Attracting Foreign Capital: Bureaucratic Performance as Determinant of FDI

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Abstract

This research focuses on the relationship between foreign direct investment (FDI) and bureaucracy.

FDI's importance stems from its crisis-resistant nature as investment type and from being a country's main channel of capital stock, technology and know-how inflows. FDI flows into a country are known to depend on traditional determinants such as Gross National Income levels and Openness to Trade. Soft aspects such as Democracy and Property Rights are increasingly significant and should not be overlooked as they are strong sources of competitive advantage on global capital markets. Among these Bureaucracy has never been taken into consideration as a FDI determinant. Making use of the large amount of past research this paper combines different measures of Bureaucracy in the attempt to create a comprehensive variable able to describe this traditionally vague and difficult to measure concept. A selection of prominent governmental indicators, ranks and scales are aggregated into one solid proxy for bureaucracy. Different tests are then carried out over a panel of 57 countries in order to determine the best analysis technique for assessing the weight of the proxy in a classical FDI equation. Although the originality of the constructed bureaucracy variable is aimed at overcoming meaningless estimations, this paper's main obstacle results to be the methodology itself that hinders a solid analysis and leaves little room for inference.

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I. Introduction

In the current economic and political environment, the effort of most troubled economies is oriented towards setting national industries in motion again. One way to do so is by attracting international investors: past research suggests that international capital inflows contribute to growth relatively more than domestic investments since they are the main channels for capital stock, technology and know-how transfers (Borensztein et al., 1998).

International capital flows augment domestic capital stock by channeling foreign savings into the host economy which can be beneficial in several ways (i.e. abate large capital requirement entry barrier for local companies and therefore stimulate competition and efficiency). Growth is further supported by technology and knowledge transfers from more advanced countries which can introduce new input and process varieties. These capital streams typically drive increases in aggregate capital productivity and economic growth by improving economic efficiency (Borensztein et al., 1998). However, Razin, Sadka and Yuen (1999) remind that among international capital flows, portfolio investment[1] and others with very liquid and short-term credits are dangerously volatile and a vehicle for financial and economic crises. Thus, international capital is preferably welcomed under the form of Foreign Direct Investment (FDI) that is considered to be more crisis-resistant. FDI's stable nature proved itself during the East Asian crisis in 1997-1998 in which FDI flows persistently continued while levels of portfolio equity and debt deteriorated. The same goes for the 1994 Mexican crisis and the 1980 Latin American crisis. In fact, when facing illiquidity during crises, FDI is the only anchor since portfolio investment will very likely reverse its flow and be called back (Razin et al., 1999).

In the strive to attract FDI, the identification of a country's attractive qualities for an investor can be an important tool to gain competitive advantage on global capital markets. However, within the framework of FDI analysis, to the best of my knowledge, no study has been devoted to the analysis of the role of a country's bureaucracy standards in determining investment attractiveness.

[1] Generally international capital flows are categorized into the following: Portfolio and Direct investment. Depending on the securities involved (debt or equity), Portfolio investments can have an equity nature (being than called 'Foreign Portfolio Equity Investment' – FPEI) or a debt nature (from which the name 'Foreign Portfolio Debt Investment' – FPDI). A FPI is a more passive form investment with respect to FDI which involves a lasting interest in the entity supported. FPI on the other hand is less risky as the holding of securities can easily be reversed, however, there is no active management or control power (Razin et al.1998).

The so-called bureaucracy levels are combinations of several different aspects that jointly determine the quality and effectiveness of public and private administration (Van de Walle, 2005).

Recent years have seen rising awareness regarding the impact of administration efficiency on a country's performance. Much weight is now given to bureaucracy indicators in the public sector that accounts for the largest share of an economy's GDP in most industrialized economies. This paper will intentionally focus on the public side for simplicity and clarity. Note that competitiveness of governmental institutions is in turn reflected on the private sector in terms of efficient taxation, public goods allocation, regulations and government spending (Van de Walle, 2005).

Literature on growth has shown that the economic development of a country is dependent on the state of domestic technology relative to that of the rest of the world (Borensztein et al., 1998). FDI by multinational companies is regarded as the most significant channel of access to advanced technologies by most countries. It is therefore of foremost importance to determine whether economies can recover from the recessions and stagnations experienced in the past few years by slimming down their bureaucratic practices, improve administration efficiency and thus attract more foreign capitals. This research attempts to determine this cause-effect relation by creating an integrated variable measuring bureaucracy. With the help of traditional FDI determinants that function as control variables the empirics assess the weight of bureaucratic efficiency and quality in an FDI attractiveness equation.

As mentioned, several studies have separately investigated both the attractiveness determinants of FDI and the importance of efficient bureaucracy for performance and growth but no study has yet attempted to inspect the relation between these two variables. The remainder of this paper is organized as follows: Section II introduces the theoretical framework of the research; Section III follows with a detailed account of how the empirical analysis proceed, including methodology, data sources, variables operationalization and estimation procedure. Section IV provides the results and the analysis of these.

II. Literature Review

FDI[2] is considered as a superior capital flow among the categories of private investments as it has proven to be the least volatile: a characteristic of its relatively long-term and fixed nature (Prasad, Rogoff, Wei, and Kose, 2003). It is generally defined as a foreign acquisition of ownership in a domestic company at a varying level, usually between 10% and 20%. The ownership, which entails management and control rights and duties, is the reason for the long-term nature: reversing such an investment is not as easy as for portfolio items. FDI accounts for more than half of private international investment flows in advanced economies worldwide (Razin and Goldstein, 2006) overshadowing debt and equity finance. Razin (1998) makes a good explanatory similarity between the weight of private investment types and 'the pecking order [hierarchy] of capital structure' in corporate finance: a corporation generally prefers being internally financed, through retained earnings for example (the analogue of FDI). If external financiers are needed, than the corporation will gear up by issuing safe securities (analogue to debt portfolio flows). As last resource it will issue equity (analogue to equity portfolio investments) (Razin et al., 1998).

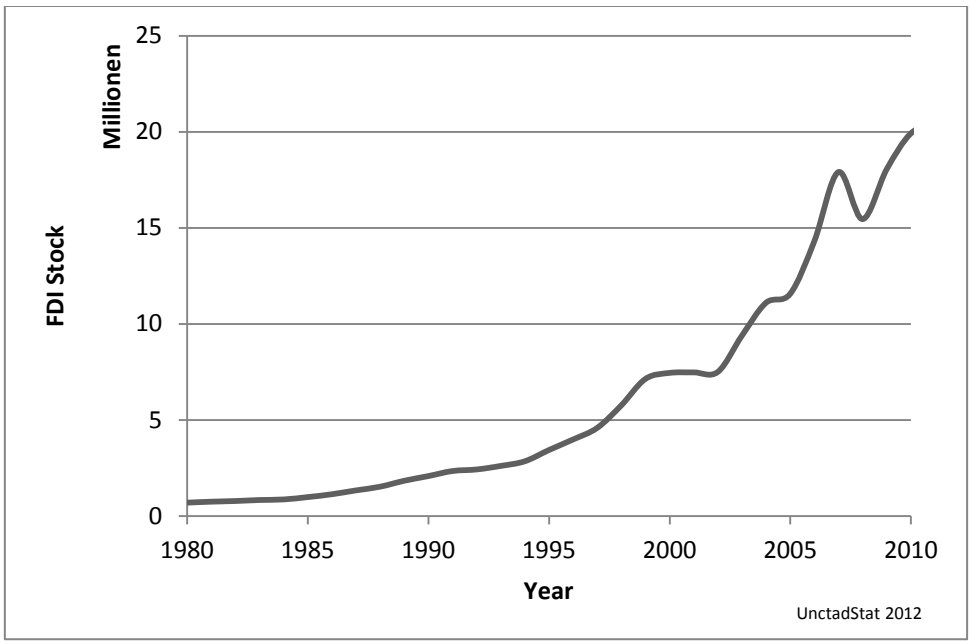


Figure 1: Global Foreign Direct Investment Stock, Annual 1980-2011 (UNCTADstat, 2012)

[2] UNCTAD technically defines FDI as the value of capital and reserves (including retained earnings) holded as an investment in a host enterprise. In addition it also accounts for the debt of the host enterprise towards its investor, of whathever nature the latter is. (UNCTAD, 2003).

The amount of FDI a country receives depends on several factors. There have been many attempts to empirically establish which are more important in an investor's eye. Throughout modern economics, since Adam Smith and Max Weber up to the most contemporary publications the attention has constantly shifted over different attractiveness elements. The earlier literature is concerned with classical economic aspects such as comparative advantages and macroeconomic indices. An exemplar study is Dunning's research (1973) where the heavyweights in foreign investment decisions are GNP; cost and availability of production factors; inflation rates; balance of payments etc. Culem's (1988) enquiry also concentrates on FDI determinants such as trade policies, overall taxation and currency valuation. Industry concentration is the main determinant for Wheeler and Moody (1992), who stress the importance of industrial agglomeration.

Contemporary research confronts less quantitative aspects. Classical determinants, such as those indicated by Dunning, have been extensively inspected and the modern analysis of international economics shifts towards new attractiveness features. Qualitative dimensions are increasingly significant: political risk is among the most prominent along with corruption, governmental policies, institutional strength and effectiveness (Busse and Hefeker, 2007). Enforcement of property rights also plays a central role in locating investments. This factor stems from the 'fear of nationalization' which, since the Latin American 1930s, has significantly deterred capital from flowing into such risk-related countries because of the high sunk-capital costs associated with expropriation and nationalization (Biglaiser and DeRouen, 2006). In the post WWII years, this scenario has increasingly raised awareness for non-economic determinants because of countries such as Argentina, Bolivia, Iraq and Syria (Truitt, 1970). All these are known for having undergone strong nationalization processes and having created the fear of 'nationalization without adequate compensation', creating therefore a concern that moves determinant analysis towards more qualitative dimensions (Schneider and Frey, 1985). From that moment on political determinants had to be taken into consideration by investors. It is therefore clear that the economic dimension is increasingly integrated with its socio-cultural counterpart: a striking example is the relevance of a country's 'democracy level' as a determinant of FDI as shown in Figure 2 (Busse, 2004).

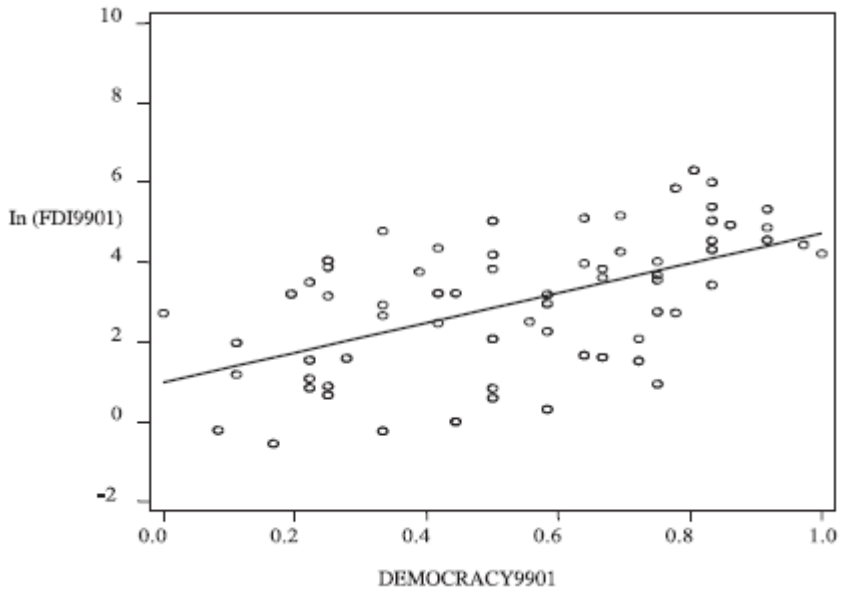


Figure 2: Democracy and FDI 1999 – 2001 (Busse, 2004)

Even causal linkages are increasingly appraised, for example Li and Resnick (2003) found that democratic rights improve the so-significant property rights protection, which indicates improved public goods administration, which in turn is a very attractive characteristic for foreign investors.

As mentioned, it is gradually more acknowledged that public bureaucracy has a significant influence on a country's economic performance. However, the first references to bureaucracy in public governance date back to the 1920s when Weber's report about 'structural inefficiency in core state agencies' was first published posthumously. The role of institutions for market efficiency has typically separated the views of the economists' community between 'Smithians' and 'Weberians'. The Smithian thought considers the government as an enemy of growth: its 'grabbing hand' behaviour induces growth hindering actions such as rent-seeking and budget maximizing activities that decrease economic performance through inefficient operations by public institutions (Libman, 2012). On the contrary, the Weberian idea is that large bureaucracies have large resources, which, via sound public institution performance, can be channelled to strengthen the public sector and ultimately foster growth and operational quality (Libman, 2012). This demonstrates the relevance of bureaucratic presence, efficiency and quality in the debate on how to stimulate and support economic growth.

In order to better understand this controversy and to better outline the real impact of bureaucratic performance on growth (and further in attracting FDI) it is important to attempt

defining the concept, and its meaning for this paper. A century ago Weber defined bureaucracy in organizational terms; he considered it to be the most efficient and rational way in which activities performed by human capital can be organized (Weber, 1922). The organizational frame in which bureaucracy is defined still survives in modern times as in 1996 Williamson describes the concept as the union between a 'support staff' and its tasks, such as plans development, information collection and processing, executive decisions operationalization and implementation, performance auditing and broadly speaking directing the operational units of a 'hierarchical enterprise'. Finally, current publications also define bureaucracy as a concept referring to all non-market forms of organization. This includes government agencies and organizational structures of private firms (Coyne, 2008). This conceptualization of bureaucracy puts the attention on defining its quality and efficiency. As mentioned earlier, for the sake of this research, the scope of bureaucracy is limited to the public sector, also because of its representativeness of the private sector's performance. When attempting to define public sector bureaucratic efficiency and quality this research enters its original part since the vague nature of 'bureaucracy' has created even more diverse definitions (and measures) of efficiency and quality. Some studies attempt measuring this feature by consulting indices such as a well functioning public administration, a well functioning judiciary system and a healthy and well educated population (Afonso et al., 2005) while others, such as Libman (2012), focus on one quantitative aspect and make it representative of the functioning of the public bureaucracy (he adopted 'staff size' of public organizations). However, the definition of bureaucracy itself already embodies the potential for cross-country differences; as Weber laid out, human capital can be organized more or less efficiently and more or less rationally, an organizational issue that is a significant source of competitive advantage. This research attempts to give a comprehensive picture by combining the different dimensions previously considered and use an original approach. Indeed the new technique (thoroughly explained in the methodology section) consists of combining country-specific indices, both quantitative and qualitative, and measures of various bureaucracy-related factors in order to determine the importance of bureaucratic quality and efficiency for a country's investment attractiveness.

Current views are converging towards what looks like a joint opinion. The Weberian school still powerfully supports the idea of growth enhancing bureaucracy: the emergence of 'endogenous growth theory', which supports the theory that institutional factor do indeed influence growth rates (Evans and Rauch, 1999), is strong evidence. Smithians on the other hand still find that a

large bureaucracy is detrimental, however, recent publications demonstrate that even small bureaucracies can be harmful if their quality is bad enough (Libman, 2012). Therefore the concern is not anymore governmental intervention or bureaucracy size itself; rather, the common denominator is bureaucratic efficiency and quality.

Quality of bureaucracy is superior in gaining competitive advantage to policy instruments since these tend to trigger retaliation from competing countries and it is also superior to classical indices since they are evened out throughout most industrialized countries and therefore no longer represent a plus in attracting foreign investors (Loree and Guisinger, 1995). Furthermore, an efficient country tends to have lower corruption levels because of its small and effective apparatus (Bahmani-Oskooee and Nasir, 2002).

Bureaucratic superiority is therefore the latest theme in the discussion on how to stimulate growth. A clear indicator of its current importance is the increase in publications of institutional rankings by rating agencies. These indices mainly assess institutional quality and efficiency and have become standard explanatory variables for growth (not FDI though) inferences. (Rauch and Evans, 2000).

This theoretical framework shows how important FDI is for any country that desires to achieve a solid economic growth. The empirics are therefore aimed at explaining FDI, which is thus the dependent variable. The analysis reaches beyond the existing literature by tackling the determination of the weight of bureaucracy for FDI decisions, assessing the importance of the various aspects of bureaucratic quality and efficiency, the main focus of this paper's investigation.

III. Methodology

III.a Method

The first section of the Methodology lays out the main analysis techniques, the process by which the bureaucracy indicator is generated and the basis on which the research includes other variables.

This paper's empirics adopt Panel[3] analysis techniques. This method allows controlling for variables that are difficult to measure or observe, such as country characteristic (national policies, federal regulation, international agreements, etc.), therefore accounting for individual heterogeneity (Torres-Reyna, 2007). Panel data inferences allow the researcher to choose between a Fixed-Effects model (FE) and a Random-Effects model (RE): FE is generally adopted when there is the need to control for omitted variables that differ between cases but are constant over time. RE models instead assume that the variations across cases (i.e. countries) are random and most importantly uncorrelated with the explanatory variables (Torres-Reyna, 2007). These two models represent the two main (but not all) branches of Panel data analysis.

A FE model is equivalent to generating binary variables for each case and including them in a standard linear specification. These dummy variables then control for the fixed effects. However, since each dummy takes up one degree of freedom, this technique is not well suited for large samples with few time periods (DSS Panel Data, 2007). A high amount of binary variables may cause the standard errors to increase too much, a recurrent problem when trying to avoid bias in the slope coefficients. This is where the Random-Effects model steps in by assuming that the country-specific effects are uncorrelated with the other independent variables; an assumption that if true allows the researcher to leave out all the control dummies without biasing the slope's coefficients (BurkeyAcademy, 2012).

[3] Replication and repetition on the same units consent to specify and estimate more complete and accurate models (that benefit from larger data sets) than single time series or cross sections do (Verbeek, 2012). A common place in cross-sectional data sets is the bias caused by unobserved hetereogeneity (omitted variable bias). Panel regression corrects this mistake to a certain degree (Dougherty, 2011).
It must be noted that a so-called balanced panel comprises an observation for every unit of observation for every time period, whereas in unbalanced panels some observations are missing. In the empirical process the presence of unbalanced panels may occur; in this case it is important to notice the possibility that the causes of disturb originate from the model itself. This is why elimination of units with missing observation would only hinder the degree of population representativeness. Therefore, the discussion will equally apply to balanced and unbalanced panels (Dougherty, 2011).

Apart of subjective considerations regarding the model to adopt, the generally accepted method for doing so is the Hausman test. The principle of this technique is testing the null hypothesis that the slope coefficients estimated by the efficient RE estimator are the same as the ones estimated by the consistent FE estimator. If the null hypothesis proves to be true, meaning that the test has an insignificant p-value, then RE is preferred (DSS Panel Data, 2007).

There are a few drawbacks to Panel analysis to keep in mind when making inferences on the chosen sample. The main implication described here concerns RE estimations, the technique that the Hausman test suggests for this research's empirics. Since RE omits binary control variables, the risk of serial correlation[4] increases: suppose there is a fixed effect per country (i.e. a fixed growth level throughout the sample). If that is the case then F (the fixed effect) is not centred around 0 but on its effect's size (because by omitting the dummy that explains it, F becomes part of the error term). This effect recurs then in every period and biases the estimation of the regressors (BurkeyAcademy, 2012). It is important to keep this implication in mind when proceeding with the analysis.

A good measure for bureaucratic quality is the peculiarity of this paper and the missing link in the existing research. The review of existing literature highlights on one side the importance of this enquiry and on the other the lack of definite measure for bureaucratic performance. Two exemplar studies are shown to indicate the typology of available measures. These and related researches comprehend all kinds of systematically chosen numerical indices and expert's opinions, therefore tackling several aspects, yet missing a comprehensive bigger picture. In order to confront these facets simultaneously and to make the variable more solid and robust a number of 'building blocks' are selected from different sources. Each of these targets a different aspect of public sector bureaucracy. The sources from which the components are extracted are the following: World Bank Index (for *WBindex*), World Economic Forum Index (for *WEFindex*) International Institute for Management Development Rank (for *IMDrank*), Government Stability

[4] Serial Correlation is a controversial term: some researchers refer to it as 'non-spherical error variance'; the latter indicates ineed the creation of a serial correlation or heteroskedasticity meaning that the error terms are not independently and identically distributed with an expected value of 0. This is why strong assumptions regarding the non-correlation of individual effects with the explanatory variables are required for RE analysis (BurkeyAcademy, 2012).

(for *GOVST*), Socio-economic influences (for *SOCIO*), Investment Profile (for *INVEST*) and Institutional Strength and Quality of Bureaucracy (for *BUR*).

The link among building blocks is shown in section III.c through correlation charts. This procedure identifies which blocks (and therefore aspects) of bureaucracy are more closely related and which less. The process therefore allows checking for redundancy or meaningless dissociation. Furthermore, the result of the correlation chart sets the schedule for regression: first highly correlated blocks are analyzed and then the regression is increasingly broadened to all listed building blocks. This last methodological procedure allows a better assessment of the explanatory variable of bureaucracy.

The majority of empirical studies on FDI determinants do not have a common theoretical ground. Every researcher presents a unique model; therefore a variety of attempts to explain differences of FDI flows are available. Even though there are some contradictory results, a substantial number of determinants show to be persistently significant in explaining FDI throughout different studies. These can in turn be used in specifications where new determinants are included in order to determine whether variations are due to new variable (ceteris paribus) or not. In this paper the new determinant, bureaucracy, is explored. It is therefore important for the sake of unbiasedness to include strong control variables.

III.b Data

The Data section of the Methodology illustrates the sources of the building blocks of *BurProxy* and of the control variables. In addition it describes the methodology with which they were sampled and created.

This research makes use of three types of variables in its the models' specifications: the dependent variable *FDI*, the independent, constructed, variable that measure levels of bureaucracy (*BurProxy*) and other explanatory variables that act as controls helping to assess the weight of bureaucracy as determinant for FDI. Since no preexisting study has ever tackled this specific topic there is no single source of data for the above mentioned variables, rather, a set of studies, researches and data sets are adopted to compile the needed specification.

The data availability on FDI is very generous. The method adopted does not vary significantly and the results are in fact very homogeneous. The *FDI* data source for this paper is the UNCTADstat FDI database (UNCTAD, 2012) because of its independent and authoritative nature.

The building blocks of the independent variable, *BurProxy*, originate from a set of academic articles, governmental papers, institutional rankings and expert's opinions. Van de Walle's (2005) institutional research on behalf of the Belgian government is probably one of the most prominent source of data for different bureaucracy levels. In his paper he assesses the quality of a number of bureaucracy variables selected among the most influential studies in the field up to that time. Unfortunately Van de Walle does not overcome the weakness of previous research by combining these indices, he merely assesses them. This paper in turn takes them separately into consideration and then merges them in the combined independent variable. This paper functions as data source for the following building blocks: *WBindex*, *WEFindex* and *IMDrank*.

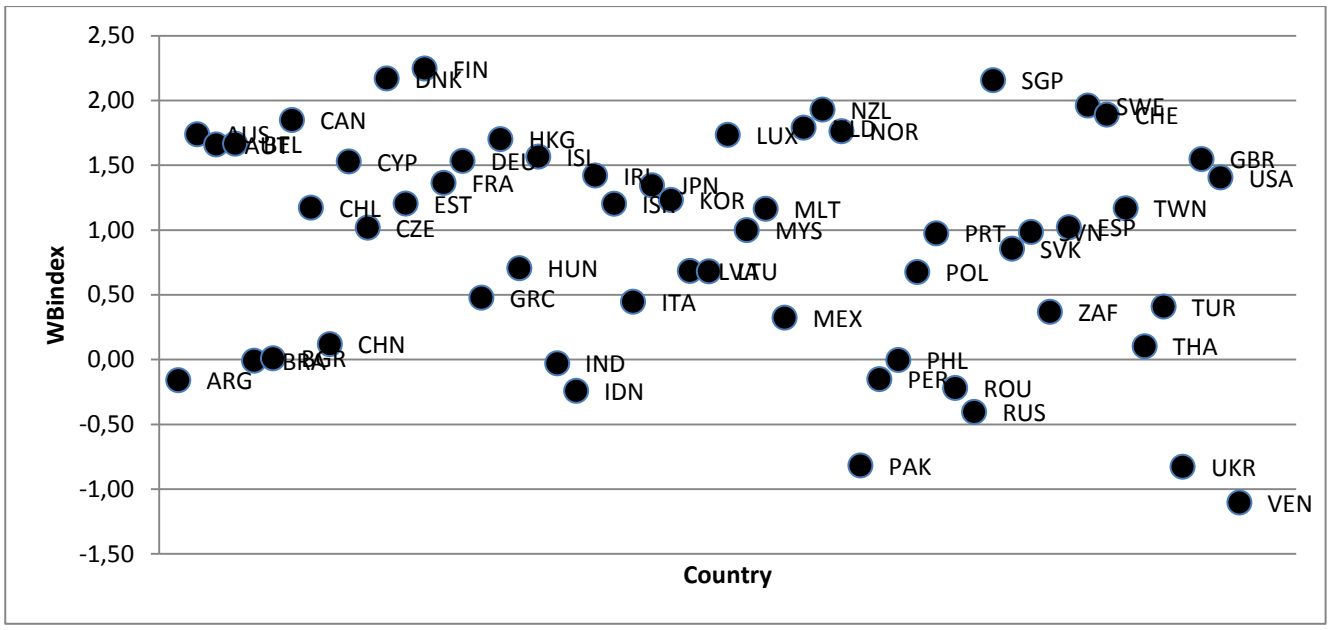
The World Bank computes aggregate governance indicators since 1996. The latest report, used to generate this research's *WBindex* was published in 2012 when the indicators were updated to account for the 1996-2011 period. The aggregate governance indicators represent 186 to 199 countries and are retrieved from 25 data sources (such as Freedom House, Global Competitiveness Reports etc.) for 250 country-specific measures. Indicators are segmented into the following categories: Voice and accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption[5] (Van de Walle, 2005).

For the purpose of this research, the 'government effectiveness' bundle is of main interest. This dimension measures the competence of bureaucracy and the quality of public service. Among the sources used to compute this indicator are: the Business Environment and Enterprise Survey (BEEPS), the Business Environment Risk Intelligence (BERI), the Country Policy and Institutional

[5] Wbindex:
Voice and Accountability (VA) captures the degree to which a citizien can be proactive in selecting its government, has freedom of expression/association and benefits from free media. Political Stability and Absence of Violence/Terrorism (PV) measures political uncertainty and overthrow risk by unconstitutional or violent means. Government ffectiveness (GE) determines quality of public service and civil service and the extent to which it is independent from the political sphere in addition to quality of policy formulation/implementation and political commitment credibility. Regulatory Quality (RQ) captures the ability of a government to formulate/implement sound policies/regulations that permit private sector development. Rule of Law (RL) detects the degree to which individuals have confidence in and abide by the rules of society referring to: contract enforcement, property rights, police, courts and it furthermore detects the likelihood of crime and violence. Control of Corruption (CC) measures the perception on whether public power is applied for private gain, including petty and grand forms of corruption as well as "capture" of the state by elites and private interests.

Assessment (CPIA), the State Capacity Survey, Freedom House, Gallup etc. Thanks to the variety of sources, several different aspects are integrated in the government effectiveness measure: red tape, public school quality, bureaucrat's expertise, policy consistency, ability to deliver basic infrastructure, bureaucratic delays, quality of PA, administrative and technical skills of a country's civil service, government senior level turnover rates and so on up to 19 different aspects (Van de Walle, 2005).

Table 1: World Bank 2011 Government Effectiveness (World Bank, 2013)

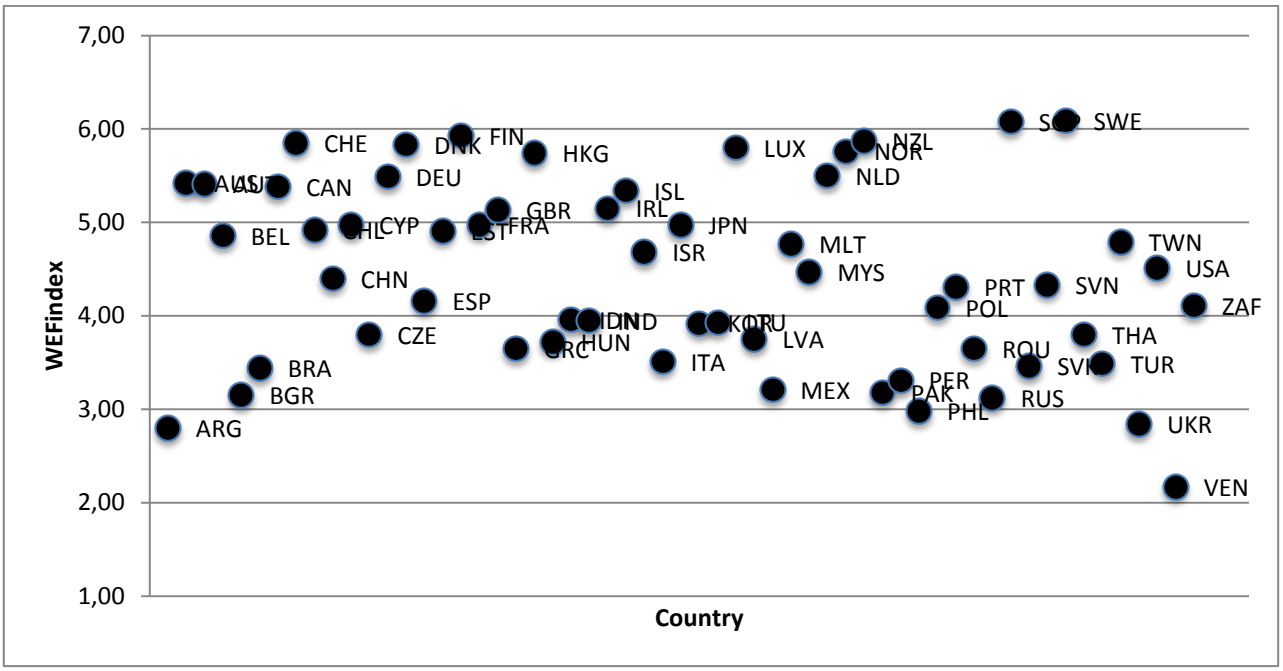


The Global Competitiveness Report (GCR), yearly published by the World Economic Forum (WEF), evaluates the competitiveness landscape of 144 countries, delivering insights into the drivers of their economies based on over 100 indicators. The country-specific assessment is based on the so-called 12 pillars: Institutions, Infrastructure, Macroeconomic Environment, Health and Primary Education, Higher Education and Training, Goods Market Efficiency, Labor Market Efficiency, Financial market Development, Technological Readiness, Market Size, Business Sophistication and Innovation. All pillars are made up of several categories of weighted sub-indicators that account to a certain degree to the value of that pillar. The WEF's premeditated choice of assessing 'institutions' in the 1st pillar is noteworthy. For the purpose of this research that pillar is taken in consideration; furthermore, the dimension is subdivided into Public and Private institutions and the first, which is the category of interest for the empirics, is further divided into: Property Rights, Ethics and Corruption, Undue Influence (judicial independence and favoritism), Government

Efficiency and Security. It is therefore clear that public administration efficiency and quality is of prime significance for this assessment.

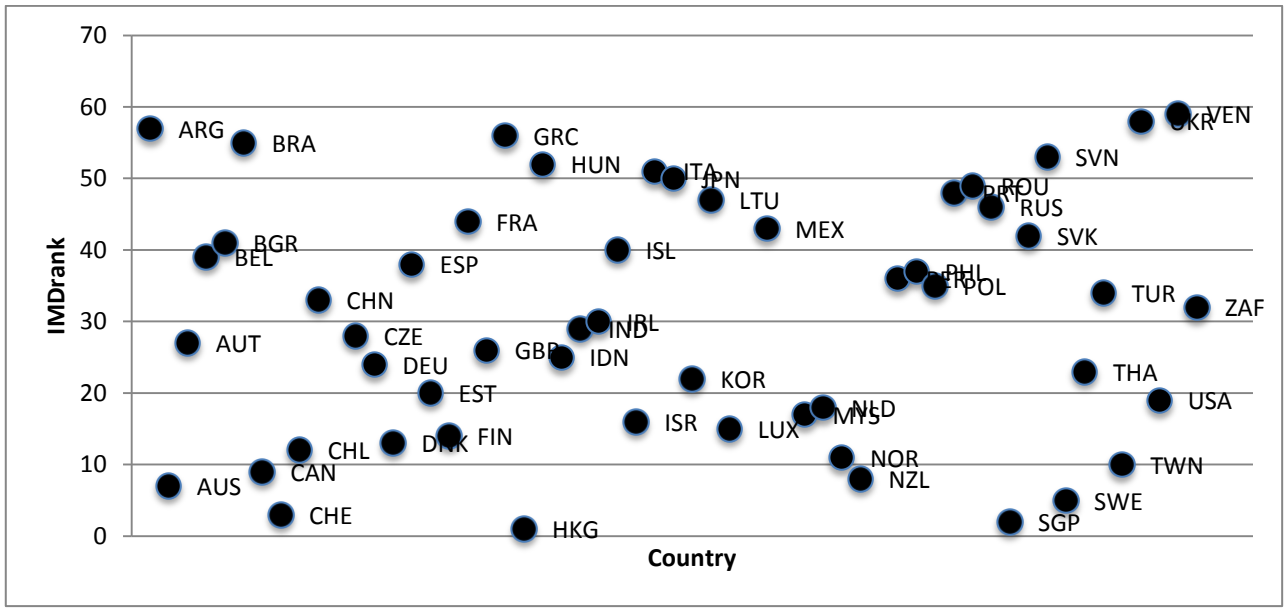
The statistical data used to assess and measure the pillars and its subcategories are obtained from internationally recognized agencies such as: United Nations Educational, Scientific and Cultural Organization (UNESCO), IMF, World Health Organization (WHO) etc. (Van de Walle, 2005).

Table 2: World Economic Forum 2011 Public Institutions (Schwab, 2013)



The last variable that Van de Walle assesses is the Government Efficiency Ranking (*IMDrank*) included in the World Competitiveness Yearbook (WCY) by the International institute for Management Development (IMD). The competitiveness assessment of 59 countries includes 4 main dimensions: Economic Performance, Government Efficiency, Business Efficiency and Infrastructure. Each of these is based on 5 main criteria, i.e. for Government Efficiency: Public Finance, Fiscal Policy, Institutional Framework, Business Legislation and Societal Framework. The criteria are further broken down into many different measurements, i.e.. Government Efficiency – Institutional Framework: Legal and Regulatory Framework, Adaptability of Government Policy, Government Decisions, Transparency, Bureaucracy and Bribing and Corruption for a total across dimensions and criteria of 329 items. Therefore, for the investigation, the Government Efficiency rank of the available time series is adopted (Van de Walle, 2005).

Table 3: Institute for Management and Development 2011 Government Efficiency (Van de Walle, 2005)



Busse and Hefeker (2007), in their research on FDI attractiveness in developing countries, focus on political determinants of investment inflows. However, as many others they do not tackle directly the importance of bureaucratic quality and efficiency, rather, they explore the linkages between political risk, institutions and FDI. What is interesting in their analysis is that they make use of 12 different indicators, some of which not merely related to bureaucracy but still representative of PA performance and efficiency. These indicators originate the International Country Risk Guide (ICRG), published annually by the PRS Group (2005). The ICRG assess a country's riskiness on 3 main dimensions: political, economic and financial. Busse and Hefeker make use of the political component which contains 12 indicators. Of these, we adopt the following for this paper's empirics: Government Stability (*GOVST*), Socio-Economic influences (*SOCIO*), Investment Profile (*INVEST*) and Bureaucracy (*BUR*). All indicators are equally weighted when determining the aggregate, country-specific, risk measure and all range from 0 to 4. Even though *BUR* is directly related to the explanatory variable, the other are also relevant in delivering the comprehensive framework of bureaucracy.

To ensure unbiasedness and robustness of the estimation a few control variables are included in the regression. These are selected among the most persistent FDI determinants across studies: Gross National income, Growth Rates, Openness to Trade and Consistent Macroeconomic Policies.

The single most prominent determinant of FDI flows across all different theoretical models is market size. In particular, market size measured as GDP or Gross National Income (*GNIcontrol*) per

capita (as FDI is also measured per capita). Corporations aiming at horizontal (market-seeking) integration are particularly interested in markets of significant potential so to expand as much as possible their operation. Similarly, high GDP or GNI growth rates indicate substantial potential returns to investors, attracting even more foreign investment, which in turn boosts GDP, investment returns and so on (*GROWTHcontrol*)(Busse and Hefeker, 2007).

Furthermore, openness to trade (*TRADEcontrol*), traditionally measured by the ratio of imports and exports to GDP has also proven to have a strong and persistent effect on FDI flows. It is important to note that the determinant TRADE has bilateral effects on FDI depending on the type of investment: Horizontal integration is likely to appreciate strong barriers to trade that will preserve the investor's new local market share against imports from competitors, whereas vertical FDI favors openness as trade barriers increase transaction costs to multinationals that make export-oriented investments.

Consistent macroeconomic policy further increases a country's attractiveness. Reliability in this area has a multitude of beneficial effects which include, among others, robust growth rates, small budget and trade deficits and low inflation. These in turn are reflected in lower risk premia and hence interest rates for investors, both domestic and foreign, that are understandably attracted by lower transaction costs. The variable *INFLATION* is thus a proxy for this characteristic: in fact inflation is very sensible to policy inconsistencies such as fiscal/monetary imbalances and therefore immediately reacts (Busse and Hefeker, 2007).

All control variables used by Busse and Hefeker originate from the World Development Indicators of the World Bank which are different statistical measures than the governance indicators abovementioned. The world development indicators have been published since 1960 and the latest update has been made available in December 2012 (World Bank, 2013).

III.c Variables

Section III.c addresses the operationalization of *FDI*, *WBindex*, *WEFindex*, *IMDrank*, *GOVST*, *SOCIO*, *INVEST*, *BUR* and *BurProxy*. Furthermore, it technically describes the control variables.

To make the regression comparable among countries of different sizes, FDI net inflows per capita in current US dollars will be used. Net flows represent the difference between inflows and outflows of FDI (characterized by a minimum of 10% ownership of a foreign corporation of the

local company). However, it should be noted that while the definition of FDI is rather arbitrary, because of this description of multinationals' activities, the invested resources are underestimated since it does not take into account the share of investments financed through debt or equity obtained on the local market. Nevertheless, if the underestimation is uniform throughout the data set, there should not be any bias; only the size of the coefficient will potentially be overestimated (Busse and Hefeker, 2007).

The operationalization of the aggregate bureaucracy indicator follows by indicating the technicalities of the building blocks and subsequently how they are aggregated.

The specific indicator of the *WBindex* that is considered is Government Effectiveness. This measure detects the perception of the quality of public services, the civil service, policy formulation/implementation and the credibility of commitment. The method through which this indicator is assembled is the following: individual sub factors from each data source are rescaled to make them cross-comparable. A weighted average of these is then constructed to get the aggregate indicator (Kaufman et al., 2009). The indicator assigns values in the range -2.5 to 2.5 where a higher measure is preferable.

As mentioned in the previous sub-section, *WEFindex* represents one of the twelve pillars of the Global Competitiveness Report. These pillars contain many sub-indicators with variable weights which are country specific for the sake of efficiency as some pillars are more important than others depending on the country's development stage (these are grouped in: basic, efficiency enhancing and innovation and sophistication factors for each economy). To obtain the weights, a maximum likelihood regression of GDP per capita is run against each sub index for previous years allowing for different coefficient weight for different countries. In this way, the absolute comparability across countries is ensured (Van de Walle, 2005). As in the case of *WBindex*, also this variable assigns higher scores to better outcomes, however the values are in the range 0 to 7.

Within *IMDrank*, criteria are both 'hard-data' (which is measurable) and 'soft-data' (a perception measure); hard data weights 2/3 while soft data 1/3. The IMDrank is in fact the most subjective in nature among the listed sources (this is why the term 'rank' rather than 'index') as it collects the opinions of CEOs, alumni of the IMD business school and academics. Each dimension receives a rank and the weighted average determines the final position in the competitiveness rank. The further from 0, the worst the country's position.

The ICRG indicators, *GOVST*, *SOCIO*, *INVEST* and *BUR*[6], are assessed on a 'risk' basis which in turn reflects quality and efficiency (low risk is usually associated with high quality and performance). Points are given out to each sub category where the lowest score is zero and the maximum depends on the weight the component is given in determining the aggregate assessment. The final score ranges from 0 to 4 and the lower the point total, the higher the 'risk'. Consistency across sections and time is ensured through the assignment of points based on a series of pre-set questions for each component answered by ICRG experts (PRS Group, 2005).

The 7 building blocks are in turn aggregated creating this research's main explanatory variable, *BurProxy*. In order to do so, first they need to be standardized allowing not only cross analysis and comparison but most importantly manipulation. Each building block indeed measures a different aspect and most of them have different methodologies. From the latter this research gains its strength, however, different scaling methods make consistent comparison and therefore aggregation impossible. Standardization is carried out by ranking countries, within each variable, on a scale from 0 to 100 (for every time period). The mathematics of the process is based on cumulative frequencies and the resulting distribution of countries on a cumulative distribution table. Countries receive then percentage scores that behave according to the principle that higher scores represent better outcomes. A country that scores 100 therefore ranks on top of the relative index. The only building block that assigns lower positions to better performing countries is the IMD data set because of its 'ranking-nature' (while the others are indices) however a simple reversion of the rank aligns the variable to the other building blocks.

Percentage standardization is chosen because it better fits a uniform distribution, which characterizes most building blocks. Although it is not a linear transformation, meaning that relative distances change, it allows assigning relative weights to countries and therefore better reflects their individual performance. An alternative is Z-standardization (subtracting the mean and dividing by the standard deviation every observation) however such method is weaker in face of a non-normal distribution as it squashes the distribution too much hiding for example

[6] GOVST: ability to carry out policies and stay in charge its sub-components are Government Unity, Legislative Strength and Popular support. SOCIO: socio-economic influences on society that might hinder governmental operations or raise social dissatisfaction, built on Unemployement, Consumer Confidence and Poverty. INVEST: includes non-financial factors such as contract-viability (expropriation) and profits repatriation or payment delays. BUR: institutional strength and quality of bureaucracy (PRS Group, 2005).

differences between an observation lying in the long tail and one located near the peak (Buis, n.d.).

After standardization of the building blocks, it is possible to determine their correlation in order to asses their links. Hereby the research sets the path for regression: the different specifications of the empirics depend upon the correlation coefficient of the building blocks and are different only in terms of the variables that construct *BurProxy* (while the controls are always included to ensure ceteris paribus).

Table 4
Building Blocks Correlation Chart

Cross-Correlation of BurProxy's constructing variables							
Variable	GOVST	SOCIO	INVEST	BUR	IMDrank	WBindex	WEFindex
GOVST	1.0000						
SOCIO	0.4040	1.0000					
INVEST	0.3528	0.6200	1.0000				
BUR	0.1818	0.7107	0.669	1.0000			
IMDrank	0.0915	0.1187	-0.0544	-0.0042	1.0000		
WBindex	0.1113	0.5881	0.5423	0.6354	0.0589	1.0000	
WEFindex	0.0615	0.2152	0.1793	0.2187	0.1422	0.1807	1.000

This process' intention is to check for meaningless correlation or redundancy which would both show strong positive or negative correlations between two building blocks. From Table 4 we can nevertheless determine that the variables are relatively uncorrelated. If the variables are too similar in their values or distributions, it would hard to make significant inferences from them.

Table 4 sets the research's schedule for regression: the specification of *BurProxy* initially contains the strongest correlated variables and increasingly adds the others. Therefore the first specification is uniquely represented by building block BUR, the second by the average of *BUR* and *WBindex*, the third by the average of *BUR*, *WBindex* and *SOCIO* and so on. The criterion is that a better performing country bureaucratic wise is characterized by a higher aggregate value of *BurProxy*.

The 7 specifications are:

(1) BurProxy = BUR

(2) BurProxy = average(BUR; WBindex)

(3) BurProxy = average (BUR; WBindex; SOCIO)

(4) BurProxy = average (BUR; WBindex; SOCIO; INVEST)

(5) BurProxy = average (BUR; WBindex; SOCIO; INVEST; GOVST)

(6) BurProxy = average (BUR; WBindex; SOCIO; INVEST; GOVST; WEFindex)

(7) BurProxy = average (BUR; WBindex; SOCIO; INVEST; GOVST; WEFindex; IMDrank)

Therefore, by combining the sets of indicators, that contain measures for the overall quality and efficiency of public administration, comparing bureaucratic performance across countries is possible (Van de Walle, 2005).

Finally, the control variables all have a common source, the World Development Indicators. *GNIcontrol* is measured per capita (midyear population) and in U.S. dollars. It is converted to U.S. dollar at official exchange rates to allow cross-section comparisons. *GROWTHcontrol*, represents the percentage change of *GNIcontrol*. *TRADEcontrol* is the sum of imports and exports as a share of GDP; while *INFLATION* is taken as measured by the consumer price index change (Laspeyres formula) (Busse and Hefeker, 2007).

While *GNIcontrol* and *GROWTHcontrol* are expected to be positively related to FDI inflows, *TRADEcontrol* as a dual effect that depends on the type of investment. Finally, *INFLATIONcontrol* is expected to negatively influence investment decision. No matter what the direction of the effect is, the 4 control variables are common to most theoretical models and therefore allow to isolate the effect of the *BurProxy* variable.

Neither the control variables nor FDI are standardized as generally standardization helps readability of the measurements but it is best to interpret the model effects on the original scale of the explanatory variables (Buis, n.p.).

III.d Estimation Procedure

This last section of the Methodology illustrates the sample on which estimations are carried out and discussed the technique to be adopted for inferences.

One of this research's strengths is the sample adopted for the analysis of the effect of *BurProxy* on *FDI*. The chosen variables not only differ in the aspects they measure, but also in the countries and time frame they asses. Despite these differences, a common framework is used in order to allow for sound inferences regarding the explanatory variables.

The country sample is built upon the International Monetary Fund's (IMF) country classification (IMF, 2012). Throughout its researches, the IMF makes two main distinctions: advanced economies and emerging/developing economies. The decision to base the sample upon this classification stems from the IMF's continuous strive to update these categories ensuring consistent division of countries and economic regions. The advanced economies bundle currently consists of 34 countries of which the seven largest establish the group commonly referred to as Group of Seven (G7)[7]. All other economies are considered as 'rest of the world'. Despite this apparent grouping of upcoming countries with less developed countries, the IMF indeed makes use of a separate list referred to as emerging economies that includes 24 countries. Therefore the sample of this paper consists of the 34 advanced economies plus 24 emerging economies. Note that Estonia falls into both categories therefore the final sample covers 57 economies. This division allows also making inferences about the effect of *BurProxy* on *FDI* in post-industrial countries focused on services and the effect it has in countries relying on the manufacturing industry. In addition, the time frame of the analysis, 2007-2011, is the largest common period available across variables and therefore allows stronger inferences.

With a specified sample for the cross-country analysis and a set time frame for time series, the research follows with the establishment of which panel regression technique to use.

As mentioned in the introduction of the methodology, in order to determine whether to adopt a FE or Re model a Hausman test needs to be carried out. The hypotheses of the test are the following:

H_0: coefficients FE = coefficients RE

H_1: coefficients FE ≠ coefficients RE

[7] Refer to Appendix A for complete country sample list

The test therefore tests whether the unique errors (u_i) are correlated with the regressors: if they are then the coefficients are not centred on 0 and therefore H_0 is not true (Torres-Reyna, 2007). The results of the Hausman test for the various specifications are given in the Table 5.

Table 5
Hausman Test

Testing u_i's correlation with the regressors							
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
χ2	1.08	1.47	2.54	1.99	2.49	2.99	2.58
Prob. > χ2	0.7814	0.8322	0.6383	0.7380	0.6469	0.5595	0.6307
Test to use	RE	RE	RE	RE	RE	RE	RE

RE: Random Effects Model
FE: Fixed Effects Model

In all 7 tests, the probability of values more extreme then Chi-Squared results to be much larger than the threshold of 5% (commonly used as boundary between FE and RE). The null hypothesis can be interpreted as 'RE is preferred' and since there is not enough evidence to reject it, the research assumes that the unique errors are not correlated with the regressors. This test gives a clear indication that the empirics of this research should be based upon a Random Effects model.

The empirics now assume that there are indeed significant differences across countries which are however random. The statistical analysis therefore assumes that the variance across countries is significantly different then 0 and that a panel RE regression is most suitable. If that is not the case, a different technique is adopted.

IV. Results

IV.a Sample Analysis

The sample analysis illustrates the descriptive statistics of the sample.

Table 6 illustrates the summary statistics of this research's variables across the sample of 57 countries over 5 years, for a maximum number of observations per variable of 285. The value of foreign direct investments varies significantly across observation and ranges from a negative amount of -652.5 $/capita to the maximum of 306,366 $/capita (Great Britain). Comparing these values to the specific country levels, as shown in Figure 3, it is possible to see that countries seem to be clustered around the mean of approximately 25,000 $/capita, however differences are still

significant hinting to a possible influence of *BurProxy* on the dependent variable persistently over time (exactly what the Random-Effects model estimates).

Table 6 reveals an interesting feature of the *BurProxy* creation process: when scaling the building blocks to a range [0,100] we definitely create minimum observations of 0 (the first 4 specifications have such values), however in none of the 7 specifications there is a country that reaches the perfect score of 100. The result is interpreted as an effect of the integrated approach that overcomes biasedness in sampling and therefore assigns more realistic values even in a field where soft data plays a central role. A very satisfying result of the standardization process are the approximately constant standard deviations of the 7 specifications indicating consistency when adding building blocks to aggregate *BurProxy* variable.

As previously mentioned, control variables have not been standardized as original scales are preferred for making reasonable inferences. Although several different variables have been included in the analysis, the sample remains large with a minimum of 263 common observations, indicating a strongly balanced panel, a feature that already reduces the risk of omitted variable bias.

Table 6

Summary Statistics of Sample

Country Sample: 57; Time Frame: 5 years					
Variable	Obs	Mean	SD	Min	Max
FDI	269	24948.81	40306.51	-652.5	306366
BurProxy1	285	36.29825	23.19996	0	64
BurProxy2	285	42.92105	23.70264	0	82
BurProxy3	285	43.86305	23.63581	0	86.75
BurProxy4	285	43.63596	22.504	0	81.75
BurProxy5	285	43.87509	20.02415	2.4	84.6
BurProxy6	285	44.79768	18.30943	2.5	83.83
BurProxy7	285	42.93161	16.83883	2.57	79
TRADEcontrol	278	103.1535	79.19203	22.12	460.47
GROWTHcontrol	263	1.296198	4.844653	-21.74	14.06
INFLATION	275	4.318727	4.325065	-4.48	28.19
GNIcontrol	277	25854.44	20545.43	850	88890

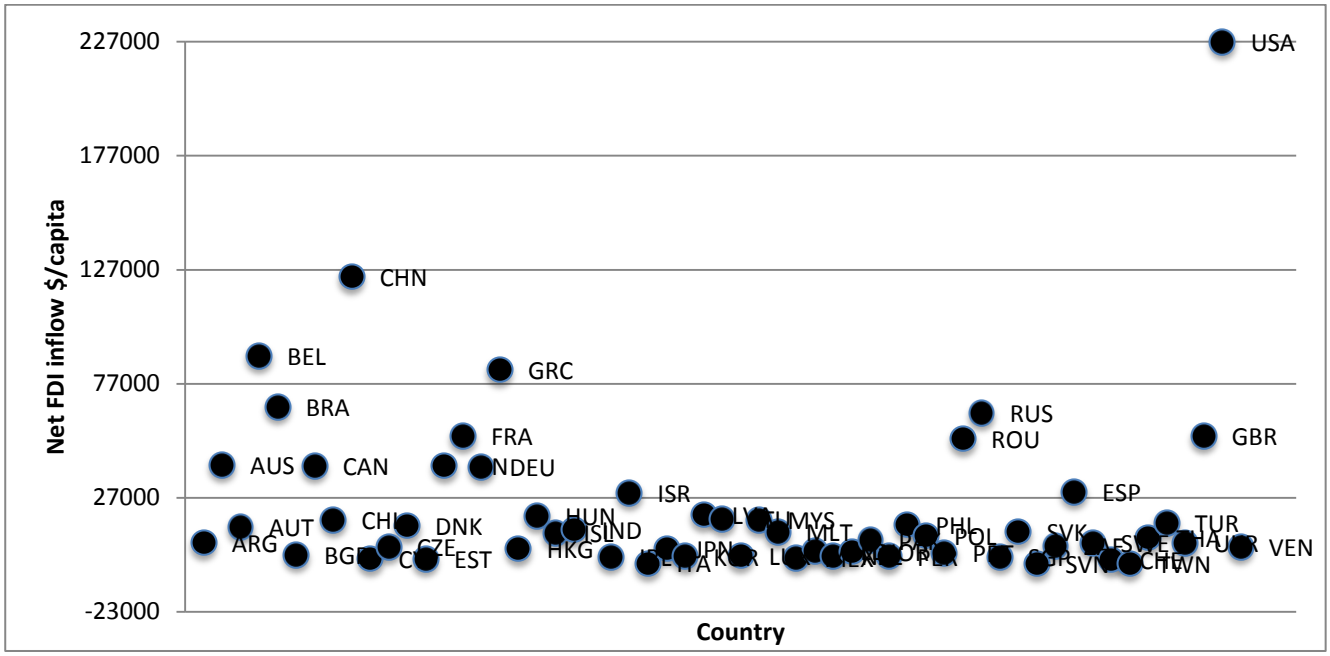


Figure 3: Country Specific 2011 FDI level (UNCTAD, 2012)

IV.b Inferences

In this study, as suggested by the Hausman test and as dictated by the correlation chart, a Random-Effects regression is carried out based on the assumption that there are differences across countries but they are not correlated with each other. The hypothesis of this research predicts that enhanced bureaucratic performance, in terms of quality and efficiency, increases a country's ability to attract foreign direct investments. Since the building blocks have been aggregated such that larger values indicate better performances, all 7 specifications are expected to display strictly positive coefficients for the main explanatory variable *BurProxy*. If the results of the generalized least squares (GLS) panel regression with random effects are unsatisfying, the empirics proceed by determining, through the Breusch-Pagan test whether an OLS regression can be adopted and subsequently whether it results a more efficient estimator.

Table 7 presents the results the panel type GLS regression using *FDI* as the dependent variable. In model (1) the coefficient of *BurProxy*, merely representing the building block *Bur*, has a relatively large positive value and an accordingly large and positive standard deviation. Such value is indeed reasonable for the sample and should not be linked to outliers or sampling mistakes. Already from the first model it is clear that some of the explanatory variables do not augment the estimation strength, as their coefficients cannot be said to be significantly different than 0. Indeed model (1) is characterized by *BurProxy* with a positive significance at 5.6% and the control variable *GROWTHcontrol* with positive significance at 5.4%. All the other independent variables result to be largely insignificant in explaining *FDI*. This inference is supported by the result of Wald test displayed at the bottom of Table 7: the test shows that the complete model is far from significant suggesting that some variables need to be dropped or, as previously recommended, suggesting a new test to determine whether the regression technique is indeed appropriate. The same results can be inferred for all 7 models that have a general tendency of becoming increasingly less significant.

Table 7

Random Effects GLS Regression over country sample (57) and time period (5)

Dependent variable FDI – Net inflows per capita in current US dollars							
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
BurProxy1	477.885* (249.5951)						
BurProxy2		587.198** (288.1983)					
BurProxy3			270.272 (244.5156)				
BurProxy4				297.589 (244.0015)			
BurProxy5					93.4294 (201.0706)		
BurProxy6						120.415 (224.3328)	
BurProxy7							176.870 (236.3077)
TRADE control	63.160 (60.62334)	34.675 (60.23832)	46.204 (60.6672)	47.230 (60.68023)	49.027 (60.93252)	48.993 (60.7491)	49.988 (60.7346)
INFLATION	191.427 (572.5774)	287.148 (579.0961)	97.777 (572.2458)	122.356 (573.267)	58.034 (572.0221)	60.626 (572.0988)	67.6213 (571.9241)
GNI control	-.297 (.2635361)	-.479 (.3111144)	-.258 (.2957662)	-.261 (.286709)	-.116 (.2641836)	-.122 (.2629118)	-.140 (.2580402)
GROWTH control	605.034* (313.4999)	648.416** (314.1119)	616.345** (314.9158)	621.650** (314.7018)	610.221* (315.2679)	612.413* (315.476)	594.401* (316.0465)
constant	7182.39 (11907.41)	6448.57 (11836.12)	13727.97 (11447.19)	12460.22 (11714.93)	17575.28 (11356.5)	16450.51 (12035.76)	14604.56 (12342.38)
N. of observations	244	244	244	244	244	244	244
Wald χ^2	8.83	9.29	6.35	6.63	5.34	5.39	5.67
Prob. > χ^2	0.1162	0.0979	0.2741	0.2500	0.3761	0.3698	0.3394

In order to determine whether the generalized least panel regression is indeed appropriate, the research continues with the Brausch-Pagan Lagrange Multiplier test of independence. This test is aimed at determining whether there is significant difference across countries, a panel effect, or whether these are negligible and a simple OLS regression is more efficient (Torres-Reyna, 2007). The hypotheses of the test are as follows:

H_0: variance across entities = 0

H_1: variance across entities ≠ 0

Table 8 however does not support the idea that there are no differences across countries in our sample making the explanatory variables not significant. The Breusch-Pagan test, carried out for each specification, strongly rejects the null hypothesis and at a significance level of 0% (to the thousandth decimal) suggests that there indeed variations and that the Random-Effects model is the most suited.

Table 8
Breusch-Pagan Test

Breusch-Pagan Lagrange Multiplayer (LM)							
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
χ2	273.50	271.74	273.50	273.78	273.71	270.98	271.44
Prob. > χ2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Test to use	RE	RE	RE	RE	RE	RE	RE

RE: Random Effects Model
OLS: Ordinary Least Squares Model

First the Hausman test and then the Breusch-Pagan test confirm that the sample indeed has panel characteristics with no correlation between entities, the RE model is ultimately the most efficient estimator of the relationship this paper is attempting to describe. With this in mind the estimation process continues by dropping insignificant explanatory variables from the various *BurProxy* specifications and from the control variables attempting to infer the weight of bureaucracy in attracting foreign direct investment by keeping the two most significant independent variables.

In Table 7 the empirics show that with some variations, *BurProxy1* and *GROWTHControl* have the lowest p-values, meaning that they have the least probabilities that the observed statistics occur randomly and are extreme with respect to the sample. Table 9 shows the statistical results of a Random-Effects generalized least squares panel regression with a specification that comprises *BurProxy1* and *GROWTHcontrol*. The latter control variable is positively significant at a 3.3% level indicating that indeed (as specified in the variables section), the growth rates of GNI and GDP do attract investors which rationally relate higher economic growth rates to higher returns in the marketplace.

Table 9
Random Effects GLS Regression for most significant regressors

Dependent variable FDI – Net inflows per capita in current US dollars		
Variable	Coefficient (Std. Deviation)	p-value
BurProxy1	321.5921 (210.4248)	0.126
GROWTHcontrol	639.62 (300.3518)	0.033
constant	12310.71 (9030.144)	0.173
N. of observations	249	
Wald χ^2	6.55	
Prob > χ^2	0.0378	

The new specification does indeed increase the overall significance of the slope's coefficients, however *BurProxy1* still has a probability of Type I error (α) of 12.6%. This large p-value does not permit solid inferences and would not justify a relation between the change in the independent variable that portrays bureaucratic levels and the depended variable *FDI* measuring the net inflow of foreign direct investments per capita. Indeed the Wald test value remains significantly above any permissible significance level; this ultimately suggests that although the sample is solid with a large cross-section and a slim time frame (which usually mitigates the effects of serial correlation) and the appropriate analysis techniques have been selected, the regressors chosen to explain the weight of a bureaucratic determinant in an FDI equation are not suited for this function.

V. Conclusion

This paper examines the weight of bureaucracy as a determinant in attracting foreign direct investments. The aim is to assess whether improved bureaucratic practices, in terms of quality and efficiency increase a country's attractiveness in an investor's eye. In order to quantify this relationship the research assesses different specifications of bureaucracy while holding constant traditional FDI determinants.

The cross-country and time series study hypothesizes a positive relationship between this paper's definition of bureaucracy and FDI net flows. The main peculiarity of the paper is the methodology with which the vagueness of past literature regarding the measurement of bureaucracy is overcome. Various prominent sources are aggregated into the constructed explanatory variable

BurProxy. The purpose of this technique is to generate a comprehensive measure of the different facets of bureaucracy. In addition, this paper's strength stems also from the sample coverage it provides: past research is limited to specific economic regions and limited country groups; in contrast a combined analysis of advanced and emerging economies (according to the IMF categorization) characterizes the empirics of this research.

The correlation analysis of the building blocks displays a healthy coverage of different bureaucratic performance indicator without redundancy nor meaningless correlation. In turn this analysis has created the framework for aggregating *BurProxy* in different forms. The resulting 7 different specifications of the analyzed independent variable have been regressed against country specific FDI levels.

Unfortunately the general results of the GLS regression with random effects have revealed some fallacies in the methodology of the research. First, the control variables included to create a more rational ceteris paribus situation do not behave according to the expectations laid out in section III.b; nevertheless, this result becomes secondary in face of the overall non-significance of their coefficients as estimators of *FDI*. Second, the various forms of *BurProxy* do not reach satisfying significance levels either. This outcome is however not fully attributable to the absence of an influence of bureaucracy on FDI since the *BurProxy1* does reach a significance level; of 5.6% in the complete regression (Table 7) and a significance level of 12.6% in the re-shaped specification (Table 9). The latter however limits the research to hint to a possible relationship without enabling neither solid nor justifiable inferences because of the low efficiency of the adopted estimator.

Based on the overall outcome of the empirics, the hypothesis of this paper cannot be confirmed. There is not enough evidence to infer the contrary but the methodology does not enable inferences about a possible relationship.

There are some implications that the research has tried to overcome to a certain extend but that leave room for further improvements. The main nodes are the variables selection and the aggregation technique. While the selection of indicators, ranks and statistics generating *BurProxy* and the control variables is an arbitrary process which can be improved by better assessing the source's sampling and processing method to make sure to have consistent data pools; the aggregation and creation method of *BurProxy* is a technical implication. The P-standardization technique adopted is justified and rational, however, the results of the empirics might prove this

process to be either incorrect or at least less efficient in describing the quality and efficiency of different bureaucratic aspects.

Despite the major limitations of this paper and the inconclusive results, the theoretical framework within which the research has been developed supports the thematic relevance of this particular argument. Alongside the suggested improvements, an analysis comprising both public and private sector might shed more light on the relationship which would drive the economic development of emerging countries and stabilize the volatility of advanced economies.

Appendix A. Country sample (IMF, 2012)

ISO CODE	Country
ARG	Argentina
AUS	Australia
AUT	Austria
BEL	Belgium
BGR	Bulgaria
BRA	Brazil
CAN	Canada
CHE	Switzerland
CHL	Chile
CHN	China
CYP	Cyprus
CZE	Czech Republic
DEU	Germany
DNK	Denmark
ESP	Spain
EST	Estonia
FIN	Finland
FRA	France
GBR	UK
GRC	Greece
HKG	Hong Kong SAR
HUN	Hungary
IDN	Indonesia
IND	India
IRL	Ireland
ISL	Iceland
ISR	Israel
ITA	Italy
JPN	Japan
KOR	Korea
LTU	Lithuania
LUX	Luxembourg
LVA	Latvia
MEX	Mexico
MLT	Malta
MYS	Malaysia
NLD	Netherlands
NOR	Norway
NZL	New Zealand
PAK	Pakistan
PER	Peru
PHL	Philippines

ISO CODE	Country
POL	Poland
PRT	Portugal
ROU	Romania
RUS	Russia
SGP	Singapore
SVK	Slovak Republic
SVN	Slovenia
SWE	Sweden
THA	Thailand
TUR	Turkey
TWN	Taiwan Province of China
UKR	Ukraine
USA	USA
VEN	Venezuela
ZAF	South Africa

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