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ECONOMICS

A GLOBAL INDEX OF INFORMATION AND POLITICAL TRANSPARENCY

by

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DISCUSSION PAPER 14.07

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ABSTRACT

Interest in the political and economic consequences of transparency has grown significantly over the past decade. The literature, however, has been hampered by methodological issues over what actually constitutes 'transparency', as well as the lack of a quantitative indicator that has substantial coverage across countries, and time. This paper uses a methodology similar to Transparency International's *Corruption Perceptions Index* to construct composite indicators of what we call Informational Transparency, and Political Transparency. These new indicators have been taken from 24 individual sources, with scores being derived annually between 1980 – 2010 across more than 180 countries. A brief example looking at the effects of transparency on economic growth shows that countries that have improved their informational transparency grew strongly over this period, however, there appears to be no growth benefits from improved political transparency.

1 Introduction

The economic, social and political importance of transparency has gained increasing traction over the past decade, amongst academics and practitioners alike. This has been part of a broader movement that seeks to explain and understand the role that institutions play in a nation's economic development. However, despite the increasing focus, this issue has been plagued by a number of conceptual and methodological problems that have led to some confusion over what exactly is meant by 'transparency'. Moreover, the difficulty in providing a quantifiable measure of transparency has hampered our empirical understanding of the economic and political causes and consequences of transparency.

The aims of this paper are therefore two-fold: (i) to undertake a brief review of previous research into what constitutes 'transparency', and to consequently provide a conceptual framework that guides the following analysis, and (ii) to set out a new composite indicator of transparency that has extensive coverage across countries, and time. Section 2 attempts to tease out a definition of transparency that takes into consideration the fact that what has traditionally come under the 'transparency' rubric requires greater nuance. Section 3 looks more directly at existing empirical measures of transparency, whilst Section 4 takes this discussion and uses it as the basis for the construction of a composite indicator of transparency. Section 5 then looks at some basic summary statistics and comparisons of this indicator, whilst Section 6 demonstrates how these indicators might be used in the future by undertaking a brief examination of the effect of transparency on economic growth since 1980. The paper concludes with some thoughts on how this indicator may assist in future empirical work in this field.

2 Definitions and literature review:

2.1 Defining transparency

The first obvious step is to denote exactly what is meant by 'transparency' in this paper. On the surface, this may sound like a fairly simple task. However, transparency can mean different things to different groups, and can be important for different reasons. Florini (2000) takes as broad a view as possible on this. In her view, transparency is the "release of information by institutions that is relevant to evaluating those institutions". Because these institutions can mean either public or private institutions, this provides a nice starting point. Of course, this looseness stems precisely from the fact that it is used in so many different areas: corporate governance, national security, government budgets, international organisations and so on. In a definition that has been commonly used (see for example, Hollyer et al (2011), Bellver and Kaufmann, 2005 and others), Vishwanath and Kaufmann (1999) define transparency as the "increased flow of timely and reliable economic, social and political

information which is accessible to all relevant stakeholders". Others, such as the OECD (2002) prefer to focus their definition on the removal of informational asymmetries, a feature of transparency highlighted by Stiglitz (2000), who prefers a definition whereby transparency is really just 'another name for information', and so greater transparency becomes a way of minimising informational asymmetries in the market. Other, such as Bauhr and Grimes (2012) prefer a checklist approach, whereby transparency only exists if certain criteria are met.

A number of definitions place the importance of transparency firmly in the sphere of public accountability. For example, Kopits and Craig (1998) define fiscal transparency as *"openness toward the public at large about government structure and functions, fiscal policy intentions, public sector accounts, and projections."* In this sense, fiscal transparency is not necessarily about access to the budgetary information itself (although that certainly constitutes part of the definition), but rather the openness of the procedures and policies. Andreula et al (2009), and IMF (2012) make a similar point. In this context, it is the constraints this information may place on public officials that is the key. In other words, it is not the information itself that is important, but the fact that the information is *potentially discoverable*. Public officials may refrain from undertaking illegal and corrupt behaviour if they know that there is a high probability of this information getting out.

2.2 Literature review

As these definitions highlight, 'transparency' as a concept ranges from issues surrounding information, through to issues of accountability. The following review (loosely) divides the literature into research that highlights the 'information' component of transparency, and research that focusses more on issues of accountability, and transparency's use as a constraining mechanism.

2.2.1 On the Value of Information:

A simple, though not necessarily uncontroversial, statement in economics is that 'more information is always preferred to less'. In standard microeconomic competitive market models, information is assumed to be 'perfect'. Indeed, imperfectly competitive and market failure models are often characterised by the informational asymmetries they possess (for example, see Stiglitz 2000 and others).

From a relatively early point in this literature, however, a distinction was made between public information (available to all, and considered to be a public good), and private information, available only to those who generated (or purchased) this information. In the early 'island economy' models of Phelps (1970) and Lucas (1972, 1973), or the Keynes 'beauty contests', there is a distinct co-ordination aspect that is crucial. And, when information is perfect, it was shown that this co-ordination maximises social welfare.

The literature quickly moved on from this to explore the interesting situations in which players were faced with imperfect information – either through asymmetries, or when the information itself was imperfect, or 'noisy'. This was the point made by Morris and Shin (2002 and others), whereby the perverse situation could arise that public information could be over-weighted in the minds of the participants and, if this information had a lot of noise (for example, GDP or inflation data that was subject to subsequent revisions), then it could be welfare-reducing. This paper sparked off a significant debate about (a) whether this was indeed true in the first place, and (b) if it were true, what a policy response to this problem may look like. For example, Svensson (2006) noted how, under reasonable assumptions, this result would not actually hold, and so this public information would still be welfare-improving. Indeed, if we broaden the debate to a global (rather than largely a developed country) viewpoint, one can see Svensson's point. In the original Morris-Shin model, when there is no private information, then the public information that is available (regardless of its precision) is welfare-improving. For many developing countries this would certainly be closer to their experience.

This model has largely been used in terms of the role of a central bank within an economy, and the effect that central bankers' information and forecasts can have on expectations, and hence volatility. For example, in a recent paper, Muto (2013) looks at how a central bank's (noisy) forecasts on productivity can destabilise private firms' own expectations, which may in turn worsen the output gap. Geraats (2002, and 2009) provides a nice review of this literature, and the debate over the degree of transparency a central bank should undertake. She makes the point that those countries that have become more transparent have also enjoyed lower inflation (even in relative terms during the 'Great Moderation' of the 1990s and 2000s). But there are certainly opposing views on this, following a line of thinking more akin to Morris and Shin. Baeriswyl and Cornand (2010) focus on the dual role of monetary policy, which is to influence economic activity, but also to provide information to firms on what the central bank thinks is happening in the economy. Although they argue that transparency invariably increases the output gap, its effect on inflation depends on whether the information works directly, or through this signalling mechanism. Hahn (2012) similarly asks whether central banks should release less information when there is a negative supply side shock, as this may exacerbate the negative output effects.

With respect to the empirical literature on information and central banks, Crowe and Meade (2008), focussing on the independence of central banks, note that greater independence results in lower inflation (see Cukierman, 2008, for a review of the empirical literature on this), but also that greater transparency results in the private sector making better use of that information. Crowe (2010), essentially supports the theoretical model of Morris and Shin, in that he finds that public information is most beneficial when there is little private sector information available, but does not support the Morris and Shin hypothesis that more public information can result in less accurate private sector forecasts.

For our purposes here, one of the important issues tackled in this literature is a recognition that there are different *types* of transparency. For example, Hughes Hallett and Viegi (2003) introduce a model that separates transparency into economic transparency (*what* information is used), and political transparency (*how* the information is used). In a quantitative measure of central bank transparency, Eiffinger and Geraats (2002), Dincer and Eichengreen (2007), and Siklos (2011) separate central bank transparency into five components of transparency: political, economic, procedural, policy, and operational. Although some of these components may overlap somewhat, it is at least a more nuanced attempt to recognise that transparency has different elements that are worthy of separation. For a central bank, this makes sense, as it is both a producer of information, but is also responsible for interpreting and acting at least in part on that information. In this sense, full transparency may not always necessarily desirable, which was the point initially made by Morris and Shin.

A related issue to the models looking at the social value of information revolves around information and business cycles, led largely by Angeletos, and Veldkamp.[1] These papers often had elements of the Morris-Shin model, and focussed largely on the complementarity of information. In essence, if everyone has the same (aggregate) information, then all sectors of the economy would co-move, which would exacerbate the business cycle. Sector-specific information has a high initial fixed cost, and so it is often cheaper (and rational) to only use the country-wide aggregate information.

The extensive empirical research on information and its effect on markets have often focussed on financial markets, due at least in part to the ease with which 'news' is transmitted through to changes in prices in these markets. For example, DeGennaro and Shrieves (1997), Boyd et al (2005), and Bauwens et al (2005) look at the effect of the release of a range of economic indicators on exchange rates, whilst Balduzzi et al (2001) look at macroeconomic news releases, and how a 'surprise' result can affect spreads in bond markets. Brockman et al (2010) look specifically at the issue of co-movement, the production of information, and the business cycle. Using share market data, they show that when information is high, co-movement is low, and vice-versa, which tends to support the theoretical literature on this. Gilbert (2011) examines the specific issue of the quality of data, in terms of how revisions in official economic data released by the government affects share market prices.

Across all of this research, however, a common theme was that this public information (irrespective of the degree of noise contained within) is actually released in the first place by the government. In other words, they say essentially nothing about why the government might actually withhold information from the public. This focus on the supply-side of information has been somewhat neglected in the

[1] For example, see Angeletos and Pavan (2004) on information as 'noise', and (2007) on the social value of information; Angeletos and Werning (2006) on the role of information in a crisis; Angeletos and Lu'o (2010) on noisy business cycles; Veldkamp (2006a) on information and the co-movement of asset prices; Veldkamp (2006b) on media frenzies and financial markets; and Veldkamp and Wolfers (2007) on information and business cycle co-movement.

literature, although Williams (2009), Islam (2006) and Hollyer et al (2011) have tried to empirically look at the quality and quantity of information governments release, and some of the political and economic consequences of this. The underlying principle here is that there may well be occasions where the government of a country may possess economic, financial or political information, but deliberately decide to withhold that information from the public. For example, if economic information shows the government doing a particularly bad job, they may not be inclined to release that information (or at least 'fudge' the data). In other situations, there might be a sort of 'benign neglect', whereby information is not necessarily withheld, but the collection and dissemination of that information is given a low priority, and hence the same result occurs, in that the public is not able to make informed economic decisions because of a lack of information.

In the models presented to date, the focus has been essentially on the economic importance of information itself, rather than the specific issue of how transparent a government is in its dealings with that information, and the reasons a government may choose to be more (or less) transparent.

2.2.2 On the Value of Transparency as a Constraining Mechanism:

When most talk of transparency, they invariably are referring to transparency's role in acting as an *accountability* mechanism on the behaviour of public officials. Here, the information itself is not necessarily important, but rather how the potential release of this information causes agents to essentially 'do the right thing'. And so transparency here is often quite closely related to the issue of corruption, in terms of transparency being seen as a vital tool in helping to reduce corrupt and rent-seeking behaviour (Brunetti and Weder, 2003). It is therefore no coincidence that the focus in this area has been specifically on issues surrounding: (i) the importance of having a free media to expose any illegal or improper behaviour on the part of public officials, and (ii) the government's fiscal transparency, both on the revenue and expenditure sides.

The theoretical literature on the links between a free media and transparency generally revolve around a type of principal-agent analysis (Besley and Prat, 2006, Besley and Burgess, 2002, Prat, 2006) where, with the existence of asymmetric information between government and citizen, a free press can play a role in making governments more responsive to the needs of its citizens. The antecedents of these models can be found in Persson and Tabellini (2000) and their 'career concerns' model, in which the agent (the politician) would like a credible signal to the principals (the citizens) on what type of politician they are, and hence get re-elected. The press, essentially, can act as a way of verifying the type of politician, in that the politician's actions on their own are not credible.

The empirical evidence on this is relatively strong. For example, in an influential paper, Besley and Burgess (2001) use the example of Indian states between 1958 and 1992 to look at the link between the degree of media freedom in each state, and their government's responsiveness to food shortages.

They noted a very clear link between press freedom, and the government's response to such food shortages. Djankov et al (2001) constructed an index on media ownership to demonstrate that government ownership of the media is associated with fewer press freedoms, political and civil rights, and poorer social outcomes. This paper therefore highlights the importance of a free and independent media. Brunetti and Weder (2003) examine the links between a free press and corruption, noting a very strong (causal) relationship running from a free press to lower corruption. Chowdhury (2004) and Freille et al (2007) largely confirm these findings.

The idea behind the media 'shining a light' on the actions of the government has unsurprisingly resulted in quite a substantial theoretical and empirical literature on this type of political transparency and the machinations of the government's fiscal process. Alt and Lassen (2006a) use a career concerns model to look at the relationship between transparency and public debt, with the rationale behind this being that in an opaque setting, governments are more inclined to borrow money, rather than pay for expenditure through taxation. Alt and Lassen (2006b) and Alt and Lowry (2010) examine the issue of transparency and political business cycles, with less transparent governments increasing their spending by more in the run-up to an election than a more transparent government. Gavazza and Lizeri (2009), using a two-period model of political competition with imperfect observability, argue that transparency has different implications on the revenue and expenditure sides of the government's budget, in that transparency is always beneficial on the spending side, however, transparency on the revenue side may be counter-productive as it may lead to wasteful spending.

However, not all theoretical work is unambiguous in showing the positive effects of transparency on fiscal outcomes. For example, Bec (2001) argues that one of the effects of greater transparency may simply be to make it easier to identify who to bribe, and hence may actually increase corruption in the public sector. Gavazza and Lizzeri (2007) posit that greater transparency in bureaucracies may lead to the situation where the high quality producers are identified, but are supply-constrained and so all that occurs is a rationing of the high quality producers, rather than an actual increase in overall quality.

There is an increasing amount of evidence on the effects of transparency on fiscal policies. In a series of influential papers, Reinikka and Svensson (2004, 2005, 2011) highlight the role of information in the public sector through an experiment run in Uganda, whereby education budgets were published in local newspapers. The proportion of the central government's education budget reaching the school level jumped from an average of 20% to around 80% after these figures were published. Moreover, these increases were largest in areas with greater exposure to this news.

In general, the empirical literature on fiscal transparency has followed a variety of avenues that range from the transparency of the budget (and budgetary process) itself, through to the consequences of fiscal transparency on other economic outcomes. For example, Alt and Lassen (2003), using OECD

countries as their sample, found that greater fiscal transparency was associated with lower public debt, and smaller budget deficits. Golwitzer (2010) found a similar result in a sample of African economies. Andreula et al (2009) highlight the links between broader institutional quality, and the degree of transparency in budgetary institutions. The IMF's Reports on the Observance of Standards and Codes (ROSCs) have been used by a number of researchers to examine the degree to which countries adhere to these standards of fiscal transparency (see for example IMF, 2012, Glennerster and Shin, 2008 and Hameed, 2005), and what some of the economic consequences of this may be. Bastida and Benito (2007) use data from the Open Budget Partnership to illustrate the links between fiscal transparency and corruption.

Across the literature, therefore, the two common criteria on what constitutes 'transparency' are apparent: (1) transparency is about increasing the amount of *information* available to interested parties, and (2) transparency is about increasing the constraints on public officials in order to enable citizens to hold these officials *accountable* for their actions. One may think that (2) will naturally follow from (1), however, the purpose and nature of each of these functions does not automatically make this so. As Kolstad and Wiig (2009) note, greater access to information may raise the cost of corrupt and rent-seeking behaviour, because the costs of discovery may outweigh the benefits of a corrupt act for the government official. But they also make the point that simply releasing more information is 'not enough' for a government to be fully accountable. This last point is worth emphasising. Von Furstenberg (2001), for example, is particularly critical of the idea that more information is associated with greater transparency, in the sense that it will help improve the degree of accountability from public officials. The link from information to accountability involves more than just making that information available. Civil society requires the ability to not only access the information, but have the voice to act on it (Lindstedt and Naurin, 2010). Nevertheless, even if it is true that increasing the amount of information the public has at its disposal will not of itself lead to a sudden improvement in the accountability of the government, this does not preclude the possibility that the information is still useful. It may not be useful in a political sense, but it can still have value in an economic sense.

These two components are not, however, necessarily mutually exclusive. For example, one could think of certain fiscal information that might fall into both camps. Information on budget deficits, the size of the public debts, revenues and so on can be important for a range of people, both in the private and public sectors. However, this fiscal information is also likely to have a political element to it as well, in the sense that clear, consistent and quality information on revenues and expenditures may provide a constraint on the extent to which some of those funds may be misappropriated. Nevertheless, despite the fact that there are undoubtedly degrees along this spectrum from

informational transparency through to political transparency, it still provides a useful conceptual framework within which to approach this issue.

3 Measuring transparency:

Given the interest in institutional issues such as corruption, the rule of law and so on over the past twenty years, it is perhaps surprising that there is still no widely-accepted transparency index that has broad coverage across both countries and time. There are many indices that have tried to measure transparency on an ad hoc, one-off basis, and there have been indices that have purported to measure a particular aspect of transparency. As Coronel (2012) notes, "*these measures cover different sets of countries, examine different spheres of government transparency, and use a variety of criteria and methodologies… There is no single rating that is both comprehensive and truly global in scope*".

Perhaps the one that gets closest to the attempt made here is Bellver and Kaufmann (2005). Despite only being a working paper, it is has been used in a number of studies, either directly or indirectly (see for example Glennerster and Shin, 2008, and Williams, 2011). In this index, they bring together a number of different sources of data on transparency, and then divide transparency into two groups: economic/institutional transparency, and political transparency. Others have focussed on a specific aspect of transparency. For example, Islam (2006) looked at economic transparency (proxied by the timeliness with which countries reported data to the World Bank and IMF), as well as a component for the existence (or absence) of Freedom of Information laws. A similar approach was taken by Williams (2009), and Hollyer et al (2011), looking at the quantity of data released by governments, rather than their timeliness. Others, such as Hameed (2004), and Andreula et al (2009) developed indices specifically aimed at fiscal transparency. This was also the objective of the *Open Budget Index*, prepared by the International Budget Partnership. In terms of political transparency, the main indicator used over the years has been the Freedom House *Freedom of the Press* index. This is in part due to the fact that it is one of the few indicators with significant temporal coverage (going back to 1979), and that it has extensive coverage across countries as well. *Reporteurs Sans Frontieres* have a similar index, which has been compiled since 2002. Although not a direct measure of political transparency, Bellver and Kaufmann (2005) also used what they called the 'Openness of Political Institutions' from the POLITY database in their index (DEMOC).[2]

In addition to these indicators that have specifically set out to measure transparency (or a component of transparency), there are a number of other measures that have a transparency component included,

[2] Strictly, this measures (i) the competitiveness of political participation, (ii) the openness and competitiveness of executive recruitment, and (iii) the constraints placed in the executive, however, these constraining political and social groups are called 'accountability groups' in the POLITY analysis, and so it is logical to think of these constraints as being transparency and accountability constraints as well.

but which is not the main focus of the exercise. As with the indicators above, the focus varies. For example, the Doing Business surveys include an 'Extent of Disclosure' index, which is predominantly aimed at regulations surrounding the private sector. The World Bank's CPIA indicators have a component on 'transparency in the public sector, whilst the Global Competitiveness Reports ask the question "*How easy is it for businesses in your country to obtain information about changes in government policies and regulations affecting their activities?*". Finally, the *CIRI Human Rights* database has a component that rates the freedom of the press within countries.

Overall then, we can see that there are a number of existing indexes that cover various aspects of transparency. Some cover one specific area of transparency over an extended period of time (Release of Information index, Freedom of the Press, Free Speech from CIRI for example), whilst others also cover a specific issue, but for only a limited time (for example, the CPIA, Doing Business, Open Budget Index, Reporteurs Sans Frontieres). Others only cover a specific aspect of transparency as a one-off (for example Hameed, 2004, Glennerster and Shin, 2008). In terms of a composite index designed to cater for transparency issues, only Bellver and Kaufmann (2005) attempt to bring together the disparate elements of transparency into the one place, but then only as a one-off indicator, which has not been subsequently replicated.

However, the number of existing indicators, and the breadth of transparency issues they cover, do seem to lend themselves to a composite index, in a similar spirit to Bellver and Kaufmann (2005), the World Bank's *Governance Indicators*, or Transparency International's *Corruptions Perception Index* (CPI). In the next section, we will discuss what such an index may look like, and the criteria for its construction.

4 Methodology and derivation of index

4.1 Sources of transparency

The first methodological question is whether the index should be a single, all-encompassing 'super index', which brings together all the different elements of transparency mentioned previously. This certainly has some advantages, in terms of simplicity of exposition, however, the main drawback is that it would not capture the fact that different elements of transparency may have different effects on the economy, the polity, and so forth.

There is much to commend an approach similar to Bellver and Kaufmann (2005), and discussed above, which tries to make a distinction between transparency as a means of conveying information that has value to citizens, and transparency as a tool that constrains the actions of bureaucrats and

politicians. It has the benefit that it does not treat transparency as 'one' thing, recognising that there is a difference in not only the types of transparency alluded to earlier, but also how they affect the broader economy. If one lumps it all into the one indicator, it is impossible to disentangle these effects. However, by the same token it would also defeat the purpose to have a multitude of categories either, because then the aggregating power of the index is lost. To that end, I have broken 'transparency' into two constituent parts:[3]

1. **Economic, social and financial information transparency (henceforth called 'information transparency'):**

   The rationale behind this is that whilst the government is still the main arbiter over these statistics, and can therefore decide what gets released and what doesn't, the release of this information should, in theory, be relatively uncontroversial. The real importance of this information is in terms of its market-related economic content, and in reducing the informational asymmetries that can exist when market participants have less information to work with.

2. **Political and institutional transparency (henceforth called 'political transparency'):**

   This deals more with the openness of the producers of that information – the bureaucratic, legislative and executive arms of government. This is a different form of transparency, in that access to this information by the public has less meaningful value unto itself, but is designed to provide a check on the behaviour of the government arms, and to therefore promote accountability.

Before moving on the construction of this index, it is worthwhile discussing a couple of potential problems here. The first problem arises when issues fall into a 'grey area' between the two. The most obvious, and important, relates to fiscal transparency. The openness of government budgets (both on the revenue and expenditure sides) is one of crucial importance in the development literature. NGOs such as the Extractive Industries Transparency Initiative (EITI), Publish What You Pay, the Revenue Watch Institute, and others, recognise that the opacity of government budgets is a problem, because it is unclear how the money is being earned and spent, and so the implication here is that corrupt activity may be going on. In this sense, fiscal transparency fits into the 'political transparency' category,

[3] This is slightly different to the Bellver/Kaufmann index, where they had 'Economic and Institutional', and 'Political' transparency. In their indicators, they put issues relating to government budgets into the 'economic/institutional' indicator. No doubt they wrestled with the same dilemma encountered here, and opted to include it in the economic/institutional aspect. However, there is certainly a good case to argue that the 'institutional' component of their index belongs in the political category, because ultimately, institutional-related measures of transparency are far more closely linked to the openness criteria, than the informational criteria. Nevertheless, I accept this is certainly open to interpretation and debate.

because it is not necessarily the numbers themselves that are important, but the knowledge that if the numbers are out there, bureaucrats and politicians will be constrained in how much they can appropriate for themselves. However, government budgets *do* have an informational content to them that is important for many sectors of the economy. Financial markets would like to have accurate public debt data, the size of any budget deficit, the proportion of revenues being spent on infrastructure, education, health and so on. So this would fall into the 'informational transparency' category. In terms of this composite index, measures relating to fiscal openness are placed within the 'political transparency' category. In part, this is due to the intent of those constructing the original sources, who look to their measure as a way of helping to constrain the behaviour of the government.

The second substantive issue relates to the temporal dimension of the index. As Tables A1 and A2 demonstrate, whilst there are a few current indicators that have a reasonable time dimension (with a small number going all the way back to 1960), it is far more common for these indicators to start during the first decade of the 21st century. However, given the number of sources used in the early years of both Transparency International's Corruption Perceptions Index (*CPI*), and in the individual components of the World Bank's Governance Indicators (*WGI*), there is a solid argument that the relevant time frame could be extended back before the first decade of the 21st century. For example, in the original 1995 *CPI*, and the 1996 *WGI* Voice and Accountability datasets, the average number of sources used was around 4 for each (with a range between 2 and 7 sources). As will be shown shortly, going back to 1980 there are four relevant sources available for the Informational Transparency index, and four for the Political Transparency Index, and this expands over the subsequent years to a maximum of 12 sources for the Informational Transparency Index, and 12 for the Political Transparency Index.

Overall therefore, the two indicators are derived from 24 sources (12 for the Informational Transparency indicator, and 12 for the Political Transparency indicator). These range from data from the World Bank and International Monetary Fund, through to NGOs and think tanks, such as Freedom House and *Reporteurs Sans Frontieres*. Detailed descriptions and sources for this data can be found in Tables A1 and A2. These sources vary in both their coverage across countries, and across time. Some sources had multiple questions or categories that all fell within one or both of the composite indices (for example, the International Profiles database from the French government, and the Bank Disclosure Index). Where this occurred, all of the questions or categories were averaged to give one overall score for that source within that particular composite indicator. This avoids 'double-weighting' data asking similar questions from the same source.

Finally, a number of sources exploit the rationale developed in Williams (2009) and in Hollyer et al (2010), whereby transparency is proxied through the amount of information released by governments to the major international databases. However, whilst Williams (2009) used the World Bank's *World*

Development Indicators (WDI) and the IMF's *International Financial Statistics* (IFS) to develop his overall *Release of Information* index, and Hollyer et al (2011) used only a sub-section of the *WDI*, here we take advantage of the fact that these multilaterals collect data for a number of different databases. For example, the IMF not only has its *IFS*, but also *Balance of Payments* statistics (*BoP*), and the *Government Finance Statistics* (*GFS*). Therefore, in the indices here, we use economic and social data from the *WDI*; finance, labour and monetary statistics from the *IFS*; trade data from the *BoP* in the Information Transparency Index; and data from the *GFS* in the Political Transparency index. Specific details on their construction can be found in Tables A1 and A2, and in the online appendices to this paper.

4.2 Construction of the indices for transparency

As with any index, there are a myriad of issues to consider in terms of its construction (see OECD, 2008, for a good summary of some of these methodologies). For example, the World Bank Governance Indicators (*WGI*) use a version of an Unobserved Components Model, whereby each source is considered to be a 'noisy' signal of the overall sub-category of governance.[4]

The main advantage of the *WGI* methodology is that it allows for much greater country coverage, as countries can be given an overall score even with a bare minimum of sources (albeit generally with large standard errors). However, it has two major drawbacks that meant this approach was not adopted here. First of all, although the World Bank is now quite transparent about the sources it uses, and the methodology employed, the construction of the point estimates and standard errors requires detailed knowledge of Bayesian statistics, and statistical software coding to construct. One of the criteria trying to be followed here is that not only is the methodology employed transparent and replicable, but that it be *easily* replicable, and does not require sophisticated statistical coding. Secondly, and perhaps more importantly, the *WGI* methodology does not allow easy comparison of scores across time, because for each year the global mean is set by design to be zero. In other words, the country scores can be used to compare relative governance across countries in time *t*, but the scores for each country for time *t*, *t+1*, *t+2* etc are not directly comparable.[5]

The other well-known composite governance-related indicator is the *Corruption Perceptions Index* from Transparency International. This index has been constructed annually since 1995. Up until the 2012 iteration of the index, each source was normalised into a common scale using a matching percentiles technique, which essentially meant the resulting scores were rankings, rather than absolute scores. The main drawback of this approach is that because these were rankings, the relative distance between two countries' scores conveyed no information about the extent to which corruption

[4] See Kaufmann et al (2006) for more information on this methodology.
[5] To be fair, the *WGI* authors have spent some time looking at this temporal issue as well (see Kaufmann et al, 2006).

differed.[6] Under new methodology introduced in 2012, they have moved towards a simpler averaging of sources to arrive at the final corruption score. The benefit of this is that now differences in scores better reflect the difference in corruption perceptions between countries. Moreover, it is constructed so that scores are now more comparable over time, and so one can more plausibly talk about 'improvements' or 'deteriorations' in corruption perceptions within a country over time.

Specifically, the process for the construction of the *CPI* is as follows:

1. Each source is standardised, and then re-scaled to have a mean of 45 and a standard deviation of 20:

$$z_{jt} = \frac{(x_{ijt} - \overline{x_{jt}})}{\sigma_{jt}} \times \pm \times 20 + 45 \qquad (1)$$

   Where x_{ijt} is the individual score for country *i* for source *j* in time *t*, and σ_{jt} is the standard deviation for source *j* in time *t*. The ± sign is used if any of the sources have the reverse order of assigning higher values for higher corruption. Any scores falling outside the 0-100 range are then capped.

2. Global parameters are employed for those sources with a more limited range across countries by imputing values for that source.[7] In this way, a mean and standard deviation is derived on a theoretical basis of what might have been the mean if all countries had been measured in this source.

3. The resulting scores are then averaged to obtain the final score for each country in each time period.

4. The first year of the new methodology (2012) is defined as the 'base' year. In subsequent years, the parameters used will be those taken from the base year. By using the same base year, the scores generated over time will be comparable. Over time, as new sources are added, they are standardised and rescaled on the same principles as in (1) above, however, the mean and standard deviation are now taken from the year that the source enters the index, which therefore makes it comparable with all the other existing sources in the index.

5. To reflect the fact that each source is measured with a degree of uncertainty, the *CPI* also records standard errors and 90% confidence intervals, where the standard error (ρ) is the ratio of the standard deviation (σ) over the square root of the number of sources (*n*):

[6] For example, it had to be assumed that the difference in corruption between the 1st and 2nd ranked countries was the same difference as two countries ranked 100 and 101st, or the 150th and the 151st countries.
[7] This is done using the 'Impute' command in STATA, regressing that source against all sources that have broad coverage across countries (defined as more than 50% of the total population of countries).

$$\rho_{it} = \frac{\sigma_{it}}{\sqrt{n_{it}}} \qquad (2)$$

Because of this ability to account for changes in governance over time, the basic premise of this methodology has been preferred. It is also very simple in its construction, and so is easily replicated by anyone with simple knowledge of spreadsheets and/or statistical software packages.[8]

4.3 Construction of Political Transparency Index (PTI), and Information Transparency Index (ITI):

For both indices, 1980 is considered to be the base year. However, rather than just using a somewhat arbitrary mean of 45 and a standard deviation of 20 to form the initial base year parameters as in the *CPI*, we were guided by the raw mean and standard deviations from the sources with data in 1980. This resulted in choosing a starting mean in 1980 of 40 for both indices, however, the variance in the *PTI* was larger than that for the *ITI*, and so the standard deviation was set at 30 for the *PTI*, and 20 for the *ITI*.

Following the methodology of the *CPI*, sources (*j*) in subsequent years were first normalised, and then this base year mean and standard deviation were used to construct scores for each subsequent year. That is:

$$z_{jt} = \frac{(x_{ijt} - \overline{x_{jt}})}{\sigma_{jt}} \times \pm \times \sigma_{j,1980} + \bar{x}_{j,1980} \qquad (3)$$

This allows for changes over time in scores to be more of a reflection of absolute, rather than relative, changes in scores. When new sources were added to an index, after being normalised they entered with a mean and standard deviation that was determined by the mean and standard deviation in that current year based on only those indices with coverage from 1980.

Once all individual sources had been appropriately re-scaled and standardised, the final score for a country in each year for each index was simply the average of each of these scores. For example, the Political Transparency Index is derived by:

$$PTI_{it} = \frac{\sum_{n=1}^{n} Z_{ijt}}{n_{it}} \qquad (4)$$

Where Z_{ijt} is the transformed score for country *i* from source *j* in time *t*, and n_{it} is again the number of sources with data for country *i* in time *t*.

[8] Detailed descriptions of its construction can be found at http://www.transparency.org/cpi2012/in_detail

Further, in keeping with the *CPI* methodology, standard errors were constructed, as in equation (2) above. Standard errors are therefore lower when either the degree of variation across sources for a country is low (they all say approximately the same thing about the transparency in that country), and/or the higher the number of source used (giving more confidence in the final score for that country in that year). This then allows us to construct 90% confidence intervals for each country in each year.[9]

Lastly, a combined index has been constructed, using the same methodology as for the individual indicators. However, the criteria of the minimum number of sources have been increased, with the corollary to that being that a country must have a minimum of three sources for each of the indices. The reason for this is that there are more observations across countries and time for the Information Transparency index, and so a country was only given an overall score if it met the minimum criteria for *both* indices.

5. Summary Statistics and Initial Analysis

Overall, these two indicators have extensive coverage across countries, and time. The information transparency index has scores for initially 152 countries in 1980, increasing over time to 191 by the year 2010. The political transparency index has slightly lower coverage, having only 115 countries in 1980, but rising to up to 194 countries towards the end of the period.

Chart 1 below illustrates how the global means have changed over time since 1980. Both the *PTI* and *ITI* are virtually identical through the 1980s, however, unsurprisingly one can see something of a spike in the mean of the *PTI* in the early 1990s as many transition countries either broke away or were created after the disintegration of the Soviet Union. From the mid-1990s one can see that the degree of political transparency has largely stagnated (on average), whilst there has been a steady improvement in the amount of information released by governments, to the extent that by 2010 there was roughly a ten-point difference in the means between the *PTI* and *ITI*.

[9] See http://andrewwilliamsecon.wordpress.com/datasets/ for information.

CHART 1: MEAN OF *PTI*, *ITI* AND COMBINED INDICES, 1980 - 2010

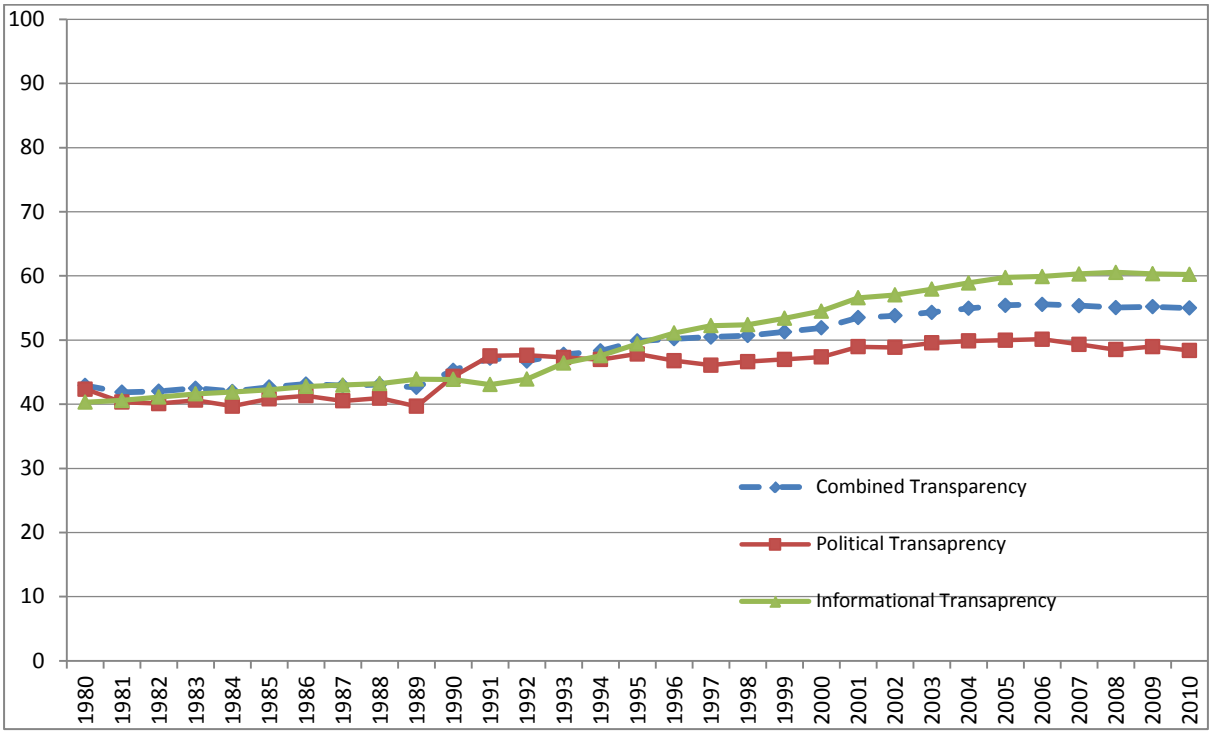


Table 1 lists the top and bottom twenty countries for each index, averaged over the 1980-2010 period. In many respects there are few surprises, in that OECD countries tend to feature prominently in both the *PTI* and *ITI*. In the Political Transparency index, those with the lowest scores are amongst those one would traditionally associate with extremely poor political transparency – North Korea, Cuba, Libya, Iraq and so on. It is also interesting to note that the countries appearing in both lists are not identical. In other words, whilst some may have extremely low political transparency, their degree of informational transparency is sometimes higher (and vice versa).

It is important, however, to remember that these indicators are constructed with 'noise', whether that be due to a small number of available sources, or because the individual sources differ significantly in their measurement of transparency for a particular country. Charts 2a and 2b below show the point estimates and 90% confidence intervals for the Political Information index, and the Information Index, for 2010.[10] As can be seen, there are a number of countries which exhibit quite large standard errors. As with both the World Bank's Governance Indicators data, and Transparency International's *CPI*, caution is therefore urged in researchers using the point estimates in their dataset.

[10] Individuals are free to construct their own from any year of the indicators, which can be accessed at: http://andrewwilliamsecon.wordpress.com/datasets/

Table 1: Top and Bottom Twenty Countries, Average 1980-2010, PTI and ITI

RANK	Country	Political Transparency, Average 1980-2010
1	Australia	78.1
2	Denmark	76.6
3	Finland	76.6
4	Netherlands	76.0
5	Luxembourg	75.8
6	New Zealand	74.9
7	Sweden	74.7
8	Canada	74.2
9	Switzerland	74.0
10	Belgium	74.0
11	Costa Rica	73.7
12	United States	73.5
13	Iceland	73.3
14	Ireland	73.1
15	Norway	73.0
16	United Kingdom	72.7
17	Austria	72.6
18	Estonia	72.3
19	Spain	72.0
20	Portugal	71.9
⋮	⋮	⋮
159	Togo	23.2
160	Myanmar (Burma)	22.1
161	Guinea	22.0
162	Oman	21.6
163	Sudan	20.6
164	Eritrea	20.4
165	Vietnam	19.6
166	Qatar	18.7
167	Afghanistan	18.5
168	Syria	18.3
169	Laos	17.7
170	Equatorial Guinea	16.3
171	Saudi Arabia	16.2
172	Swaziland	15.8
173	Iraq	15.2
174	Libya	13.8
175	Cuba	13.7
176	Uzbekistan	10.8
177	Turkmenistan	10.2
178	Korea, DPR	10.0

RANK	COUNTRY	Information Transparency, Average 1980-2010
1	Canada	79.4
2	Slovenia	77.3
3	Australia	75.9
4	United States	75.9
5	Finland	74.3
6	United Kingdom	73.9
7	Estonia	73.7
8	Netherlands	73.6
9	Germany	73.2
10	France	72.7
11	Sweden	72.5
12	Norway	72.0
13	Spain	71.7
14	Italy	71.0
15	Slovak Republic	70.6
16	Portugal	70.4
17	Austria	69.9
18	Chile	69.5
19	Japan	69.4
20	Switzerland	69.3
⋮	⋮	⋮
161	Cambodia	32.0
162	Guinea-Bissau	31.5
163	Angola	31.4
164	Guinea	31.2
165	Laos	31.2
166	Mauritania	29.9
167	Tajikistan	29.7
168	Bhutan	29.7
169	Comoros	29.4
170	Congo, DR	29.4
171	Chad	28.8
172	Cuba	28.1
173	Turkmenistan	27.8
174	Liberia	26.1
175	Equatorial Guinea	25.9
176	Iraq	25.9
177	Palau	23.8
178	Kiribati	22.0
179	Afghanistan	17.5
180	Somalia	8.5

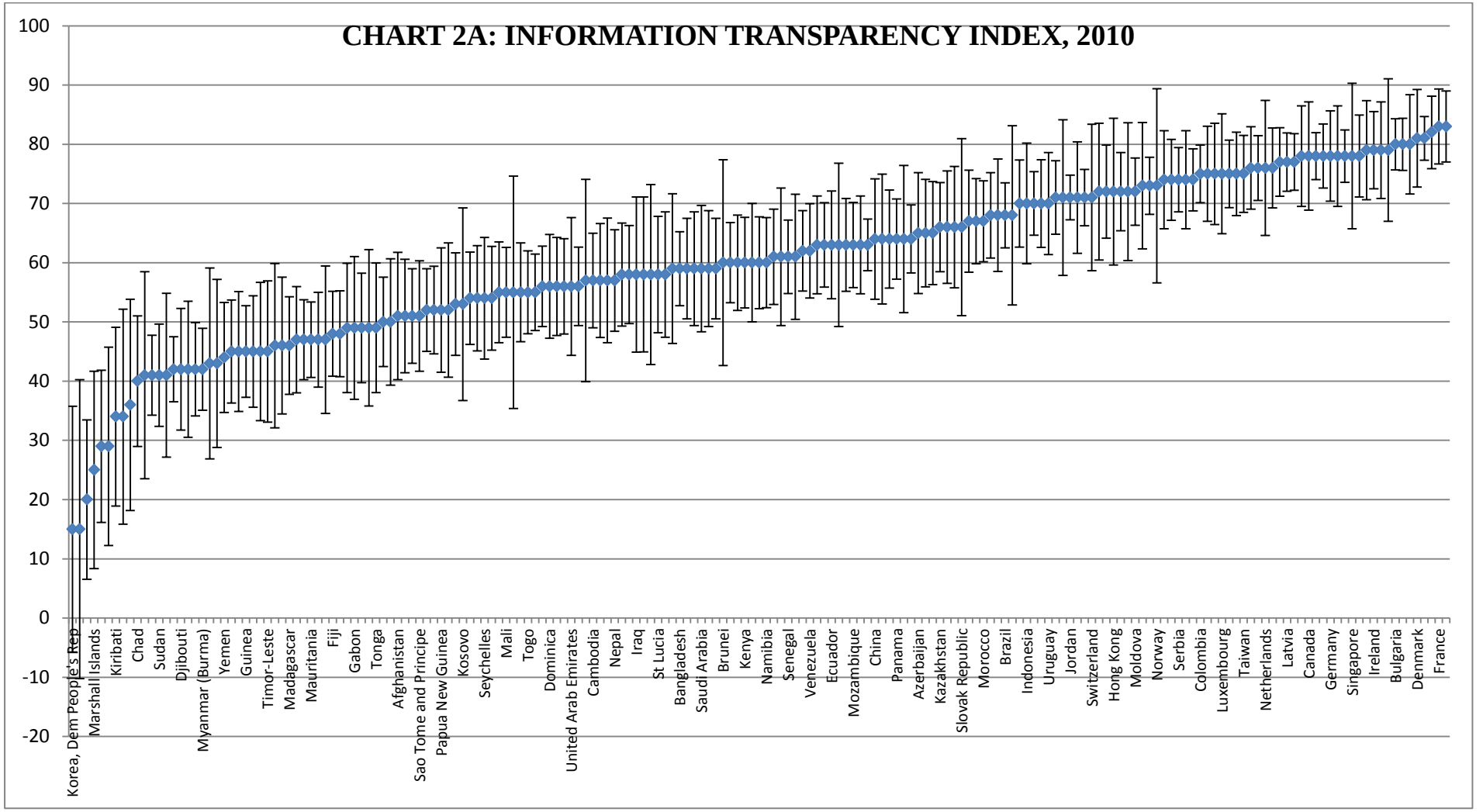


CHART 2A: INFORMATION TRANSPARENCY INDEX, 2010
100
90
80
70
60
50
40
30
20
10
0
-10
-20
Korea, Dem People's Rep
Marshall Islands
Kiribati
Chad
Sudan
Djibouti
Myanmar (Burma)
Yemen
Guinea
Timor-Leste
Madagascar
Mauritania
Fiji
Gabon
Tonga
Afghanistan
Sao Tome and Principe
Papua New Guinea
Kosovo
Seychelles
Mali
Togo
Dominica
United Arab Emirates
Cambodia
Nepal
Iraq
St Lucia
Bangladesh
Saudi Arabia
Brunei
Kenya
Namibia
Senegal
Venezuela
Ecuador
Mozambique
China
Panama
Azerbaijan
Kazakhstan
Slovak Republic
Morocco
Brazil
Indonesia
Uruguay
Jordan
Switzerland
Hong Kong
Moldova
Norway
Serbia
Colombia
Luxembourg
Taiwan
Netherlands
Latvia
Canada
Germany
Singapore
Ireland
Bulgaria
Denmark
France

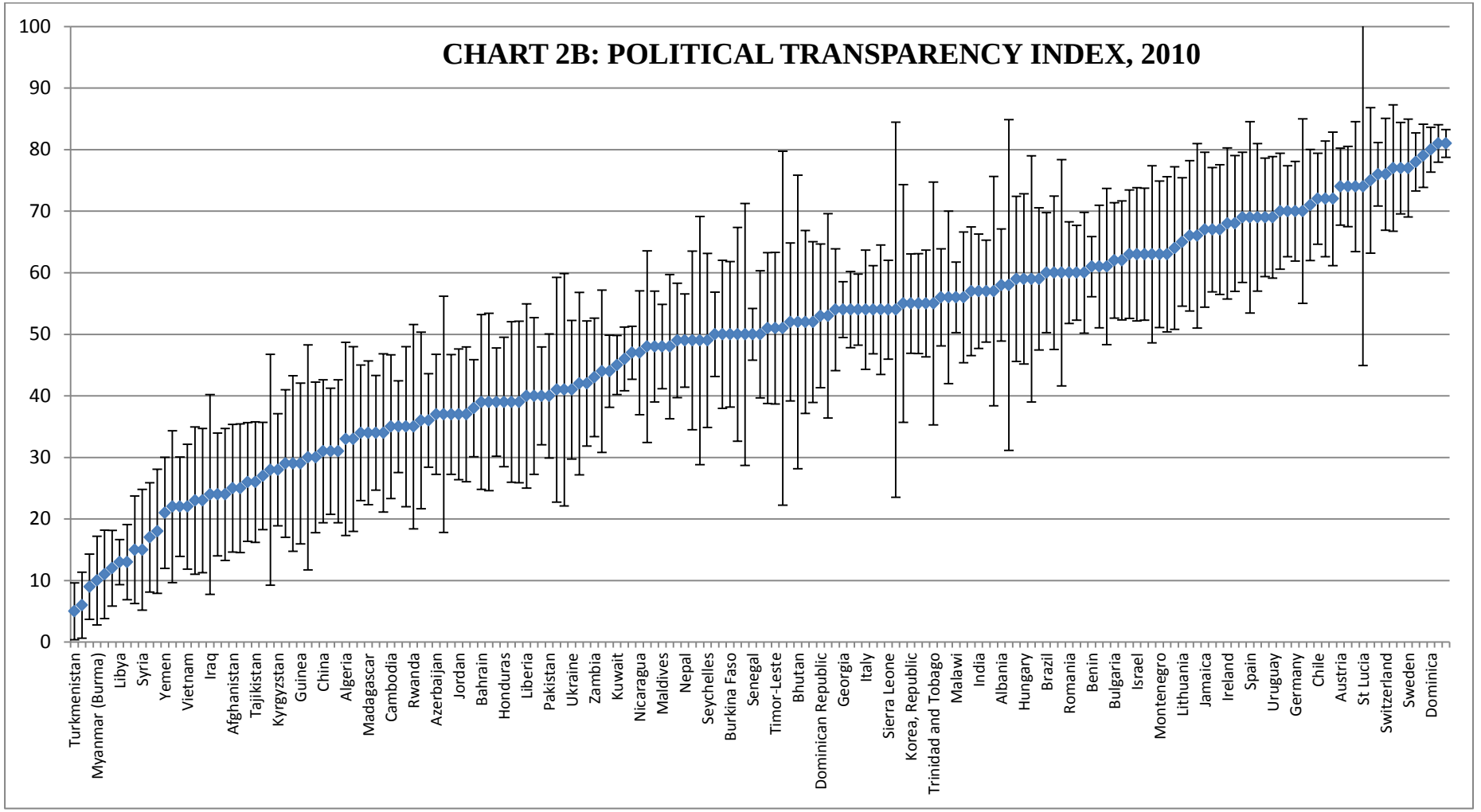
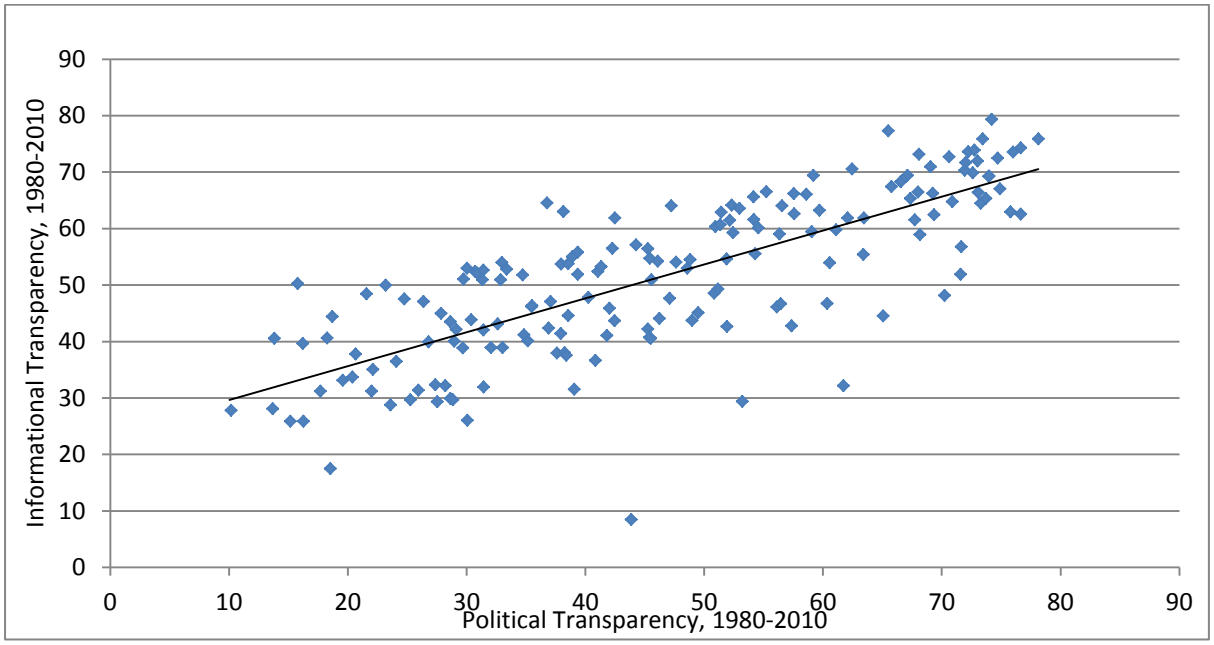


CHART 2B: POLITICAL TRANSPARENCY INDEX, 2010
100
90
80
70
60
50
40
30
20
10
0
Turkmenistan
Myanmar (Burma)
Libya
Syria
Yemen
Vietnam
Iraq
Afghanistan
Tajikistan
Kyrgyzstan
Guinea
China
Algeria
Madagascar
Cambodia
Rwanda
Azerbaijan
Jordan
Bahrain
Honduras
Liberia
Pakistan
Ukraine
Zambia
Kuwait
Nicaragua
Maldives
Nepal
Seychelles
Burkina Faso
Senegal
Timor-Leste
Bhutan
Dominican Republic
Georgia
Italy
Sierra Leone
Korea, Republic
Trinidad and Tobago
Malawi
India
Albania
Hungary
Brazil
Romania
Benin
Bulgaria
Israel
Montenegro
Lithuania
Jamaica
Ireland
Spain
Uruguay
Germany
Chile
Austria
St Lucia
Switzerland
Sweden
Dominica

Recall, one of the contentions here is that these two indices are essentially measuring two different aspects of transparency, and so it is entirely plausible that a country may score quite differently between the two indices. Indeed, as Chart 3 shows, although there is understandably quite a high correlation between the *PTI* and the *ITI*, that correlation is not perfect (0.77 averaged over the period).

Chart 3: Political versus Informational Transparency Indices, Average 1980-2010



In terms of a regional analysis (see Table 2), North America and Western Europe on average have the highest transparency across both indices, whilst the Middle East and North Africa have the lowest scores on the *PTI* (they do, however, have a higher *ITI* score on average than Sub-Saharan Africa, South Asia, and East Asia and the Pacific). It is also interesting to note that Eastern and Central Europe do much better in terms of their information transparency than their political transparency. By income grouping (see Table 3), richer countries have both better political transparency and information transparency. By and large, most income groups have better transparency with respect to economic and financial information than for political information. In terms of GDP per capita there is a positive association between the degree of both political and information transparency, and GDP per capita (see Charts 4a and 4b). However, the political transparency index shows somewhat more of a 'U-shape' than the information transparency index, which is relatively linear in its relationship with income. For political transparency, this suggests that for countries with both very high and very low levels of political transparency, average incomes are quite high. For example, four of the top ten

countries in terms of GDP per capita (from the World Development Indicators, PPP in constant dollars) are the UAE, Qatar, Kuwait and Singapore, who all score quite poorly on the *PTI*.[11]

Table 2: Regional Averages for PTI and ITI, 1980-2010

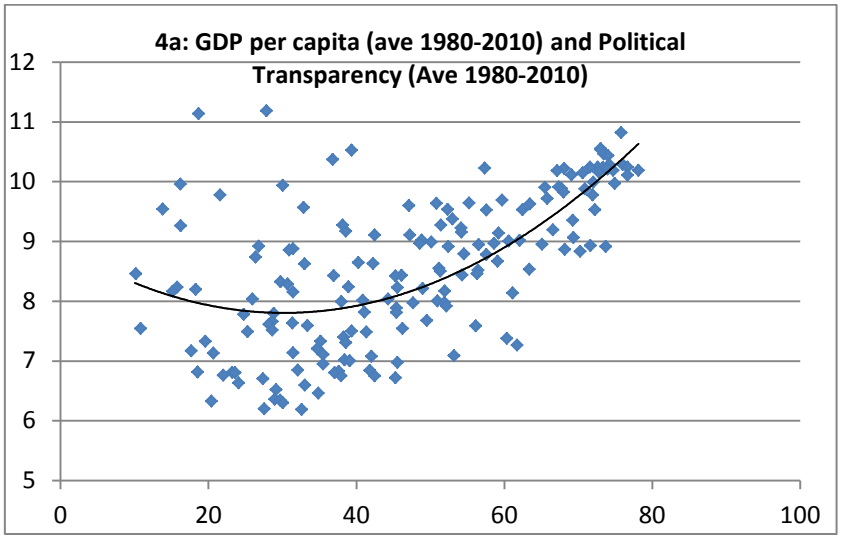
Region	Political Transparency, 1980-2010	Information Transparency, 1980-2010
North America	73.8	77.6
Western Europe	73.1	69.7
Latin America & Caribbean	55.4	55.1
Eastern and Central Europe	46.0	57.4
East Asia and Pacific	44.6	46.8
South Asia	39.1	41.8
Sub-Saharan Africa	36.0	40.6
Middle East and North Africa	35.0	49.9
World Average	*46.0*	*50.8*

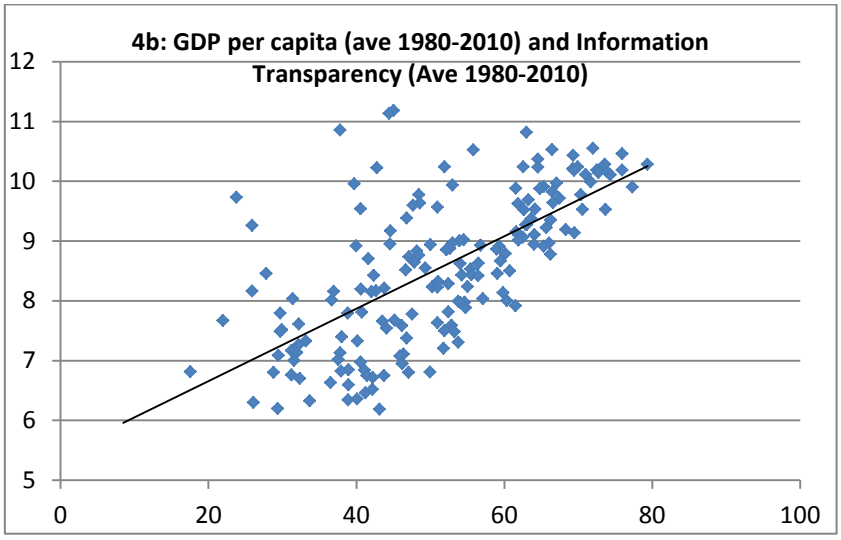
Table 3: Averages by Income Group for PTI and ITI, 1980-2010

Row Labels	Political Transparency, 1980-2010	Information Transparency, 1980-2010
High-income, OECD	73.0	70.4
High-income, non-OECD	52.1	56.1
Upper-middle-income	51.4	57.0
Lower-middle-income	44.3	50.2
Low-income	33.8	40.1
World Average	*46.0*	*50.8*

[11] Although each do better in terms of the *ITI*. Singapore, for example, ranked 117th (averaged over 1980-2010) on the *PTI*, but ranks 35th on the *ITI*.

Charts 4(a) and 4(b): GDP per capita (PPP, constant USD), Political Transparency and Information Transparency





Although there are few existing indicators that match the Information and Political Transparency indicators developed here, Table 4 outlines the correlations of these two indicators (as well as the overall indicator) with three of the *World Bank Governance Indicators* that most closely match the intent of the transparency indicators here, as well as the Bellver/Kaufmann Indicators. As the table shows, the indicators here are very highly correlated with their closest corollary indicator (highlighted in bold). For example, the *PTI* (averaged over 2002-2005) has a correlation of 0.94 with the 2002/3 Political Transparency Indicator from Bellver and Kaufmann, whilst their Economic and Institutional

measure has a correlation of 0.83 with the Information Transparency indicator here.[12] The closest *WGI* indicator to the Political Transparency index would be the Voice and Accountability indicator, and we see the correlation is again extremely high (0.92). The other two WGI indicators listed here (Government Effectiveness and Regulatory Quality) are not as closely matched in terms of their objectives with the Information Transparency indicator here, and this is perhaps reflected in the relatively lower correlations (0.74 and 0.81 respectively). Nevertheless, overall these correlations suggest that, as far as one can compare them to existing (imperfect) measures, the correlations are extremely high, particularly with respect to the only other existing transparency measures from Bellver and Kaufmann.

Table 4: Correlations with Selected Governance Indicators

	Information Transparency	Political Transparency	Overall Transparency
World Bank Governance Indicators:			
Voice & Accountability	0.62	**0.92**	0.91
Government Effectiveness	**0.74**	0.63	0.77
Regulatory Quality	**0.81**	0.73	0.85
Bellver/Kaufmann Transparency Indicators:			
Economic & Institutional Transparency	**0.83**	0.61	0.78
Political Transparency	0.55	**0.94**	0.88
Overall Transparency	0.77	0.87	**0.93**

Note: The ITI and PTI are averaged over 1996-2010 for the World Bank Governance Indicators, and averaged over 2002-2005 for the correlations with the Bellver/Kaufmann Indicators.

The final analysis here involves looking more very briefly at a number of interesting case studies to examine how the respective political and information transparency indices have performed in these countries since 1980. The case studies chosen are somewhat arbitrary, but have largely been chosen either for their importance to the global economy in the 21st century, or because they are examples of where transparency-related issues may have played a part in the country's economic development.[13]

Chart 5(a) shows the *ITI* and *PTI* scores since 1980 for China. Note that at the start of the period in question, China was just about to embark on its sustained period of economic development. And its scores for both types of transparency were extremely low. In 1980 China ranked 136th out of 152 countries for Information Transparency, and 90th out of 115 countries in terms of Political Transparency. Since that time, there has been a steady increase in its Information Transparency

[12] One reason the correlation is relatively lower is perhaps due to the fact that Bellver and Kaufmann included fiscal transparency measures in this indicator, whereas I have included them in the Political Transparency index).

[13] Interested readers are of course encouraged to undertake their own research on countries of interest to them. Data can be downloaded at http://andrewwilliamsecon.wordpress.com/datasets/.

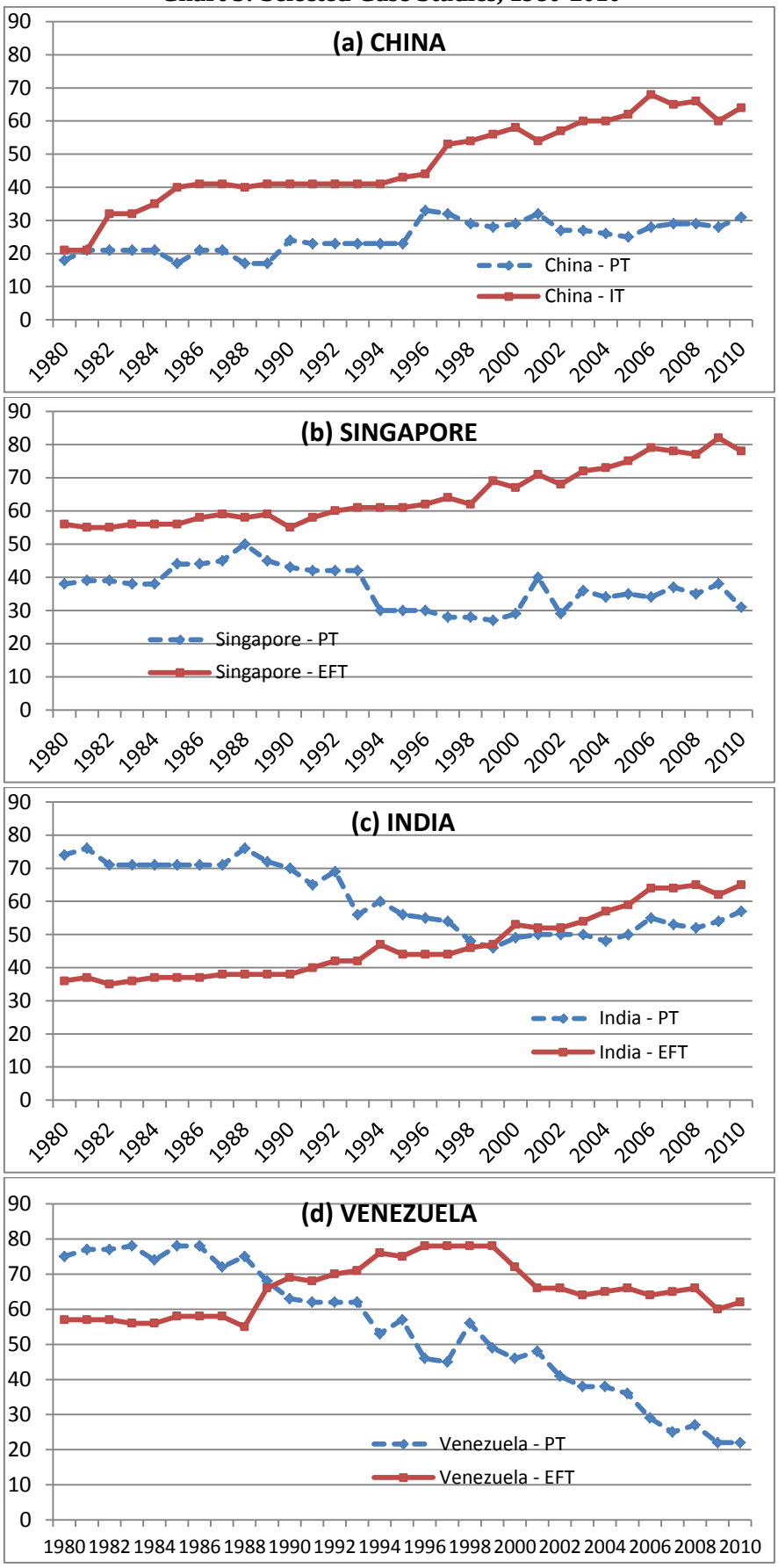
scores, whilst its Political Transparency score has remained relatively poor. It could be argued (though this is very far from definitive proof here) that in order for any country to maintain and increase its level of economic development, the amount of information released by the government *has* to increase (even if the quality of that information may still be somewhat questionable) in order for the private sector to thrive. Singapore tells a similar story in Chart 5(b), although its Information Transparency scores have consistently been higher than its Political Transparency over the entire period.[14]

On the other hand, it has often been said that India's economic development has occurred *despite* its democracy, rather because of it. And, as Chart 5(c) shows, up until the late 1990s, its Political Transparency scores were greater than its Information Transparency scores. Since that time, however, the information transparency component has continued to climb, even as its political transparency scores have stagnated and declined. The final country in Chart 5(d) is Venezuela, which has often been seen as something of a pariah in Western countries since the early years of the 21st century under Hugo Chavez. As this chart shows, however, its political transparency was declining before Chavez came to power (although his ascension to power certainly didn't stop this decline). But in terms of its information transparency it has always scored relatively well and, although it declined as well after 2000, this decline has not been quite as pronounced.

This brief look at these four countries is certainly not intended as signifying any type of causal relationship here between transparency and changes in economic development. It does, however, demonstrate that these indicators appear to 'make sense' in terms of these countries' political and economic developments over the past three decades.

[14] Although not included here, Thailand, Malaysia and South Korea also exhibit a similar pattern, in that their information transparency scores are also well above their political transparency scores over the period.

Chart 5: Selected Case Studies, 1980-2010



6. Application: Growth and transparency, 1980-2010

Having had a brief overview of the two transparency indices, in this final section a more formal econometric analysis will be undertaken, looking specifically at the growth performances of countries, and whether or not the two types of transparency are associated with that growth.

Table 5 employs a standard cross-section growth analysis, with average per capita growth as the dependent variable:

$$GY_i = \alpha + \beta_1 LNY_i + \beta_2 ITI_i + \beta_3 PTI_i + \delta_i X_i + \mu_i \qquad (6)$$

Where *GY* is the per capita growth rate (average 1980 – 2009), LNY_i is the log of initial GDP per capita, ITI_i and PTI_i are the Information and Political Transparency indicators and X_i is a set of control variables that encompass a range of economic, institutional and fixed factors.[15]

Column 1 includes the set of X_i variables from above as a comparison for the following regressions. As is generally found, investment is a significant determinant of growth. In this regression, ethno-linguistic fractionalisation and, to a slightly lesser degree, corruption and political rights are also significant.[16] In Columns 2 and 3, the Information and Political Transparency indicators are (separately) introduced. As can be seen, neither appears to be a significant determinant of growth. Indeed, both are marginally negative. Running them both together (Column 4) does not change this result. This suggests that the *level* of transparency has not played a major role in economic growth since 1980.[17] However, in Columns 5 and 6 we add the *change* in Information and Political Transparency respectively, and here we see that, whilst changes in political transparency have not had an effect on growth, the change in information transparency certainly has (Column 5). In other words, countries that have experienced strong economic growth since 1980 have also experienced large increases in their informational transparency. At this stage, it is not possible to interpret this in any causal sense. For example, all this may be saying is that as economic growth occurs, the amount of information released by governments also rises. But this may just be a natural consequence of growth itself and, whilst interesting, says nothing about whether changes in information transparency have subsequently helped increase economic growth, or whether economic growth has led to increases in information. We will return to this issue shortly.

[15] Full definitions of all variables and their sources can be found in Appendix Table A3. Table A4 lists the countries included in the sample.

[16] Note that the Political Rights indicator has higher scores indicating poorer political rights. Hence, with a positive coefficient here, this says that countries with fewer political rights have on average grown faster over this period.

[17] Nor is this due to any issues with multi-collinearity. The straight pair-wise correlation between growth and *ITI* is -0.069, and with *PTI* -0.072, neither of which are particularly high.

As with many governance-related issues, these results may be driven largely (or exclusively) by the highly transparent, high income countries. To see whether this is the case, Column 8 runs the changes in information and political transparency with these high-income OECD countries removed. The effect on information transparency is actually strengthened by the removal of these countries, with the coefficient increasing from 0.51 to 0.59. The coefficient on the political transparency variable is, however, effectively unchanged.

In summary, therefore, this brief analysis of transparency and growth seems to suggest that it is not the level of transparency that has been important over the medium term (30 years), but rather the degree of change in transparency. It is also interesting to note that in terms of growth it is only the information component of transparency that is important – countries that have seen substantial improvements (or deteriorations) in their political transparency have not seen a concomitant increase (decrease) in their growth rates.

As mentioned above though, it is highly plausible that increases in information flow naturally from higher economic growth. It would be better to get some indication of whether this increase in information lags behind increases in growth (suggesting this hypothesis could be true), or whether improvements in information precede improvements in growth, which suggests that information transparency has an important role to play in economic growth. Table 6 below is a modest attempt to address this issue, by exploiting the time series nature of these transparency indicators, and employing a Granger-causality analysis (Granger, 1969). In this estimation, lagged values of both the dependent and independent variables are incorporated into a regression. A variable is said to 'Granger-cause' another variable if, in the presence of previous values of the dependent variables, the coefficients of the lagged explanatory variables are jointly significant. In this analysis, we will use a parsimonious estimation, using only per capita growth, investment, and the two transparency indicators. Investment is included to see whether the results found in Williams (2009) hold true here as well. In that paper, he found that the release of information by governments had a strong causal effect on investment, which subsequently had a causal effect on growth. The data is from the same sources used in the previous cross-sectional analysis, and consists of ten three-year non-overlapping periods (1980-2009). Growth and investment have been averaged over each three year period, whereas the two transparency indices represent the change between the first and last year of each three year period:[18]

[18] For example, ΔITI_{1980} represents the change in the ITI between 1980 and 1982, ΔITI_{1983} represents the change in information transparency between 1983 and 1985, and so on.

$$GY_t = \alpha_0 + \sum_{k=1}^{n} \beta_k^1 GY_{t-k} + \sum_{k=1}^{n} \beta_k^2 \Delta ITI_{t-k} + \sum_{k=1}^{n} \beta_k^3 \Delta PTI_{t-k} + \sum_{k=1}^{n} \beta_k^4 INV_{t-k} + \mu_t^0 \quad (7)$$

$$\Delta ITI_t = \alpha_1 + \sum_{k=1}^{n} \delta_k^1 \Delta ITI_{t-k} + \sum_{k=1}^{n} \delta_k^2 GY_{t-k} + \sum_{k=1}^{n} \delta_k^3 \Delta PTI_{t-k} + \sum_{k=1}^{n} \delta_k^4 INV_{t-k} + \mu_t^1 \quad (8)$$

$$\Delta PTI_t = \alpha_2 + \sum_{k=1}^{n} \omega_k^1 \Delta PTI_{t-k} + \sum_{k=1}^{n} \omega_k^2 GY_{t-k} + \sum_{k=1}^{n} \omega_k^3 \Delta ITI_{t-k} + \sum_{k=1}^{n} \omega_k^4 INV_{t-1} + \mu_t^2 \quad (9)$$

$$INV_t = \alpha_3 + \sum_{k=1}^{n} \theta_k^1 INV_{t-k} + \sum_{k=1}^{n} \theta_k^2 GY_{t-k} + \sum_{k=1}^{n} \theta_k^3 \Delta ITI_{t-k} + \sum_{k=1}^{n} \theta_k^4 \Delta PTI_{t-k} + \mu_t^3 \quad (10)$$

For example, information transparency is said to 'Granger-cause' growth if the sum of the lagged coefficients ($\sum_{k=1}^{n} \beta_k^2$ in Equation 7) is significantly different from zero. Growth is said to 'Granger-cause' information transparency if $\sum_{k=1}^{n} \delta_k^2$ in Equation 8 is significantly different from zero (causation is said to run in both directions if they are both significantly different from zero). Note that, because there are ten periods, up to three lags will be taken (that is, a maximum of nine years, and n=3 in equations 5-8 above).

Due to the inclusion of lagged dependent variables, the estimation procedure adopted here is the GMM Instrumental Variables System estimator (GMM-SYS) developed by Blundell and Bond (1998), which uses as instruments past levels of first-differenced variables, and past first differences as instruments of current levels.[19] For the sake of brevity, Table 6 below only reports the results from the Wald tests on the joint significance of the coefficients.[20]

From the evidence presented in Table 6, it appears that improvements in information transparency do actually precede higher growth. In Row (1), with per capita growth as the dependent variable, the lagged changes in the information transparency index are positive, and jointly significant. However, this effect gets weaker at longer lag lengths - note how it is significant at the 1% level after one lag (three years), but only at the five and ten percent level at lag lengths of 6 and 9 years respectively. Information transparency appears to have a relatively quick payoff in terms of growth. However, as row (7) demonstrates, this causation does not run in both directions. At no lag length is economic growth a significant determinant of changes in information transparency. It would therefore appear from this evidence that information transparency is not just a natural consequence of growth, but a conscious decision on the part of the government. Moreover, information appears to have a fairly direct effect on growth, in the sense that it does not appear to operate through the investment channel (row 5).

The lack of a noted relationship between political transparency and growth also continues here, with there being no substantive Granger-causality relationship (in either direction) between political

[19] Specifically, I have used orthogonal deviations, rather than first differences, because these are better at dealing with panels with gaps, as this panel does. Due to the potentially large number of instruments, I have restricted these instruments to t-2 through to t-4. For further details on this estimation, see Roodman (2006). The STATA code used in these estimations can be found at http://andrewwilliamsecon.wordpress.com/datasets/.
[20] Full regression results can be found at http://andrewwilliamsecon.wordpress.com/datasets/

transparency and economic growth (or investment). The slight evidence of causality that is apparent, running from growth back to political transparency, is actually negative.[21] In other words, higher growth leads to lower transparency. However, the weakness of this result means that one should probably not place too much emphasis on this.

Finally, the right hand side of this table again removes the high-income OECD countries from the sample. But the results are largely the same as for the full sample. Information transparency is still a significant determinant of growth (although weaker again with a lag of three periods), but no reverse causality is evident. And political transparency has no significant relationship with growth (in either direction).

[21] In row (10), where growth is a marginally significant determinant of political transparency after three lags (nine years), the coefficients leading to this result are negative.

TABLE 5: CROSS-SECTION OLS REGRESSION RESULTS

Dep. Variable: Per capita growth	1	2	3	4	5	6	7	8
(Log) Initial GDP per capita	-0.500	-0.413	-0.506	-0.415	-0.407	-0.520	-0.453	-0.410
	0.345	*0.457*	*0.348*	*0.458*	*0.335*	*0.333*	*0.318*	*0.363*
(Log) Investment as a % of GDP	3.968 ***	3.957 ***	3.966 ***	3.954 ***	3.493 ***	3.973 ***	3.461 ***	3.595 ***
	1.196	*1.172*	*1.202*	*1.177*	*1.167*	*1.198*	*1.140*	*1.227*
(Log) Population, ave. 1980-2009	0.041	0.080	0.036	0.076	0.076	0.033	0.059	-0.021
	0.131	*0.135*	*0.130*	*0.133*	*0.127*	*0.135*	*0.128*	*0.160*
(Log) Trade openness (% of GDP)	0.030	0.081	0.032	0.086	-0.104	0.025	-0.132	-0.483
	0.399	*0.407*	*0.399*	*0.408*	*0.392*	*0.400*	*0.390*	*0.486*
Capital openness	0.117	0.129	0.112	0.124	0.079	0.118	0.079	0.057
	0.134	*0.144*	*0.134*	*0.143*	*0.126*	*0.135*	*0.126*	*0.131*
Government consumption (% GDP)	-0.040	-0.041	-0.040	-0.041	-0.032	-0.039	-0.030	-0.032
	0.036	*0.036*	*0.036*	*0.036*	*0.031*	*0.036*	*0.031*	*0.037*
Secondary school enrolments, 1980	-0.842	-0.868	-0.871	-0.901	-1.144	-0.873	-1.260	-1.166
	0.678	*0.709*	*0.696*	*0.731*	*0.626* *	*0.697*	*0.657* *	*0.755*
Control of Corruption (WGI)	0.488	0.502	0.467	0.480	0.785 ***	0.490	0.820 ***	0.827
	0.269 *	*0.254* *	*0.278* *	*0.264* *	*0.284*	*0.267* *	*0.275*	*0.427* *
Oil exporting dummy	-0.431	-0.493	-0.414	-0.477	0.092	-0.443	0.108	0.187
	0.901	*0.945*	*0.905*	*0.946*	*0.853*	*0.912*	*0.840*	*0.865*
Landlocked	-0.388	-0.386	-0.394	-0.392	-0.428	-0.392	-0.440	-0.434
	0.320	*0.322*	*0.322*	*0.324*	*0.306*	*0.321*	*0.305*	*0.361*
Distance from equator	0.001	0.001	0.001	0.001	-0.020	0.002	-0.019	-0.030
	0.012	*0.012*	*0.012*	*0.013*	*0.014*	*0.012*	*0.014*	*0.018*
Ethno-linguistic fractionalisation	-2.123 ***	-2.164 ***	-2.133 ***	-2.177 ***	-2.410 ***	-2.115 ***	-2.417 ***	-2.916 ***
	0.681	*0.717*	*0.691*	*0.728*	*0.698*	*0.682*	*0.708*	*0.914*
UK Legal origin	0.216	0.218	0.227	0.230	0.373	0.199	0.339	0.435
	0.263	*0.263*	*0.265*	*0.265*	*0.270*	*0.265*	*0.268*	*0.319*
Political Rights (Freedom House)	0.246 *	0.205	0.341	0.308	0.196	0.249 *	0.202	0.210 *
	0.127	*0.134*	*0.242*	*0.225*	*0.123*	*0.129*	*0.122*	*0.125*
Sub-Saharan Africa dummy	-0.300	-0.276	-0.305	-0.281	-0.102	-0.281	-0.031	-0.043
	0.604	*0.625*	*0.608*	*0.629*	*0.559*	*0.619*	*0.574*	*0.531*
Latin America & Caribbean dummy	0.067	0.113	0.041	0.088	0.286	0.090	0.374	0.280
	0.489	*0.492*	*0.492*	*0.494*	*0.433*	*0.499*	*0.436*	*0.501*
Information Transparency (ave 1980-2009)		-0.016		-0.016				
		0.033		*0.034*				
Political Transparency (ave 1980-2009)			0.012	0.014				
			0.028	*0.028*				
Change in Information Transparency					0.046 ***		0.051 ***	0.059 ***
					0.012		*0.013*	*0.017*
Change in Political Transparency						-0.003	-0.010	-0.010
						0.006	*0.006*	*0.006*
Constant	-5.423	-5.669	-6.242	-6.587	-4.881	-5.201	-4.199	-2.501
	4.748	*4.987*	*5.307*	*5.691*	*4.671*	*4.588*	*4.475*	*4.794*
Observations	135	135	135	135	135	135	135	114
Adjusted R^2	0.54	0.55	0.54	0.55	0.59	0.54	0.60	0.63

*Note: All regressions employ OLS estimates, corrected for heteroscedacity. *, **, *** represent significance at the 10, 5, and 1% levels respectively. For full definitions and sources of variables, see Table A3.*

TABLE 6: THREE YEAR PANEL RESULTS, 1980-2009

		FULL SAMPLE (135 COUNTRIES)			HIGH INCOME OECD COUNTRIES REMOVED (114 COUNTRIES)		
		n=1	*n=2*	*n=3*	*n=1*	*n=2*	*n=3*
		Dep. Variable: Per capita growth			**Dep. Variable: Per capita growth**		
(1)	Information transparency →	7.420	8.150	6.980	5.860	9.140	4.130
	Growth	*0.006* ***	*0.017* **	*0.073* *	*0.016* **	*0.010* ***	*0.247*
(2)	Investment →	2.810	1.880	7.540	3.650	4.510	6.270
	Growth	*0.093* *	*0.390*	*0.057* *	*0.056* *	*0.105*	*0.099* *
(3)	Political transparency →	0.010	0.060	4.130	0.090	0.030	2.790
	Growth	*0.943*	*0.969*	*0.248*	*0.764*	*0.983*	*0.425*
		Dep. Variable: Investment			**Dep. Variable: Investment**		
(4)	Growth →	8.070	8.520	7.040	7.580	9.440	6.530
	Investment	*0.005* ***	*0.014* **	*0.071* *	*0.006* ***	*0.009* ***	*0.088* *
(5)	Information transparency →	1.990	2.340	2.730	1.920	3.040	1.600
	Investment	*0.158*	*0.310*	*0.436*	*0.166*	*0.219*	*0.660*
(6)	Political transparency →	0.560	1.640	4.810	0.060	1.320	4.090
	Investment	*0.453*	*0.440*	*0.186*	*0.811*	*0.517*	*0.252*
		Dep. Variable: Information Transparency			**Dep. Variable: Information Transparency**		
(7)	Growth →	0.470	1.970	1.560	0.640	2.150	1.520
	Information transparency	*0.494*	*0.374*	*0.668*	*0.424*	*0.341*	*0.678*
(8)	Investment →	0.050	2.340	1.210	0.170	1.080	1.940
	Information transparency	*0.819*	*0.310*	*0.750*	*0.679*	*0.584*	*0.585*
(9)	Political transparency →	0.470	1.880	2.620	0.260	2.380	4.730
	Information transparency	*0.495*	*0.391*	*0.454*	*0.608*	*0.304*	*0.193*
		Dep. Variable: Political Transparency			**Dep. Variable: Political Transparency**		
(10)	Growth →	0.460	2.100	6.920	0.070	1.340	2.760
	Political transparency	*0.499*	*0.351*	*0.075* *	*0.792*	*0.513*	*0.429*
(11)	Investment →	0.680	2.280	3.410	0.580	2.600	3.290
	Political transparency	*0.410*	*0.319*	*0.332*	*0.446*	*0.273*	*0.350*
(12)	Information transparency →	0.990	2.630	2.840	1.500	5.400	3.950
	Political transparency	*0.320*	*0.268*	*0.417*	*0.221*	*0.067* *	*0.267*

*Notes: Wald test results of joint significance on lagged coefficients. *, **, *** represent significance at the 10, 5, and 1% levels respectively. P-values in italics. For full definitions and sources of variables, see Table A3.*

7. Concluding Comments and Future Research Issues:

For the first time, a composite indicator of transparency has been collated that has significant coverage across countries and time. Moreover, transparency has been divided into an information component, and a political component – issues that have often been conflated together in the literature over the years. This reflects the fact that the mere act of a government providing more economic, social and financial information does not of itself translate into greater accountability. Accountability (or political transparency) is more closely associated with the idea of information as a constraining mechanism on the part of public officials, rather than the information itself. Having laid the conceptual groundwork for these ideas, the index was constructed using a methodology similar to the new methodology used in Transparency International's *Corruption Perceptions Index*. The benefits of this are two-fold: (i) scores are more comparable over time, which is a necessary element to have in an index stretching over 30 years, and (ii) the methodology itself is quite straightforward, and lends itself to both replication and modification, should researchers choose to do so.

These composite indicators have used a broad range of sources in its construction, ranging from some well-known sources, such as Freedom House's *Freedom of the Press* index, through to measures constructed specifically for use in this index (the information published in the *World Development Indicators*, *International Financial Statistics*, *Government Financial Statistics*, and *Balance of Payments* databases). Overall, the indicators use 24 sources (12 for the Information Transparency index, and 12 for the Political Transparency index), which have been produced by 16 distinct organisations. Although many of these sources begin their coverage only in the early years of the 21st century, the minimum criteria of three sources per country guarantees that scores over the entire period are not being driven purely from one source.

A brief analysis of the two indicators highlighted several issues. The first of these was that, although the two measures have a high degree of correlation between them, this correlation is far from perfect. There are a number of cases where a country has on average scored quite poorly in one index, but relatively strongly in the other. For example, when discussing 'transparency' in China, the distinction between the information component and the political component is an important one, because China has seen a steady increase in its information transparency since 1980, but very little improvement in its political transparency. Singapore displays a similar pattern. Unsurprisingly, high income countries in Western Europe and North America demonstrate high levels of both information and political transparency. The Middle East and North Africa, by contrast, have on average the lowest levels of political transparency, whilst Sub-Saharan Africa has the lowest average scores with respect to information transparency.

As an illustrative example of how these two indicators might be used in future research, the final section conducted an analysis of the effect of transparency on economic growth in the medium term (1980-2009). In terms of the levels of transparency (both information and political), there does not appear to be much of a relationship with respect to growth in per capita incomes since 1980. However, if one looks at this in terms of *changes* in transparency over time, a different story emerges. Specifically, countries that have experienced strong improvements in their information transparency have also on average experienced stronger economic growth. There was, however, still no noticeable relationship between changes in per capita incomes and changes in political transparency. In order to get a sense of whether these improvements in information transparency preceded growth, or were more of a consequence of growth, a Granger-causality analysis was undertaken. This demonstrated quite strongly that improvements in information transparency occurred before increases in economic growth. Hence, the suggestion here is that, rather than being a natural consequence of improving per capita incomes, information transparency is something that can help a country improve its living standards, at least in the short term.

Admittedly, these initial results are relatively crude, and require greater depth than was possible here. Nevertheless, these results may hopefully point researchers towards exploring some of the issues raised here. For example, the lack of any significant relationship between economic growth and political transparency in the short term may indicate that international efforts to help developing countries might be better off focussing attention on the informational element of transparency first – improving both the quantity and quality of the information provided, and assisting the private sector in being able to use this information better. Political transparency, however, is a 'deeper' institutional concept, in that accountability of public officials can only occur with the consent of those same public officials. Political transparency is something that is less likely to be significantly influenced by international organisations, because it goes to the heart of the political system countries have developed over time. The political transparency indicator may be useful in order to empirically examine what are some of the pre-conditions for this movement towards greater accountability.

There are also a myriad of economic questions that these indicators may help in shedding some light on, such as the role of information in a country's productivity over time; the impact of natural resources on a country's information and/or political transparency, and hence whether that is in some way a contributor to the 'resource curse'; the role of transparency in the quantum and quality of foreign direct investment; and the role of transparency in the effectiveness of aid. The use of these transparency indicators developed here should at least be able to provide some general guidance on these problems, and allow researchers to develop some general principles for more detailed future research.

TABLE A1: SOURCES FOR INFORMATION TRANSPARENCY INDEX				
Name of index	**Source and Access Link**	**Country Coverage**	**First year of coverage**	**Comments**
Release of Financial Information Index	Author's own calculations, based on Williams (2009) http://andrewwilliamsecon.wordpress.com/datasets/	180+	1980	Proportional count of information appearing in the IMF's International Financial Statistics. Topics 1, 2, 3, and 6 only (see http://andrewwilliamsecon.wordpress.com/datasets/ for more information)
Release of Economic and Social Information Index	Author's own calculations, based on Williams (2009) http://andrewwilliamsecon.wordpress.com/datasets/	180+	1980	Proportional count of information appearing in the World Bank's World Development Indicators. Where possible, no data has been 'double-counted' with the IFS, or BoP data (see http://andrewwilliamsecon.wordpress.com/datasets/ for more information).
KOF Index of Globalization	http://globalization.kof.ethz.ch/	186	1980	Sub-section data on 'information flows': *internet users (per 1,000 people); televisons (per 1,000 people); trade in newspapers (percent of GDP)*
Release of Balance of Payments Information Index	Author's own calculations, based on Williams (2009) http://andrewwilliamsecon.wordpress.com/datasets/	180+	1980	Proportional count of information appearing in the World Bank's Balance of Payments database, based on BPM5 (see http://andrewwilliamsecon.wordpress.com/datasets/ for more information).
Central Bank Transparency - Economic Transparency	Siklos (2011) http://www.central-bank-communication.net/links/	101	1998	Based on methodology from Dincer and Eichengreen (2007), and Eijffinger and Geraats (2005). Economic transparency sub-index only (Question 2).
Banking Disclosure index	http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html	180+	2000	Author's own calculations. Data on the Banking Disclosure Index has been taken from Section 10 of the *Banking Regulation dataset* (deals with disclosure rules and norms). Specifically, questions 10.3, 10.4, 10.4.1, 10.5 and 10.6.
Institutional Profiles database (IPD)	http://www.cepii.fr/institutions/EN/ipd.asp	120+	2001	From the International Profiles database, compiled by the French government. Questions used for the Information Transparency index are: **A3004** (Basic economic and financial statistics); **A3005** (consultation under IMF Article IV); **A301** (transparency of economic policy); **A350** (evolution of transparency of public action); **B4510** (transparency of privatisation procedures); **B600** (information on private firms); **B7100** (information on shareholder structure); **C601** (information on private banks); **C603** (compulsory publication of information by firms). All scores averaged to produce final score.
E-government (UN) - web measure, infrastructure, participation	http://unpan3.un.org/egovkb/about/index.htm	180+	2003	Looks at the diffusion of information through the internet. Includes indicators on how many people use it, as well as the amount of infrastructure a country has for the internet. Scores on *egov_web* and *egov_infrastructure* have been averaged here.

TABLE A1: SOURCES FOR INFORMATION TRANSPARENCY INDEX				
Doing Business - Protecting Investors: Extent of disclosure	http://www.doingbusiness.org/	180+	2004	This component is based on two issues: *approval process for related-party transactions, and disclosure requirements in case of related-party transactions (0-10)*
Statistical Capacity Indicator - *Periodicity and timeliness*	http://go.worldbank.org/UI0WGV6KW0	(developing countries only)	2004	Looks at how quickly developing countries are able to collect, collate and release information to the public.
Global Integrity Report	http://www.globalintegrity.org	109	2004	Indicator used is the *Civil Society, Public Information and Media* category
IDA Resource Allocation Index - Quality of Budgetary and Financial Management	http://www.worldbank.org/ida/IRAI-2011.html	81	2005	This criterion assesses the extent to which there is: (a) a comprehensive and credible budget, linked to policy priorities; (b) effective financial management systems to ensure that the budget is implemented as intended in a controlled and predictable way; and (c) timely and accurate accounting and fiscal reporting, including timely and audited public accounts and effective arrangements for follow up.

TABLE A2: SOURCES FOR POLITICAL TRANSPARENCY INDEX				
Name of index	**Source and Access Link**	**Country Coverage**	**First year of coverage between 1980-2010**	**Comments**
Freedom of the Press	Freedom House: http://www.freedomhouse.org/report-types/freedom-press	197	1980	Freedom of the Press: "...an annual survey of media independence in 197 countries and territories, is at the core of Freedom House's press freedom project... The index assesses the degree of print, broadcast, and internet freedom in every country in the world, analyzing the events of each calendar year. It provides numerical rankings and rates each country's media as "Free," "Partly Free," or "Not Free.""
Release of Fiscal Information Index	Author's own calculations, based on the IMF's Government Financial Statistics. http://andrewwilliamsecon.wordpress.com/datasets/	161	1980	Similar methodology to the Release of Information index, compiled by Williams (2009). Data for this index was collected from the June 2013 CD-ROM of the *Government Financial Statistics*. Due to the fact that countries have varying levels of government, the only levels used were the central government categories (BA, EA and CG), along with the General Government category (for data prior to 1990). Where countries had identical data included in more than one category, it was only counted once. Additionally, many countries have moved from a cash-based reporting system to an accrual-based system. Some countries continue to produce both. Again, when both methods used, they have only been counted once. The specific categories used here are based only on revenues and expenditures. Specifically, categories 1, 2 and 3. Although there is also data on stocks, the country and temporal coverage is sporadic. Therefore, it was decided only to focus on the flows of revenues and expenditures reported each year.
Executive Constraints	http://www.systemicpeace.org/polity/polity4.htm	163	1980	This variable refers to the extent of institutionalised constraints on the decision-making powers of chief executives, whether individuals or collectivities. Such limitations may be imposed by any "accountability groups." (Marshall and Jaggers, 2002). The scale is 1-7, with higher numbers reflecting greater constraints on the executive.

TABLE A2: SOURCES FOR POLITICAL TRANSPARENCY INDEX				
CIRI Human Rights	http://www.humanrightsdata.org/	199	1981	Two categories used here: (i) Freedom of Speech: the extent to which freedoms of speech and press are affected by government censorship, including ownership of media outlets. Censorship is any form of restriction that is placed on freedom of the press, speech or expression. Expression may also be in the form of art or music; (ii) Freedom of Assembly and Association: This variable indicates the extent to which the freedoms of assembly and association are subject to actual governmental limitations or restrictions (as opposed to strictly legal protections). (0) Citizens' rights to freedom of assembly or association were severely restricted or denied completely to all citizens. (1) These rights were limited for all citizens or severely restricted or denied for select groups. (2) These rights were virtually unrestricted and freely enjoyed by practically all citizens. The scores of the two categories have been averaged.
World Competitiveness Yearbook - Transparency	www.imd.ch	46-59	1996	Taken from the Executive Opinion Survey. *Question: Transparency - the government communicates its intentions successfully.*
Central Bank Transparency - Political Transparency	Siklos (2011) http://www.central-bank-communication.net/links/	101	1998	Based on methodology from Dincer and Eichengreen (2007), and Eijffinger and Geraats (2005). Political transparency sub-index only.
Institutional Profiles database (IPD)	http://www.cepii.fr/institutions/EN/ipd.asp	120+	2001	From the International Profiles database, compiled by the French government. Questions used for Political Transparency index are: **A1010** (Freedom of the Press); **A1020** (% media under govt control); **A1021** (concentration of media); **A3000** (government budget transparency); **A3001** (transparency of extra-budgetary funds); **A3002** (transparency of SOE's); **A3003** (transparency of public banks); **C4205** (central bank independence). All scores averaged to produce final score.
Press Freedom - Reporteurs Sans Frontieres	http://en.rsf.org/	179	2002	Put together by advocacy group Reporteurs Sans Frontieres. *"It reflects the degree of freedom that journalists, news organizations and netizens enjoy in each country, and the efforts made by the authorities to respect and ensure respect for this freedom. It is based partly on a questionnaire that is sent to partner organizations (18 freedom of expression NGOs located in all five continents), to a network of 150 correspondents, and to journalists, researchers, jurists and human rights activists."*
Media Sustainability Index (MSI)	www.irex.org	Developing countries only	2002	Index rates countries on a variety of subcomponents relating to freedom of speech, plurality of media available to citizens, professional journalism standards, business sustainability of media, and the efficacy of institutions that support independent media.

TABLE A2: SOURCES FOR POLITICAL TRANSPARENCY INDEX				
Global Integrity Report	http://www.globalintegrity.org	109	2004	Various indicators measuring different aspects of budgets. Here, have taken the average of the following three sub-indices: *Administration and Public Service professionalism, government accountability, and government oversight and regulation.*
IDA Resource Allocation Index - Transparency, Accountability and Corruption in the Public Sector	http://www.worldbank.org/ida/IRAI-2011.html	Developing countries only (81)	2005	This criterion assesses the extent to which the executive can be held accountable for its use of funds and the results of its actions by the electorate and by the legislature and judiciary, and the extent to which public employees within the executive are required to account for the use of resources, administrative decisions, and results obtained. Both levels of accountability are enhanced by transparency in decision-making, public audit institutions, access to relevant and timely information, and public and media scrutiny. A high degree of accountability and transparency discourages corruption, or the abuse of public office for private gain.
CPIA - Transparency, Accountability and Corruption in the Public Sector	World Development Indicators http://data.worldbank.org/data-catalog/world-development-indicators	(developing countries only)	2005	From the World Bank's Country Policy and Institutional Assessment index. "assess the extent to which the executive can be held accountable for its use of funds and for the results of its actions by the electorate and by the legislature and judiciary, and the extent to which public employees within the executive are required to account for administrative decisions, use of resources, and results obtained. The three main dimensions assessed here are the accountability of the executive to oversight institutions and of public employees for their performance, access of civil society to information on public affairs, and state capture by narrow vested interests."
Open Budget index	International Budget Partnership: http://internationalbudget.org Also see Seifert et al (2013) for further details.	90+	2006	Based on survey answers to over 90 questions on different aspects of government budgets
Global Competitiveness Report - Transparency of government policymaking (1.12)	http://www.weforum.org/issues/global-competitiveness	135	2006	Based on the question: *"How easy is it for businesses in your country to obtain information about changes in government policies and regulations affecting their activities?"*

Table A3: Variables, sources and summary statistics

Variable	Source	Mean	St. Dev
Per capita growth (PPP) (ave ann % change)	World Development Indicators (2013)	1.76	1.88
(Log) Initial GDP per capita	World Development Indicators (2013)	8.29	1.18
(Log) Investment as a % of GDP	World Development Indicators (2013)	3.04	0.26
(Log) Population, ave. 1980-2009	PENN Tables 7.1 (Heston et al, 2013)	9.11	1.60
(Log) Trade openness (X+M as a % of GDP)	World Development Indicators (2013)	4.22	0.49
Capital openness	Chinn-Ito (2008)	0.00	1.24
Government consumption (% GDP)	World Development Indicators (2013)	15.74	5.30
Secondary school enrolments, 1980	Global Development Network (2009)	0.49	0.32
Oil exporting dummy	Global Development Network (2009)	0.07	0.25
Landlocked	Global Development Network (2009)	0.23	0.42
Distance from equator	Global Development Network (2009)	25.83	17.19
Ethno-linguistic fractionalisation	Alesina et al (2003)	0.46	0.25
UK Legal origin	Global Development Network (2009)	0.27	0.45
Political Rights (Freedom House)	Freedom House (2013a)	3.65	1.87
Sub-Saharan Africa regional dummy	Global Development Network (2009)	0.29	0.45
Latin America & Caribbean regional dummy	Global Development Network (2009)	0.17	0.38
Control of Corruption (WGI)	Wold Bank Governance dataset (2013)	-0.04	1.00
Information Transparency (ave 1980-2009)	Author's own calculations	53.33	12.93
Political Transparency (ave 1980-2009)	Author's own calculations	47.31	17.25

Table A4: Countries used in sample

COUNTRY				
Albania	Chile	Guinea-Bissau	Mauritania	Sierra Leone
Algeria	China	Guyana	Mauritius	Singapore
Angola	Colombia	Honduras	Mexico	Slovenia
Argentina	Congo, DR	Hungary	Moldova	South Africa
Armenia	Congo, Republic	Iceland	Mongolia	Spain
Australia	Costa Rica	India	Morocco	Sri Lanka
Austria	Cote d'Ivoire	Indonesia	Mozambique	Sudan
Azerbaijan	Croatia	Iran	Namibia	Suriname
Bahrain	Cyprus	Israel	Nepal	Swaziland
Bangladesh	Denmark	Italy	Netherlands	Sweden
Belarus	Dominican Rep.	Jamaica	New Zealand	Switzerland
Belgium	Ecuador	Japan	Nicaragua	Syria
Belize	Egypt	Jordan	Niger	Tajikistan
Benin	El Salvador	Kazakhstan	Norway	Tanzania
Bhutan	Equatorial Guinea	Kenya	Oman	Thailand
Bolivia	Ethiopia	Korea, Rep.	Pakistan	Togo
Botswana	Fiji	Kuwait	Panama	Trinidad and Tobago
Brazil	Finland	Kyrgyzstan	Papua New Guinea	Tunisia
Bulgaria	France	Laos	Paraguay	Turkey
Burkina Faso	Gabon	Latvia	Peru	Uganda
Burundi	Gambia	Lesotho	Philippines	Ukraine
Cambodia	Georgia	Lithuania	Poland	United Kingdom
Cameroon	Germany	Macedonia	Portugal	United States
Canada	Ghana	Madagascar	Romania	Uruguay
Cape Verde	Greece	Malawi	Russian Fed.	Venezuela
Central African Rep.	Guatemala	Malaysia	Rwanda	Vietnam
Chad	Guinea	Mali	Senegal	Zambia

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14.02	Metaxas, P.E. and Weber, E.J.	AN AUSTRALIAN CONTRIBUTION TO INTERNATIONAL TRADE THEORY: THE DEPENDENT ECONOMY MODEL
14.03	Fan, J., Zhao, D., Wu, Y. and Wei, J.	CARBON PRICING AND ELECTRICITY MARKET REFORMS IN CHINA
14.04	McLure, M.	A.C. PIGOU'S MEMBERSHIP OF THE 'CHAMBERLAIN-BRADBURY' COMMITTEE. PART I: THE HISTORICAL CONTEXT
14.05	McLure, M.	A.C. PIGOU'S MEMBERSHIP OF THE 'CHAMBERLAIN-BRADBURY' COMMITTEE. PART II: 'TRANSITIONAL' AND 'ONGOING' ISSUES
14.06	King, J.E. and McLure, M.	HISTORY OF THE CONCEPT OF VALUE
14.07	Williams, A.	A GLOBAL INDEX OF INFORMATION AND POLITICAL TRANSPARENCY
14.08	Knight, K.	A.C. PIGOU'S *THE THEORY OF UNEMPLOYMENT* AND ITS CORRIGENDA: THE LETTERS OF MAURICE ALLEN, ARTHUR L. BOWLEY, RICHARD KAHN AND DENNIS ROBERTSON