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Catch-up in Institutional Quality: An Empirical Assessment

by

Usman Khalid

Abstract

There is a growing consensus among economists and policy makers that institutions matter for economic development and that institutional reforms should be a priority for developing economies. Considering the emphasis on institutional reforms, this study asks whether a catch-up in institutional quality has occurred across countries. The study uses data on 81 countries from 1985 to 2010 and tests the catch-up hypothesis using three different measures of institutional quality that capture both political and economic dimensions of institutions. The results indicate that a catch-up in economic institutional quality has occurred and that most countries with weak economic institutions have a higher rate of change than that of countries with strong economic institutions. In contrast, for political institutions, the catch-up process lasts only a few years.

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Catch-up in Institutional Quality: An Empirical Assessment

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1. Introduction

Since the 1980s, a key objective of reforms aimed at promoting economic growth and development has been to improve institutional quality. According to the World Bank (2000), dysfunctional and ineffective institutions and weak governance are "increasingly seen to be at the heart of the economic development challenge" and "building effective and accountable institutions is arguably the core challenge for sustainable poverty reduction" (p. 1). In response to this challenge, governments and multilateral agencies have shifted focus from getting prices right to getting institutions right in developing countries, often by emulating the institutions of developed countries (Rodrik, 2008). At the same time, rapid globalization has led to increased efforts to harmonize institutions across countries and to bind countries formally to common rules (Dolowitz & Marsh, 2000). This focus on a common set of institutions is exemplified by the creation of the World Trade Organization (WTO) in 1995 and the creation of trade unions such as the EU, NAFTA, and ASEAN.

Despite the resources and efforts devoted to institution building and institutional harmonization, there is little consensus on the effectiveness of these reforms (Andrews, 2013). Proponents argue that developing countries must adopt institutions from industrialized countries in order to bypass the stages that the latter already have been through (Mkandawire, 2009). Others argue that this “blueprint” approach may produce ineffective and poorly enforced rules and laws (Andrews, 2013). Moreover, the blueprint approach assumes that institutions from developed countries are optimal developmental instruments, but in fact they do not consider the unique socioeconomic conditions, local knowledge, and culture of the host country (Evans, 2004). The unsuccessful implementation of governance-related conditions imposed by international financial institutions corroborates this view (Kapur & Webb, 2000).

Considering the emphasis on institutions in the development process and the widely reported challenges in reforming institutions, it is fitting to ask whether a catch-up in institutional quality has occurred. Scant empirical literature has explored development trends in institutional quality across countries (e.g., see Elert & Halvarsson, 2012; Nieswiadomy & Strazicich, 2004; Savoia & Sen, 2013). Nieswiadomy and Strazicich (2004) report sigma convergence using Freedom House’s political rights and civil liberties indices. Savoia and Sen (2013) provide evidence of beta convergence based

on analyzing the index for corruption and bureaucratic quality from the International Country Risk Guide and the index of legal system quality from the Fraser Institute's Economic Freedom of the World project. Elert and Halvarsson (2012) also report evidence of cross-country beta convergence in the Economic Freedom Index.

These studies use standard testing methods that assume catch-up is a continuous process or has already occurred. Thus, they provide an incomplete account of catch-up in institutional quality. These tests do not account for catch-up as a process that exists in certain time periods and that affects countries differently as countries differ in terms of their economic and social structure, culture, legal system, and capacity to enforce laws. This implies that not all countries follow a similar institutional change trajectory over time, rather it is likely that countries form groups with distinct institutional change trajectories. Moreover, previous research has not distinguished between economic and political institutions, which is important from policy and theoretical standpoints because the dynamics of change can be very different for economic institutions vis-à-vis political institutions.

This study contributes to the institutional change literature from two perspectives. First, in contrast to previous studies, this paper tests for catch-up in institutional quality and allows for heterogeneity in institutional change trajectories by grouping countries into clubs. Compared to previous studies, this approach offers a more nuanced view of institutional change by testing for the number and composition of clubs and then analysing their institutional change trajectories to determine whether catch-up has occurred. Clubs with weaker institutions should follow a faster institutional change trajectory, or catch-up, than that of clubs with good institutions. Building on previous studies, this paper uses a static factor model to test for catch-up in institutional quality by identifying clubs (e.g., see Andersson, Edgerton, & Opper, 2013; Henning, Enflo, & Andersson, 2011). Using this method identifies turning points in the institutional change trajectories of different clubs by providing information on the exact timing of improvements or deterioration in institutions. Moreover, this method provides a way to investigate whether the catch-up in institutional quality is restricted to certain time periods or if it prevails throughout the entire observation period. This approach identifies the beginning and end of the catch-up process, as well as the speed of institutional catch-up across countries.

Second, this study departs from previous studies by differentiating between economic and political institutions and accounting for the differences in the dynamics of change observed in these institutions. This distinction is important, because theoretical literature on institutional change stresses that economic and political institutions affect political elites differently, which in turn affects how these institutions change. To capture these differences, this study uses three different measures of institutional quality using data from the KOF Index of Globalization, the Economic Freedom of the World index, and the International Country Risk Guide. The three measures focus on: (1) restrictions on trade and capital flows; (2) the quality of legal structure, security of property rights, freedom of exchange with foreigners, and regulation of credit, labor, and business; and (3) the quality of political institutions and rule of law. To enable comparisons across these three institutional indices, the factor model for each index is estimated using a joint sample of 81 countries from 1985 to 2010.

The results suggest different institutional change patterns for economic and political institutions. In the case of economic institutions, most countries experience institutional change in similar directions, and countries with weak institutions have a higher rate of change, indicating a catch-up process across countries. On the contrary, countries form two clubs for political institutions, with most low-income countries in one club and most high- and middle-income countries in the other. The trends for these two clubs indicate a pattern of catch-up at the start of the period, but the converging trend does not persist.

The rest of the paper is organized as follows. Section 2 outlines the estimation strategy. Section 3 introduces the data set, followed by results and conclusions in Sections 4 and 5.

2. Theoretical background

The theoretical and empirical literature provides an ambiguous answer regarding catch-up in institutional quality across countries. It offers three different perspectives about institutional change and the possibility of institutional catch-up: the catch-up perspective, the lagging-behind perspective, and the mixed account.

2.1.Catch-up Perspective

The catch-up perspective suggests several potential channels for institutional catch-up across countries. For example, international organizations like the International Monetary Fund (IMF) and World Bank impose policies and reforms that aim to improve the quality of institutions and governance (Dolowitz & Marsh, 2000; Kapur & Webb, 2000). These reforms often transplant previously accepted institutional blueprints for development (Evans, 2004; Rodrik, 2008). For example, the Washington Consensus in the 1990s aimed to improve the quality of economic institutions in the developing world (Rodrik, 2008). These policies include improved credit market policies, reduced taxes (tariffs) on international trade, and relaxed restrictions on the movement of capital (Gwartney, Lawson, & Block, 1996; Rodrik, 1999). Moreover, governments of many developed countries attach conditions to their bilateral aid, trade, and investment agreements (Chang, 2011) that require developing countries to adopt Western market institutions (Kapur & Webb, 2000; Stiglitz, 1999).

Countries tend to emulate the institutions of other countries. Emulation offers readily available blueprints and avoids the uncertainty of experimenting with new institutional arrangements. Developing countries can adopt institutions from developed countries and thereby use "better" institutions without paying the same "prices" (Chang, 2007). In theory, this lowers innovation costs and hastens diffusion, which enables institutional catch-up across countries (Mamadouh, De Jong, & Lalenis, 2002).

International economic integration and globalization can facilitate the exchange of ideas, including ideas about laws and regulations. Therefore, it may encourage the transfer and implementation of legal knowledge (La Porta, Lopez-de-Silanes, & Shleifer, 2008; Sachs, & Warner, 1995). Globalization also fosters competition among countries for foreign direct investment in capital and in business in general, exerting pressure on countries to adopt good legal rules and regulations and provide trade- and investment-friendly institutions, including privatization, deregulation, balanced budgets, low inflation, and strong property rights (Kelejian, Murrell, & Shepotylo, 2013; Marsh & Sharman, 2009). Importantly, domestic investors have an exit option (and foreign investors have the choice not to enter) and may thereby force governments to improve domestic institutions (Drezner, 2001; Holzinger & Knill, 2005). Thus, globalization may incentivize countries to improve their respective institutional

environments in a global competition for capital and skilled labor. In sum, the above arguments suggest the following hypothesis:

Hypothesis 1: Countries with weak institutions will experience a greater change in their institutional quality and catch-up, compared to countries with strong institutions.

2.2. Lagging-behind Perspective

Two main strands of literature question the effectiveness of these types of institutional reforms. The structural school criticizes their poor design and implementation. The political-economy school revolves around the willingness of elites to initiate and sustain them.

According to the structural view, emulation of a developed country's institutions may not fit a developing country's context and can conflict with the prevailing social and cultural context (Berkowitz, Pistor, & Richard, 2003a; Rodrik, 2008; Roland, 2004). When governments implement institutional reforms, either based on the blueprints provided by Western economists or through trial and error, the behavior of economic actors often disagrees with the formal rules. Instead, informal norms based on networks and culture shape the behavior of economic agents (Nee, 1998; Page & Bednar, 2006). Thus, reactions to new institutional environments may differ because of differences in cultures and norms. When reactions differ, performance may vary.

Legal institutions imported from the West are likely to be ineffective in developing countries unless they are adapted to the local context or some familiarity with those institutions already exists (Berkowitz et al., 2003a; Berkowitz, Pistor, & Richard, 2003b). Such rules, which were developed in a foreign socioeconomic order, may not apply to local circumstances (Berkowitz et al., 2003a). Thus, interpretation of the rule differs more within the borrowing country than it does within the country of origin, making the transplanted rules largely ineffective (Berkowitz et al., 2003b).

Governments in developing countries may not have the resources and capabilities to enforce these adopted institutions (Khan, 2012). Judges and police may not be trained and may be unfamiliar with the new institutional arrangements, and courts may be politicized and unpredictable, making the legal system expensive and inefficient (Hay, Shleifer, & Vishny, 1996). Thus, Berkowitz et al. (2003a) and Hay et al. (1996) argue

that these blueprint reform efforts often fail because the existing institutional environment and laws conflict with the new institutions.

The political-economy stance suggests that institutional reforms in developing countries may be hindered by elites who benefit from existing economic and political institutions (Acemoglu, Johnson, & Robinson, 2005). These elites oppose institutional reforms that threaten their political power. In this situation, low-quality economic and political institutions can persist (Acemoglu & Robinson, 2012). Similarly, Sonin (2003) argues that the elite establish corrupt relationships with state authorities to manipulate redistributive processes. They consequently oppose measures to prevent corruption and protect the public. Resource inequality also enables the rich to subvert the political, regulatory, and legal institutions for their own benefit and leads them to favor established institutions over new efficient ones (Glaeser, Scheinkman, & Shleifer, 2003).

As North, Wallis, Webb, and Weingast (2009) assert, most of today's developing world is characterized by limited access, whereby only the elite enjoy access to and control of valuable resources. These limitations create rents for the elites, and the risk of losing the rents in a violent movement encourages the elite to cooperate rather than fight with the coalition in power (North et al., 2009). Hence, when reforms aim to transplant elements that are associated with the open-access order (e.g., competition, markets, democracy) directly into limited access orders, they fail. These arguments suggest the following hypothesis:

Hypothesis 2: Countries with weak institutions will not experience any significant improvement in their institutional quality and will lag behind.

2.3. Mixed Account

A third strand of literature argues that the dynamics of change may differ depending on the nature of the institution being reformed. Multiple arguments suggest that economic institutions are more susceptible to change than are political institutions. First, the elites are more likely to undertake reforms that could change existing economic institutions, because commercialization and market liberalization provides new opportunities for their enrichment, as economic success provides increasing rents (Nye, 2011). The shift towards market institutions also increases opportunities among

agents of the state, as it offers new economic niches (Nee & Lian, 1994). The introduction of market institutions removes political constraints on the accumulation of personal wealth and thus enables the elite to create new market value from access to or trading in public property (Walder, 2003). Moreover, the ruling class, especially an authoritarian ruler, benefits from providing secure property and contract rights, which expand the tax base, increase rents and market income accruing from asset ownership (McGuire & Olson, 1996; Olson, 1993). Concerns about the security of asset ownership in the event of a loss of political power provide an incentive for the elite to maintain secure property rights when institutional restrictions on expropriation are weak or absent (Polishchuk & Syunyaev, 2015). A notable example is China, where political actors allowed economic reforms instituted by economic actors, as the reforms also benefited the Chinese government through tax income, increased employment, and structural change (Nee & Opper, 2012; Taube, 2009).

The political elite can extend their tenure and secure continuing societal support by instituting economic reforms. For instance, political elites support economic reforms to deflect attention from political reforms and preserve their political power (Winiecki, 1996). Additionally, politicians and the political elite view economic reforms (especially those based on "best practices") as tool to garner short-term support (Andrews, 2012). This support typically comes from donors, but it also originates from local contexts. Implementing the "best practice" reform means more money in the national budget, better performance on global indicators of management and governance, and so on, all of which builds political support at home (Andrews, 2012). The political elites who hold power have an incentive to maintain the political institutions that give them political power (Acemoglu & Robinson, 2006, 2008). Therefore, political institutions persist when the political stakes are high or when alternative institutional arrangements are costly for those who currently hold political power and can use force to maintain existing political institutions (Acemoglu, 2006). This leads to the third hypothesis.

Hypothesis 3: Compared to political institutions, economic institutions will exhibit a different pattern of change and will be more likely to catch-up.

Ultimately, whether economies with poor-quality institutions catch-up to economies with high-quality institutions and whether it happens in a political or an

economic sphere is a matter of empirical debate. The theoretical literature does not provide a clear answer to this question. Therefore, this paper investigates whether a catch-up process has occurred in the institutional quality for countries with weak institutions.

3. Methodology

To determine whether catch-up (in economic variables such as institutions, productivity, or income) across countries has occurred, researchers usually apply standard cross-sectional or time series tests. These tests rely on several restrictive assumptions. For instance, the cross-sectional approach assumes that all countries follow a universal model that governs the changes in institutional quality and imposes strict homogeneity restrictions (Bos, Economidou, Koetter, & Kolari, 2010). This approach does not allow countries to follow different trajectories in institutional change, even though some countries lack legal and judiciary systems and proper law enforcement. Given the differences in economic and social structures, it is unlikely that all countries follow an identical institutional change path and catch-up at the same speed. Alternatively, the time series approach tests if convergence has already happened, rather than if catch-up is occurring (Bernard & Durlauf, 1996; Carvalho & Harvey, 2005; Harvey & Bates, 2003).

Another possibility is that countries belong to clubs with different institutional change trajectories. Thus, instead of testing whether convergence has already occurred at the beginning of the period, a test should be performed for the presence of clubs that may only begin to catch-up at later stages of the observation period. Such a test can be constructed by using a factor model (Andersson et al., 2013; Andersson & Ljungberg, 2015; Henning et al., 2011). Factor analysis models covariance relationships among many variables in terms of a few underlying unobservable factors (Johnson & Wichern, 2007). Using a factor model allows grouping of countries based on similarities in institutional change path and helps identify if countries follow a common or idiosyncratic pattern of change.

A factor model alone is insufficient to test for catch-up in institutional quality, however. Distinguishing trends from short-term noise is also essential. Measurement error can occur in the institutional indices, because the institutional quality indices are

based on subjective assessments by experts. Thus, the ratings may be influenced by knowledge of recent economic performance (Chang, 2011). Year-to-year changes in the data can mask the long-run catch-up pattern. Moreover, the literature on institutional change has established that changes in institutions are not instantaneous but rather take time. It is therefore highly likely that institutions across countries catch-up in the long term rather than the short term.

To separate the short run from the long run, institutional measures for each country are transformed using the Maximal Overlap Discrete Wavelet Transform (MODWT).[1] The MODWT is a band pass filter that can be used to analyze the variation of a time series at different frequencies, where each frequency represents a separate time horizon, such as short run and long run (Andersson et al., 2013). Although it is possible to decompose data using several different methods, such as the Hodrick-Prescott filter or Fourier transformation, wavelet transformation offers considerable advantages. Wavelet decomposition combines time and frequency domains. It is localized both in time and in frequency, which preserves the time domain and frequency domain information of the original series (Maslova, Onder, & Sanghi, 2013). Thus, it does not introduce phase shifts that change the location of events in time[2] and allows for the observation of structural breaks, outliers, and nonlinearities in the data series (Percival & Walden, 2006; Ramsey, 1999).[3] Unlike the Hodrick-Prescott filter, in which data are decomposed into short and long runs, the filtered time horizons are known. This data-driven technique for separating short and long runs ensures that short-term fluctuations arising from measurement errors in the data do not affect the results.

The test for institutional catch-up is constructed as follows: let Y_{it} be the quality of institutions or a measure of policy for country i at time t. The change in institutional quality is given by $\Delta y_{it} = \log(Y_{it}) - \log(Y_{it-1})$, where the first difference is taken to avoid spurious results caused by non-stationarity in the data and where the log accounts for incremental institutional change as a country reaches its steady state. Taking the

1 MODWT transformation is performed in Matlab using WMTSA Wavelet Toolkit.

2 When using wavelet decomposition, one-off events such as crises do not affect the decomposition at other points in time. In contrast, with traditional smoothing techniques, such as the moving average, the impact of a one-off event spreads over several periods.

3 For a more detailed technical account of the MODWT, see Crowley (2007) and Andersson (2008).

first difference does not affect our ability to analyze the trend in the data (e.g., see Brockwell & Davis, 1998; Percival & Walden, 2006).

The first step is to decompose the change in institutional quality Δy_{it} into a short-run Δy_{it}^{SR} and a long-run Δy_{it}^{LR}, where $\Delta y_{it} = \Delta y_{it}^{SR} + \Delta y_{it}^{LR}$.[4] The short-run period lasts up to eight years. The trend represents relatively persistent changes, with a period lasting for more than eight years. The distinction between the short and long runs is based on the results of the catch-up test, which provides evidence that change dynamics are different for the changes lasting more than eight years, compared to the changes lasting fewer than eight years. Because institutional change is slow, it makes sense to define the long run as a period longer than eight years, as it reflects permanent change in institutional quality and provides smoother data with reduced noise in the institutional indices. Moreover, given the sample length, it is not possible to decompose the data into longer time horizons. Thus, these persistent movements form the Δy_{it}^{LR} part of Δy_{it}.

In the second step, the long-term change in institutional quality Δy_{it}^{LR} is modelled as a set of common factors and a country-specific idiosyncratic factor,

$$\Delta y_{it}^{LR} = \alpha_i + \sum_{r=1}^{q} \beta_{ir} f_{rt}^{LR} + \varepsilon_{it}^{LR} \qquad (1)$$

where α_i is the country-specific constant, q is the number of common factors or trends, f_{rt}^{LR} denotes the q common factors or trends, β_{ir} represents factor loadings for the common factors, and ε_{it}^{LR} is the idiosyncratic component for each country.[5] The number of common factors indicates the number of clubs, and the factor loadings show which country belongs to which club (a country can belong to more than one club) and provide the contribution of each country to a common factor. To estimate this factor model, principal component analysis is used.

4 The cyclical components represent cycles of 2–4 years and 4–8 years. By construction, MODWT decomposes the data such that each jth cycle is 2J long. The trend accounts for fluctuations higher than 2J.

5 The factor model can be applied to short-run changes; however, short-run changes might contain noise.

Three possible scenarios can be identified using the model given in equation (1). First, one major common factor could explain most of the variation in the change in institutional quality and the fact that loadings are non-zero and have a similar sign. In this case, institutions in all countries move together in a similar direction over time. However, this scenario does not imply an equal average change in institutional quality across all countries, because the constant for each country is different. Thus, some countries experience greater change than others, but the trajectory of change is the same. A second scenario includes one common factor in which the factor loadings have different signs for different countries. In this scenario, a divergence in institutional quality occurs. A third scenario is that $q > 1$. For a subset of countries, the factor loadings are non-zero for a particular common factor. In this scenario, countries form independent clubs, with certain clubs experiencing greater institutional change than others. Institutional catch-up occurs if countries with poor-quality institutions experience a higher rate of change in their institutional quality than the countries with high-quality institutions.

To identify significant loadings and thus club composition, the analysis relies on the common convention of using 20% of explained variation as an appropriate cut-off (e.g., see Fidell & Tabachnick, 2006; Stevens, 2012).[6] Countries belong to a particular factor if that factor explains more than 20% of the variation for that country. Because the selection of a cut-off point is ultimately a normative decision, alternative cut-offs of 15% and 25% are also used to scrutinize the findings. However, the choice of these different cut-off points does not have a strong effect on the results, as shown in Tables A5 and A6 in the appendix.

4. Data

To measure institutional quality and distinguish between the political and economic institutions, this study employs three measures of institutional quality using data from the Economic Freedom of the World index, the KOF Index of Globalization, and the Political Risk Index from International Country Risk Guide. A total of 81 countries are

6 According to Stevens (2012), a variable that shares at least 15% of the variation with the factor should be used for interpretation purposes

included from 1985 to 2010. Appendix A1 summarizes the composition of the main indices and the indices used in this study.

The Economic Freedom of the World index reflects the quality of a country's economic institutional and policy environment (Gwartney, Holcombe, & Lawson, 2004). Several studies have used it to measure institutional quality (De Haan & Sturm, 2000; Gwartney et al., 2004; Hall, Sobel, & Crowley, 2010). However, De Haan, Lundström, and Sturm (2006) and de Haan and Sturm (2000) question its inclusion of government spending and monetary policy, as these variables do not necessarily restrict citizens' economic freedom and they reflect policy outcomes rather than rules. Following their critique, this study uses an index formulated by taking the average of the following sub-indices: legal structure and security of property rights; freedom to exchange with foreigners; and regulation of credit, labour, and business.[7] These three components more closely capture the restrictions on an individual's economic freedom and economic transactions, thus providing insight about the quality of economic institutions of a country. These three sub-indices are further divided into several sub-components, as explained in Appendix A2. This index will be referred to as the Economic Freedom index. The index is a continuous variable, ranging between zero and ten, with a higher score corresponding to a higher quality of institutional and policy environment. Data for this index have been recorded every five years from 1985 to 2000 and annually since 2001. A linear interpolation helps fill in data for missing years. This interpolation does not affect the results, as the interest lies in studying long-run changes (e.g., see Andersson & Ljungberg, 2015; Andersson & Karpestam, 2013).

The second measure is a sub-index of the economic globalization index, which is a part of the KOF globalization index (Dreher, 2006). The sub-index assesses restrictions on long-distance flows of goods, capital, and services and closely represents the "rules of the game." It is used to measure economic institutions, because it reflects the quality of institutions related to market liberalization and competition. Tariffs and import barriers divert resources to the government, and tariffs, quotas, and other trade barriers create lucrative opportunities for private diversion (Hall & Jones, 1999). Trade and capital flow restrictions are measured using data on hidden import barriers, mean tariff rates, taxes on international trade (as a share of current revenue), and an index of capital

7 Following the construction of the Economic Freedom of the World's main index, an average is taken.

controls (Dreher, 2006). It takes a value between 0 and 100, where a higher value represents a lower degree of restrictions. This measure will be referred to as the Trade Restrictions index. Appendix A3 describes its sub-components.

The third index is based on different components of the political risk index from the International Country Risk Guide. The variables in the political risk index are the most commonly used measures of institutional quality in the empirical literature on institutions and growth (e.g., Knack & Keefer, 1995; Hall & Jones, 1999; Acemoglu, Johnson, & Robinson, 2001). They allow assessment of the political stability and government quality in a country (International Country Risk Guide, 2012). However, in addition to capturing institutional quality, the political risk index includes variables that capture economic performance (measured by socioeconomic conditions) and political violence and conflict (measured by external and internal conflict and religious and ethnic tension) that are not suitable for accessing the quality of institutions. Therefore, a sub-index is created by aggregating the scores of each country on the following components: investment profile, corruption, democratic accountability, law and order, and bureaucracy quality.[8] The resultant sub-index ranges from 0 to 34, with higher values indicating better quality of institutions. This sub-index allows assessment of the government's role as a protector against private diversion and as a diverter, as well as assessment of the restrictions on rulers to use power for personal benefit. Therefore, it is classified as measuring the quality of political institutions in a country and referred to as the Government Quality index. Appendix A4 describes its components.

Because the aim of the study is to differentiate between economic and political institutions and to test for catch-up in them separately, it is important to investigate whether the indices actually measure different dimensions of institutions. The correlations indicate that this is the case. The average correlations of the Government Quality index, with the Trade Restrictions and Economic Freedom indices respectively, are 0.32 and 0.40. These are relatively low compared to the correlation of 0.75 between the Trade Restrictions and Economic Freedom indices. The correlations between these three indices indicate that the Trade Restrictions and Economic Freedom indices

8 It is created by following the same methodology as the complete index

capture closely related dimensions of institutions, whereas the Government Quality index captures a different dimension of institutional quality.

4.1. Descriptive statistics

Table 1 shows a summary statistics of all three indices. Countries are divided into low-, middle- and high-income to illustrate differences across level of economic development. Table 1 implies two stylized facts. First, the gap in institutional quality between high-income countries and low-income countries is relatively wide. The average score of high-income countries on the Government Quality index is approximately 1.75 times higher than that of low-income countries. Similarly, the average scores of high-income countries are 2.3 times and 1.55 times greater than those of low-income countries for the Trade Restrictions and Economic Freedom indices, respectively. Additionally, all three indices have increased over time since 1985, except for the Trade Restrictions index in advanced countries, which deteriorated marginally. On average, all three indices increased over the period.

Second, the cross-sectional dispersion over the whole sample (as expressed by the standard deviation) decreases from the beginning to the end of the period for every index. This finding indicates some catch-up in institutional quality over time but does not confirm that the difference decreased among all countries. For the Government Quality index, the decrease is monotonic until 1995 and then the dispersion picks up again or stabilizes, suggesting that a catch-up effect in institutional quality has stopped or decelerated. For the Economic Freedom index, the decrease in dispersion is relatively monotonic, whereas for the Trade Restrictions index, dispersion increases until 1995 and then decreases. According to the Government Quality and Economic Freedom indices, high-income countries remain a more homogeneous group than low- and middle-income countries, which show greater variability in institutional quality over time. However, for the Trade Restrictions index, high-income countries have more variation than low- and middle-income countries. The apparent gap in institutional quality between advanced economies and the rest of the world implies that convergence has not yet occurred. The fact that the standard deviation in different groups does not decrease monotonically supports this finding. Thus, there is a need to test the catch-up hypothesis using a formal testing strategy.

Table 1 Summary statistics of indices used over 1985-2010

Panel (a): Government Quality index								
		Full Sample	1985	1990	1995	2000	2005	2010
Full Sample (N=2106)	Mean	21.6	19.7	19.4	21.1	22.3	23.3	23.0
	St. Dev	6.36	7.05	6.59	4.85	6.05	6.61	6.40
High-Income Countries (N=676)	Mean	28.4	27.9	26.7	26.4	28.2	30.8	30.2
	St. Dev	3.55	3.92	4.21	2.85	3.19	2.71	2.58
Middle-Income Countries (N=728)	Mean	20.4	17.4	17.5	20.3	22.0	22.3	21.7
	St. Dev	4.24	3.95	4.06	3.04	3.95	3.71	4.05
Low-Income Countries (N=702)	Mean	16.3	14.1	14.2	16.8	16.8	17.2	17.3
	St. Dev	4.04	4.09	3.82	2.71	4.47	4.21	3.88
Panel (b): Trade Restrictions index								
		Full Sample	1985	1990	1995	2000	2005	2010
Full Sample (N=2106)	Mean	56.2	45.1	47.0	54.0	61.4	64.0	63.4
	St. Dev	24.6	25.2	25.8	25.9	25.3	20.2	18.2
High-Income Countries (N=676)	Mean	79.7	72.6	75.2	79.2	87.1	82.6	78.4
	St. Dev	17.5	17.6	17.9	18.4	18.2	15.6	15.7
Middle-Income Countries (N=728)	Mean	55.4	42.2	44.2	55.6	61.1	63.5	63.5
	St. Dev	16.6	14.3	14.6	15.6	14.8	15.1	15.3
Low-Income Countries (N=702)	Mean	34.3	21.7	22.8	28.0	36.9	46.6	49.0
	St. Dev	14.8	10.6	10.5	12.1	11.8	11.1	9.84
Panel (c): Economic Freedom index								
		Full Sample	1985	1990	1995	2000	2005	2010
Full Sample (N=2106)	Mean	6.28	5.29	5.71	6.44	6.74	6.69	6.71
	St. Dev	1.50	1.70	1.66	1.39	1.36	1.27	1.20
High-Income Countries (N=676)	Mean	7.80	7.17	7.53	7.88	8.25	8.03	7.89
	St. Dev	0.80	0.89	0.89	0.87	0.67	0.59	0.64
Middle-Income Countries (N=728)	Mean	6.09	4.84	5.44	6.40	6.65	6.53	6.47
	St. Dev	1.03	1.19	1.07	0.77	0.62	0.75	0.94
Low-Income Countries (N=702)	Mean	5.01	3.95	4.23	5.11	5.38	5.58	5.82
	St. Dev	1.06	1.00	0.93	0.85	0.82	0.98	0.91

5. Results and Discussion

This section presents results from the catch-up test. It discusses the extent to which each of the factors explains institutional change through variance decomposition and what characteristics explain a country's sensitivity to the factors. It also identifies patterns in the trajectory of institutional change for economic and political institutions.

5.1. Economic institutions

The first two factors account for most of the variation in the economic institutional indices, explaining 71% and 81% of all the variations in the trend for the Trade Restrictions and Economic Freedom indices, respectively (see Table 2). The high percentage of explained common variation in the trend shows a strong common world factor that drives institutional change for economic institutions for most countries in the sample. Consequently, in the long run, institutional changes are more likely to be affected by outside or global factors than by country-specific factors. The presence of a world factor is further supported by the fact that, for the Trade Restrictions and Economic Freedom indices, 71% and 76% respectively of the countries in the sample are significantly affected by the first factor with the majority of the loadings having a similar sign (see Table 3).

To identify which types of countries are significantly affected by the world factor, the countries are classified into groups based on their income level in 1990. As the result shows, countries in the high-, middle-, and low-income groups are equally affected by the first factor for both economic institution indices. The existence of a world factor is further reinforced by the average variation explained by the first factor, which is similar for all regions of the world, as shown in Table 4. For the Trade Restrictions index, the average variation explained by the world factor ranges between 47% and 68%, whereas for the Economic Freedom index, it ranges between 39% and 56%. The results indicate that a common world factor drives changes in economic institutions in most countries and that most countries experience changes in similar directions.

Table 2 Variation Explained by first three Factors

	Factor 1	Factor 2	Factor 3
Government Quality Index	42%	19%	18%
Trade Restrictions index	42%	29%	14%
Economic Freedom Index	54%	27%	10%

Table 3 Percentage of high, middle and low-income countries loading significantly on the first factor for the economic institutions

	Economic Freedom index			
	Factor 1		Factor 2	
	Positive loading	Negative loading	Positive loading	Negative loading
High-Income Countries	80%	0%	20%	8%
Middle-Income Countries	66.6%	8.33%	33.3%	25%
Low-Income Countries	70.4%	6.81%	13.6%	36.3%
	Trade Restrictions index			
	Factor 1		Factor 2	
	Positive loading	Negative loading	Positive loading	Negative loading
High-Income Countries	80%	0%	0%	24%
Middle-Income Countries	58.3%	8.33%	25%	50%
Low-Income Countries	61.3%	6.81%	31.8%	22.7%

Note: Within group percentages are reported; Income classification based on the year 1990

The presence of a common world factor underscores the fact that both developing countries with weak institutions and developed countries with strong institutions experience institutional change. Rapid globalization in the last few decades may explain this world factor. Globalization fosters competition among countries and

results in a race to the top in institutional quality (Kelejian et al., 2013; Marsh & Sharman, 2009). The harmonization of national policies through international or supranational law, whereby countries must agree and comply with international rules through multilateral negotiations, also could have contributed to this process of co-movement in the institutional change across countries (Knill, 2005).

Table 4 Region-wise explained variance by the first factor for the Trade Restrictions and Economic Freedom index

	Full Sample		Significant Countries	
Region	Trade Restrictions Index	Economic Freedom Index	Trade Restrictions Index	Economic Freedom Index
Africa	0.31	0.38	0.46	0.50
America	0.40	0.58	0.47	0.64
Asia	0.31	0.30	0.53	0.47
Europe	0.49	0.48	0.56	0.56
Pacific	0.29	0.45	0.39	0.68
Total	0.38	0.44	0.50	0.56

Most countries are significantly affected by the world factor. Others, such as those in the middle- and low-income groups (e.g., Malaysia, India, and Kenya) have institutional change trajectories that deviate from the very strong first common factor. To analyze what characteristics explain a country's sensitivity to global influences on institutional change, the proportion of variance explained by the world factor is regressed on several potentially important characteristics: (1) real GDP per capita in 2006; (2) average IMF loan participation from 1985 to 1995; (3) initial quality of the institutional index; (4) democratic accountability; (5) dummy for the EU; and (6) dummy for the North American countries. GDP per capita is used to explore whether the differences in variation explained by the world factor differs on the basis of economic development. Average IMF loan participation is added to test whether countries with high IMF loans are more likely to follow the world trend. Initial quality

of economic institutions tests whether countries with poor economic institutions initially are more likely to be influenced by the world factor. Democratic accountability is added to check whether democratic countries are likely to be more affected by the world factor because of their high level of economic integration.

Table 5 presents the cross-sectional regression results for both economic institutional indices. For the Economic Freedom index, the initial level of the index is negative and significant, suggesting that countries with poor initial economic institutions are more affected by the world factor. GDP per capita and IMF loan participation are positively associated with the explained variance and are significant at 5% and 10% significance levels, respectively. Democratic accountability and regional dummy variables are insignificant. The result suggests that countries with higher IMF loan participation and higher GDP per capita tend to have higher sensitivity to the world factor. Pressure from the IMF to adopt institutions and policies based on the blueprint approach thus may be an effective way to bring about institutional change in developing countries.

Table 6 also presents a similar picture. The bottom 15% of developing countries with minimal variance, as explained by the first factor for the Economic Freedom Index (EFI), had relatively low IMF loan participation rates from 1985 to 1995. This includes China, Indonesia, India, Malaysia, and Thailand, which followed more “home-grown” initiatives in reforming their economic institutions (Easterly, 2006). By contrast, the top 15% of developing countries with the highest variance had an average IMF loan participation rate of 49%. Most of these countries belong to Latin America, such as Argentina and Peru, which underwent economic reforms in the 1980s and 1990s as part of the Washington Consensus (Rodrik, 2006).

Table 5 Cross-section Results for Economic institutions

VARIABLES	Economic Freedom Index	Trade Restrictions Index
Economic Freedom 1985	-0.11***	
	(0.03)	
IMF Loan Participation	0.23*	-0.12
	(0.12)	(0.11)
Log of GDP per capita	0.10***	-0.01
	(0.03)	(0.03)
Democratic Accountability 1985	0.04	0.06**
	(0.03)	(0.02)
EU	0.05	0.17**
	(0.09)	(0.08)
North America	-0.09	0.18
	(0.17)	(0.15)
Trade Restrictions1985		-0.003
		(0.002)
Constant	0.05	0.32
	(0.21)	(0.20)
Observations	81	81
R-squared	0.21	0.18

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

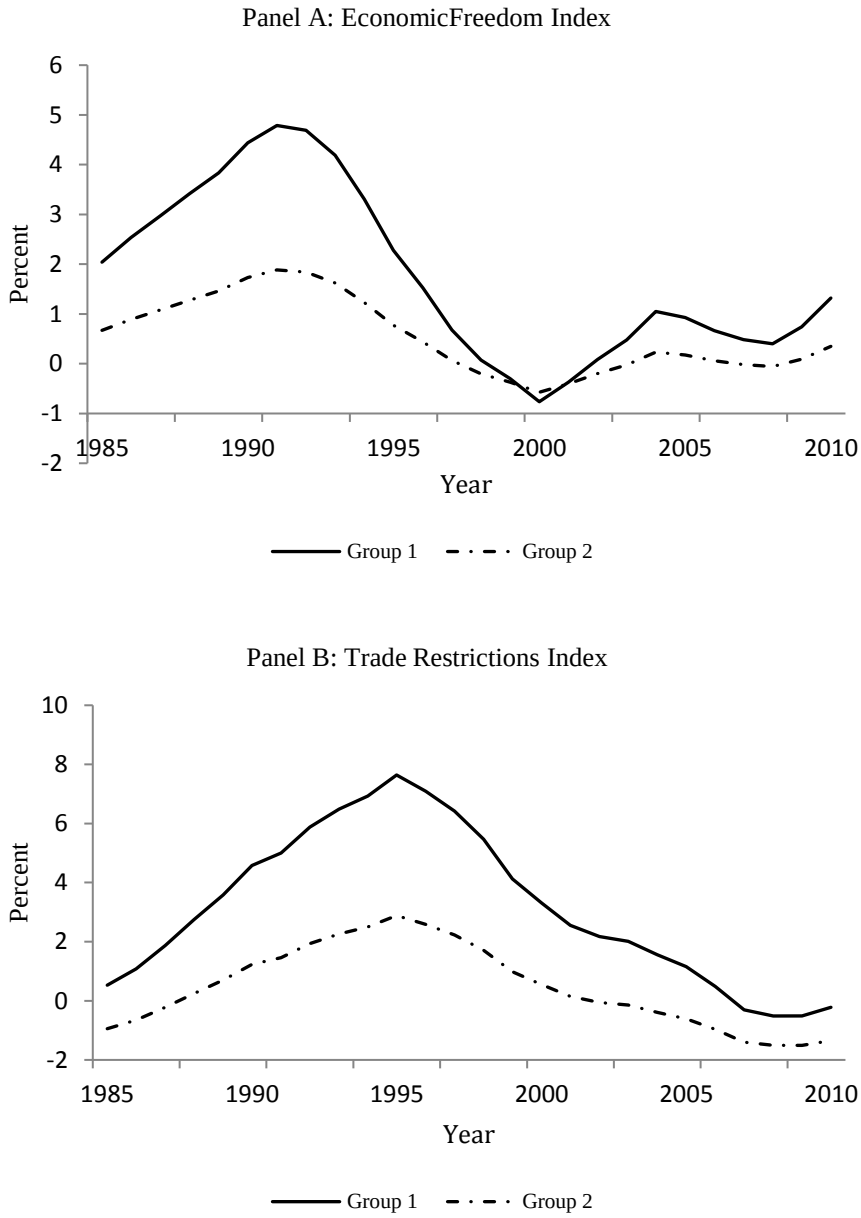
Table 6 List of countries with highest and lowest variation explained for EFI

Country	Variance Explained by first factor	IMF participation rate	Country	Variance Explained by first factor	IMF participation rate
Top 12 countries with highest explained variation			Bottom 12 countries with lowest explained variation		
Peru	0.96	0.44	Ivory Coast	0.00	0.45
Argentina	0.95	0.81	Thailand	0.00	0.28
Tunisia	0.94	0.37	Nigeria	0.00	0.23
Panama	0.94	0.5	Papua New Guinea	0.00	0.32
El Salvador	0.94	0.49	Malaysia	0.00	0
Philippines	0.93	0.91	Bahrain	0.00	0
Jamaica	0.91	0.73	Oman	0.00	0
Hungary	0.91	0.53	Botswana	0.02	0
Trinidad and Tobago	0.89	0.15	Indonesia	0.05	0.15
Nicaragua	0.84	0.1	Uganda	0.08	0
Poland	0.78	0.37	Kenya	0.10	0.17
Costa Rica	0.77	0.47	India	0.12	0.12

For the Trade Restrictions index, the results show that democratic countries respond more to the world factor influence, compared to other countries. Democratization reduces the ability of governments to use trade barriers as a strategy for building political support. Political leaders in labor rich countries may prefer lower trade barriers as democracy increases and may thus end up following global trends. Moreover, the dummy for EU is also significant, suggesting that EU countries have significantly higher explained variance compared to other countries. This finding again corresponds with the expectation, as EU countries are highly integrated in the world economy and are characterized by a single external tariff applied by all member states to imports from third countries. Apart from these two variables, no other variable is significant for the Trade Restrictions index.

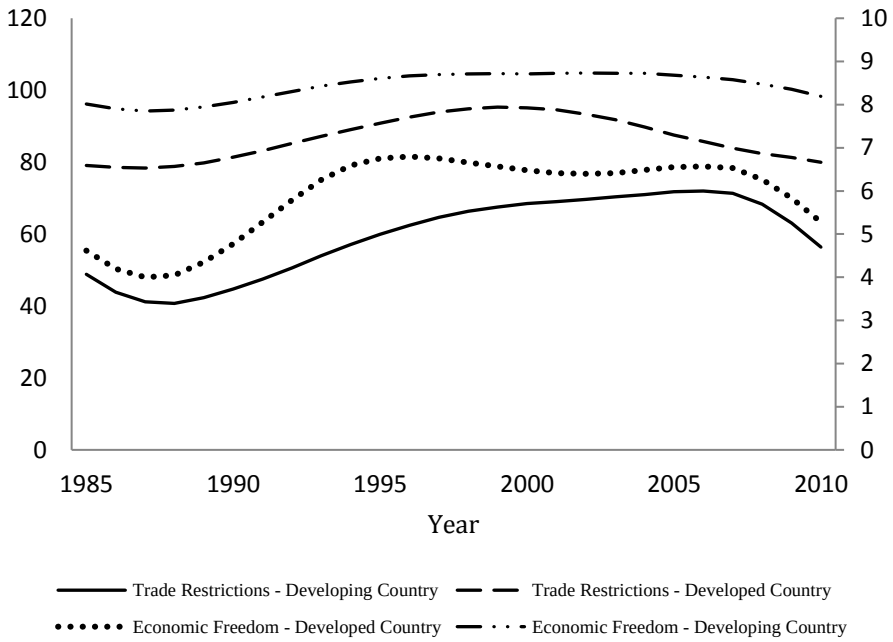
The institutional change patterns of the countries affected by the world factor for the Trade Restrictions and Economic Freedom indices are shown in Figure 1. Low-income countries have a higher rate of change vis-a-vis high- and middle-income countries for both economic institutional indices. Countries with weak institutions experience a higher rate of change in their economic institutions. If this pattern of change continues, countries with weak institutions will eventually catch-up with the countries with strong institutions. However, the catch-up process will be slow, as countries with strong institutions continue to improve their institutional quality. Moreover, catch-up in the rate of change does not imply a catch-up in levels. Figure 2 compares the scores of an average country from each group on both indices over time. As shown, a considerable gap exists between the scores of the two groups for both indices, showing that the convergence in levels has not yet happened, although the gap between the two groups is diminishing.

Figure 1 Average Change in Trade Restrictions and Economic Freedom Index



Note: Group 1 consists of low-income countries that load significantly and positively on the first factor and group 2 consists of high and middle-income countries).

Figure 2 Evolution of Economic Institution Indicators

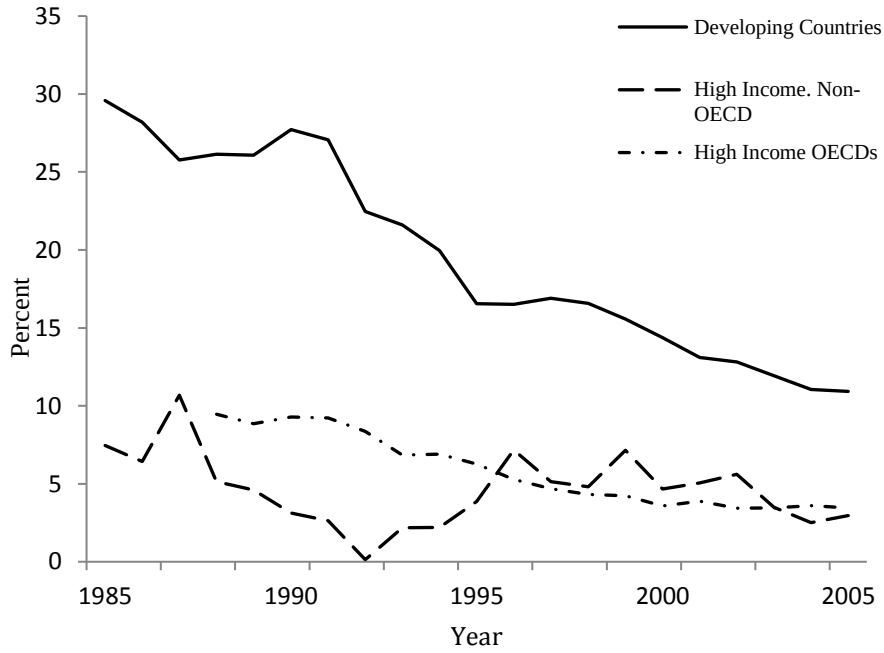


The temporal evolution of the world factor for economic institutions also reveals some of the main global cyclical episodes of the past few decades that might have had an effect on the economic institutional quality of the countries. The average changes in the Trade Restrictions and Economic Freedom indices can also be used as a guide to study the direction of change for countries loading significantly on the world factor.

For both indices, there are two noticeable periods of change. First, there is an upward trend from 1985 to 1993 for the Economic Freedom index and from 1985 to 1996 for the Trade Restrictions index. The upward trend supports a general move towards market-supporting institutions, low trade barriers, and fewer capital flow restrictions in the late 1980s and early 1990s. This is also reflected in the reduction in the average applied tariff rate in developing countries from 32% in 1984 to 16.6% in 1995 (see Figure 3) and by the relatively high rate of change in the Trade Restrictions index for developing countries during the same period. Moreover, the accelerated change in economic institutions in developing countries during the 1980s and 1990s coincides with the adoption of policies under the Washington Consensus. The upward trend also coincides with the introduction of the EU, NAFTA, and WTO, which may

explain the changes in institutional quality in developed countries. These findings show that international organizations can influence domestic institutional quality and may help explain the co-movement in institutional change.

Figure 3 Average tariffs over time



The second noticeable change occurs in the late 1990s and early 2000s as changes in both indices started to decline and even became negative. The increased hidden trade barriers in the form of strict quality standards may explain this change (Beghin, 2006). The declining rate of change in these two indices could also be associated with the recurring economic and financial crises in both the developing and developed world. The counter-cyclical relationship between trade protectionism and the business cycle (Bown & Crowley, 2013; Knetter & Prusa, 2003) suggests that the financial crisis during this period might have forced countries to impose capital flow restrictions and resort to protectionist trade policies. Moreover, the decline in the change in the Trade Restrictions index after 1996 indicates that, although the introduction of the WTO had a positive effect in the short run, this effect may have diminished over the years.

5.2. Political Institutions

Similar to economic institutions, the first two factors explain 61% of the variation in changes in political institutions (see Table 2). However, the long-term trend for political institutions exhibits different clustering patterns than those observed for economic institutions. The first and second factors have a significant impact on 55% and 40% of the countries, respectively, reflecting a lack of a common world factor. Rather, two main factors drive the changes in political institutions, and different groups of countries respond to different common factors, forming two clusters. The result suggests that political institutions follow a different pattern of change than economic institutions and confirms the third hypothesis. It also suggests that political elites might respond differently to different types of institutional reform because of their vested interests and the fear of redistribution of their political power.

The first cluster comprises 33 countries that load positively and significantly on the first factor and are primarily low- or lower-middle-income countries (see Table 7). Additionally, the first group includes four middle-income countries and two high-income countries (Greece, Hungary, Korea, Portugal, Cyprus, and Israel). These countries were similar to the developing countries in terms of their institutional quality in the 1990s, with high levels of corruption, poor bureaucracy, and low levels of democratic accountability. However, over the years they have experienced significant improvements in these components.

Among high-income countries, 60% load positively and significantly on the second factor, together with 41% of middle-income countries and 13% of low-income countries. The fact that countries follow common trends in terms of changes in their political institutions underscores the fact that most countries experience common changes in institutional quality despite the two distinct underlying trends. The division of countries into two clubs highlights a close linkage between the initial quality of political institutions and subsequent club formation. Countries with weak political institutions are significantly affected by the first factor, whereas countries with strong institutions form the second group. This implies the existence of path dependence in political institutions.

Table 7 Percentage of different types of countries loading significantly on the first factor two factors for the Government Quality index

	Factor 1		Factor 2	
	Positive loading	Negative loading	Positive loading	Negative loading
Income Classification				
High-Income Countries	8%	32%	60%	0%
Middle-Income Countries	33.3%	8.33%	41.6%	0%
Low-Income Countries	61.3%	6.81%	13.6%	15.9%
Democracy Classification				
Free Democracies	27.5%	27.5%	47.5%	2.50%
Partly Free Democracies	69.5%	4.34%	2.17%	4.34%
Not-Free Democracies	33.3%	0%	11.1%	27.8%

Note: Within group percentages are reported; Income classification based on the year 1990; Democracy classification based on Freedom House category of democracy in 1985

The classification of countries into these two groups is further supported by the regression results of the proportion of variance explained by the first and second factors on the income classification, as well as on the initial level of the Government Quality index. As shown in Table 8, low- and middle-income countries have significantly higher explained variance compared to high-income countries. In contrast, for factor 2 high-income countries have significantly higher explained variation. Moreover, adding the initial level of Government Quality renders the coefficient of dummy variables insignificant. However, the coefficient on Government Quality is negative for factor 1 and positive for factor 2, indicating that the first factor belongs to countries with poor initial political institutions and that the second factor belongs to countries with good initial political institutions.

Countries with weak institutions form a single cluster, because it is highly likely that they follow a trajectory determined by their past institutions. The ruling elites may not replace them with better quality institutions if they have a vested interest in maintaining the status quo (Acemoglu & Robinson, 2012). This result contrasts with the results for economic institutions, for which a common world factor dominates. It

also confirms a difference in the patterns of change for economic and political institutions, as postulated by the third hypothesis.

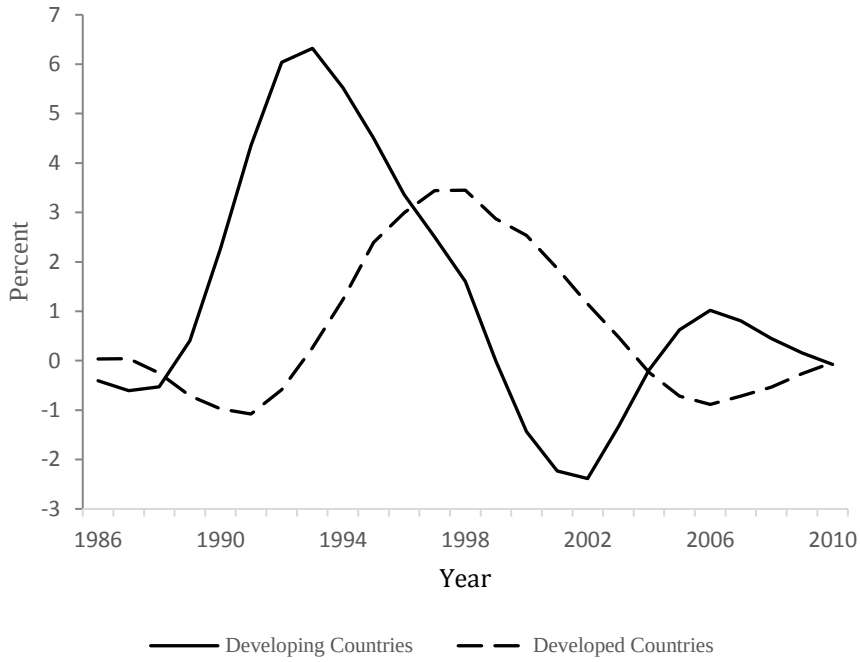
Table 8 Cross-section Results for Government Quality index

VARIABLES	Variance Factor 1	Variance Factor 2	Variance Factor 1	Variance Factor 2	Constant	Constant
Middle Income	0.14*	0.02	0.001	-0.04	0.70**	-1.47***
Countries	(0.07)	(0.06)	(0.10)	(0.06)	(0.29)	(0.28)
Low Income Countries	0.14*		-0.046		0.77**	-2.09***
	(0.07)		(0.12)		(0.29)	(0.33)
High Income Countries		0.27***		0.02		
		(0.06)		(0.10)		
ICRG 1985			-0.01*	0.01***		-0.21***
			(0.006)	(0.005)		(0.02)
Constant	0.25***	0.17***	0.651***	-0.12	0.280	6.07***
	(0.054)	(0.05)	(0.219)	(0.11)	(0.210)	(0.55)
Observations	81	81	81	81	81	81
R-squared	0.06	0.21	0.10	0.30	0.10	0.64

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 4 presents the average long-run change in the quality of political institutions for both the developed and developing country groups. The institutional change path for the developing country group indicates that these countries experienced improvements in their political institutions in the late 1980s and most of the 1990s. This initial change coincides with the third wave of democracy, which restricted the arbitrary actions of rulers and bureaucrats (Diamond, 1996; Huntington, 1993). Many developing countries in Latin America and Asia underwent a process of democratization in the 1980s and 1990s that in turn might have helped to reduce corruption and secure property rights (Knutsen, 2011; Rock, 2009). Moreover, the reforms based on aid assistance, which were targeted at improving the quality of governance in developing countries during the 1980s and 1990s, may have contributed to this initial positive change observed for the developing country group (Naim, 2000; Andrews, 2012).

Figure 4 Average change in Government Quality Index



The developed country group experienced a positive change in the early 1990s, coinciding with the introduction of the EU and NAFTA. Joining a regional economic cooperation arrangement requires member countries to comply with a range of policy requirements, which in turn improves policy credibility (World Bank, 2004). The improved credibility often arises from improved institutional quality and has a direct impact on the investment climate of a country. Accordingly, the average long-run change in the investment profile component of the Government Quality index for the developed country group has a correlation of 0.86 with the second factor, which shows that changes in the investment profile drove changes in the political institutions index.

The developing country group experienced a higher average change in the quality of political institutions than the developed country group, thereby gradually reducing the gap in institutional quality (in absolute terms) between the two groups. This result is confirmed by regressing the constant on the initial level of the political institution as well as on the income group dummies (see Table 8). Results confirm that countries with a poor initial level of the political institution experienced higher institutional change. The result, however, does not indicate that catch-up occurred between these

two groups, as the acceleration in institutional change did not last long and seems to have slowed down or even disappeared in the new millennium. This weakening of the catch-up process in recent periods instead seems compatible with the view that the adoption of Western-style institutions in the global South may not have been as successful as expected, because of developing-economy-specific constraints (Berkowitz et al., 2003a, b; Roland, 2004; Rodrik, 2008; Khan, 2012).

Another plausible explanation for the slowdown of catch-up could be that political elites, influential minorities, or interest groups in the developing countries oppose these changes, especially in the political context (Acemoglu & Robinson, 2006, 2008). Therefore, any external or internal influences to change de jure institutions may leave the sources of de facto power intact, and groups that have lost their de jure power may use their de facto power to re-create a similar system to the previous one (Acemoglu & Robinson 2006, 2008). This process eventually leads to the reversal of policies and any associated reforms.

In sum, the results for all three indices indicate that most countries experience co-movement in institutional change, irrespective of their level of development or other characteristics. This finding confirms that policymakers and governments often look outwards, imitating policy elements from other countries and emulating institutions from elsewhere, instead of designing policies and institutions to meet domestic goals and interests and fit the domestic culture. This finding holds true even for the developed countries in the sample, as they also respond significantly to the common trend. Another important implication of the results is that the changes in economic institutions follow a global trend. However, the changes in economic institutions are higher for developing countries than for developed countries, suggesting that political elites in many developing countries may want to change these institutions so as to increase their rents and maintain their legitimacy. To protect the status quo, these changes happen in the economic sphere only and not in the political arena. This result partially confirms the first hypothesis that a catch-up in institutional quality occurs across countries, at least in the economic sphere. Moreover, the higher rate of change for economic institutions is in line with the third hypothesis that states that economic institutions are more susceptible to change and more likely to converge than are political institutions.

6. Conclusion

Rapid globalization in recent years and a shift in policy focus towards getting institutions right, have raised the following questions: (1) To what extent does a catch-up in institutional quality occur between countries? (2) Are contemporary differences in institutional quality between countries transitory or permanent? The theoretical and empirical literature does not answer these questions. This study uses a static factor model combined with MODWT and three different institutional measures to test for long-term catch-up in institutional quality.

First, the analysis shows that the pattern of change for economic institutions is different from that for political institutions. Changes in the economic institutions are driven by a common world factor, and most countries with weak institutions experience greater institutional change vis-à-vis countries with strong institutions. Hence, differences in institutional quality between countries may be transitory, but they persist for a long time because countries with strong institutions also experience institutional change. Two main trends occur for political institutions: one trend for countries with weak political institutions and another for countries with strong institutions. The evolution of the trends shows that catch-up occurs at the start of the period. However, the acceleration in catch-up is short-lived and seems to slow quickly and even disappear in the new millennium. Second, the trajectory of institutional change experienced by many countries coincides with some of the major trends and events in the last three decades. These include rapid globalization, the introduction of the EU and NAFTA, the emphasis on policies based on the Washington Consensus, the third wave of democracy, and the financial crisis of 2008.

These findings are consistent with the theoretical assertions that economic institutions are more susceptible to change and more likely to converge than are political institutions. This underscores the theoretical argument that political elites are likely to undertake reforms in economic institutions, as such changes directly benefit the ruling elites by increasing their rents and tax base and elongating their tenure (Nye, 2011; Nee & Lian, 1994; Andrews, 2012; McGuire & Olson, 1996). As for political institutions, enhancing efficiency and improving institutions may not supplant weak institutions in developing countries. These institutions are likely to be path dependent, as it is not in the interest of the political elites to change the existing extractive political institutions (Acemoglu & Robinson, 2012). Based on these findings, future research on

institutions and institutional change should categorically differentiate between economic and political institutions and use different measures for them.

The findings also have implications for national and global reform policy in developing countries. Contrary to the general understanding that country-specific factors affect institutional change, evidence indicates that common global factors affect institutional change locally in the long run. Thus, global efforts to harmonize institutions across countries and force countries to adopt certain policies and institutions may lead to institutional catch-up in the long run, at least when such policies aid at improving market-oriented economic institutions. However, the institutional reforms promoted by international financial institutions based on the blueprint approach might not succeed in the long run for political institutions. In this scenario, instead of imposing a single blueprint model based on the experiences of developed countries, policy makers should seek ways to introduce more context-specific reforms that account for the domestic policy environment, the social and economic context, and the prevailing social norms.

A few limitations of the analysis should be noted. First, the study sample contains only 81 countries. Expanding the sample might enable future researchers to better understand the reasons behind common variations and better discern patterns of institutional change. A second data limitation is that the data set spans only 26 years. This range limits decomposition of the long-run institutional change, which lasted for more than 16 years. Future studies should use a more current data set to analyze the catch-up pattern in long-run institutional change. Last, the analysis dates back to 1985 and thus does not identify the impact of prior significant economic and political events, such as the ascendance of communism, Latin America's debt crisis, the 1970s oil crises, and the popularity of import substitution policies on the development and evolution of both political and economic institutions in the global South.

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Appendix

APPENDIX A1: Composition of the Indices

Source	Composition
Economic Freedom of the World Index	Economic Globalization
	Index of Acctual Economic Flows
	Index of Economic Restrictions *
	Social Globalization
	Political Glibalization
KOF Index of Globalization	Size of Government: Expenditures, Taxes, and Enterprises
	Legal Structure and Security of Property Rights *
	Access to Sound Money
	Freedom to Trade Internationally *
	Regulation of Credit, Labor, and Business *
Political Risk Index	Government Stability
	Socioeconomic Conditions
	Investment Profile *
	Internal conflict
	External conflict
	Corruption *
	Military in politics
	Religious Tensions
	Law and Order *
	Ethinic Tensions
	Democratic Accountablity *
	Bureaucracy Quality *

Note: Components with * are the ones used in this study

A2: Variables comprising the Trade Restrictions index

Variable	Description
Data on Restrictions	
Hidden Import Barriers	The index is based on the Global Competitiveness Report's survey question: "In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market." The question's wording has varied slightly over the years.
Mean Tariff Rate	As the mean tariff rate increases, countries are assigned lower ratings. The rating declines toward zero as the mean tariff rate approaches 50%.
Taxes on International Trade (percent of current revenue)	Taxes on international trade include import duties, export duties, profits of export or import monopolies, exchange profits, and exchange taxes. Current revenue includes all revenue from taxes and non-repayable receipts (other than grants) from the sale of land, intangible assets, government stocks, or fixed capital assets, or from capital transfers from nongovernmental sources. It also includes fines, fees, recoveries, inheritance taxes, and non-recurrent levies on capital. Data are for central government and in percent of all current revenue.
Capital Account Restrictions	Index based on two components: (i) Beginning with the year 2002, this sub-component is based on the question: "Foreign ownership of companies in your country is (1) rare, limited to minority stakes, and often prohibited in key sectors or (2) prevalent and encouraged". For earlier years, this sub-component was based on two questions about "Access of citizens to foreign capital markets and foreign access to domestic capital markets". (ii) Index based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, including 13 different types of capital controls.

Source: Dreher (2006), Dreher et al. (2008)

A3: Variables comprising the Economic Freedom index

Area II: Legal structure and security of property rights
A. Judicial independence: the judiciary is independent and not subject to interference by the government or parties in disputes.
B. Impartial courts: a trusted legal framework exists for private businesses to challenge the legality of government actions or regulation.
C. Protection of intellectual property.
D. Military interference in rule of law and the political process.
E. Integrity of the legal system.
F. Legal enforcement of contracts
G. Regulatory restrictions on the sale of real property
H. Reliability of police
I. Business costs of crime
Area IV: Freedom to exchange with foreigners
A. Taxes on international trade.
i. Revenue from taxes on international trade as a percentage of exports plus imports.
ii. Mean tariff rate.
iii. Standard deviation of tariff rates.
B. Regulatory trade barriers.
i. Hidden import barriers: No barriers other than published tariffs and quotas.
ii. Costs of importing: the combined effect of import tariffs, license fees, bank fees, and the time required for administrative red-tape raises costs of importing equipment by (10=10% or less; 0=more than 50%).
C. Difference between official exchange rate and black market rate.
D. Controls of the movement of capital and people
i. Access of citizens to foreign capital markets and foreign access to domestic capital markets.
ii. Restrictions on the freedom of citizens to engage in capital market exchange with foreigners—index of capital controls among 13 IMF categories.
iii. Freedom of foreigners to visit
Area V: Regulation of credit, labor, and business
A. Credit Market Regulations
i. Ownership of banks: percentage of deposits held in privately owned banks.
ii. Extension of credit: percentage of credit extended to the private sector.
iii. Interest rate controls: interest rate controls on bank deposits and/or loans are freely determined by the market.
B. Labor Market Regulations
i. Hiring regulations and minimum wage: the difficulty of hiring index measures (a) whether fixed-term contracts are prohibited for permanent tasks; (b) the maximum cumulative duration of fixed-term contracts; and (c) the ratio of the minimum wage for a trainee or first-time employee to the average value added per worker.
ii. Hiring and firing practices: hiring and firing practices of companies are determined by private contract.
iii. Share of labor force whose wages are set by centralized collective bargaining.
iv. Hours regulations. Countries with less rigid work rules receive better scores in this component.
v. Mandated cost of worker dismissal.
vi. Use of conscripts to obtain military personnel.
C. Business Regulations
i. Administrative requirements: Complying with administrative requirements (permits, regulations, reporting) issued by the government in your country is (1 = burdensome, 7 = not burdensome).
ii. Bureaucracy costs: Standards on product/service quality, energy and other regulations (outside environmental regulations) in your country are: (1 = Lax or non-existent, 7 = world's most stringent).
iii. Starting a new business: starting a new business is generally easy.
iv. Extra payments/bribes/favoritism: irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection, or loan applications are very rare.
v. Licensing restrictions: the time in days and monetary costs required to obtain a license to construct a standard warehouse.

vi. Cost of tax compliance: the time required per year for a business to prepare, file, and pay taxes on corporate income, value added or sales taxes, and taxes on labor.

Source: Gwartney et al. (2012)

A4: Variables comprising the Government Quality index

Variable	Description
Investment Profile	Factors affecting the risk to investment not covered by other political, economic and financial risk components Sub-components: contract viability/expropriation, profits repatriation, payment delays.
Corruption	Corruption within the political system Financial corruption and corruption in the form of excessive patronage, nepotism, job reservation, favors for favors and suspiciously close ties between politics and business.
Law and Order	Law: The strength and impartiality of the legal system. Order: popular observance of the law (people following the law).
Democratic Accountability	How responsive government is to its people on the basis that the less responsive it is, the more likely is it that the government will fall (peacefully or violently). Ranging from Alternating democracies to Autarchy
Bureaucracy Quality	The strength and expertise to govern without drastic changes in policy or interruptions in government services. Ability to absorb shocks to minimize revision of policy when governments change.

Source: ICRG (2012)

Table A5: Percentage of high, middle and low-income countries loading significantly on the first factor for the economic institutions

	Economic Freedom Index		Trade Restrictions Index	
	Factor 1		Factor 1	
	Positive loading	Negative loading	Positive	Negative
15% cutoff				
High-Income Countries	84%	0%	84%	0%
Middle-Income Countries	66.6%	0%	58.3%	8.33%
Low-Income Countries	70.4%	6.81%	68.1%	6.81%
25% cutoff				
High-Income Countries	72%	0%	76%	0%
Middle-Income Countries	58.3%	0%	58.3%	0%
Low-Income Countries	61.3%	6.81%	54.5%	6.81%

Note: Within group percentages are reported; Income classification based on the year 1990

Table A6: Percentage of high, middle and low-income countries loading significantly on the first two factors for the Government Quality index

	Factor 1		Factor 2	
	Positive loading	Negative loading	Positive loading	Negative loading
15% cutoff				
High-Income Countries	8%	32%	60%	0%
Middle-Income Countries	33.3%	8.33%	41.6%	0%
Low-Income Countries	61.3%	6.81%	13.6%	15.9%
25% cutoff				
High-Income Countries	8%	28%	60%	0%
Middle-Income Countries	33.3%	16.6%	41.6%	8.33%
Low-Income Countries	45.4%	4.54%	11.3%	11.3%

Note: Within group percentages are reported; Income classification based on the year 1990.