external debt, an indicator for default history, external balance, and fiscal balance. The credit ratings variable is an average of the Moody's, Standard and Poor's, and Fitch's sovereign ratings on foreign currency long-term debt, where Hameed (2005) converts the alphabetical ratings into numerical ratings. The transparency index is added in the model in order to test if transparency is related to the credit rating. The results show that, after controlling for several economic fundamentals, the credit ratings are positively related to the transparency index.

For fiscal discipline, Hameed (2005) considers a model that links the average primary balance to fiscal transparency using simple bivariate regressions. The control variables include real GDP, openness, population size, percentage of population over 65 years old, percentage of population between 15 and 65, and initial external debt. He found here that countries with more systematic medium-term outlook on budget tend to have higher fiscal discipline after controlling for various economic and demographic variables. In addition, the summary transparency index and the fiscal risk measure are also significant.

Finally, to test whether more transparent countries have lower corruption, Hameed (2005) estimates a model that links the transparency index and the corruption index constructed by Kaufmann et al. (2003). The measures of economic development, trade openness, fractionalization of the population, democracy, education, geographic location, and legal origin were included as control variables. The results confirm that countries that have higher indices of fiscal transparent also have better control over corruption.

The above result is weakly supported by Jarmuzek (2006), who examines the role of fiscal policy transparency in establishing better fiscal discipline in transition economies. The main concern of this paper is to determine whether fiscal transparency is instrumental in establishing prudent fiscal policy in a group of twenty-seven transition economies. The paper specifies a cross-sectional model where the general government debt is considered as the dependent variable, following Shi and Svensson (2002) or Alt and Lassen (2005). The explanatory variables are divided into four groups. The first group includes fiscal transparency, political polarization, and the average frequency of right-of-centre governments. Jarmuzek (2006) uses the indices of fiscal transparency compiled by Jarmuzek et al. (2006) in an approach that is similar to the one adopted by Alt and Lassen (2005). Indeed, the index of fiscal transparency proposed by Jarmuzek et al. (2006) is based on five aspects. The first four aspects include medium-term budgeting and analysis, accounting and data quality, extra-budgetary fiscal operations, and intergovernmental relations. The authors also use the information is given by the IMF's ROSCs. The fifth aspect emphasizes the role of auditing in the budgetary process and the relative importance of the ministry of finance over spending ministries. Each of the above aspects is decomposed into many sub-parts, to which the authors assign a value

of 0 (less transparency), 0.5 (medium transparency) or 1 (high transparency). The measure of political polarization corresponds to the maximum polarization between the executive party and the four principle parties in the legislature. The right-of-centre government variable is measured by the proportion of years between 1995 and 2004 during which a right-of-centre party was in office.

The second group of explanatory variables represents economic controls and includes the initial level of debt and the average economic growth. The third group considers economic and political variables and includes economic openness, terms of trade, and income per capita. The fourth group deals with institutional variables such as the position of the ministry of finance in relation with other ministries as well as the European Bank for Reconstruction and Development (EBRD) transition index.

Jarmuzek (2006) then applies OLS estimations with robust standard errors, a two-stage least squares (2SLS) estimation as well as the General Method of Moment in order to correct for the potential endogeneity problem of fiscal transparency. He obtains that transparency tends to be associated with superior fiscal performance. In other words, in developed countries fiscal transparency is an important element in establishing fiscal discipline. Transition economies provide no strong statistical evidence.

In addition to the indices of fiscal transparency constructed for the purposes of the empirical studies presented above, we can add the index proposed by Guerrero et al. (2001). They provide an index of budget transparency for five Latin American countries: Argentina, Brazil, Chile, Mexico, and Peru. The index measures the degree of accessibility and importance of information issued by national governments with respect to finances, revenues and expenditures. This is complemented by a detailed analysis of the legal framework of each of the countries' budgetary processes undertaken by a group of experts.

This index has many advantages. First, various data collection methods are used: self-administered surveys via the Internet, fax, or mail and face-to-face interviews. Second, a variety and significant number of experts were consulted. Third, the questionnaire was simple, as the understanding of the questions was made easier and there was a maximum of five response options. However, the limitation is that the questionnaire contained too many questions and some of those were similar. Also, the

number of persons consulted varies from one country to another, and this could lead to the problem of the compatibility of indices. However the index has the merit of using a relative homogeneous sample of countries, as it is constituted only of transition economies, despite the fact that the fiscal transparency index still does not have time variation. Also, one can criticize the consistency of the questionnaire that led to the construction of that index for the following reasons. First, some questions do not match with the corresponding choices of answers. For example, the last question is worded as follows: "What is the relative importance of Ministry of Finance over spending ministries in the budgetary process?" and the choices answers and the assigned numbers are: "yes assigned 1, unsatisfactory assigned 0.5, no assigned 0." Second, the additional aspect of the relative importance of the Ministry of Finance over spending ministries seems to be of less importance in regards to the issue of budget transparency, since the latter is more about compliance to international standards than about making some departments of the public administration more important than others.

1.6. Conclusion and few limits of the literature

The main observation is that the literature on the topic of fiscal transparency is currently developing and evolving on numerous perspectives using both theoretical and empirical approaches. Some papers analyze the causes of fiscal transparency, while others examine its political, institutional, and economic outcomes. The purpose of these works is to identify the important factors that lead to fiscal transparency as well as the fallouts of fiscal transparency in terms of financial institutions, fiscal discipline, or stable growth. However, considering the above literature, some important omissions can be mentioned.

First, even though the theoretical models presented above bring a great contribution to the economic theory on the topic of fiscal transparency, they might not be strong enough in explaining some of the complex features of growth in economies suffering from a lack of fiscal transparency, especially when the latter is associated with high level of corruption, given the diversity and the subtlety of these practices. Such differences make the recommendations of theoretical models less compelling. That is the reason why several authors provide empirical tests to support their theoretical

demonstration (Alt and Lassen, 2006b; Andersen and Nielsen, 2010). At the same time, the empirical approaches are limited by the multiplicity of the measurement, the lack of time variation of fiscal transparency indices, and the endogeneity problem that result. In addition, the samples of countries considered in most of the empirical analyses appear to be too heterogeneous, at least in terms of the level of development. The sample tend to include together developed countries such as the United States, Canada or Japan; emerging countries, such as Brazil or Turkey; and developing countries, such as Rwanda or Benin. Even though fiscal transparency is defined as the adherence to common international standards, the compliance with these standards may be constrained by factors that depend on the level of development of a country. Therefore, some conclusions drawn by several empirical studies appear too general to be applicable. Further analyses of the issue might need to consider more homogeneous and representative samples of countries, at least in order to draw sound and applicable recommendations.

Second, few remarks can also be raised concerning the indices of fiscal transparency proposed by the literature. The ranges of numbers used are sometimes too short. This is the case for example of the dummy index proposed by Glennerster and Shin (2003). Such short ranges exclude de facto the intermediate stages in the implementation of transparency standards. Also, too large ranges, such as the range of 10 values that Christofides et al. (2003) use, ignore the fact that the reference documents like the ROSCs or the OECD questionnaires are written by different persons, for different countries, and at different times. Thus some terms and expressions are likely to have very similar meanings. One can also criticize some authors for the use of too many source documents in their definition of the transparency index. This is all the more true as some of these reference documents are self-reported questionnaires, which are limited by the fact that some countries may have rated themselves too highly.

Third, in the actual literature, little attention is paid to developing countries. Indeed, the analytical frameworks considered in most of the studies are very far from the reality of developing countries. For example, the analyses of the role of fiscal transparency in the political or electoral cycles such as in Prat (2005), Alt and Lassen, (2006b) or Shi and Svensson, (2006) do not consider the absence of democracy that usually characterizes developing countries. As a result, the findings of the above studies

could miss evidences given demonstrating that, in these countries, economic outcomes do not always fluctuate around elections. For that reason and others, real political business cycle does not exist, such like explained by Kaplan (2006), Chauvet and Collier (2008). In addition, the studies of the effect of fiscal transparency on the behaviour of capital markets would be complete if they considered the actual composition of international capital invested in developing countries, consisting mostly of Foreign Direct Investment (FDI), which have been shown to depend to a large extend on the availability of natural resources. Moreover, the literature does not explain some paradoxical increases in capital inflows from emerging countries like China, India, and Brazil, especially into some fiscally opaque developing counties, such as studied by Broadman (2007). In addition, the commonly used credit ratings are those given by formal agencies like Standard & Poors or Moody's, which cover rarely developing countries, as compared to less formal ones like Euromoney, Institutional Investor, or Economist Intelligence Unit, which have better coverage of developing countries.

In sum, we can conclude that the concept of fiscal transparency and consequently its related measures still need clearer definition.

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Essay 2

The Determinants of Fiscal Transparency: The Evidence from 27 Developing Countries

2.1. Introduction

The relevance of fiscal transparency as a feature of efficient fiscal policy is central to the current debate about improving public governance and it consequences. Most of the arguments centered on the possible advantages of fiscal transparency in terms of fiscal discipline, reduction of deficits and management of public debt, or budgetary credibility. So, given what is at stake and with the support of several international organizations[5], a developing body of scientific literature exists, much of it is on the determinant and measurement of fiscal transparency.

Several definitions have been proposed to explain the concept of fiscal transparency. The most cited definition is that of Kopits and Craig (1998 p.1-2) who consider fiscal transparency as: "openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections. It involves ready access to reliable, comprehensive, timely, understandable, and internationally comparable information on government activities so that the electorate and financial markets can accurately assess the government's financial position and the true costs and benefits of government activities, including their present and future economic and social implications." In other words, fiscal transparency can be summarized as the systematic and timely release of all relevant fiscal information (Benito and Bastida, 2009 p.404). The above definition splits the world into two groups of countries: developed countries which might have strong enough institutions to achieve high transparency of their budget on the one hand, and developing countries

[5] Precisely, after the Mexican economic crisis (of 1994/1995) and the Asian financial crises (of 1997), many international organizations such as the World Bank, the IMF, and the OECD identified fiscal transparency as a key aspect of good governance. Accordingly, they initiated several programs including the Code of Good Practices on Fiscal Transparency - Declaration on Principles in 1998 (revised in 2007), followed in 2001 by the OECD *Best Practices for Budget Transparency,* and by the multistakeholder *Extractive Industries Transparency Initiative* (EITI), launched in 2002, to address resource revenue transparency issues in resource-rich countries. Furthermore, the IMF and the World Bank have jointly prepared the "*Reports of the Observance of Standards and Codes*" (ROSCs).

which are still facing deep fiscal opacity, on the other hand. Therefore, an analysis of this issue might require taking into account such cleavage. Yet, recent analyses have studied too heterogeneous samples of countries, taking together developed, emergent and developing countries. This led to results that are too general to be associated to a specific group, such like that of developing countries.

This paper then aims at identifying some critical determinants of fiscal transparency typical for developing countries. In other words, it wants to verify whether some institutional and socio-economical indicators—namely, natural resources wealth, openness, low literacy and quality of the institutions—are associated with the level of fiscal transparency in developing countries. The objective of such study is at least twofold. First, to provide an idea of why, after a decade of fiscal transparency programs, many developing countries are still lagging behind, thereby losing the potential benefits mentioned in the literature. Second, to identify and analyse factors, which may enable the improvement of fiscal transparency in the case of developing countries.

The paper is organized as follows: part two is a short review of relevant literature. Part three presents a direct, replicable index measuring the fiscal transparency practice, constructed for this analysis. In part four, that index is used to empirically examine the determinants of fiscal transparency. The robustness check includes the estimation of the same models using other indices. The part five discusses the results and part six is the conclusion.

2.2. Literature review: determinants and measurement of fiscal transparency

2.2.1. Determinants of fiscal transparency

In general, several variables have been found to determine good public governance. For example, some authors like Braun and Di Tella (2004), Kunicova and Rose-Ackerman (2005), Shabbir and Anwar (2007) showed that public governance is determined by economic and political freedom, and other authors, such as Rose-Ackerman (2005), Lederman et al. (2005), or Damania et al. (2004) have added globalization and level of development, as significant factors of public governance.

Even though several researchers, such as Andreula et al. (2009 p.9-12) present fiscal transparency as a prerequisite for good governance, the literature on its

determinants is still very limited. However, the following analyses have considered that some of the above institutional and socio-economic variables are more likely to be seen as determinants rather than explicative parameters of fiscal transparency.

Alt et al. (2006) investigated, conceptually and empirically, the determinants of fiscal transparency based on data from the United States. They explored two broad sets of explanatory factors under which politicians might implement more transparent budget procedures: the political setting and the fiscal environment. They found that both political and fiscal outcomes affect the level of transparency; that political competition tends to increase the level of fiscal transparency, and that fiscal imbalance, in the form of higher surpluses or deficits, also contributes to higher transparency. Andreula et al. (2009) extended their analysis to the relation between institutional factors and fiscal transparency. They concluded that higher levels of institutional quality give way to better indicators of fiscal transparency. Ellis and Fender (2006) also found fiscal transparency to be associated, implicitly or explicitly, with the existence of levels of corruption and vice versa.

Ross (2011) studied the correlation between mineral wealth and fiscal transparency, based on a sample of 83 countries. He found that the link between natural wealth and fiscal transparency depends on the existing political system. Among democracies, a country's mineral wealth is not related to the transparency of its government. But among autocracies, greater oil wealth is correlated with less fiscal transparency, while greater non-fuel mineral wealth is paradoxically associated with greater transparency.

In general, according to the broad definition given above, Bernardino and Bastida (2009) noticed that fiscal transparency goes along with two important factors: an effective legislation that scrutinizes budget reports, discusses and influences budget policy; and an effective civil society, represented through the media and nongovernmental organizations, which influences budget policy and hold government accountable. Also, the IMF Code of Good Practices on Fiscal Transparency makes recommendations indicated to achieve a greater level of fiscal transparency. The organizational framework for the Code is based on four general principles that aim to capture the essential elements of fiscal transparency: clarity of roles and responsibilities; public availability of information; openness of the budget preparation, execution and

reporting; and independent assurances of Integrity.

2.2.2. *Measurement of fiscal transparency*

The economic literature on fiscal transparency is of recent origin, but the existing measures are already quite diverse, as mentioned by De Simone (2009). Thus, it is not easy to present an exhaustive list of all existing indices. Hameed (2005) has proposed an index that is a summary of the IMF Code Of Good Practice of fiscal transparency, based on clusters that are defined according to the existing Reports on the Observance of Standards and Codes (ROSCs). Jarmuzek et al (2006) and Andreula et al. (2009) followed this approach, using specific definitions of the clusters. While the above indices measure the practice of fiscal transparency, Glennerster and Shin (2003) proposed a simpler approach. Their index measures the simple adherence to principles of fiscal transparency by evaluating whether or not a country has published an Article IV report or ROSCs, or complies with the Special Data Dissemination Standard (SDDS).

Several other indices were constructed on the basis of different documents on budget transparency. For example, Gelos and Wei (2002, 2005) considered the yearly Global Competitiveness Report for various years produced by the World Economic. Other analyses used the OECD's *Best Practices for Budget Transparency* data (Alt and Lassen, 2003; Andersen and Nielsen, 2010), which focus on formal rules and procedures that sample countries claimed to have followed. One limit of the OECD reports is that there are self-reported surveys, and the countries may have rated themselves too high. Also the International Budget Partnership (IBP) provides the biannual Open Budget Index (OBI). It uses a survey conducted by intermediate organisations or groups of pressure located in the sample countries. These questions focus specifically on whether the government provides the public with timely access to comprehensive information contained in eight key budget documents. Once again, one can claim that this index is affected by the general relationships between the intermediate organisations and their local governments.

In addition to the differences in the definition of fiscal transparency, some indices are very geographically limited. For instance, the index of fiscal transparency constructed by Alt et al. (2002) is restricted to the United States case only, while

Guerrero and Hofbauer (2001) proposed an index of budget transparency for five Latin American countries: Argentina, Brazil, Chile, Mexico, and Peru. The index measures the degree of accessibility and utility of information issued by national governments with respect to finances, revenues and expenditures.

Bernardino and Bastida (2009) matched the World Bank Budgeting Database questionnaire items with these "OECD Best Practices for Budget Transparency" features. Bernoth and Wolff (2008) followed that approach and proposed two measures of fiscal transparency: one is an index of auditing, calculated using the answers collected by an OECD and World Bank survey in 2003; the second index is based on the indicator developed by von Hagen (1992), Hallerberg et al. (2001) and Hallerberg et al. (2005). The latter measures three things: (a) the assessments of transparency carried out by government officials; (b) the degree to which special funds are included in the budget draft; (c) the information on whether the budget is a unique document, whether the budget is linked to national accounts, and whether government loans are included.

2.3. Construction of the fiscal transparency index

This part first presents the four modules that we retained in order organise the information extracted from the ROSC. They are defined in a way that matches the practices (codes) of the 2001 Manual with those of the 2007 Manual. It ends with a comparison of the resulting index with some indices that already exist in the literature.

2.3.1. Definition of the modules

Following Hameed (2005), Jarmuzek et al. (2006), and Andreula et al. (2009) we considered four modules. (a) "Budget Structure" evaluates the presentation and the structure of the budget; (b) "Budget Objectivity" captures the realism of the budget objectives; (c) "Budget Process" evaluates the control of the budget execution; (d) "Extra Budgetary Activity" assesses the weakness of the budget in terms of the government transactions that are not included in the budget documents. These four modules are independently constituted of four or five practices, each of which corresponds to one or two codes in the 2001 IMF Manual of Fiscal transparency. These modules are then

updated by matching the selected codes with their correspondents in the 2007 Manual. That led to three consequences.

First, several codes included in the 2001 Manual ended up having more than one correspondent in the Manual of 2007. The wordings of the codes in the Manual of 2007 are sometimes different from that of the codes in the Manual of 2001, due to the fact that the 2007 Manual is more exhaustive and therefore contains more codes. For example, the practice we first named "Projections guided by a Medium-term Economic Framework" corresponds to code 3.1.3 in the 2001 Manual that says: "The annual budget should be prepared and presented within a comprehensive and consistent quantitative macroeconomic framework, and the main assumptions underlying the budget should be provided". The corresponding code in the 2007 Manual is code 2.1.2. The later adds a fiscal aspect to the economic framework as follows: "The annual budget should be realistic, and should be prepared and presented within a comprehensive medium-term macroeconomic and fiscal policy framework. Fiscal targets and any fiscal rules should be clearly stated and explained". Because of that contain, code 4.1.1 of 2007 Manual becomes a relevant part of the same practice, as it states that: "Budget forecasts and updates should reflect recent revenue and expenditure trends, underlying macroeconomic developments, and well-defined policy commitments." Thus we labeled that practice as, "Projections guided by a Medium-Term Economic and Fiscal Framework".

Second, some codes in the 2001 Manual did not have exact correspondent in the 2007 one. This is true in the case of the code 3.1.4 in the 2001 Manual, which states: "New policies being introduced in the annual budget should be clearly described". No code in the 2007 Manual comes close to this statement in meaning. Therefore, no practice on these codes was defined in any module.

Third, some codes are quite close in meaning, as we move from the 2001 Manual to 2007 one. This is the case for the practices that correspond to the codes 4.2.1 and 3.3.3 of 2001 manual. For code 4.2.1 the corresponding in 2007 manual is 4.3.1, which says: "Public finances and policies should be subject to scrutiny by a national audit body or an equivalent organization that is independent of the executive", and the corresponding of code 3.3.3 is code 4.2.5, which states: "Government activities and finances should be internally audited, and audit procedures should be open to review". So, both codes have

been merged into a single practice named "National Independent Audit".

Table 2.1 (Appendix) presents the final classification. The first column presents the four modules, the second column includes the practices finally retained, the third column gives the codes in the 2001 IMF Manual, while the last column presents the corresponding codes in the 2007 IMF Manual.

In order to derive an index that is more objective than the earlier ones and consistent with the study, this paper defines three criteria to follow. Firstly, every ROSC considered should be that of a developing country[6]. Secondly, every ROSC should have been published in 2004 or after for the reason mentioned below. On the basis of these first two criteria, only 27 developing countries' fiscal transparency policies were rated. Thirdly, all ROSCs published between 2004 and 2007 should be examined based on the 2001 Manual (Column 3), while those published after 2007 should be examined based on the 2007 Manual (Column 4).

2.3.2. *Calculation of the fiscal transparency index*

For each of the practices *contained* in Table 2.1, a value P_j is assigned. P_j assumes the value 0; 0.33; 0.66 or 1, with 0 being assigned when the practice is not observed at all and 1 when it is completely observed (like in Hameed (2005)). 0.33 and 0.66 are respectively the lower and the upper intermediate values. Such a range reduces subjectivity in evaluating the practices, and makes comparison of countries easier. A very short range of numbers like the dummy variables used by Glennerster and Shin (2003) excludes de facto the intermediate stages in the implementation of transparency standards—while the use of a very long range of numbers increases the subjectivity of the index. In fact, the ROSCs are reports written by different IMF officers, on different countries and at different times. Thus, some terms and expressions are likely to have similar meanings. For example, Andreula et al. (2009) used a range of 10 numbers. They assigned different numbers to some practices like "adherence limited", "Code partly followed" or "Code mostly followed", which do not seem to be really different.

The calculation of our index follows two steps: the calculation of the sub-indices (modules indices), and the calculation of the comprehensive index. For the calculation of the sub-indices we consider the sample average of the available practices evaluated. In

[6] According to the International Monetary Fund's World Economic Outlook Report, April 2012.

other words,

$$SI_i = \frac{1}{N_i} \sum_{j=1}^{N_i} P_j \qquad (1)$$

with $SI = BS, BO, BP, EBA$—respectively Budget Structure, Budget Objectivity, Budget Process, Extra- Budgetary Activities—corresponds to the modules as defined in Table1 (in the Appendix), while P_j refers to fiscal transparency practice *j*. N_i is the number of fiscal transparency practices P_j that are were rated in the ROSC of a country corresponding to a specific module *I*, with *i =1,2,3* or *4* corresponding to the four modules defined in table 1. For example, $N_i = 4$ means that four practices were rated in module *i*. This may be less than the maximum number of practices to be rated in that module, due to missing information.

There are at least two advantages of using the simple average in this case. First, it leads to an index that is not affected by the lack of information in the ROSC of countries. One option would be to keep *N* constant all over the countries of the sample. But that option makes sense if the ROSC specifies that the missing information is the responsibility of the country. In such cases we assign 0 to the corresponding practice. Otherwise the country's index would be unfairly reduced. Second, it assigns no weight to any particular practice. In other words, all the practices are equally weighted. The reason is that the Manuals do not assign different scores to the Codes, each of them being equally important for the implementation of the fiscal transparency program.

The final index is the simple average of all the available practices evaluated. That is:

$$FT = \frac{1}{N} \sum_{j=1}^{N} P_j \qquad (2)$$

This index displays continuous variables contained in the interval 0 to 1. For the rest of this paper, FT will refer to this fiscal transparency index. Note that *N* is the number of practices rated. It is different among some countries of the sample, once again due to missing information.

2.3.3. *Correlation among the indices*

This part first presents the correlation among the sub-indices, the objective being to see how they are independent from each other. Next, it presents a summary of each sub-index in order to see the most observed fiscal transparency practices in the sample of countries.

Table 2.3. Correlation among our fiscal transparency indices

Indices	FT	BS	BO	BP
BS	**0.5904**			
BO	**0.6327**	0.0135		
BP	**0.5424**	0.3381	0.0918	
EBA	**0.7236**	0.2166	0.3811	0.0892

Notes: FT corresponds to the comprehensive index as presented in the text. BS, BO, BP and EBA are its sub indices. The formula of the calculation is also presented in the text. The correlation is obtained on the indices defined for 27 countries based on their ROCS available on www.imf.org. The values in bold represent the correlation with the Comprehensive index, FT.

Each sub-index is correlated to the final fiscal transparency index. EBA has the strongest correlation coefficient. In fact, it is the aspect that affects the most the fiscal transparency index in this sample, possibly because it indicates the weight of the least revealed information about the governments' fiscal activities. Also the table shows that the sub-indices are not correlated to one another. This means that each subset of practices is actually different from the others. One reason is the improvement in the structure and the presentation of the ROSCs, which occurred since 2004, in response to comments made about earlier ROSCs as reported in Petrie (2003, p.26). That makes the assessment of fiscal transparency practices easier.

Table 2.4. Summary of our fiscal transparency indices

Module	Obs	Mean	Std. Dev.	Min	Max
BS	27	0.6	0.16	0.33	0.93
BO	27	0.47	0.22	0.08	0.83
BP	27	0.54	0.18	0.17	0.83
EBA	27	0.3	0.19	0.07	0.8
FT	**27**	**0.47**	**0.21**	**0.26**	**0.7**

Note: this table presents the summary of the indices that we constructed. That is maximum and the minimum value, as well as the mean and the standard deviation

for all the 27 countries of the sample.

Overall it is clear from Table 2.4 that, the level of fiscal transparency in this sample does not seem to be as low as described in the literature, even though some countries display very low sub-indices. Indeed, several recent studies found very low levels of fiscal transparency for most of developing countries (Hameed, 2005; Jarmuzek et al., 2006; Benito and Bastida, 2009). However, Table 2.4 shows that the module of Budget Structure (BS) represents the set of most observed practices of fiscal transparency, while the least implemented practices are regrouped in the module of Extra Budgetary Activities (EBA). This result is intuitive in the sense that it shows that in developing countries, the presentation of fiscal documents is respectful of the international standards, while the actual contents of the documents fall short of expectations. Figure 2.1 (in the Appendix) presents a comparison of the 27 countries, based on the FT and its sub-indices and confirms the above observation. In general, Kenya, Thailand and Ukraine have the highest level of fiscal transparency, while Jordan, Cameroon and Mozambique are the least transparent countries according to this index. The next section will examine the consistency of this ranking by comparing it with that of earlier ones.

2.3.4. Comparison with other indices

There are four reasons why we believe our approach leads to an index that is sufficiently objective, compared to other indices proposed in the literature:

First, we followed the main principle of fiscal transparency as defined by the IMF, following Hameed (2005) or Jarmuzek et al. (2006). The main framework of fiscal transparency that developing countries follow is the one defined by the IMF and the World Bank, possibly because of their membership or because these institutions are their main funding agencies. Based on that, our approach evaluates the practice of fiscal transparency rather than sole adherence to principles. It uses the ROSCs, which are reports written by independent IMF officers on the level of observance of the IMF recommendations. These ROSCs follow the structure of the IMF Manuals and contain information that varies from one country to another. In contrast, for example, the OECD's Best Practices for Budget Transparency data are self-reported data, where some

countries are likely to have rated themselves too highly.

Second, the index is very comprehensive. It combines the methodologies used by Hameed (2005), Jarmuzek et al. (2006) and Andrula et al. (2009). In addition to the practices retained by these authors, we added new ones. This is unusual, as the approaches of construction of fiscal transparency indices used by authors in the literature are often different from each other, leading to very diverse indices.

Third, the present index is constructed using both the 2001 and 2007 IMF Manuals of Fiscal Transparency. Even though the original definition of fiscal transparency provided by Kopits and Craig (1998) continues to form the basis of the 2007 Manual, the order in which the pillars of the codes are presented, the reorganization, and the additional codes introduced improve the clarity and the coherence of the overall Manual.

Fourth, this paper considers only the ROSCs published in 2004 or after. In fact, from 2004 on, the IMF officers improved the structure of the ROSCs in the sense that each observation given is associated with its corresponding (codes) as stated in the IMF Manual (2001 or 2007)[7]. This makes the rating of the practices more objective compared to the ratings that were based on the ROSC of before 2004. As Petrie (2003 p.6) argued, the ROSCs published before 2004 were written in a very compact way; the comments were provided without any mention of the practices they were referring to. Any evaluation made based on that was very subjective, as the information about a practice is not easy to find. Also, the use of new ROSCs has the advantage of giving the information about the current practice of fiscal transparency that is still true. Therefore it reduces the gap that could exist between the information given by the index and the current real level of the countries in terms of fiscal transparency.

In addition to the above points, the present study's sample of countries is sufficiently homogeneous in terms of the levels of development, as only developing countries are considered. In other studies like Hameed (2005), Alt and Lassen (2006a,b), Andreula et al. (2009), the samples of countries are more heterogeneous, composed of highly developed, emergent, and developing countries. Even though fiscal transparency is about application of common international standards, the present study intuitively

[7] We did not consider ROSCs that were not structured that this way, even though it was published in or after 2004.

believes that compliance with these standards might depend on the level of development of the country.

Table 2.5 below proposes the comparison with the indices constructed by Hameed (2005), Andreula et al. (2009) and IBP's Open Budget Index (OBI) only. We could not extend the comparison to other indices, because the number of countries our index has in common with these indices is too small. In order to eliminate the effect of differences in terms of methodologies and ranges of numbers used, we apply the Spearman (1904) rank correlation test, which considers the rankings of the countries rather than the values assigned by each index. Spearman's correlation coefficient is a statistical measure of the strength of a monotonic relationship between paired data.

Table 2.5: Spearman rank correlation between our index and other indices

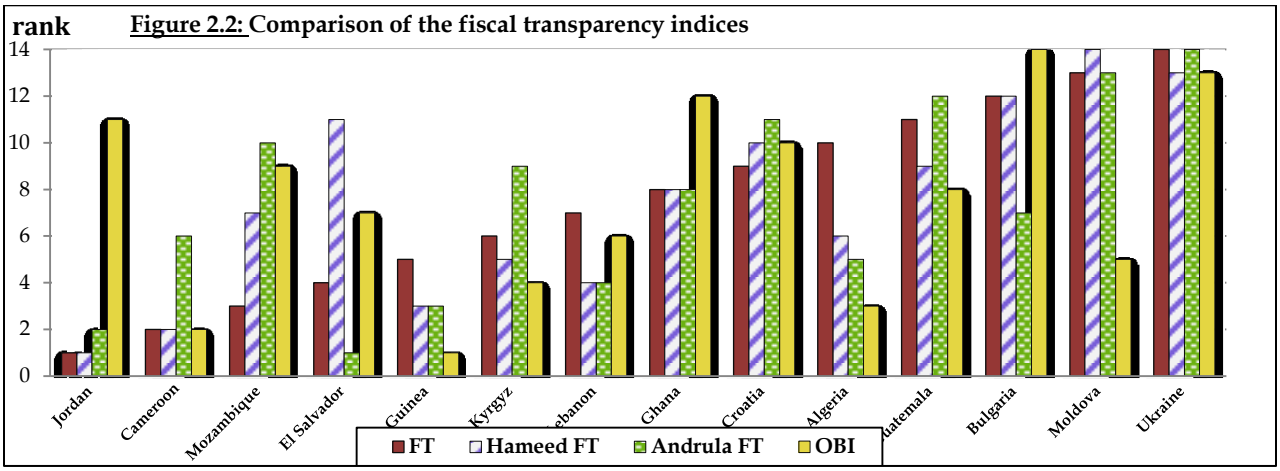
Indices	Hameed (2005)[8]	OBI*	Andrula et al. (2009)
FT	**0.7588 (0.0007)**	**0.4164 (0.0429)**	**0.6406 (0.0007)**
BS	0.6558 (0.0058)	0.1481 (0.4898)	0.4973 (0.0134)
BO	0.5404 (0.0307)	0.2681 (0.2053)	0.5497 (0.0054)
BP	0.583 (0.0178)	0.4469 (0.0286)	0.5338 (0.0072)
EBA	0.1411 (0.6023)	0.1543 (0.4716)	0.163 (0.4466)
Numb. of obs	**16**	**24**	**24**

*We consider the average of the existing indices.
The upper numbers represent the Spearman's rho (correlation coefficient). It corresponds to a monotonic trend between ranked variables. The values in bracket represent the P-values (Prob > |t|). It indicates the significance of the coefficient. If the P-value is smaller than 10%, 5% or 1%, therefore the correlation (given by the level of the coefficient) is weak, medium or high, respectively. Any P-value greater than 10% indicates that there is a non-significant monotonic correlation present between both variable according to the sample.

It appears that there is a strong, positive monotonic correlation between our fiscal transparency index and the indices respectively constructed by Hameed (2005), Andreula et al. (2009) and the IBP (OBI). So our index is consistent with earlier indices

[8] Thanks to Farhan Hameed who kindly sent us his data.

constructed in this field[9]. Figure 2 below presents the orderings of fourteen of our sample countries on the basis of our index and the ones proposed respectively by Hameed (2005), Andreula et al. (2009) and the IBP (OBI).



Note: 14 countries are ranked on the basis of each of the indices. So the highest value, which is 14, is assigned to the most transparent countries and the lowest, which is 1, is assigned to the least transparent country, according a given index.

Every bar represents the rank of a country compared to the others ones in the sample of fourteen countries, according to a specific index. So, the longer is the bar, the higher is the transparency level of the country. Apart from the extreme cases of Algeria and Mozambique, the figure shows that the comparison of the countries based on our index can be likened to that of the other indices. This confirms the consistency of our index as predicted by table 2.4.

2.4. Empirical Analysis of the determinants of fiscal transparency

The empirical analysis of this paper consists of two steps: first the choice of the potential determinants, and second the specification of the model according to that choice and its estimation.

2.4.1 Choice of variables

Following the literature on the issue of public governance, four mean aspects of the economy are considered here to potentially affect the level of fiscal transparency of a country: the natural wealth of the country, the quality of the institutions, the literacy

[9] However the correlation with these indices is not perfect, much of the difference is attributable to several improvements that we have introduced in the construction of our index.

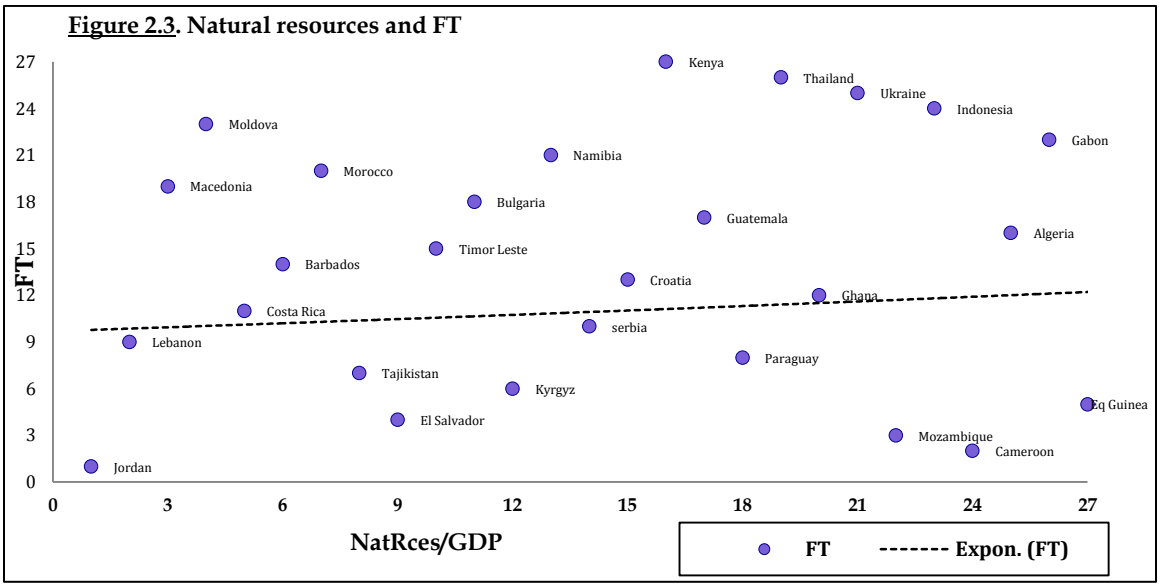
level of the population, and the openness to trade and to international capital movements. More discussion on the choice of the variables is given below, as well as the sources and definitions of the data. For each of the selected variable, we consider the average of the values over three years, following most of the authors such as Alt et al. (2002), or Hameed (2005): the two years before and the year of the publication of the ROSC. The objective is to obtain a "semi-causal" correlation test between each of the selected variables and the fiscal transparency index. The following paragraphs propose the discussion about the choice of the variables. In order to check the potential direction of the correlation between each of these variables and fiscal transparency, we propose graphs, which present monotonic trends between each of the selected variables and fiscal transparency (all ranked) for the 27 selected developing countries.

2.4.1.1. Natural wealth and Fiscal transparency

Carbonnier (2007) shows that natural resources revenues tend to widen the budget deficit, in the sense that they lead governments to commit excessive spending or divert these revenues to their advantage for personal gain or political patronage. Earlier, Lane and Tornell (1996) explained these deficits by the fact that politicians redistribute rents to influential groups of pressure and in proportion to income growth. This often takes place at the highest levels of government, distorting the contracts that are signed with extractive industry companies and the terms of agreement for revenues to be paid according to Ross (2011). It also occurs when royalties and other payments are agreed and disbursed unofficially, leading to the monies going into personal accounts rather than the state's treasury.

In the present paper we believes that after controlling for some institutional and economic variables, higher levels of natural resources can lead governments to be less transparent and likely less fiscally disciplined in developing countries. This can be the result of higher pressure from within the country, but mostly from too powerful international companies in the natural resources industry. To capture natural wealth, we use the Total Natural Resources Rents as a share of GDP obtained from the World Development Indicators (WDI, 2012). They represent the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Figure 3 presents the comparison of the countries of our sample in terms of both natural resources rents per

GDP and the fiscal transparency index.



Note: All the countries of the sample are ordered in terms of natural resources rents per GDP and of the fiscal transparency index. Then, all the data were sorted according to the level of natural resources rents per GDP..

The graph shows an ambiguous relationship between natural resources and fiscal transparency. Some countries with higher levels of natural resources have relatively higher levels of fiscal transparency, as compared to other countries in the sample and vice versa. The example includes Ukraine, Thailand, Gabon at the low end, and Jordan and El Salvador at the high end. But in contrast, several rich countries in terms of natural resources rents per GDP like Equatorial Guinea, Cameroon tend to display low fiscal transparency while less rich ones like Macedonia and Moldova tend to have higher level of fiscal transparency. Such result may depend on the definition of natural resources rents as a proxy for natural wealth. We should notice that the measure of natural resources used here does not include resources such as agriculture and tourism, the exploitation of which requires some effort from the government in terms of infrastructure. Even so, our a-priori does not seem to be strongly confirmed. However, the above theoretical supports are arguments for maintaining the variable of natural resources in our specification for further estimations.

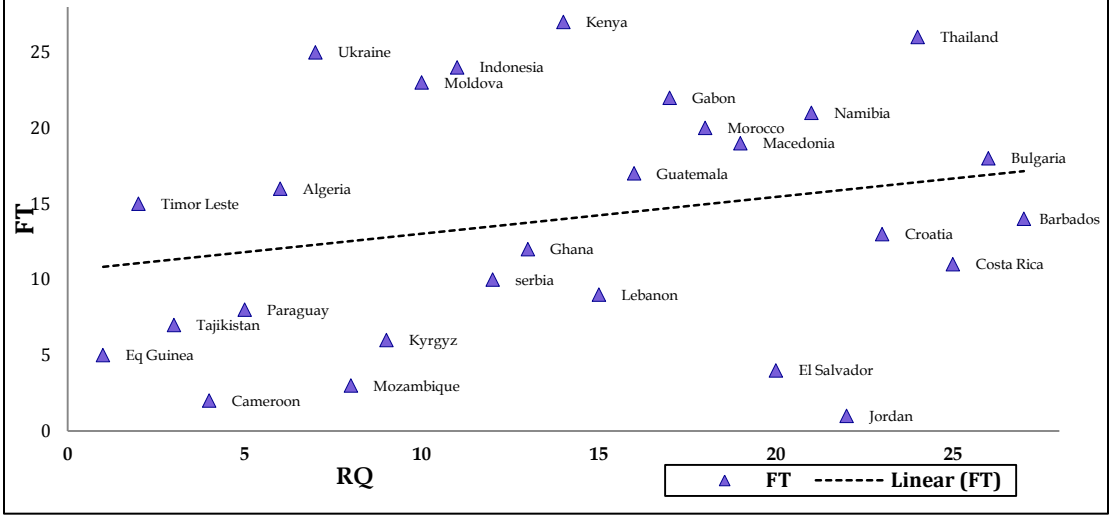
2.4.1.2. Quality of the institution and fiscal transparency

Institutions are the stage where political actors, voters, and markets interact. The insight that institutions matter for government decisions and the outcomes of these decisions has increased their importance for good governance, of which fiscal

transparency is a prominent part. Indeed, the first principle of the IMF Code of Good Practices on Fiscal Transparency issued in 1998, named Clarity of Roles and Responsibilities requires: "a clear legal and administrative framework for fiscal management". It means that fiscal transparency also involves good quality of the institutions. According to Hall and Taylor (1996), institutions affect the behaviour of each of the political actors, voters, and markets primarily by providing them with greater or lesser degrees of certainty about the present and future behaviour of the other. Based on the case of developed countries, some authors like Jarmuzek (2006) or Andreula et al. (2009) have demonstrated that a good quality of the institutions has a positive effect on fiscal transparency.

We also believe in this paper that fiscal transparency requires an improvement in the quality of institutions in the case of developing countries. For the data on the quality of the institutions, we use the governance indicators developed by Kaufmann, Kraay and Zoido-Lobatón (2003). They combine both large opinion surveys and measures based on polls of experts to define six indices of governance. Among the six indicators, we consider Regulatory Quality (RQ), which indicate the government's ability to formulate and implement sound policies and regulations. In addition, it has the highest coefficient of correlation with all the other institutional indicators. It is therefore suitable for the present study. The data are drawn from the Worldwide Governance Indicators (WGI, 2011). Figure 4 shows the comparison between the regulatory indicator and the index of fiscal transparency.

Figure 2.4: Quality of the Institution and Fiscal Transparency



Note: All the countries of the sample are ordered in terms of the indicator of regulatory quality and of the fiscal transparency index. Then, all the data were sorted according to the indicator of regulatory quality.

The main observation we can make from the above graph is that the countries with lower regulatory quality also tend to have lower fiscal transparency. At the low end we have Equatorial Guinea, Cameroon, Tajikistan; Paraguay, whose indicators are all very low. Also, countries with higher index of RQ have relatively higher FT indices. This can be interpreted that countries with weaker institutions are also less transparent, which confirms our reasoning.

2.4.1.3. Literacy and fiscal transparency

Some policy analysts like Korotayev et al. (2011) consider literacy rate as a crucial measure of the value of a region's human capital. Also, several actors and organizations involved in the fight for more budget transparency like International Budget Partnership (IBP) or The Global Movement for Budget Transparency, Accountability and Participation (BTAP)[10] claim that civil society plays a role in budget transparency by means of pressuring the governments. Such claims are also strengthened by scientific papers such like Bernardino and Bastida (2009) who concluded that the achievement of a high level of fiscal transparency requires the presence of an effective legislation that scrutinizes budget reports, discusses and influences budget policy; and an effective civil society as represented by media and nongovernmental organizations that must

[10] See the Dar Es Salaam Declaration on Budget Transparency, Accountability, and Participation (November 18, 2011).

influence budget policy and hold government accountable.

However, in the present paper we think that the fight of civil society for fiscal transparency is conditional upon the level of literacy of the population. For example, Harvey Graff (1991) found that a low level of literacy of a population is associated with a level of community engagement and civic participation that is also low. This is because an individual who does not have a sufficient level of education cannot be a full member of society and cannot participate fully in social and political battles. A highly literate population may also have higher understanding of public budgets and strong social mobilization on economic and development issues needed to advocate for changes in how resources are allocated and used towards reduction of economic injustices. The level of education of the population is often considered as control variable in the analysis of fiscal transparency[11]. For the present study, we use the literacy rate of adults, as a variable of interest. It is the percentage of people of ages 15 and above who can read and write simple texts. The data are drawn from World Development Indicators (2011). Figure 2.5 below shows the relationship between the literacy rate of the population and the index of fiscal transparency, in terms of the ranking of the countries of the sample.

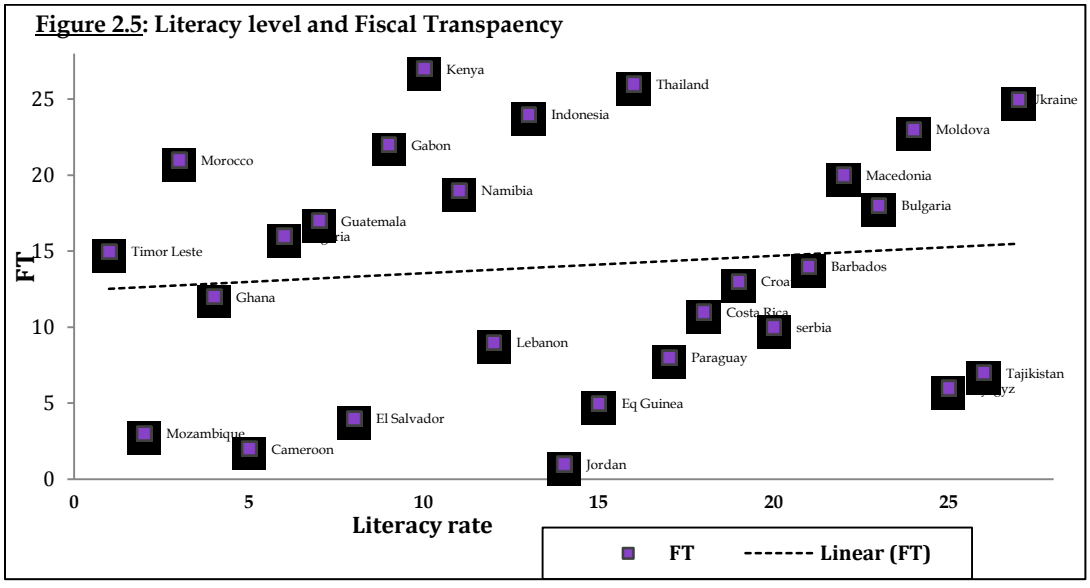


Figure 2.5: Literacy level and Fiscal Transpaency

Note: All the countries of the sample are ordered in terms of the indicator of the literacy rate and of the index of fiscal transparency. Then, all the data were sorted according to the literacy rate.

According to figure 2.5, there is a weak positive link between the rankings of

[11] See Alt et al. (2002 and 2006) or Bernardino and Bastida (2009)

countries based on both literacy rate and the index of fiscal transparency, which confirm weakly our a-priori reasoning. Some countries with higher literacy rates also have higher indices of fiscal transparency. This is the case for Ukraine, Moldova, Macedonia or Bulgaria. At the low end there are also countries like Cameroon, Mozambique or El Salvador, with lower literacy rate that also display low indices of fiscal transparency. The empirical analysis presented below provides clearer idea of the nature of that relation.

2.4.1.4. Openness and fiscal transparency

This part turns to the relationship between the openness to trade and to capital movements and fiscal transparency. These links have not yet received an attention in the literature. Related studies include Dellas et al. (2005) who have demonstrated theoretically and empirically that capital mobility and, to a smaller extent, trade openness enhances fiscal effectiveness, in terms of budget deficits reduction. Also, Combes and Guillaumont (2002) have shown that countries, which have implemented openness policies, are better able to face external shocks brought by that openness. That is, they have higher resilience in terms of disciplined budgets. Moreover, in their study of the impact of trade openness on budget balance, Combes and Saadi-Sedik (2006) made a distinction between natural openness (exports plus imports of goods and services in percent of GDP) and trade-policy induced openness which corresponds to the removal of barriers against international trade. Natural openness is determined by the fitted value derived from a regression of actual trade openness on some structural variables, and the residual is used as openness policy. They found that countries that are naturally open are more corrupt because of available rents; while openness as a policy leads to less corruption following Ades and Di Tella (1999), to potentially sounder budget systems and to more efficient fiscal administrations.

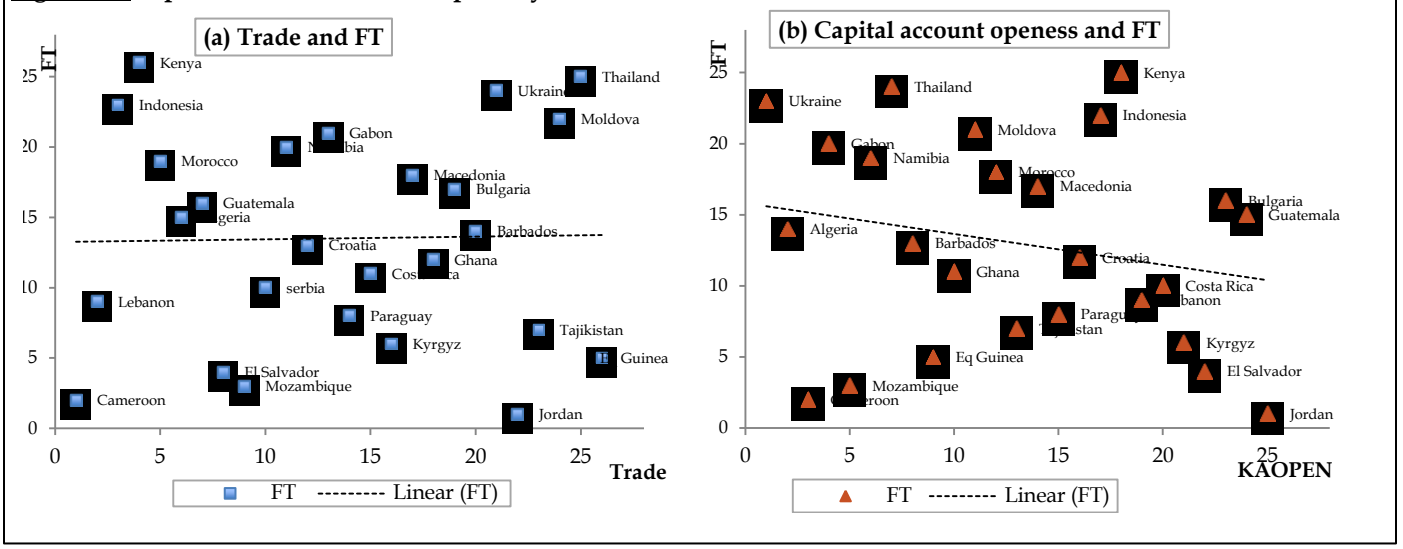
The present paper offers an attempt to connect the country's openness and its performances in terms of fiscal transparency. We believe that openness to international trade and capital movements may foster fiscal transparency as it reduces the costs and increase the benefits of fiscal transparency since trade openness leads to increased economic competition and economic growth, while international capitals seek relatively efficient economic environments. Both economic aspects of openness that we considered

in this paper are trade and capital account openness.

For trade openness, we use the sum of exports and imports of all goods and market services as share of GDP. We use the data provided by World Development Indicators (2012). For capital account openness, we use the Chinn-Ito (2008) index (*KAOPEN*), which is based on binary dummy variables that codify the restrictions on cross-border financial transactions reported in the IMF's *AREAER*[12]. Other indicators of capital account openness exist in the literature. For instance, Quinn (1997, 2003) has compiled a composite index based upon his coding of qualitative information from texts in the various issues of *AREAER,* taking into consideration whether the country has entered into agreements with international organizations such as the OECD and European Union. Despite the merits of the Quinn index, at the time of writing this paper, the dataset is not publicly available. While containing overtime variation and focusing on the intensity of capital controls, KAOPEN has the widest coverage of countries and time periods among indices for measures of financial openness. Figure 2.6 shows the comparison of countries based on each of the indicators of openness retained and the index of fiscal transparency.

[12] In 1997, *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)* started publishing the data on disaggregated components of capital controls, with the specification of thirteen categories including, for the first time, a distinction between restrictions on inflows and outflows as well as between different types of capital transactions.

Figure 2. 6: Openness and Fiscal Transparency



Note: All the countries of the sample are ordered in terms of the indicator of the value of imports plus exports as share of GDP and of the KAOPEN index. These ordering are then compared to that in terms of the index fiscal transparency. In the graph on the left hand side all the orderings of openness and of FT index were sorted according to the trade openness value, and on that on the right hand side, the orderings of KAOPEN and of FT index are sorted according to KAOPEN.

The relationship between trade openness and fiscal transparency does not provide a strong support to our a-priori reasoning. Trade openness does not seem to be linked with the index of fiscal transparency. This graph is however quite similar to the graph of figure 2.3. One reason is that the natural resources, as defined above, often constitute the biggest share of the exports of many developing countries. Therefore, the level of trade does not appear to affect the effort to promote fiscal transparency, since the management (operation and exportation) of natural resources remains a private affair between the political authorities and the companies approved. That is the reason why countries like Equatorial Guinea, Jordan and Tajikistan have higher levels of trade openness while their indices of fiscal transparency are lower compared to the rest of the sample. However capital openness seems to be negatively associated with the index of fiscal transparency, in opposition with our expectations. Some countries, which are relatively less open in terms of capital mobility like Ukraine, Thailand, Gabon, Namibia, Moldova, have higher indices of fiscal transparency, while others like Jordan, El Salvador, or Kyrgyzstan have higher indices of capital account openness associated with lower indices of fiscal transparency. Once again, even though these graphs do not provide support to our predictions, we rely on the reasoning to keep openness to trade and openness to capital in the specification of our model.

2.4.1.5. The control variables

Following the literature, we control for several socio-economic variables such as the unemployment rate, the business Disclosure index, GDP per capita, armed forces, and the number of updates of the ROSC. Indeed, unemployment can be taken as a potential indicator of government policy. As Andrew (2013) mentions, it indicates whether the government is using its authority to ensure jobs through fiscal expansion or by changing regulations to promote small business. Alt et al (2002) used the Job Approval Rating[13] as a measure of government popularity, which they found to be positively determined by fiscal transparency. Unemployment negatively impacts the government's ability to generate income and also tends to reduce economic activity. When unemployment is high, fewer people are paying taxes to the government. At the same time, unemployment means there are fewer people with disposable income to spend on goods and services, which dampens economic growth. This could lead to lower incentive for the government to disclose fiscal information. Either because of the lower political importance of fiscal policy or because of the low financial gains as government revenue is low.

For the business disclosure index, it measures the extent to which private actors are protected through disclosure of their ownership and financial information. This variable is used as a proxy of transparency of private sector. We believe in this paper that transparency in public activities should go along with the transparency in the private sector, at least in order to ensure significant detailed information about the procurements and resulting contracts issued by government bodies. In other words, if every private company is subject to the application of transparency, as least when the compagny is carrying out government contracts such as proposed by Di Ianni (2011), this may lead to the improvement of the overall government transparency.

Armed forces variable is the number of military personnel, including paramilitary forces out of the population of the country. It is used here as a measure of

[13] The approval ratings also called Gallup ratings was introduced by George Gallup in the late 1930s to gauge public support for the President of the United States during his term. Since then, Gallup-affiliated organizations in the United States and throughout the world have assessed public opinion on a wide range of political, social, and economic issues An approval rating is a percentage determined by a polling, which indicates the percentage of respondents to an opinion poll who approve of a particular person or program (see www.gallup.com for details).

the power that the political regime has at the expense of freedom of expression. So, we believe that important armed forces can be associated with less transparent government's policies for at least two reasons: First, the important is the armed forces, the higher might be the oppression of the protected government over the population, preventing the civil society from holding the government accountable for the outcomes of its policy. Second, important armed forces might be associated with too high and opaque government spending on military equipment. Transparency International revealed that the defense sector poses unique corruption risks, because of single source contracts, unaccountable and overpaid agents, obscure defense budgets, unfair appointments and promotions, and many more forms of corruption[14].

The GDP per capita is used to control for relative differences in the levels of development in the sample. Several studies such as Jarmuzek et al. (2006) or Andreula et al. (2009) have found that developed countries display higher indices of fiscal transparency compared to developing ones. As summarized by Khagram et al (2012), few empirical studies have found the level of development (per capita income) to be strongly related to various measures of transparency[15]. In fact, the improvement of education as well as the expansion of middle classes may give rise to higher pressures for transparency, as better-off citizens come to desire greater quality and efficiency in the provision of public goods and gain the resources to express that interest politically, as supported by Bellver and Kaufmann (2005) and in IBP report (2013).

The ROSC update is the number of times that the performance of a country has been assessed by IMF Officers. As we mentioned earlier, a few countries in the sample, including Mozambique, Bulgaria, Cameroon, El Salvador, Indonesia, Kyrgyztan and Ukraine, have updated their ROSCs at least once. But the updated ROSCs are very short summaries that cannot be used to rate these countries again. However, we use the number of updates as an indicator of the engagement of the country toward promotion of fiscal transparency, following Hameed (2005). We expect it to positively affect fiscal transparency.

All the data are drawn from world Development indicator (2012) except the ROSC updates which are available on the IMF website.

[14] See Transparency International website under defence and security.
[15] See sanjeev khagram, paolo de renzio, and archon fung (2012).

2.4.2. *The empirical model*

The empirical specification is aimed at analysing the determinants of fiscal transparency. The objective is to test the effects of natural resources, quality of institutions, literacy rate and openness to trade and capital movements on fiscal transparency. Thus, following Alt et al. (2002 and 2006b) and Andreula et al. (2009), the empirical model employed in the analysis is as follows:

$$FT = f(\text{Natural Wealth, Institutions Quality, Literacy, Openness}) \quad (1)$$

where FT, the fiscal transparency index is a function of *Natural Wealth, Quality of the Institutions, literacy rate* and *Openness*—which is the vector of two measures of a country's openness: capital account openness (KAOPEN) and trade openness (Trade). The regression model is therefore specified as follows:

$$FT_i = \beta_0 + \beta_1 Natrce_i + \beta_2 RQ_i + \beta_3 Litrate_i + \beta_4 KAOPEN_i + \beta_5 Trade_i + \beta_6 Z_i + \varepsilon_i \quad (2)$$

Z_i is the vector of socio-economic control variables

Relation (2) will be evaluated by means of parametric correlation analysis.

Because our index of fiscal transparency does not have time variation, we cannot apply panel data analysis. Our empirical model is tested by the mean of cross-sectional analysis. Multivariate analyses such as ordinary least squares regressions will be applied to test the relationship between the selected variables and transparency, all taken together.

Besides this constraint, another important theoretical issue is that of the potential endogeniety nature of fiscal transparency, considered as an institutional variable and most of the explanatory variables. It means that the explanatory variables, on the right-hand-side of the equation (2), which are seen as determinants can also be outcomes of fiscal transparency (the dependant variable on the left-hand-side). In fact, the idea of equation (2) is that socio-economic conditions can influence public governance but at the same time public governance drives economic conditions. In the above specification the

key variables retained as affecting fiscal transparency are Natural wealth, Quality of institutions, literacy rate and country's openness. However, one can imagine a situation in which this also works in the opposite way. For example, fiscal transparency may provide framework for a country to implement an efficient exploitation of its natural resources.

In the institutional literature, the primary strategy for dealing with endogeniety problem is to use instrumental variables to ensure that the estimators are consistent (Wooldridge, 2002). One of the easier ways to do this is the two-stage least squares (2SLS) method. This method is a special case of the generalized instrumental variable estimation. The procedure should commence from an estimation of the reduced form (equation (2)) by OLS.

Given that, in the first step of the 2SLS method, our explanatory variables of interest that are likely endogenous are regressed on their determinants or instrumental variables. The crucial condition for choosing instrumental variables is that they have to be correlated with the endogenous variables, but not with the error term of the underlying model[16]. We regressed natural resources on national income; Regulatory Quality on Human Development Index (HDI); literacy rate on HDI and population density; trade on national income and growth rate of the population; capital account openness on national income and inflow of foreign aid. In the second step, we estimated the original equations, but each endogenous variable of interest located on the right hand side is replaced with its predicted values from the reduced form (regression on instrumental variables). However, rather than taking all the endogenous variables in a unique model, we specified five different models where only one of the above explanatory variables of interest is included, and the index of fiscal transparency remains the dependant variable. This allows us to avoid any multicolinearity problems, because some of the endogenous variables have the same instrument, as discussed above. That led to five estimations with OLS. In some cases we used different control variables in order to get the best fit of the models. We ended up with five estimations using two-stages least squared.

[16] However, the validity of instrumental variables can be tested if and only if the system is over-identified, which means a situation in which the number of endogenous variables is less than the total number of variables excluded from the equation under consideration. Otherwise the only feasible option is to rely on economic theory or intuition (Verbeek, 2004).

Since the theoretical and empirical work on the issue of fiscal transparency is still in its nascent phase, a thorough technical analysis of the determinants of fiscal transparency is constrained by the factors that we mentioned above. Indeed, the absence of time variation in the data and potential existence of endogeniety make it difficult to claim causality between performance variables listed above and fiscal transparency. But it is still useful to show correspondence between them.

2.5. The Findings

The results of the general model of the determinants of fiscal transparency are given in table 2.6. In addition to using the aggregate fiscal transparency index FT, each of the four sub indices is used as dependant variable. The objective is to analyse the channel through which the retained potential factors determine fiscal transparency.

Table 2.6. Determinants of Fiscal Transparency

Variables	**(1)**	(2)	(3)	(4)	(5)
	FT	BS	BO	BP	EBA
Natrce	**-0.002**	-0.015	-0.018	-0.029*	0.042**
	(0.25)	(0.75)	(0.9)	(2.07)	(3.00)
KAOPEN	**-0.0462***	-0.0229	-0.0919**	-0.0415*	-0.035
	(1.92)	(0.51)	(2.62)	(1.73)	(0.95)
Trade	**-0.016**	-0.012	-0.002	-0.02	-0.027
	(1.6)	(0.86)	(0.1)	(1.43)	(1.50)
RQ	**0.100***	0.0762	0.114	0.1035	0.1038
	(2.05)	(0.76)	(0.91)	(1.45)	(1.33)
Literacy	**0.005****	0.0064	0.0038	0.0048	0.0048
	(2.27)	(1.6)	(1.27)	(1.60)	(1.33)
Busdisclo	**0.076**	0.039	0.003	0.092	0.166
	(0.95)	(0.26)	(0.018)	(1.02)	(1.11)
Armforce	**-0.0236***	-0.0318*	-0.042*	---------	-0.0023
	(2.14)	(2.12)	(1.99)		(0.10)
Roscupd	**-0.0327**	--------	---------	-0.0519**	----------
	(1.56)			(2.26)	
Number of obs.	**27**	27	27	27	27
R-squared	**0.49**	0.31	0.41	0.46	0.33

*Note: Estimated using Stata/SE 12.0. And ***, **, * denote significance at 1 %, 5 % and 10 % levels, respectively. Numbers in bracket are t-statistics calculated with robust standard errors.*

The results show that, taken together, some of the retained factors have significant coefficients. The coefficients of natural resources and openness to trade are not significant, while the coefficient associated with capital account openness is significant. The relationship between both variables of openness and the index of fiscal transparency seems to be negative, which is different from our expectations, but the sign

of the coefficient of KAOPEN confirms that trend of the graph of figure 2.6. The coefficients associated with natural resources, regulatory quality and literacy rate have the expected signs.

Before we applied the 2SLS method, a Durbin–Wu–Hausman (DWH) test for endogeneity was performed in the first models described earlier, as recommended by Davidson and MacKinnon (1993)[17]. Even though the test did not reveal that all the coefficients of the first models were inconsistent[18], the intuition presented above is the reason for conducting another set of model estimations using the 2SLS method. The summarized results are presented in table 2.7.

Table 2.7. Two Stage Least Square models of the determinants of Fiscal Transparency

Variables	(1) FT	(2) BS	(3) BO	(4) BP	(5) EBA
Natrce	**-0.04****	-0.046*	-0.054	-0.027	-0.010***
	(2.01)	(1.820)	(1.085)	(0.174)	(3.013)
RQ	**0.088***	0.085	0.022	0.151**	0.013
	(1.91)	(0.952)	(0.097)	(2.072)	(0.545)
Literacy	0.04*	0.006**	0.003	0.003	0.003
	(1.78)	(2.210)	(0.710)	(0.930)	(0.760)
KAOPEN	**-0.504*****	-0.475**	-1.220***	0.142	-0.527**
	(3.93)	(2.030)	(2.422)	(0.327)	(0.198)
Trade	**0.011*****	0.008**	0.020***	-0.002	0.009**
	(1.83)	(2.030)	(2.403)	(0.637)	(2.013)
Number of obs	**26**	26	26	26	26
R-squared	**0.297**	0.1523	0.2558	0.1594	0.2304

Note: ** significant at 10%; ** significant at 5%; *** significant at 1%, Column (1) includes the models where FT is the dependent variable. Column (2)-column (5) includes the models where the dependent variables are respectively BS, BO, BP, and EBA. Each predicted variable of interest was used in a specific 2SLS model. Therefore, in this table each coefficient represents a model. The R-squared are indicative, they correspond to the average value of the R-squared of the models listed in the column. In addition to the above explanatory variables these models include Unemployment rate, Business disclosure rate, Arm force, number of Rosc updates as controls*

The sign of the coefficient associated with natural resources is still negative as expected, meaning that the relationship between the natural wealth and fiscal

17. Davidson and MacKinnon (1993) suggest an augmented regression test (the Durbin–Wu–Hausman test), which can easily be formed by including the residuals of each endogenous right-hand side variable, as a function of all exogenous variables, in a regression of the original model.

18. The results are not presented, but in general the inconsistency was observed in two of the five models, that is the coefficients associated with residuals of RQ and Natrce were significantly different from zero, which should assume that previous OLS estimation including these variable is not consistent.

transparency is negative. In other words, under certain conditions natural resources can be a limit to improving fiscal transparency practices. In order to achieve high levels of transparency in developing countries, efforts should be made on transparency in the exploitation of natural resource, everything else being equal. So any Fiscal Transparency program should go along with programs such as Extractive Industries Transparency Initiative (EITI), also initiated by the International Monetary Fund and World Bank Group. The sign of the coefficient of RQ is positive as expected; meaning that good quality of the institutions is associated with high levels of fiscal transparency, everything else being equal. This conclusion supports that of Andreula et al. (2009), who showed that there is a causal positive relationship between quality of the institutions and their index of fiscal transparency, in the case of developed countries.

These results also confirm a negative relationship between country capital account openness and fiscal transparency. The correlation is stronger in the 2SLS models (Table 2.7). Capital inflows seems to be intended for exploitation of natural resources, which is based on generally subjective and less transparent contracts; while outflows are leaks to secret accounts in developed countries or intended for financing military equipment. The 2SLS estimation shows a positive and significant relation between openness to international trade and fiscal transparency, while the OLS estimation displayed a negative relation, which makes the relationship ambiguous.

Literacy rate is highly and positively significant, meaning that countries with high literacy rates also have good levels of fiscal transparency, everything else being equal. High literacy rate of the population leads to strong communities, civil society and groups of pressure that demand access to information and participation in decision-making. The introduction of the number of updates of the ROSCs leads to poorer results everywhere. It means that the number of assessment of the country's practice of fiscal transparency is not an indicator of its performance. In other words, it shows that we should not consider the number of ROSCs published, as Glennerster and Shin (2003) did earlier, as an indicator of the level of fiscal transparency.

For the robustness check, we used other indices to estimate the same models specified above[19]: the fiscal transparency index constructed by Andreula et al. (2009) as

[19] The use of other indices in the same specification of the model allows for testing the consistency of our result, given that these selected indices are not perfectly correlated with our index constructed before.

well as the average of the Open Budget Index[20]. We could not consider other indices that exist in the literature because the numbers of countries that we have in common is too small. In order to obtain comparable coefficients, we adjusted the range of all the retained indices to 0 to 10. This means that the range of the index of Andreula et al. (2009) was considered as the basis; 10 divide the OBI, while 10 multiplied our index of fiscal transparency. That is why the coefficients corresponding to our index of fiscal transparency in table 2.8 (Appendix) are different from those in the above tables 2.6 and 2.7.

The results show that our findings are consistent with what the other indices predict. Definitely, with a few exceptions mostly regarding the sizes and the significance of the parameters, the directions of the correlations tend to be similar. For example, the variable of natural resources is still negatively associated with all the indices of fiscal transparency. The coefficient is larger when we use the Andreula et al. (2009) index. The relationship between capital account openness, trade and OBI are ambiguous, as the signs change from the OLS to the 2SLS models. The same thing holds with the Andreula et al. (2009) index in the case of capital account openness. For the rest, all the signs are consistent with our results. The significance of the relationship between quality of institutions, trade, and the level of fiscal transparency is stronger with both these indices, while the significance of the relationship between fiscal transparency and the literacy rate of the population is weaker than what the model predicts with our index.

2.6. Conclusion

The objective of this paper was to propose an answer to the question raised in several earlier studies about the factors that determine fiscal transparency in developing countries. It stands out by analyzing some economic factors, including Natural wealth and Openness, and non-economic factors, such as quality of institutions and literacy level of the populations, in their relation with fiscal transparency. It uses the reports of adherence to the Code of Good Practices on Fiscal Transparency to construct a new and replicable index of fiscal transparency, inspired by Hameed (2005), Jarmuzek et al (2006)

[20] International Budget Partnership provides indices of budget transparency, called Open Budget Index (OBI) every two years. But two things prevent us from running a panel data analysis for robustness check: the lack of data concerning some countries of our sample, and the fact that a panel data analysis cannot be used as a robustness check of the initial cross-sectional analysis.

and Andreula et al. (2009). The index is used in a cross-sectional analysis of the relationship between the above factors and fiscal transparency. Initially the OLS was applied, but because of the potential endogeneity nature of fiscal transparency, we also applied the Two-Stage Least Squares method to ensure that the estimators are consistent. That led to some changes in the magnitude and the statistical significance of the variables, but to very few changes in the sign of the coefficients. Overall, the estimations reveal that the level of natural resources and the openness of the capital account are negatively associated with fiscal transparency. Also, good quality of institutions tends to go along with good practices of fiscal transparency, even after controlling for important socio-economical factors. These results also show that the level of literacy of a population is positively associated with the country's level of fiscal transparency, confirming the prediction of some international organizations listed above that fight for budget transparency, according to which higher literacy rate of the population is a conditional criteria for having a strong civil society, which can play a role for budget transparency. However, the paper does not provide evidence of a relationship between openness to international trade and fiscal transparency, as the sign changes from the OLS to the 2SLS estimations.

For robustness check, we used the index proposed by Andreula et al. (2009) and the Open Budget Index, which are two indices existing in the literature that share a significant sample of countries with our index. We simply replace our index with these indices in the estimations of the same models of our specification, applying both the OLS and the 2SLS methods. Apart from slight differences in the sizes of the coefficients, the significance and the signs of the relationships are almost the same as what was predicted using our index.

One of the limitations of this study is the lack of a time-series dimension for the fiscal transparency index. For that end, the replication of our index is possible if the countries are reassessed every 4 years as planned by the IMF and the World Bank, and if the updated ROSCs are written and structured like their first versions. Also, an important direction for future research would be to examine the outcomes of fiscal transparency practice for developing countries. Examples include its impact on education, health or growth.

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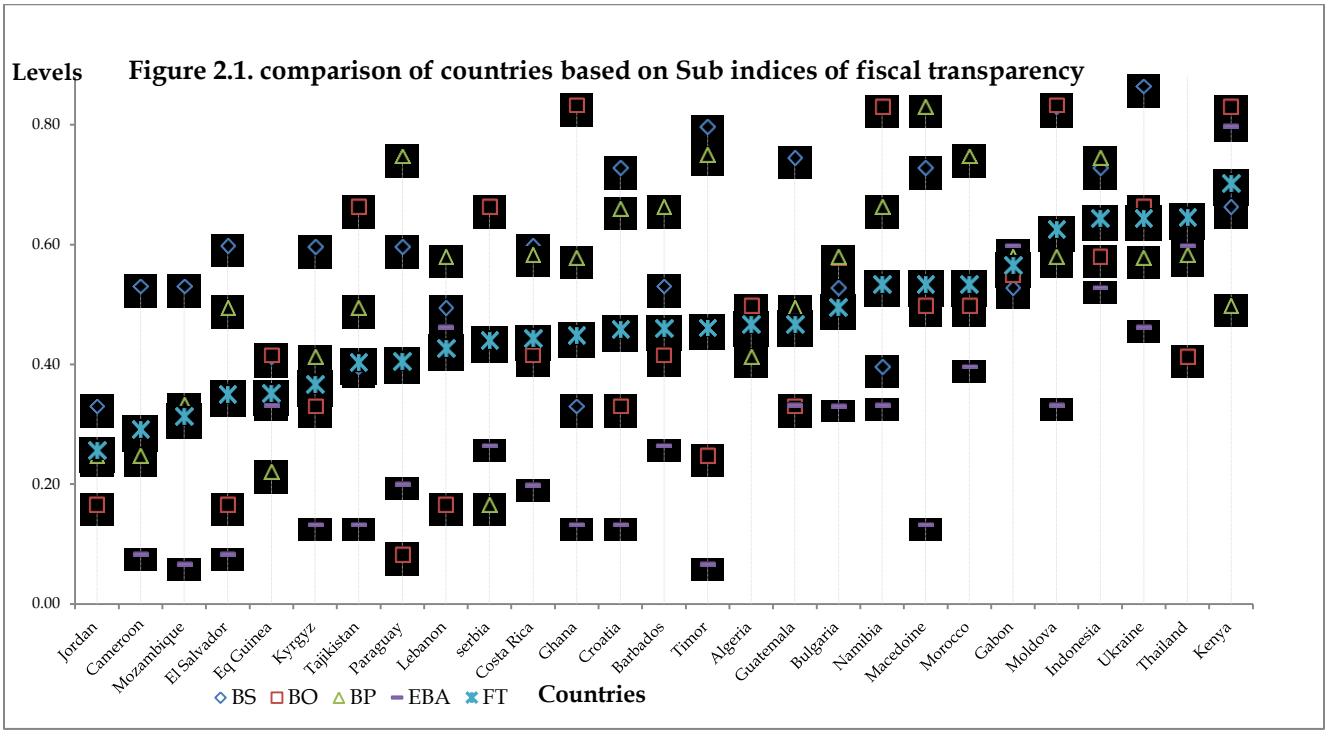
Appendix

Table 2.1. Fiscal transparency modules

Number	Modules	Practices of fiscal transparency	Code (2001)	Code (2007)
1	**Budget Structure**	Budget classification	3.2.1	3.2.2, 3.2.1
		Release of data	2.2.1, 2.2.2	3.3.2, 3.3.1
		Budget coverage	2.1.1, 3.2.1	3.1.1
		Independent Assessment of Forecast	4.2.2	4.3.3
		Budget realism	4.1.1	4.1.1
2	**Budget Objectivity**	Policy objectives and sustainability	3.1.1	2.1.4, 2.1.2, 3.1.7
		Forward Estimates	2.1.2	3.1.2
		Projections guided by a Medium-term Economic and Fiscal Framework	3.1.3	2.1.2, 4.1.1
		Fiscal/Macro risk	3.1.5	3.1.3
3	**Budget Process**	Accounting system	3.3.1	4.1.2, 2.2.1
		National independent audit	4.2.1; 3.3.3	4.2.5, 4.3.1, 4.3.2,
		Final account	3.4.2	4.3.4
		Mid-year reporting	3.4.1	2.2.4
				2.2.2
4	**Extra- Budgetary Activities**	Contingent liabilities	2.1.3	3.1.3
		Debt	2.1.4	3.1.5, 3.2.3
		Quasi-fiscal activity – Financial	2.1.3, 1.1.4	3.1.3, 1.1.4
		Quasi-fiscal activity – NFPE	2.1.3, 1.1.4	3.1.3, 3.1.6, 1.1.4
		Tax expenditures	2.1.3	3.1.3

Table 2.2: Indices of fiscal transparency

Country	RoscYear	BS	BO	BP	EBA	FT
Kenya	2008	0.66	0.83	0.50	0.80	**0.70**
Thailand	2009	0.93	0.41	0.58	0.60	**0.65**
Ukraine	2004	0.86	0.66	0.58	0.46	**0.64**
Indonesia	2010	0.73	0.58	0.75	0.53	**0.64**
Moldova	2004	0.83	0.83	0.58	0.33	**0.63**
Gabon	2006	0.53	0.55	0.58	0.60	**0.56**
Macedonia	2006	0.73	0.50	0.83	0.13	**0.53**
Morocco	2005	0.53	0.50	0.75	0.40	**0.53**
Namibia	2008	0.40	0.83	0.66	0.33	**0.53**
Bulgaria	2005	0.53	0.58	0.58	0.33	**0.50**
Guatemala	2006	0.75	0.33	0.50	0.33	**0.47**
Algeria	2005	0.50	0.50	0.41	0.46	**0.47**
Timor Leste	2010	0.80	0.25	0.75	0.07	**0.46**
Barbados	2007	0.53	0.42	0.66	0.26	**0.46**
Croatia	2004	0.73	0.33	0.66	0.13	**0.46**
Ghana	2004	0.33	0.83	0.58	0.13	**0.45**
Costa Rica	2007	0.60	0.42	0.58	0.20	**0.44**
serbia	2009	0.66	0.66	0.17	0.26	**0.44**
Lebanon	2005	0.50	0.17	0.58	0.46	**0.43**
Paraguay	2006	0.60	0.08	0.75	0.20	**0.41**
Tajikistan	2007	0.40	0.66	0.50	0.13	**0.40**
Kyrgyz	2008	0.60	0.33	0.41	0.13	**0.37**
Eq Guinea	2005	0.41	0.42	0.22	0.33	**0.35**
El Salvador	2011	0.60	0.17	0.50	0.08	**0.35**
Mozambique	2008	0.53	0.33	0.33	0.07	**0.31**
Cameroon	2010	0.53	0.25	0.25	0.08	**0.29**
Jordan	2006	0.33	0.17	0.25	0.26	**0.26**



Note: Each marker represents the value of a sub index calculated according to the formula presented in the text, using the number we assigned based on the countries ROSCs available on www.imf.org. The values range continuously from 0 to 1. The values are sorted by to the comprehensive index FT. The lowest value corresponds to the least transparency country and the highest corresponds to the most transparency country in the sample of 27 developing countries.

Table 2.8: Determinants of fiscal transparency: Robustness check using other indices

Variables	FT		Andrula et al. (2009)		OBI	
	OLS	**2SLS**	OLS	2SLS	OLS	2SLS
Natrce	**-0.002**	**-0.04****	-0.025**	-0.065*	-0.025**	-0.08
	(0.25)	**(2.01)**	(3.03)	(2.37)	(3.03)	(1.02)
KAOPEN	**-0.462**	**-5.04*****	-0.518*	0.703**	-0.518*	2.712**
	(1.92)	**(3.93)**	(2.36)	(3.12)	(2.36)	(3.94)
Trade	**-0.016**	**0.011***	0.001	-0.01**	0.001	-0.036**
	(1.60)	**(1.83)**	(0.12)	(3.12)	-0.12	(3.94)
RQ	**1.00***	**0.088***	0.765	0.755**	0.765	2.913**
	(2.04)	**(1.91)**	(1.51)	(3.12)	(1.51)	(3.94)
Literacy	**0.05****	0.04*	0.039*	0.038*	0.039*	0.077*
	(2.27)	(1.78)	(2.17)	(2.26)	(2.17)	(2.45)
Numb. of Obs.	**27**	**26**	**23**	**22**	**23**	**22**
R-squared*	**0.49**	**0.29**	**0.62**	**0.55**	**0.63**	**0.25**

** significant at 10%; ** significant at 5%; *** significant at 1%. Column(1) and (2) includes the models where FT is the dependent variable.*

Column(3)-column(6) include the models where the dependent variables are the index constructed by Andrula et al. (2009) and an 3-years average of the IBP index. Each variable was used in a specific 2SLS model. Therefore, in this table each coefficient represents to a model. The R-squared are indicative, they correspond to the average value of the R-Squared of the models listed in the column. In addition to the above explanatory variables these models include Unemployment rate, Busdisclosure rate, Arm force, number of Rosc updates as controls (The sources for each variable are discusses in the text.)

Essay 3

Fiscal transparency: its consequences for economic development, the evidence from 27 developing Countries

3.1. Introduction

There is widespread consensus that good public governance should, in principle, be a key determinant of sustainable economic development. Nevertheless, there is no general empirical support for this assertion. Studies by the World Bank[21] and the OECD[22], for example, find that good governance is a key ingredient in the requirement for development. There are, however, other studies that find a weak link between good governance and development. In most of these studies, good public governance is assumed to be characterized not only by the effective management of a society's public institutions and its resources, but also by the provision of equitable access to public services, democracy and rule of law[23]. According to this view, good public governance should involve accountability of the government in power, legal and judicial reforms, electoral participation and adherence to democratic principles, absence of corruption, and fiscal transparency. Other recent studies have included such additional factors as political stability and a country's commitment to IMF and World Bank programs on economic development assistance.

A brief review of the literature also shows that some emerging countries, such as Brazil and South Africa, have experienced great economic development as a result, inter alia, of improvements in public governance, while other countries, such as China and Russia, have also experienced stable growth although they are not generally known to have good public governance. This discrepancy has given rise to a debate on the specific channel through which governance contributes to economic development. In particular, scholars are divided, first, on which aspects of good governance contribute to economic development and, second, on the extent to which good governance itself impacts economic development. For example, political stability, effective democratic institutions,

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21 See "Governance: The World Bank's Experience", 1994, p.1-36; The International Development Association, Twelfth Replenishment (IDA12) of December 1998, p.9; The African Development Bank's Report, 1999, p.2-3

22 OECD (2001b), "Sustainable Development: Critical Issues", OECD Publications, Paris, France.

23 See the UNESCO, UNDESA and UNDP Thematic Think Piece on governance and development, May 2012.

absence of corruption, and commitment to IMF and World Bank programs (all of which are components of good governance) have been shown to influence the tempo of economic development, but there is no agreement as to whether these are the only aspects of governance that facilitate the process of economic development. This paper seeks to introduce other aspects, such as fiscal transparency.

Since the early 2000s, attention has been directed towards the role of fiscal transparency, which many scholars consider as an ultimate means of improving public governance arrangements (Alt et al., 2006b p.25-26; Andreula et al., 2009 p.9-12). In fact, broadly defined, fiscal transparency involves easy access to reliable, comprehensive, timely, understandable, and internationally comparable information on the real costs, benefits, and projections of government activities (Kopits and Craig, 1998 p.1-2; Poterba and von Hagen, 1999 p.3-4). Recent studies at the empirical and theoretical levels show that fiscal transparency can lead to improved government fiscal discipline and better debt management (Hameed, 2005 p.96-103; Jarmuzek, 2006); lower risk of doing business, higher credit ratings, and attraction of more international capital (Drabek and Payne, 2001 p.12-21; Gelos and Wei, 2002 p.7-16 and 2005 p.8-13; Glennerster and Shin, 2003 p.13-20; Bernoth and Wolff, 2008 p.15-19); and better control over corruption and stronger institutions (Hameed, 2005 p.103-107; Benito and Bastida, 2009 p.411-414). However, less attention has been paid to the specific importance of fiscal transparency for a country's economic development. In general, the literature on the effect of governance on development offers little space for the role of fiscal transparency, as summarized below.

The objective of this paper, therefore, is to examine the role of fiscal transparency as an alternative lever enabling public governance to affect economic development. Based on the particular case of developing countries, we assume that by enabling fiscal discipline and providing information to the market, fiscal transparency can lead to: (i) more efficient government spending that generates economic development by increasing the percentage of the public budget allocated to social purposes; (ii) improvements in the standards of living in terms of greater access to education and better quality of health care; (iii) the attraction of more foreign investment by reducing the risks, uncertainty, and costs of doing business; and (iv) increased growth as a result of efficient allocation and management of society's resources.

Using the publicly available IMF staff assessments of the Code of Good Practices on Fiscal Transparency (ROSC[24]) of twenty-seven developing countries between 2004 and 2011, this paper presents an analysis of the effects of fiscal transparency on specific variables that are commonly seen as determinants of economic development. These variables are the structure of government spending, education and health outcomes, the flow of foreign direct investment, and economic growth.

The paper is organized as follows: part two is a review of the literature on the effect on development of governance in general and of fiscal transparency in particular; part three presents the model specification as well as the data associated with the variables of interest; part four discusses the empirical analysis and presents the results; part five summarizes the conclusions of the study.

3.2. Review of the literature

To our knowledge, no empirical study currently exists to support the idea that there is a direct connection between fiscal transparency and economic development. However, a considerable amount of research, in both economics and political science, has been devoted towards understanding the implications for efficiency and welfare of good public governance. In general, scholars, observers, and policymakers agree on the conclusion that good governance contributes significantly to economic growth (Mauro, 1995; Easterly and Levine, 1997) and sustainable economic development (Shleifer and Vishny, 1993). But, there is no agreement among authors about which aspect of public governance impacts economic development most efficiently.

Political stability is obviously seen as one of the major components of good public governance that should be crucial for economic development. However, its importance for development has raised significant contradictions in the literature. Aisen and Veiga (2011) support the idea of a strong positive relationship between political stability and growth (Alesina et al. 1996; Jong-a-Pin, 2009). But Campos and Nugent (2002) found no evidence of such a relation in the long run. They even obtained a causal positive and particularly strong relation between instability and growth in low-income countries.

The same contradiction is found in the literature on the link between democracy

[24] Reports on the Observance of Standards and Codes, Fiscal Transparency Module.

and development. Recent studies, such as Papaioannou and Siourounis (2008a), Rodrik and Wacziarg (2005), Giavazzi and Tabellini (2005), and Persson and Tabellini (2006), generally found that democratization is associated with faster economic growth and a decline in growth volatility. Also, some authors have shown that the relation between democracy and growth is negative (Sirowy and Inkeles, 1991) or simply not precise (Przeworski and Limongi, 1993; De Haan and Siermann, 1996).

Similarly, some studies have criticized the validity of the IMF and World Bank programs, such as the Structural Adjustment Programs implemented in the early 1980s (Cornia and Helleiner, 1994). The impact of these programs on development in terms of standards of living, aid provision, economic growth, and stability lacks support in the literature. Fan and Rao (2003) even found that these programs have led to increases in government spending, while Dreher and Gassebner (2008) showed that they significantly increase the probability of major government crises in developing countries. However, Breman and Shelton (2001) found that such programs have a successful effect on child mortality, while their effect on health expenditure is mitigated. In general, Przeworski and Vreeland (2000) strongly argued that the IMF programs[25] participation lead to lower growth during the period of involvement and even after quitting compared to growth rates had the country not participated. They conclude that IMF programs are not well designed for countries for which growth is the primary objective.

The effect of corruption on development is the most analysed and probably the most contradictory issue in the field of governance. A priori, corruption is considered as the main feature of a lack of governance, and therefore should have a negative effect on economic development. But once again the results are ambivalent in the literature. Indeed, corruption is found to be influential in explaining public expenditure (Shonchoy, 2010). Gupta et al. (2000) provide empirical evidence of the positive link between corruption and military spending, while Mauro (1998 and 2002) obtained a negative correlation between the level of corruption and government expenditure on education. More precisely, Delavallade (2006) found that corruption leads to decreases in social expenditure (education, health, and social protection) and increases in defense

[25] There are four main types of IMF agreements: the stand-by arrangement (SBA), the extended fund facility (EFF), the structural adjustment facility (SAF), and the enhanced structural adjustment facility (ESAF). See www.imf.org for details.

spending. Hessami (2010) offered a nuanced conclusion, showing that spending on health and environmental protection increases, while spending on social protection, recreation, culture, and religion decreases, with higher levels of corruption. A richer analysis is suggested by More, Rajkumar, and Swaroop (2007), who found that health spending negatively impacts child mortality in countries that have low levels of corruption and that effect becomes more impactful as the level of corruption falls or the quality of the bureaucracy rises. They also found that higher spending on primary education is likely more effective in countries with good governance. Further, corruption tends to compromise the positive impact that public expenditures have on economic growth (Fiorino et al., 2012). Gupta, Davoodi, and Tiongson (2000) found that corruption immensely reduces social gains in terms of improvements in health care and education. In contrast, some authors have argued the positive effect that corruption has on development. The most cited is these authors is Leff (1964), who shows that corruption can enable economic development by increasing the rate of investment and reducing the losses from bad public policies. Since the publication of Leff's work many other authors, such as Lui (1985), Beck and Maher (1986), and Aidt (2003), have provided evidence to support this conclusion. Egger and Winner (2005) even found that corruption is a stimulus for foreign direct investment. However, Bardhan (1997) explains, among other things, that these divergent conclusions about the impact of corruption on development might be related to differences in definitions and measures of the concept.

The literature regarding the relationship between fiscal transparency and development, while attracting important political discussion, is still maturing. Williams (2011), who found evidence of a negative relationship between low transparency and growth, offers almost the first empirical analysis of the link between these tow factors. His demonstration follows two steps. He first proves that resource-rich countries are less transparent and that this lack of transparency is a direct consequence of these elevated resource revenues. Related literature includes Ellis and Fender (2006), who used a theoretical Ramsey type model to show that lower levels of fiscal transparency translate into higher levels of corruption to affect output ratios. Parry (2007) argues that strengthening fiscal transparency in twelve Latin American countries can play a critical role in sustaining growth and stability. Apart from that, there exist other studies that

present other outcomes of fiscal transparency that in turn can generate growth or development. Baldrich (2005) finds that fiscal transparency can be a concrete factor to improve growth, because it, at the least, leads to new dimension of policy tools and to strong institutions, the latter of which is a crucial step toward development. He follows in the logic of Alt et al. (2002), who show that institutions that define the transparency of their budget process have, on average, good job performance ratings of the state governors in the long run. This is supported by the fact that fiscal transparency leads to more disciplined fiscal policy and better debt management (Hameed, 2005; Jarmuzek, 2006; Alt and Lassen, 2006b; Parry, 2007; Gavazza and Lizzeri, 2008). In this way, fiscal transparency might be necessary to improve the credibility of the government and the country, and necessary to attract international investment (Alesina and Weder, 1999; Drabek and Payne, 2001; Christofides et al., 2003; Hameed, 2005; Bernoth and Wolff, 2008). In theory, firms should be less likely to enter a non-transparent country because of increased risk, uncertainty, and cost of doing business. Gelos and Wei (2002, 2005) show that equity funds of international markets prefer to hold more assets in more transparent countries' markets and that herding among funds is somewhat less prevalent in transparent countries.

3.3. Model and Data

This section presents the specification of the models and discusses their variables of interest as well as their data and measurements.

3.3.1 The Model

In this paper, we test every possible relationship between fiscal transparency and the selected variables, which are those that are commonly seen as determinants of economic development. For that end, the variables of interest are structure of government spending, education, health, foreign direct investment, and growth. Based on the existing literature, we consider a specific model for each of the above variables and use fiscal transparency index as the mean explanatory variable. We control for the most important determinants of each of the above variables to isolate the impact of fiscal transparency. Therefore, the general specification of the models expressing the consequences of fiscal transparency is given as follows:

$$C = f(FT)$$

where the potential consequences, C, is expressed as a linear function of *FT*, the fiscal transparency index. In this way, the models to be estimated are given in the following equation:

$$C_i = \beta_0 + \beta_1 FT_i + \beta_2 Z_i + \varepsilon_i$$

where Z is the vector of control variables and the subscript *i* stands for the country.

This empirical model is constrained to only cross-sectional analysis because the fiscal transparency index has no time variation. As mentioned earlier, some countries in the sample have updated their ROSCs at least once. While the updates are very short summaries that cannot be used to replicate the index, the number of updates is used as a control variable. The endogeneity nature of fiscal transparency mentioned in our previous study is still substantial here. Once again, we use the instrumental variable analysis, discussed below.

3.3.2. Data and measurements

Apart from fiscal transparency index, for each variable we consider the average of the values corresponding to the year of the publication of the ROSC, as well as that of the year before and to two subsequent years. The reason is that the ROSC often describes the performance of the country in regards to fiscal transparency before the year it is published. The objective is to obtain a "semi-causal" correlation test between fiscal transparency and each of the selected variables, given that the average variable is affected by its lagged values. Therefore, this approach allows us to evaluate the consequences of that performance for the three following years. We also propose graph to have a quick overview of the direction of the relationship between fiscal transparency and each of the potential outcome variables selected. These graphs show monotonic trend between ranked variables of Fiscal transparency and each of the selected variable for the 27 countries of our sample.

3.3.2.1. Fiscal transparency

The literature on fiscal transparency proposes a few indices that are fairly different from each other, as shown by De Simone (2009). One of the reasons for this

difference is that these indices are constructed based on different information and definitions of fiscal transparency. It should also be noted that developing countries follow the IMF and World Bank principle about fiscal transparency either because of their membership with these international bodies or because these institutions are their main funding agencies. In addition, as Petrie (2003 p.6) argued, the ROSC is the most recognized document in regards to assessing the practice of fiscal transparency. Glennerster and Shin (2003) proposed one of the first measures based on the IMF's definition of fiscal transparency. Their index assesses whether or not a country has published an Article IV report or a ROSC, or complies with the Special Data Dissemination Standard (SDDS). Some authors, such as Hameed (2005 p.8-68), Jarmuzek et al. (2006 p.8-17), and Andreula et al. (2009 p.4-5), went further by proposing indices that assess the content of ROSCs compared to the *Codes Of Good Practice of Fiscal Transparency* as written in the IMF Manual on Fiscal Transparency (2001).

This paper uses the index of fiscal transparency we have proposed in our previous study, following the authors cited above. There are two reasons why that index is more objective compared to those constructed earlier. First, it is constructed using ROSCs from 2004 and later, the structure of which was improved in response to comments made about earlier ROSCs (Petrie, 2003 p.26). Second, it matches both the 2001 and the 2007 Manuals of Fiscal Transparency by linking the practices retained in the Manual of 2001 with the equivalents in the Manual of 2007. In addition, the sample of countries selected is homogeneous enough as it includes only developing countries. However, we used many tests to show that the index is consistent with earlier indices, namely those of Hameed (2005) and Andreula et al. (2009), and the Open Budget Index[26].

3.3.2.2. Structure of public spending

One of the issues addressed in this paper is the influence of fiscal transparency on public spending priorities. Two ideas in the public governance literature justify the need for such analysis: (1) public corruption distorts the structure of public spending by reducing the portion of social expenditure (education, health, and social protection) and

[26] The International Budget Partnership provides the Open Budget Index every two years. It assigns countries covered by its survey a score on a 100-point scale.

increasing that dedicated to non-social purposes (Tanzi, 1999; Delavallade, 2006; Shonchoy, 2010; Hessami, 2010); (2) countries that are more transparent tend to have better control over corruption (Hameed, 2005 p.103-107). In other words, lower levels of fiscal transparency translate into higher levels of corruption, which in turn negatively affect the economy (Ellis and Fender, 2006 p.13). Therefore, public spending can be considered as the channel through which the quality of public governance affects economic development.

As a result, combining the two ideas, this paper aims to determine whether fiscal transparency, by reducing the level of corruption, also corrects some of the distortions caused by the latter on the structure of public spending. For this end, we emphasize the allocation of the public budget by considering spending on each sector as a percentage of the global budget rather than a percentage of GDP (Delavallade, 2006 p.225-226). The latter leads quickly to the production feature of public budget. We retained only the public spending on defense, education, and health. The reason is that data were not completely available for the public spending on other sectors for all the countries of our sample and for the time period selected. In addition, we defined a variable of non-social spending in order to capture the priority of government spending between defense (nonsocial) on one side and education and health (social) on the other side. That variable is given by:

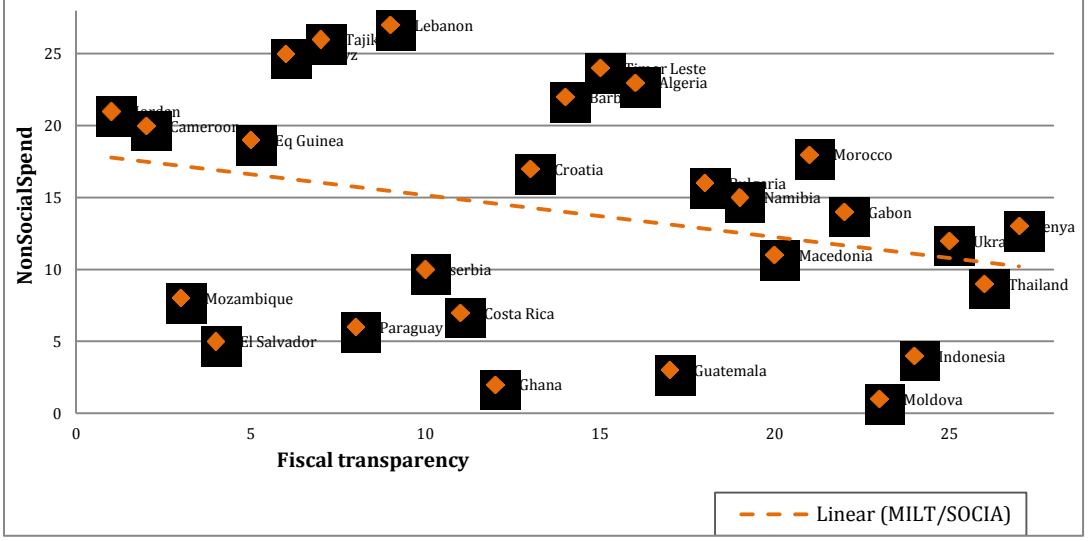
$$NonSocialSpend = DefenseSpend \Big/ EducHealthSpend$$

where *DefenseSpend* is the spending on defense, while *EducHealthSpend* is the sum of spending on education and health. We expect that variable to be negatively associated with fiscal transparency index.

Figure 3.1 compares the rankings of the countries of the sample based on the fiscal transparency index and the above ratio.

The data are drawn from the World Development Indicators (WDI, 2012).

Figure 3.1: Fiscal transparency and structure of government spending



Note: All the countries of the sample were ordered (conversely) on the basis of their indices of fiscal transparency and their values of MILT/SOCIA (*NonSocialSpend)*, such as defined above. Then, all the data were sorted by the index of fiscal transparency. So, the higher is the marker the greater is the rank of the country in terms of the MILT/SOCIA variable. Also, X-axis describes ranking in terms of fiscal transparency. That is, from lower (left hand side) to higher (right hand side) levels of fiscal transparency.

The figure shows a negative relationship between fiscal transparency index and non-social government spending, which confirms our expectations. The countries with lower indices of fiscal transparency have relatively higher levels of government spending on defense compared with education and health. This means that less transparent countries spend more on military equipment than on education and health, compared to more transparent countries[27].

3.3.2.3. *Education outcomes*

This analysis of the impact of fiscal transparency on education is designed to complete the previously determined finding regarding the link between transparency and public spending on education There are several variables that can be used to evaluate the impact of a factor on education. Gupta et al. (2000 p.12-22) use enrollment in, and persistence to, grade 1; dropout; and illiteracy, while others, such as Huang (2008 p.3), use the Trends in International Mathematics and Science Study (TIMSS) to test the impact of corruption on education. In this paper, we use two indicators: (1) the literacy rate of adults, which is the percentage of people aged 15 years and over who can read

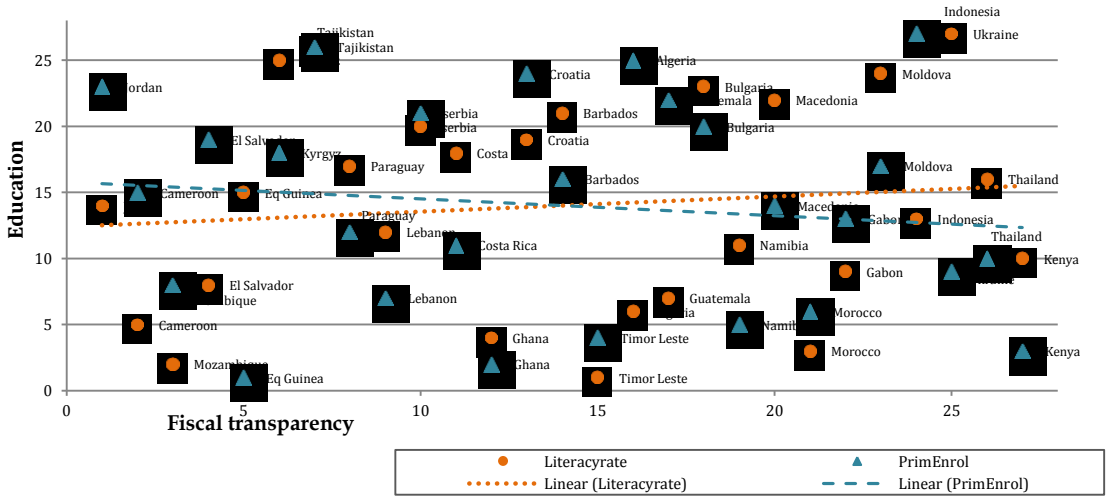
[27] It is also true - though perhaps not as often conceded, that some governments may spend more on social than defense issues regardless of their level of transparency.

and write simple texts. This variable allows for the testing of the historical impact of transparency on education; (2) the rate of primary school enrollment; that is, the ratio of children of primary school age who are enrolled in primary school to the total population of primary school age.

This variable is used to capture the effort of the government in promoting education. We expect countries that have higher indices of fiscal transparency to also have higher levels of education measured by these two indicators. The data are drawn from the World Development Indicator (WDI, 2012).

Figure 3.2 compares the order of the countries based on fiscal transparency index and both indicators of education.

Figure 3.2: fiscal transparency and education



Note: All the countries of the sample were ordered on the basis of their indices of fiscal transparency, their literacy rates and their numbers of primary school enrolment, such as defined above. Then, all the data were sorted by the index of fiscal transparency. So, the higher is the marker, the greater is the rank of the country for the corresponding variable. Also, X-axis describes rankings in terms of fiscal transparency, such as explained in previous notes.

According to the above figure, countries with higher indices of fiscal transparency also display relatively higher literacy rates, which confirm our predictions. However, a parallel result cannot be confirmed for enrollment in primary school, even though the distribution is quite close to that of the literacy rate. One reason could be that this relationship is not direct. It might be conditional on intermediate variables that allow transparency to affect education, such as the promotion of education. Our estimation will give more details on the nature of these relationships.

3.3.2.4. Health outcomes

Researchers use many indicators to measure the health of a population. For example, some authors use life expectancy and others use mortality rates as measures of the health outcomes of a given society. In a study by Gupta et al. (2000 p.7-12), the authors used child and infant mortality and the percentage of low birth weight babies in relation to total number of births to link corruption with health. In this paper, we use life expectancy at birth, which is the average number of years attained by people in the country. We also use the infant mortality rate, which is the number of infants dying before one year of age per 1,000 live births. We expect a positive effect of fiscal transparency on health as argued by Brand (2007). Specifically, we expect the index of fiscal transparency to be positively linked to the life expectancy variable and negatively associated with the infant mortality rate. Both indicators are drawn from the World Bank Development Indicators (WDI, 2012).

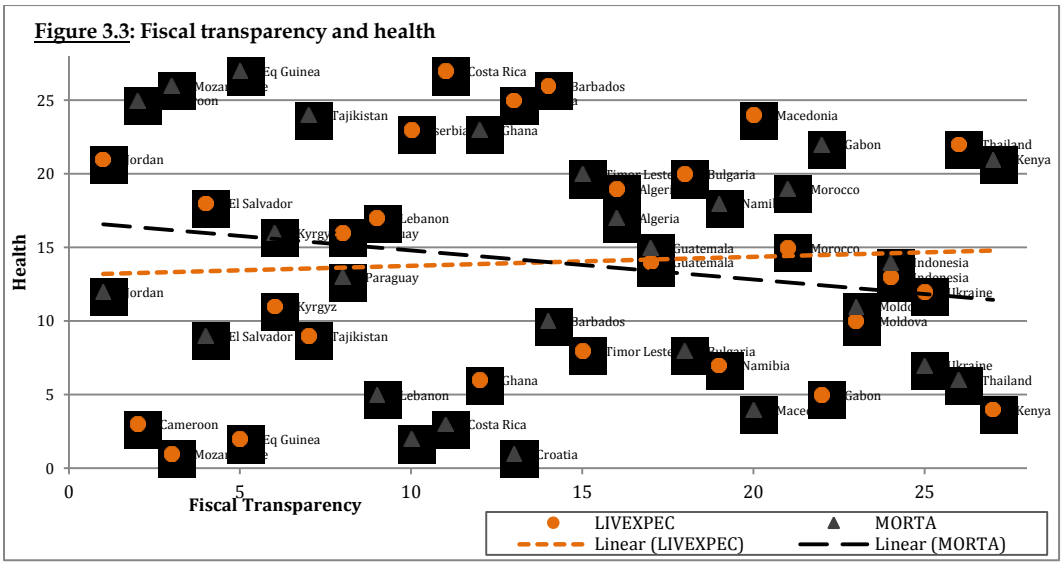


Figure 3.3: Fiscal transparency and health

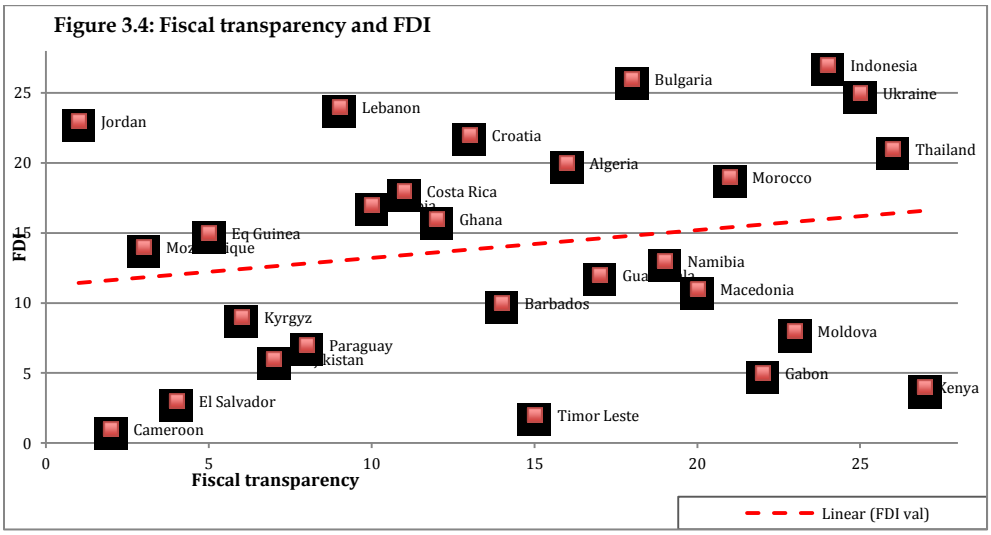
Note: All the countries of the sample were ordered on the basis of their indices of fiscal transparency, mortality rates and live expectancy, such as defined above. Then, all the data were sorted by the index of fiscal transparency. So, the higher is the marker, the greater is the rank of the country for the corresponding variable. Also, X-axis describes ranking in terms of fiscal transparency, such as explained in previous notes

Figure 3.3 compares the rankings of countries based on transparency and the abovementioned indicators of health. Fiscal transparency appears to be positively associated with life expectancy at birth, meaning that populations have longer life expectancy in more transparent countries. This is supported by the trend of child mortality that describes a negative relationship with transparency, which means that countries with higher indices of fiscal transparency tend to have lower child mortality rates. Such trends confirm our a-priori reasoning in the choice of these variables.

3.3.2.5. Foreign direct investments

The general view in the literature states that countries that maintain and promote transparent policies and structures also attract more foreign investments (Drabek and Payne, 2001; Gelos and Wei, 2002; Hameed, 2005). The reason is that inflows of capital, such as foreign direct investments (FDI), may be positively associated with fiscal transparency. In other words, the transparency of the government is an indication of the quality of the environment for doing business. Some of these studies capture the behaviour of international capital using credit rating (Hameed, 2005 p.90-96). This measure is limited in that it only indicates the fiscal discipline of the government in its debt management[28]. Therefore, it does not explain the movements of other international capitals, such as FDI. Other studies use the country's outward and/or inward FDI to analyze the impact of governance. The outward FDI measures the importance of capital endowments, which is almost insignificant in developing countries and does not indicate the ability of a developing country to attract FDI. In this paper, we use the net inflows of FDI in current US$ as a percentage of GDP. We expect a positive relation between that variable and fiscal transparency.

Figure 3.4: Fiscal transparency and FDI



Note: All the countries of the sample were ordered on the basis of their indices of fiscal transparency, their and FDI, such as defined above. Then, all the data were sorted by the index of fiscal transparency. So, the higher is the marker, the greater is the rank of the country in terms of FDI. Also, X-axis describes ranking in terms of fiscal transparency, such as explained in previous notes

[28] The Standard and Poor's rating indicates that most of the countries of our sample have almost the same average rate, which is around 0.334, for the period considered.

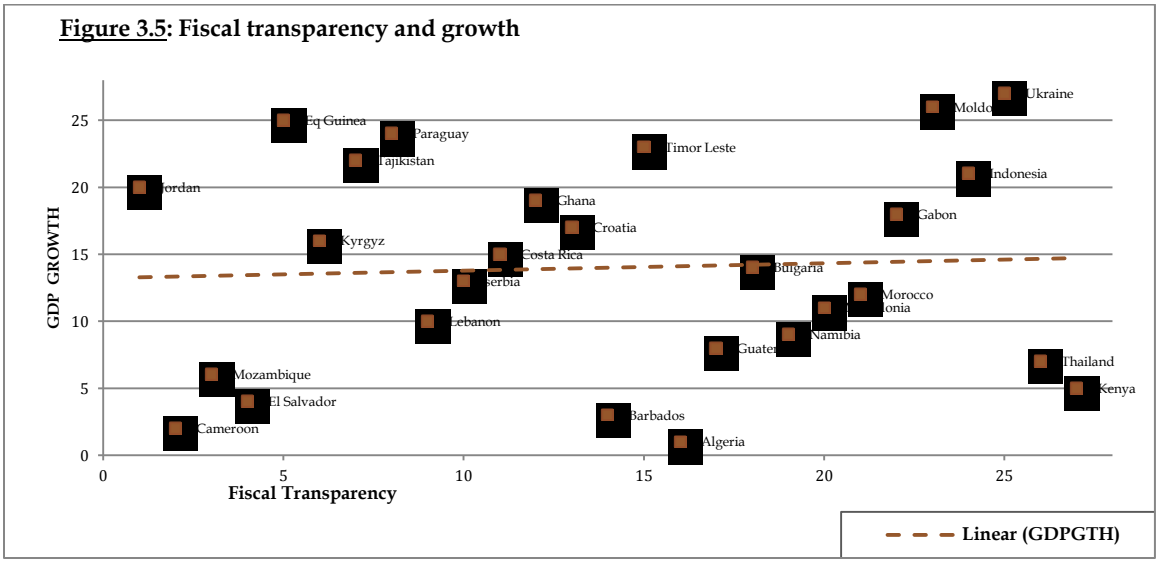
The data come from the International Financial Statistics (IFS, 2013). Figure 3.4 presents the comparison with the fiscal transparency index in terms of the ranking of the countries of our sample. The fiscal transparency index tends to be positively associated with the net inflow of FDI. Most of the countries that have lower levels of fiscal transparency also display lower levels of FDI as a share of GDP, which confirms our prediction.

3.3.2.6. Growth

A few empirical studies test the link between the quality of governance and growth. Chong and Calderon (2000 p.72-80) propose one of the most complete tests of this relationship. They have shown that the impact of governance on growth depends on the level of development. In other words, the reverse causality between institutional quality and economic growth is higher in poor countries. Williams (2011) provides what almost the first empirical analysis of the link between transparency and growth, which he does in two steps. He first proves that resource-rich countries are less transparent and that this lack of transparency is a direct consequence of elevated resource revenues. For this study, we use the growth rate of GDP at market prices based on constant local currency rather than the per capita GDP because we control for the growth rate of the population in this empirical analysis. We expect a positive impact of fiscal transparency on growth.

Figure 5 compares the ranking of countries of the sample based on fiscal transparency and growth, as defined above.

Figure 3.5: Fiscal transparency and growth



Note: All the countries of the sample were ordered on the basis of their indices of fiscal transparency, their and growth rate of GDP, such as defined above. Then, all the data were sorted by the index of fiscal transparency. So, the higher is the marker, the greater is the rank of the country in terms of growth rate of GDP. Also, X-axis describes ranking in terms of fiscal transparency, such as explained in previous notes.

According to this figure, the link between fiscal transparency and growth is ambiguous. Actually, the ranking based on the growth rate of GDP does not appear to be strongly correlated to the ranking based on fiscal transparency index, which does not confirm our predictions. However, we will rely on the above reasoning to maintain growth in our specification as potential outcome of fiscal transparency, for the empirical analyses.

3.3.2.7. Control variables

Based on the theoretical linkages with the dependant variables, a number of control variables are considered. (1) *Claim on central government*, which indicates loans to central government institutions such as claim for the ownership of government securities and claim for government membership in the international financial institutions, net of deposits. It is used as a control for the models of the impact of fiscal transparency on the structure of government spending. This variable is used as a proxy of loans or debt relieves to the governments of developing countries, such as the Heavily Indebted Poor Countries initiated by IMF and World Bank. According to the most comprehensive view these governments should spend these revenues on health but also on water and sanitation, nutrition, and education for women of childbearing age (Gupta et al, 2002). (2) Human Development Index (HDI), which is, compared to per capita GDP, the best indicator of standard of living. It allows us to account for the relative different levels of development of the countries of the sample. It is also used as a control for the models linking fiscal transparency and structure of government spending. Even though there is an important support for the positive impact of efficient government spending on human development, some analyses have shown that the human development can foster efficient government spending as least because, good quality of education and health of people enhance social and political participation (Currie and Moretti, 2005). Davies et al.(2000) showed that the optimal size of government spending on consumption and investment with respect to human development measures is significantly larger than the optimal size of government spending with respect to GDP

measures. (3) *Total net bilateral aid flows* from the Development Assistance Committee (DAC) as percentage of GDP. This variable is used as a control in the models of the impact of fiscal transparency on education, health and growth. Collier and Dollar (2001) have shown that the positive impact of aid on development is conditional upon policy environment, governance, rates of corruption and conflicts. Therefore, a consideration of aid in the analysis of the effect of governance on development becomes evident (4) *inflation* as a control in the models of the impact of fiscal transparency on heath (Breman and Shelton, 2001) and growth (Williams, 2011); (5) *unemployment rate* is used as to control for the links between fiscal transparency and respectively structure of government spending following Cavallo (2005) and Gali et al. (2007), education outcome (Mincer, 1991; Acemoglu and Angrist, 2000), attraction of FDI and growth (Aghion and Howitt, 1994). In addition, *government spending on education and on health (as a percentage of GDP)* are respectively used to control for the impacts of fiscal transparency on education and on health such as in Gupta et al. (2000), *tax rate* is used as control in the model of the impact of fiscal transparency on FDI, following Devereux and Griffith (1998). The *number of updates of the ROSC* is also included as a control. It corresponds to the number of time that a country has published the ROSC on fiscal transparency, following Hameed (2005) or Andreula et al. (2009). As mentioned above, the updates of ROSC are often short summary reports that cannot be used to define a new index of fiscal transparency. Therefore, the number of updates is used as the level of commitment of the country towards the IMF fiscal transparency program.

For all the abovementioned variables, the data were collected from the World Development indicators (WDI, 2012) or from International Financial Statistics (IFS, 2012). We also include other indicators of the quality of the institutions, such as political stability and government effectiveness, which are governance indicators developed by Kaufmann and Zoido-Lobatón (2003), following Hameed (2005) and Andreula et al. (2009). The data are provided by the Worldwide Governance Indicators 2012 (WGI, 2012).

3.4. Estimation and results

This section describes the estimations techniques applied in this paper as well as the results obtained.

3.4.1. Model estimation

The empirical analysis includes three sets of estimations. The first set includes the estimations of the single equations linking fiscal transparency with each of the dependant variables mentioned above, without any control, by the mean ordinary least squares (OLS). For the second set, we applied the OLS to estimate the core multivariate models to test the relationship between transparency index and each of the selected variables, including the controls listed below. Finally, the last set is the estimation using the two-stage least squares (2SLS) method to ensure that the estimators are consistent (Wooldridge, 2002), given the aforementioned potential endogeneity problem. This method is a special case of the generalized instrumental variable estimation for systems of equations. Given the reduced form model by OLS outlined above, in the first stage, the fiscal transparency index that is perceived as endogenous is regressed on all instrumental variables. The crucial condition for choosing instrumental variables is that they have to be correlated with the endogenous variable (the fiscal transparency index) but not with the error term of the underlying equation. However, the validity of instrumental variables can be tested if, and only if, the system is over-identified, which means a situation in which the number of endogenous variables is less than the total number of variables excluded from the equation under consideration. Otherwise, the only feasible option is to rely on economic theory. The second stage is to estimate the original equations by OLS, but in this case the fiscal transparency index is replaced with its predicted value from the reduced form.

3.4.2. Results

Table 1 presents the results of the three sets of estimations. Column (1) includes the coefficients of the estimation of the single equation models where the potential outcome is the dependant variable and fiscal transparency is the only independent variable; column (2) includes the coefficients associated with the fiscal transparency index in the estimation of core models with OLS (here, fiscal transparency is associated with other controls variables); column (3) includes the coefficients associated with the fiscal transparency index in the estimation using the two-stage least squares method.

The R^2 statistics listed here are those of the models in column (2). The respective controls are listed below the tables.

3.4.2.1. Structure of public spending

The results show that there is no evidence of the relationship between the fiscal transparency index and public spending on health, even after controlling for claim on central government, national income, inflation, and government effectiveness. Also, the sign is often negative, contrary to our expectations. There is a weak positive relationship between fiscal transparency and the proportion of public spending on education. We controlled for some socio-economic variables, such as Human Development Index, claim on government, unemployment, and government effectiveness. A higher level of fiscal transparency is associated with a relatively higher portion of public spending allocated to education, a result that is consistent with our predictions. We also found a negative relationship between FT and public spending on defense. This result is very strong when we control for claim on central government, political stability, national income, and unemployment[29]. This result is also consistent with our expectations. Finally, we found a negative link between the index of fiscal transparency and the *Non social Spending* ratio.

Table 3.1: Consequence of fiscal transparency, cross-section analysis

Dependent variables	**N**	**R^2**	**(1)**	**(2)**	**(3)**
Government spending					
Education	27	0.32	0.09 *(1.41)*	0.11 *(1.49)*	0.21** *(2.65)*
Health	27	0.15	-0.149 *(1.26)*	-0.05 *(0.91)*	0.126 *(1.37)*
Defense	27	0.43	-0.083 *(0.9)*	-0.173* *(1.90)*	-0.272* *(2.06)*
Defense/Social	27	0.5	-0.158 *(0.63)*	-0.528** *(2.12)*	-1.171*** *(3.14)*
Education outcomes					
Literacy	27	0.32	0.254 *(1.26)*	0.248 *(1.29)*	0.494** *(2.49)*
School enrolment, primary	26	*0.32*	0.053 *(0.34)*	0.051 *(0.38)*	0.319* *(2.02)*
Health outcomes					
Life expectancy	26	0.52	0.109 *(0.63)*	0.102 *(0.93)*	0.193 *(1.72)*

[29] We use the index of political stability as a control variable for the reason that spending on defense may also depend on the political stability in the country or in the neighbourhood. But we could not find specific measure of the stability of area of each country.

Child mortality	26	0.55	-0.636 *(1.37)*	-0.648* *(2.03)*	-0.649* *(1.85)*
Attraction of investments					
FDI, net inflow	27	0.57	0.750* *(1.77)*	1.548*** *(2.92)*	3.937*** *(7.79)*
Growth					
GDP, growth rate	27	*0.35*	0.103 *(0.71)*	0.088 *(0.66)*	0.23 *(1.44)*

*Notes: The models are estimated using Stata/SE 12.0. ***, **, * denote significance at 1 %, 5 %, and 10 % levels, respectively. Numbers in bracket are t-statistics (in absolute value). The R^2 is that of the core models estimated using OLS (Column (2)). Column (1) includes the simple models, while column (3) includes the core models estimated using 2-SLS. The controls include foreign aid, tax rate, unemployment, inflation, Claim on central government, political stability, government effectiveness, Human Development Index, and ROSC updates. The sources and the choice of these variables are discussed in the text.*

This result confirms the prediction given by the graph in figure 3.1, meaning that countries with relatively higher indices of fiscal transparency spend less on defense compared to education and heath and vice versa, everything else being equal. This is also consistent with earlier empirical analysis of the impact of governance on the structure of government spending. For instance, Gupta, De Mello, and Sharan (2000 p.14-24) found that corruption leads to higher military spending. Mauro (1998), Delavallade (2006 p.230-236), Shonchoy (2010, p.23-25), and Hessami (2010) concluded that corruption yields an increase in non-social spending at the expense of social spending.

3.4.2.2. Education outcomes

The relationship between fiscal transparency and each of the two education outcome indicators is found to be positively significant in the estimation using the two-stage least square method (Column (3)), which confirms our expectations. This means that countries that have relatively higher indices of fiscal transparency display better literacy rates and higher rates of enrolment in primary school, everything else being equal. We controlled for foreign aid, government spending on education (as a percentage of GDP), unemployment ratio, government effectiveness, and the number of ROSC updates. Gupta et al. (2000 p.7-12) found similar results, because of which, they argue that the fight against corruption yields decreased numbers of primary school dropouts. For primary school enrolment, even though this result is not strong enough, it provides an indication of the nature of the link with transparency, which was not clear in the graph of figure 3.2.

3.4.2.3. Health outcomes

We did not find a significant link between life expectancy rate and fiscal transparency. However, the sign of the coefficient is positive throughout all the estimations, as expected. But, we found a negative and significant link between child mortality rate and fiscal transparency, meaning that the higher the index of fiscal transparency, the lower the child mortality rate, everything else being equal. We controlled for foreign aid, government spending on heath as a percentage of GDP, inflation rate, government effectiveness, and the number of ROSC updates. This result supports some conclusions regarding the effect of certain characteristics of governance on health. For example, Gupta et al. (2000 p.7-12) found that higher levels of corruption lead to higher child and infant mortality rates and higher percentages of low birth weight babies in relation to the total number of births. Based on a comparison of existing studies, Breman and Shelton (2001) found that the child mortality had declined in all the countries of their sample with the implementation of structural adjustment programs.

3.4.2.4. Foreign direct investment

We found a strong and positive relationship between the index of fiscal transparency and the net inflow of foreign direct investment. This means that fiscal transparency is significantly associated with the net inflow of foreign direct investment, even after controlling for the tax rate, the unemployment rate, political stability, and the updates of the ROSC. This result confirms our predictions. It is also coherent with existing studies on the link between fiscal transparency and the behaviour of international investors. Drabek and Payne (2001) found that lack of transparency is negatively correlated with the level of FDI inflows into a host country. Gelos and Wei (2002, 2005) show that equity funds on international markets prefer to hold more assets in more transparent countries' markets (Hameed, 2005 p.90-96). One reason could be that more transparent countries probably provide more reliable official data, which makes them less risky (Bernoth and Wolff, 2008 p.471-479).

3.4.2.5. Growth

We did not find a significant relationship between the index of fiscal transparency and the growth rate of GDP, even though the sign is as expected. We controlled for foreign aid, inflation rate, and political stability. In this way, this paper does not provide empirical support to the link between transparency and growth. One valid reason is the timing (including the transmission) of the effect. It would seem logical to suggest that transparency passes through intermediate stages like the accumulation of human (by education and health) and physical capital (through FDI) to affect growth. In that case, the link between fiscal transparency and growth might be indirect and therefore a longer-term relationship. Such explanation is very relevant in the case of developing countries where the lack of means of accompaniment of that transition can be significant. For example, even though fiscal transparency enhances the attraction of foreign capital like FDI, other local conditions such as market structure and human capital are also important to generate a positive final effect on economic growth.

3.4.3. Robustness check

For robustness check, we replaced our index alternately with two other indices of fiscal transparency, namely Andrula et al.'s (2009) fiscal transparency index and the Open Budget Index (OBI) provided by the International Budget Partnership. The choice of these two indices is based on the number of countries in common, which determines the size of the sample. For the OBI, we used the index of the year of the publication of the ROSC or the average of the existing indices if this does not hold. For Andrula's fiscal transparency index, we used the value of the indices corresponding to twenty-four countries that were in common. Based on the same specifications, the estimations include both OLS and the two-stage least square methods. The results are given in Table 3.2 and Table 3.3 (in the appendix). These results tend to be consistent with our findings. In fact, the nature of the links between fiscal transparency and the selected potential consequences are almost the same in terms of the sign and the significance of the coefficients.

3.5. Conclusion

The aim of this paper was to identify some potential consequences of fiscal transparency on development, based on a sample of developing countries. Following the literature on the impact of public governance on development, the selected variables of interest include: the structure of government spending, considered as an important channel through which fiscal transparency can affect development; education and health outcomes; the attraction of FDI; and growth. We used the fiscal transparency index that we constructed in our previous studies.

Although we found no evidence of the link between fiscal transparency and government spending on health, our results support that fiscal transparency is positively associated with government spending on education, but negatively associated with spending on military equipment. In addition, the ratio of spending on defense over spending on both education and health is found to be negatively associated with fiscal transparency. This means that the higher the transparency level, the lower the spending on social purposes (education and health) compared to spending on defense. Fiscal transparency is also found to be positively associated with education outcomes, such as literacy rate and enrolment in primary school, and negatively associated with child mortality rate. Our results confirm the strong and positive relationship between fiscal transparency and inflow of FDI. However, we did not find evidence of the relationship with growth. For a robustness check, we used two other indices of fiscal transparency, namely Andrula et al.'s fiscal transparency index (2009) and the Open Budget Index, to estimate the same models that we defined in our above specification. The results are very similar to our findings in terms of sign and significance of the coefficients. The limit of this study is still related to the index of fiscal transparency. Our index only covers a few developing countries that have published a ROSC since 2004. Also, it does not have time variation. Further research should include the use of a much richer index that allows for the panel data analysis.

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Appendix

Table 3.2. Consequence of fiscal transparency, Robustness check using Andrula index

Dependent variables	N	R^2	OLS	2SLS
Government spending				
Education	24	0.21	0.01	-0.059
			(0.56)	*(1.44)*
Health	24	0.2	0.009	0.02**
			(0.71)	*(2.22)*
Defense	24	0.38	-0.016	-0.049*
			(1.58)	*(2.01)*
Defense/Social	24	0.47	-0.040	-0.168**
			(1.63)	*(2.14)*
Education outcomes				
Literacy	23	0.48	0.032*	0.091**
			(1.79)	*(2.70)*
School enrolment, primary	23	*0.16*	0.01	0.072
			(0.61)	(1.83)
Health outcomes				
Life expectancy	23		0.014	0.051***
		0.52	*(1.22)*	*(3.70)*
Child mortality	23	0.55	-0.065	(-0.205)***
			(1.61)	*(3.73)*
Investment attraction				
FDI, net inflow	24	0.36	0 .077*	0.137*
			(1.88)	*(1.83)*
Growth				
GDP, growth rate	24	*0.41*	0.001	0.026
			(1.23)	*(0.95)*

*Note: Estimated using Stata/SE 12.0. ***, **, * denote significance at 1 %, 5 %, and 10 % levels, respectively. Numbers in bracket are t-statistics (in absolute value). The R^2 is that of the core models estimated using OLS. The controls include foreign aid, tax rate, unemployment, inflation, government debt, national income value added from industries, political stability, government effectiveness, Human Development Index, and ROSC updates. The sources and the choice of these variables are discussed in the text.*

Table 3.3. Consequence of fiscal transparency, robustness check using OBI

Dependant variables	N	R^2	OLS	2SLS
Government spending				
Education	24	0.13	0.012	0.143**
			(0.007)	*(2.18)*
Health	24	0.14	0.047	0.155
			(0.98)	*(1.08)*
Defense	24	0.45	-0.169**	-0.203*
			(2.19)	*(1.88)*
Defense/Social	24	0.63	-0.01**	-0.01***
			(2.84)	*(3.14)*
Education outcomes				
Literacy	23	0.26	0.002	0.015**
			(0.47)	*(2.49)*
School enrolment, primary	23	*0.14*	0.001	0.01*
			(0.56)	*(2.02)*
Health outcomes				
Life expectancy	23	0.62	0.002	0.002
			(1.57)	*(0.94)*
Child mortality	23	0.63	-0.01**	-0.01
			(2.50)	*(1.62)*
Investment attraction				
FDI, net inflow	*21*	0.47	0.010**	0.016***
			(2.20)	*(3.21)*
Growth				
GDP, growth rate	21	*0.43*	0.001	0.002
			(1.23)	*(1.44)*

*Estimated using Stata/SE 12.0. ***, **, * denote significance at 1 %, 5 %, and 10 % levels, respectively. Numbers in bracket are t-statistics (in absolute value). The R^2 is that of the core models estimated using OLS. The controls include foreign aid, tax rate, unemployment, inflation, government debt, national income value added from industries, political stability, government effectiveness, Human Development Index, and ROSC updates. The sources and choice of variables are discussed in the text.*

General conclusion and policy implications

In devoting the present thesis exclusively to the issue of fiscal transparency in developing countries, we have attempted to achieve three major objectives: The first contribution is a rigorous review of the debates surrounding the issue of fiscal transparency. In addition to identifying key definitions of fiscal transparency, we investigated the literature from several angles undertaken by authors to study the issue of fiscal transparency to date. That review of the literature also provides background information needed to raise the particularity of fiscal transparency among other aspects of public governance and identify the areas in which further research might be required. Such exercise is justified by the fact that the topic of fiscal transparency is relatively new and it is evolving in several directions.

A second contribution is the proposition of a new and replicable index of fiscal transparency that evaluates the practice of fiscal transparency for developing countries. That index has several advantages. Firstly, it is more comprehensive than the existing ones as it integrates the methodologies used by several other authors earlier. These methodologies were often fairly different, resulting also in very different indices of fiscal transparency in the literature. Secondly, that index is more objective than most of the ones proposed by the literature, because it rates recent and well-structured Reports on the Observance of Standards and Codes (ROSC) for selected developing countries. A number of indices proposed by the literature refer to old versions of the ROSCs that were criticized because of their lack of structuring, and therefore their potential subjectivity. Other indices use to different source documents, which are not necessarily consistent with the basic IMF and the World Bank principles of fiscal transparency that developing countries might want to follow. Lastly, our proposed index is simple since the practices are rated on the basis of a reasonable range of four numbers. Also, the final index is a simple average of practices. This is unusual in the literature. In some cases the range of numbers is too short, excluding de facto the intermediate stages in the implementation of transparency reforms. In other cases, the authors use the ranges of numbers that are too large. The latter approach can deteriorate the objectivity of the index, because some terms and expressions in the reference documents are likely to have very similar meanings (as they were written by different persons, for different countries, and at different times) and should note be rated differently.

The third contribution of this thesis is the analysis of the determinants and consequences of fiscal transparency, based on evidence from a sample of developing countries from all over the world. In other words, this thesis proposes a novel approach for the analysis of the causes and effects of fiscal transparency for developing countries.

For determinants, this thesis found that the level of natural resources and the openness of the capital account tend to negatively affect fiscal transparency. Under certain conditions the availability of natural resources can be a limit to improving fiscal transparency practices. In order to achieve high levels of transparency in developing countries, efforts should be made on transparency in the exploitation of natural resources. However, a causal positive relationship between quality of the institutions and fiscal transparency was obtained. The thesis also obtained a positive impact of high literacy rate. One explanation is that a high literacy rate of the population leads to strong civil society and groups of pressure that actively participate in decision-making.

For the consequences of fiscal transparency, the thesis found that developing countries with lower levels of fiscal transparency spend more on defense as compared to health and education. Fiscal transparency also positively affects education, health and flow of FDI. But no evidence of the impact of transparency on growth is obtained. One relevant explanation is the timing of that effect. Fiscal transparency would go through intermediate stages like human and physical capital accumulation to affect growth, which could take considerable time in developing countries where the lack of means of accompaniment is significant.

In sum, the present thesis concludes that promoting a wider improvement in fiscal transparency for developing countries is not only important in respect to the immediate benefits associated with it, but also because of its links with important policy areas and objectives.

Although this thesis presented significant results in this area of fiscal transparency, a number of issues remain to be addressed:

There is a need to develop a richer database of fiscal transparency information that can serve multiple large-size estimations, such as panel data analyses. This requires more standardized and consistent methodologies of evaluating common reference documents in order to insure consistency, completeness, and non-existence of inference channels in the data across countries.

There is also need for further specific studies on the transmission mechanisms of fiscal transparency to the economic and institutional outcomes mentioned in the literature. The aim of this is to determine the conditions under which fiscal transparency rules are indeed necessary to ensure fiscal discipline, less corruption, better education and health care, growth or other potential outcomes.