6-2015

Improving governance for the Post-2015 Sustainable Development Goals: Scenario forecasting the next 50 years

Devin K. JOSHI
Singapore Management University, devinjoshi@smu.edu.sg

Barry B. HUGHES
University of Denver

Timothy D. SISK
University of Denver

Published in World Development, 2015, volume 70, pp.286-302.
http://doi.org/10.1016/j.worlddev.2015.01.013

Improving Governance for the Post-2015 Sustainable Development Goals: Scenario Forecasting the Next 50 Years

By Devin Joshi, Barry Hughes, Timothy Sisk
Josef Korbel School of International Studies
University of Denver

January 3, 2015

Forthcoming in *World Development*

Abstract: Covering three fundamental governance transitions historically characteristic of modern states—the provision of *security*, the building of *capacity*, and the deepening of *inclusion*—we offer a pioneering forecast of the future of domestic governance through the year 2060 for 183 countries utilizing a long-term, dynamic, integrated global futures modeling system. While our Base Case forecast anticipates global gains in security, capacity, and inclusion, extended scenario analysis suggests that timely and effective interventions to strengthen governance and implement pro-poor development policies will result in much greater advances on the Post-2015 Sustainable Development Goals.

Keywords: Conflict, Democratization, Forecasting, Governance, State Capacity, Sustainable Development Goals

The importance of governance for human development and the Post-2015 Sustainable Development Goals (SDGs) is widely acknowledged by the United Nations and most international organizations, domestic and global civil society actors, academic scholars, and policy analysts (Fukuyama, 2013; Hyden, Court, & Mease, 2004; Rothstein, 2011; World Bank, 2011; UNDP, 2012). The negative costs of ineffective governance in terms of the loss of human lives, stunted human development, environmental degradation, and waste of financial and organizational resources are enormous. For example, it is estimated the developing world experiences 140,000 child deaths and loses $1 trillion every year because of corruption and poor governance (Hanf, Van-Melle, Fraisse, Roger, Carme, & Nacher, 2011; Kar & Curcio, 2011).

Governance broadly refers to "the formation and stewardship of the formal and informal rules that regulate the public realm" (Hyden *et al.*, 2004, p. 16) with the United Nations conceptualizing governance as a system "consistent with international human rights, norms and standards" operating at multiple levels – global/international, nation-state, and sub-national/local (UN, 2012, p. 23). Two of the twelve SDGs (number 10 and 11) proposed by the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda seek to advance "good governance" (inclusion, transparency, access to information, freedom of association and participation), "effective institutions" (state capacity, rule of law, property rights, reduced bribery and corruption), and "stable and peaceful societies" (reduced violence and conflict, accountable and professional security forces, access to justice institutions), but this agenda is still under discussion (UN, 2013, pp. 50-53).

The SDGs provide an opportunity to atone for various deficiencies attributed to the 2000-2015 Millennium Development Goals (MDGs) which have been criticized for setting up unreasonable expectations, lacking governance goals, ignoring the role of human rights (especially civil and political rights), and being identical across countries despite vastly different starting points (Clemens, Kenny, and Moss, 2007; Easterly, 2009; Nelson, 2007). Critics also argue the MDGs aim to deliver "quick impact" by treating symptoms of under-development, rather than "addressing complex social systems" to provide individuals and communities with a means to hold governments accountable for their MDG commitments (Nelson, 2007, p. 2047).

Participants in debates over SDG-related goals have considered what role governance should play in light of perceived defects of the MDGs; however, assessments of its importance are often speculative, and there have been almost no attempts to systematically forecast the developmental impacts of possible future patterns of governance around the world. Though

some scholars have offered general extrapolations from long-term historical trends (e.g. Keane, 2009; Lewin, 2012; North, Wallis, & Weingast, 2009), most governance forecasts in recent years have been short-term, qualitative, or prescriptive (e.g. Brandt, Freeman, & Schrodt, 2011; Hewitt, Wilkenfeld, & Gurr, 2012; Kurki, 2013; Kurlantzick, 2013; O'Brien, 2010). With a few exceptions related to the future of violent conflicts (Burke, Miguel, Satyanath, Dykema, & Lobell, 2009; Busby, Smith, White, & Strange, 2013; Dyer, 2010; Gleditsch & Ward, 2013; Hegre, Karlsen, Nygård, Strand, & Urdal, 2013; Theisen, Gleditsch, & Buhaug, 2013), long-range, quantitatively, and empirically-based governance forecasts are nearly non-existent with respect to government performance (including public finance, bureaucratic effectiveness, corruption, and the rule-of-law) and very sparse in terms of predicting the future of transitions away from autocracy and the further movement toward democracy in partial democracies.[1]

Addressing these gaps in the literature, this article contributes to on-going debates over the formulation, implementation, and prioritization of the SDGs in two ways. Firstly, it provides a historically and theoretically grounded conceptualization of "governance" supportive of the SDGs. Secondly, it forecasts where domestic governance is likely heading for countries around the world in the absence of additional focused interventions as well as under alternative scenarios including major strengthening of governance and the adoption of pro-poor policies.

The article proceeds as follows.[2] The first section discusses our conceptualization of governance based on the idea of three fundamental transitions on which currently high-income countries have made long, halting, and somewhat sequential historical transitions but with which most post-colonial states today simultaneously struggle; a) providing *security* against intra-state conflict, b) building state *capacity* to govern effectively and efficiently, and c) broadening and deepening *inclusion*, i.e. the extension of democracy. The second section discusses our

methodology for forecasting the future of governance and why we believe it marks an advance over previous efforts. The third section discusses our empirical results including a pioneering forecast of governance across three dimensions and its effects on development for 183 countries. That section discusses the governance future we would anticipate in 2060 based on past and current trends. The next section considers two alternative governance scenarios, one which is more pessimistic and the other which is more optimistic, and their implications for human development. Finally, we conclude by discussing strengths and limitations of our forecasts and their implications for the SDGs.

I. Conceptualizing Governance

A large literature has sought to define and conceptualize governance (e.g. Bevir, 2009; Grindle, 2004; Hyden *et al.*, 2004; Levi-Faur, 2012; Fukuyama, 2013; Weiss, 2000). As Bevir (2012, p. 5) points out, "governance can refer abstractly to all processes of governing. It supplements a focus on the formal institutions of government with recognition of more diverse activities that blur the boundary of state and society. It draws attention to the complex processes and interactions involved in governing." Although the trend among aid agencies over the past decade has been "donor selectivity" with more aid given to better governed countries (Winters & Martinez, 2015), there is disagreement over what constitutes better governance. For example, the World Bank has promoted a greater role for the private sector compared to the United Nations (Joshi & O'Dell, 2013) and the UK Department for International Development's drivers of change framework emphasizes building up the capacities of less developed country governments more than the US Millennium Challenge Account (Chhotray & Hulme 2009).

Although there is no underlying consensus on what "governance" entails, most scholars have concentrated either on government input, output, or the social and international context in which governments operate. Those who focus primarily on outputs highlight issues such as government effectiveness, bureaucratic autonomy, the rule-of-law, and/or state capacity all of which have an impact on what goods and services are delivered by governments to their populations (Fukuyama, 2013). For example, Acemoglu and Robinson (2012, p. 305) discuss the importance of the "rule of law" defined as "the principle that laws should not be applied selectively or arbitrarily and that nobody is above the law." Fukuyama (2013, p. 4) defines governance with respect to outputs as "a government's ability to make and enforce rules, and to deliver services, regardless of whether that government is democratic or not…governance is about the performance of agents in carrying out the wishes of principals, and not about the goals that principals set." In a similar fashion, Rothstein (2011, p. 6) identifies "impartiality in the exercise of public authority" as the defining feature of "quality of government" because of its impact on both output and legitimacy. As Rothstein (2011, p. 92) argues,

> Your ability to vote is unlikely to have a clear and significant impact on your life chances: the likelihood that your vote will be decisive is, of course, minuscule … However, if the police do not protect you because you are an X-type citizen; if the fire brigade does not come to your house because you are a Z-type citizen; if your children are systematically discriminated against in the schools because they are Y-type children; and if the doctors at the hospital ignore you because you are a P-type person, then you are in real trouble. To be blunt, while what happens on the input side usually has little consequence for the immediate welfare of the individual citizen, what the state does or does not do on the output side may be life threatening.

By contrast, a second approach to governance focuses primarily on the input side of government, particularly the role of stakeholder involvement (Bevir, 2009, p. 29). This vision highlights new tools of citizen involvement in "quasi-legislative" and "quasi-judicial" governing processes such as "deliberative democracy, e-democracy, public conversations, participatory

budgeting, citizen juries, study circles, collaborative policy making, and other forms of deliberation and dialogue among groups of stakeholders or citizens" (Bingham, Bunachi, & O'Leary, 2005, p. 547). Scholars focusing on the input side of governance have variously focused on the "quality of democracy" (e.g. Diamond & Morlino, 2005), the role of different varieties of democracy (Coppedge *et al*., 2011; Kurki, 2013), "the interaction between formal institutions and those in civil society" (Mander, Asif, Sasi, & ActionAid, 2004, p. 11), social capital and interpersonal trust (Joshi, 2012), and inclusion as a basis for the deepening of democracy (e.g. Dryzek, 1996; Phillips, 1995).

A third major approach to conceptualizing governance is a contextual or "multi-level" approach which looks to "horizontal networks of public, private, and nonprofit organizations as the new structures of governance as opposed to hierarchical decision making" (Bingham *et al*., 2005, p. 547). This approach emphasizes the role of markets, networks, non-governmental organizations, and state-society relations to analyze international and multi-national organizations like the European Union (Weiss, 2000). For example, the Commission on Global Governance (1995, p. 2) has defined governance as "the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is the continuing process through which conflicting or diverse interests may be accommodated and co-operative action may be taken." Furthermore, the concept of "decentralization" often appears in the context of governance reforms as a potential means to make governance more inclusive/responsive or capable/effective (Faguet, 2014, p. 2).

Incorporating the respective contributions of these approaches to understanding governance, we conceptualize governance as a dynamic and inextricably interconnected process of governing inputs, outputs, and context(s). Acknowledging the importance of government

output, we believe that participation of those affected by government also matters and that civil society and a broader contextual environment impacts how governance functions in practice. Addressing this governance triangle, our analysis focuses on three fundamental governance transitions that have historically characterized the development of modern states; achieving greater domestic *security* (context), building stronger state *capacity* (to effectively and efficiently deliver government output), and broadening and deepening *inclusion* (to expand and open channels for members of the public to provide input on what tasks government should undertake and how). These three pillars partially resemble Skocpol's (1985) governance trio of authority, legitimacy, and capacity but are not identical. For instance, inclusion often contributes to legitimacy, but citizens may also accord legitimacy to ruling monarchs. Our conceptual triangle is also compatible to some degree with the World Bank's World Governance Indicators project of Kaufmann, Kraay, & Mastruzzi (2010, p. 4) which in our view also considers input ("the process by which governments are selected, monitored and replaced"), output ("the capacity of the government to effectively formulate and implement sound policies") and context ("the respect of citizens and the state for the institutions that govern economic and social interactions among them").

Though we believe these three dimensions are consequential at all levels of governance, our own forecasts concentrate on the nation-state level for logistical reasons given the greater availability of time-series data at the country level than for sub-national levels and because nation-states are arguably still the key unit of analysis in the current international system. Despite claims of the state's powers and existence withering away (Strange, 1996), the dominant trend over the past century has been the process of decolonization and state-formation. Whereas in 1946 there were only approximately 50 states in the world, the majority of the world's current

194 internationally recognized states are post-colonial and state-building is on the agenda everywhere (Fukuyama, 2013). We thus expect states to continue as the pre-eminent form of global political organization in the first half of the twenty-first century even if they may eventually disappear (Wendt, 2003).

The first governance transition we examine is consolidating domestic security. Historically in the West, this process began with the movement from anarchy to sovereignty as European states consolidated territory, established a monopoly on the legitimate use of force, and came to be recognized officially by other states. By exercising exclusive control over a clearly demarcated physical space, certain states were able to secure sovereignty, reduce internal conflict, and establish the monopoly on violence to maintain social stability through the formation of a "social contract" whereby citizens agreed to surrender some of their freedoms and submit to the authority of the government (or to the decision of a majority) in exchange for protection (UNDP, 2012; Tilly, 1985; Weber, 1978).[3] The creation of the state, however, does not end the process of establishing and maintaining greater security. In order to reduce internal conflict and exercise exclusive and unchallenged control, governments rely on three primary mechanisms: coercion, co-optation, and legitimacy (Hurd, 1999, p. 379). Coercion involves use of state power to intimidate or repress those opposed to the government. Co-optation is a process whereby state leaders seek out potential challengers and bring them into the fold through material gifts or status accolades. Legitimacy is obtained when the population accepts a government's rule without contesting it due to factors such as ideology or favorable policies.

The importance of domestic security in the modern world becomes obvious when accounting for the tremendous negative impacts of armed conflicts on the MDGs both during and after the conflicts (Gates, Hegre, Nygård & Strand, 2012). As John Stuart Mill (1958, p. 18)

passionately argued, order is almost always a pre-condition for progress whereas conflict contributes to significant loss and impairment of human life as well as direct physical damage to critical infrastructures slowing longer-term economic recovery. Other common effects of conflict are degradation of institutions and governing capacity to regulate property rights, combat crime and corruption, and maintain economic institutions crucial to monetary and fiscal management, as well as risks of de-democratization and a divided civil society (Jarstad & Sisk, 2008). The security environment shapes whether governance is inclusive and capable, but this relationship is also reciprocal and security is not always exogenous to the state. As discussed below, the security that a government is able to provide to a population is heavily contingent upon state capacity and who is included in government decision-making.

The second governance transition is developing "the capabilities of states to achieve the kinds of changes in society that their leaders have sought through state planning, policies, and actions" (Migdal, 1988, p. 4). To build such capacity, Max Weber believed financial resources were essential as "a stable system of taxation is the precondition for the permanent existence of bureaucratic administration" (Weber, 1978, p. 968). Correspondingly, Adolph Wagner (1892) famously observed that states tend to mobilize and use a progressively higher share of gross domestic product as they develop economically in what is sometimes known as Wagner's Law (Weber & Wagner, 1977). Tax collection enables the provision of collective goods and services including public infrastructure, public education, public safety, national defense, and public investments in science and technology which are often pivotal to a country's prosperity and rising incomes. As scholars have noted, the SDGs will require increased public spending in areas such as health and education which depend heavily upon governments' revenue collection capacity and foreign aid (Sánchez & Cicowiez, 2014).

It is not just collection of revenues, but also their effective and efficient use in public service delivery that indicates state capacity. Weber (1978, p. 999) emphasized the development of a professional public administration that is rule-driven and meritocratic in its selection and promotion of personnel and which performs in a relatively fair and predictable manner. He distinguished "rule of law" governments where rules apply equally to all from those with arbitrariness, prejudice, or favoritism in governance whereby people with elite or family connections can procure special favors denied to others (Weber, 1978, p. 958).[4] Such favoritism in the form of government corruption wastes public resources, damages state legitimacy, and weakens social trust (Aidt, 2009; Rothstein, 2011). As Baldacci, Clements, Gupta, and Cui (2008, p. 1336) note "reducing corruption and increasing the accountability for public spending are no less important than increasing spending" to achieve the MDGs. Moreover, Halleröd, Rothstein, Daoud, and Nandy (2013, p. 19) have recently observed that, "state capacity, administrative effectiveness, impartiality in the implementation of policies, and control of corruption…often have substantially higher positive correlations with standard measures of human well-being than do measures of democracy."

A third governance transition which has historically come later than greater domestic security and enhanced state capacity has been the broadening and deepening of inclusion in political decision-making (Dahl, 1971). While progress in democratization has achieved much attention in the post-Cold War period, it is worth emphasizing that inclusion in governance means more than holding elections. It requires the free-flow of information, freedom of association, open participation in political decision-making, and a cooperative culture of political behavior (Dahl, 1989; Sen, 1999).

Political inclusion means that groups traditionally left out of political decision-making are able to have greater influence over their own lives than before including women, young people, low- and middle-income earners, indigenous groups, disabled people, transient and migrant populations, and racial, ethnic and religious minorities (Dryzek, 1996; Phillips, 1995). For example, in Scandinavian countries where women have greater representation in politics than in most countries, there have been numerous changes to make policies more favorable to women and children (Wängnerud, 2009). A government also becomes more inclusive when it develops a culture and institutions that nurture cooperation and trust. In a cooperative political system, participants with different interests or perspectives have an incentive to develop mutually beneficial (win–win) compromises that peacefully resolve differences (Krishna, 2002; Lijphart, 1999).

As Ackerman (2004, p. 448) argues, "societal participation is one of the most effective ways to improve accountability and governance." Participatory governance can take multiple forms including public hearings, participatory budgeting, and vigilance committees (Speer, 2012), but ultimately governments capable of delivering "effective implementation … free from corruption, political interference and social prejudice" are necessary to make such inclusion impactful (Stiglitz, Sen, & Fitoussi, 2010, p. 50) The impact of inclusion on capacity-building can also be positive but appears to be context dependent as problems of clientelism and institutional capture sometimes inhibit civil society from improving government performance (Roy, 2008).

II. Forecasting Methodology

How democratic will Syria or North Korea be in 2030 or 2060, and how corrupt will the government of Pakistan be? Will China democratize and begin to allow multiparty competition for power in the 21st century, as did Indonesia in the late 20th? We cannot answer such questions with precision because political change is partially a result of intermittent and irregular political struggles which are subject to reversal. Instead of trying to anticipate the specific details and timing of changes in governance, our aim is to understand the general trajectory and approximate pace of change. What we can forecast tentatively and with many caveats is the direction that underlying pressures—in demography, the economy, education, information technology, global political dynamics, and other domestic and international systems—are likely to move countries and regions.

To conduct our forecasts, we utilized International Futures (IFs), a long-term, integrated global forecasting system linking representations of multiple domains of human and social systems (population, the economy, health, education, energy, agriculture, infrastructure, the natural environment, and important aspects of sociopolitical systems) and interaction effects between and across these systems. Widely used for global forecasting by the UNDP (2011; 2013), UNEP (2007), National Intelligence Council (2008), African Futures 2050 project (Cilliers, Hughes, & Moyer, 2011) and European Commission (Moyer & Hughes, 2012), IFs separately represents 183 countries and many of their interactions including trade and financial flows, building on a wide-ranging database of over 2,500 data series across time and countries.[5]

Figure 1 shows the major conceptual blocks or modules of IFs.[6] The dynamic modeling system is both structure-based (with extensive representation of underlying accounting systems such as demographic structures and the exchanges of goods, services, and finance) and agent-class driven (so as to provide a basis for representing change). It represents typical behavior

patterns of major agent-classes (households, governments, firms) interacting in a variety of global structures (demographic, economic, social, and environmental). The model structure is recursive; it computes equations sequentially in each time-step without simultaneous solution. It combines features of systems dynamics (notably the accounting structures, with careful attention to both flows and stocks) and econometrics (using estimated equations for the dynamic behavior of the agent classes).[7]

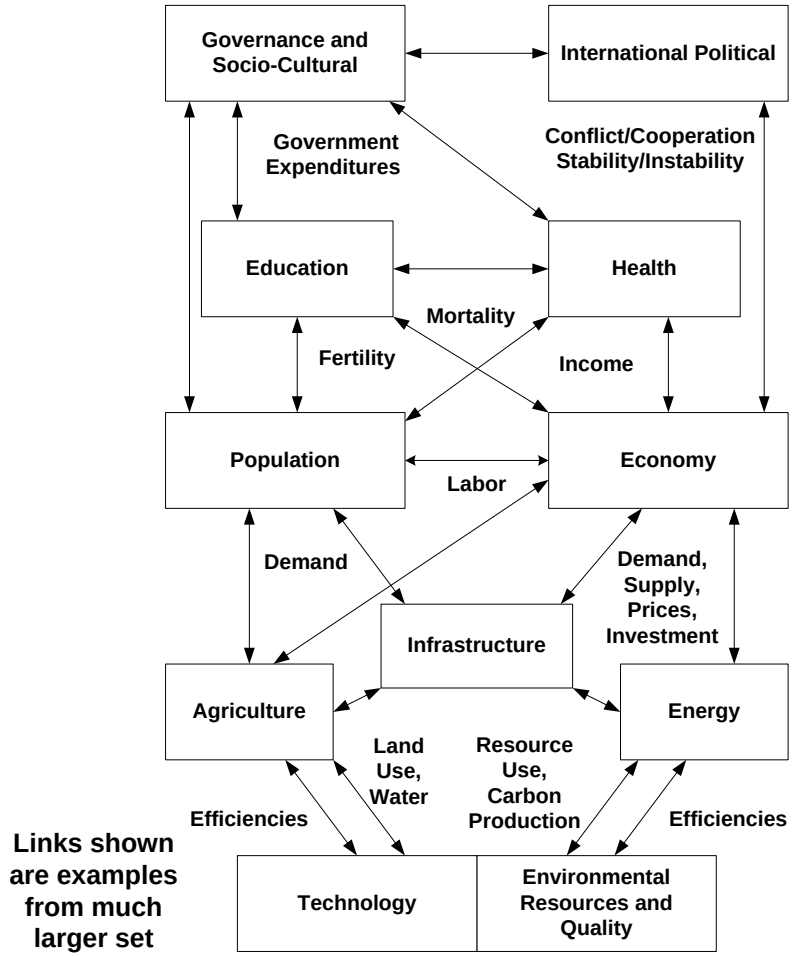

Figure 1 - Major Modules in the IFs Modeling System and Example Connections

Source: Authors.

The large scale of the IFs system and its integrated representation of many issue areas make it especially important for us to address some of the possible critiques of any forecasting model. These include: the manner in which model development specifies causality in systems of complex feedback loops where directionality is inevitably difficult to tease out; the resultant uncertainty of its Base Case forecast; the complications in scenario analysis of gauging reasonable responses to parameter interventions, especially those representative of policy choices; and the evaluation of uncertainty in the face of both model complexity and long forecast horizon. The IFs modeling project attempts to address these issues through a combination of a) its approach to the formulations of the model and b) its processes for testing and improving those formulations.

With respect to formulations, most modeling in recent decades has been sensitive to the Lucas (1976) critique that a model structure built to represent specific decision rules and behavior of decision-making agents will be invalidated by a change in the behavior of those agents, such as a change in policy. A variety of approaches to addressing this critique exist. Sims (1980) recognized the importance of the critique but argued that policy changes tend to be frequent even in estimation periods rather than one-time unexpected shocks to a system estimated without such changes. Nonetheless, he concluded that models should represent policy choices endogenously, often with a stochastic approach. Others have turned to micro-level conceptualization of agents following decision rules (Manski & McFadden, 1981). IFs relies heavily on extensive endogeneity of agent class behavior in theoretically guided algorithmic representation, as recommended in robust decision theory (Marcellino & Salmon, 2001). For instance, for the processes that bring firms and households together in iteration around equilibration in inventories of goods and services, and governments, firms and households

around savings and debts or government revenues and expenditures, we rely on PID (proportional, integral, and derivative) decision rules (Salmon, 1982).

During model development we use a variety of approaches to enhance those formulations. The model is too large to estimate simultaneously, but our equation estimation and tuning looks heavily at existing literature. The Base Case is tested in at least three different ways: (1) by running the model against the 1960-2010 historical period with special attention to behavior of demographic and economic variables but focusing as needed on other variables such as those for governance described below; (2) by examining forecasts as extensions of historical series to identify transients that suggest formulation problems; and (3) by regularly comparing our forecasts with those of other forecasters. For instance, in demographics we compare with both the forecast revisions of the United Nations Population Revision every two years and releases from the International Institute for Applied Systems Analysis; for economics we look in the shorter run to the International Monetary Fund and for longer forecasts to the Organization for Economic Cooperation and Development; for energy we consider the outlooks of the International Energy Agency. We recognize that alternative base cases are feasible and compatible with different definitions of the historical period and other forecasting efforts; we view our Base Case itself as a scenario.

Similarly, we undertake extensive sensitivity analyses of parameter changes (most of which are multipliers or additive factors relative to the endogenously calculated base behavioral patterns). Examples include higher or lower fertility rates, economic growth rates, agricultural yields, and, of course, variation in governance variables such as corruption or democracy levels. In scenario analysis we always explore individual interventions before combining them into larger scenarios so as to scale the magnitude of the interventions and assess the responsiveness of

the system, again looking to the larger literatures to calibrate our own formulations. And in identifying appropriate magnitudes for the scenario interventions we very often use a targeting mechanism that directs policy levels to be within one standard error of a cross-sectionally estimated function of typical behavior. Since IFs is so large and complex, putting meaningful confidence intervals on forecasts in either the Base Case or alternative scenarios, as is routinely done in models with small sets of equations, is not possible. In reality, confidence intervals on a forecasting system such as IFs over a time horizon such as 50 years are hugely wide and steadily expanding (one major reason for exploring widely variable scenarios). This is a recognized weakness of such modeling in spite of all efforts to generate good forecasting behavior.

Because governance is a component of the IFs system's sociopolitical representation (see Figure 1) we are capable of forecasting: (1) future levels of governance concerning security, capacity, and inclusion, and (2) implications of changes in governance for other components of the forecasting system. The dynamic linkages and loops among governance dimensions and those linking governance to other human and biophysical systems are extensive and in most cases path dependencies supplement basic relationships, because social change has considerable inertia. The driving and driven variables constitute a complex syndrome of mutually interdependent developmental interactions, not a simple causal sequence.

In the case of governance, we envision primarily positive feedback loops across the three dimensions of governance discussed above and between governance and broader human development as depicted in Figure 2. When the state is secure, it can more easily develop capacity and inclusion. When a state is capable, it is better able to maintain security and foster inclusion. In turn, greater inclusion may lead to both enhanced capacity and security. When all three are strong and mutually reinforcing, we expect to see another virtuous development cycle

emerge that gives impetus to shared prosperity and well-being and vice versa. Positive feedback relationships, however, may give rise to vicious cycles as well as virtuous ones. Countries with predatory elites, patterns of paternalistic rule, patronage politics, lack of accountability, or persistent domestic instability and conflict typically experience ongoing reinforcement of both poor governance (cause and/or effect) and slow or negative advance in well-being (Collier, 2007).

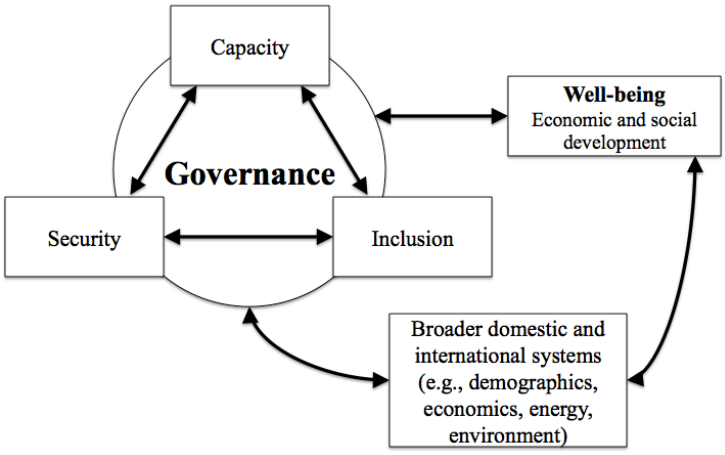

Figure 2 - Governance and its Linkages to Broader Systems
Source: Authors.

Our ability to forecast governance depends both on its conceptualization and having measures available for those concepts. As the most common methods to measure governance have various limitations (Arndt & Oman, 2006; Munck & Verkuilen, 2002), we represent each of our dimensions of governance (security, capacity, and inclusion) with two variables, calculated from numerous other variables throughout the IFs system.[8] We chose these variables based on a) their proximity to our conceptualization of governance, and b) data availability with a preference for indicators that already have past time-series data lasting over multiple decades.[9] From these variables (scaled) we created sub-indices for each dimension and a composite governance index built from three sub-indexes. Table 1 lists our governance variables and their causal drivers,

indicating the nature of the relationship when it is inverse rather than direct (direct meaning that higher values of a driving variable lead to high values for the sub-index variable). Our causal estimations (sometimes including lags and/or moving averages to refine understanding of causality in the constant struggle to avoid conflating causality with correlation) are based on an extensive review of the literature as well as our own statistical analyses, incorporation of path dependence, and the addition of algorithmic elements.[10]

Table 1: Six Variables Underlying Three Governance Indexes Forecasted from 2010 to 2060[11]

- 1) Security Index
    - *Probability of intrastate conflict* [initiated with data from the Political Instability Task Force's combined conflict events[12]] is a function of past conflict, neighborhood effects, economic growth rate (inverse), trade openness (inverse), youth bulge, infant mortality, democracy (inverted-U), state repression (inverse), and external intervention.
    - *Vulnerability to intrastate conflict* [an index similar to the Center for Systemic Peace's state failure/fragility index and the Fund for Peace's State Failure Index] is a function of a large set of variables including energy trade dependence, economic growth rate (inverse), urbanization rate, poverty level, infant mortality, under-nutrition, HIV prevalence, primary net enrollment rate (inverse), intrastate conflict probability, corruption, democracy (inverse), government effectiveness (inverse), freedom (inverse), and water stress.

- 2) Capacity Index[13]
    - *Government revenues* as a share of GDP [initialized with World Bank and OECD data[14]] are a function of past revenue as percentage of GDP, GDP per capita, and fiscal balance (inverse).[15]
    - *Corruption* [initialized with TI Corruption Perceptions Index data] is a function of past corruption level, GDP per capita (inverse), energy trade dependence, democracy (inverse), gender empowerment (inverse), and probability of intrastate conflict.

- 3) Inclusion Index
    - *Democracy* [initialized with Polity 11-point democracy scale data] is a function of past democracy level, economic growth rate (inverse), youth bulge (inverse), energy export dependence (inverse) and gender empowerment.

- *Gender empowerment* [initialized with UNDP Gender Empowerment Measure data] is a function of past gender empowerment level, GDP per capita, youth bulge (inverse), and average years of formal education attained by women 15 and older.

During runs of the model all of the drivers of our six governance variables are themselves endogenously calculated in the various models identified in Figure 1.[16] Governance variables, in turn, drive economic performance through linkages to various elements of multifactor productivity (MFP). In particular, corruption and the probability of intrastate conflict affect MFP, and level of democracy is available to model users to link to productivity via scenarios. Because GDP per capita has effects throughout the model (e.g. on fertility, mortality and urbanization in demographics, on energy supply, demand and trade, on educational enrollments and completion, and on poverty rates) that indirectly feed back to governance variables, as well as direct effects back to a number of governance variables, a variety of positive and negative feedback loops link governance and well-being, as we noted in discussing Figure 2.

In order to strengthen our confidence in the causal formulations developed for each of these aspects of governance and in the larger integrated system,[17] we subjected them also to historical analysis. The IFs database allows initialization of model runs from 1960 through 2010 and comparison of our results with historical series. We used such runs specifying either only GDP or no variables exogenously and introducing no corrections over time, contrary to many such analyses.

For the historical analysis we focused on internal war and democracy variables within IFs, because of the availability of empirical series for the entire 50-year period. Our primary analysis used World Bank groupings of countries (high-income and the developing or transitional regions of East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the

Middle East and North Africa, South Asia, and sub-Saharan Africa). Our initial analysis of internal war resulted in an R-squared of 0.23 between our probability forecasts and actual conflict occurrence (from the Political Instability Task Force). In drill-down analysis of that result we recognized that a major weakness of our approach was non-inclusion of (a) external interventions (such as in Southeast Asia during the 1960s and 1970s and in South Asia in the 1980s and thereafter) and (b) the repression of conflict by totalitarian governments (in developing Europe and Central Asia). Introducing exogenous parameters to represent these phenomena raised the R-squared to 0.56), but it is important to recognize that we do not attempt to forecast these variables after 2010. Our historical forecasts of democracy at the regional level fit Polity project data with an R-squared of 0.78, but again required one exogenously specified adjustment that we cannot anticipate forecasting, namely the upward swing or wave of democratization beginning in the 1980s.

What does our study contribute vis-à-vis other predictions about global futures? First, whereas almost all existing governance forecasts focus on a limited time horizon[18] and set of countries, we look *long-term across nearly all countries*, providing regional and country level forecasts through 2060 to provide 183 individual country forecasts. Longer-term, global governance forecasting helps us understand the drivers of human action and development in the broad sweep. It necessarily differs from forecasting with shorter time horizons. Instead of focusing on events driven by individuals or on immediate contagion effects, we look to deep underlying dynamics.

Second, we examine governance within the broader context of development, including its *connections to other systems*, both domestic and international. For instance, changes in demographic, economic, education, energy, and environmental systems, as well as patterns of

relationships among states in regional neighbourhoods and globally, strongly affect governance. Exploring interactions of governance with such systems provides insights into the resilience and stability of current trajectories, and it can potentially assist us in making difficult trade-offs in using scarce resources (Lomborg, 2009). Other analyses, mostly with a pessimistic or optimistic orientation, have explored long-term global forecasts in these issue areas, but IFs is unique in representing them together and in interaction with governance.[19]

Third, forecasting is often undertaken in a rather non-transparent manner, relying on implicit and badly communicated mental models. By contrast we aim to make the bases of our forecasts as *transparent* as possible and to admit to our limitations and uncertainties.[20] We prefer the word "forecasting" to "prediction" and believe in identifying key uncertainties in our understandings and using scenario analysis to present alternative forecasts.

III. Empirical Results

Our primary exploratory scenario, the Base Case, contains the baseline output of the full, integrated IFs system forecasting annual empirical results by country for the future from 2010 to 2060. For most variables, our analysis is rooted in the actual historical data from 1960 to 2010. However, our Base Case is not a simple extrapolation of variables. It is an internally consistent, dynamic, nonlinear depiction of the future that appears reasonable given current paths and dynamics. It presents a co-evolutionary picture, with numerous interactions and feedbacks across all component systems included in the model, giving us an estimate of where countries, regions, and the world as a whole appear to be going with respect to governance.

In our Base Case, the majority of countries, in all regions of the world, are likely to see considerable improvement in governance between 2010 and 2060; yet differences between

regions will certainly remain. The countries of the Middle East and North Africa, South Asia, and sub-Saharan Africa are likely, on average, to be less well governed by 2060 than high-income countries are today. In contrast, the quality of governance in most countries in Latin America and the Caribbean will nearly converge with that of high-income countries. Much of this expected improvement will come from steady and continuous growth across countries in education and income, two primary drivers of governance. Global GDP per capita, which was $3,400 in 1960 and $9,743 in 2010 (in 2005 US PPP dollars), is expected to rise to $26,590 in 2060. Average education years of adults (age 15+) around the world, which were 3.4 in 1960 and 7.6 in 2010, will likely be about 10.1 years in 2060. As a result we anticipate the global human development index (HDI) to rise from 0.62 in 2010 to approximately 0.81 in 2060, with only about a dozen countries below 0.60 in 2060.[21] We also estimate the HDI gap between OECD and non-OECD countries will fall from 0.28 to 0.18 points, and the number of people with annual consumption expenditures between $6,000 and $30,000 (sometimes identified as the global middle class) will climb from 1.1 billion people in 2010 to 3.0 billion by 2064 as shown in Figure 3.[22] The income structure of the world also appears to be changing toward one more supportive of capable and inclusive governance. With growing incomes in many developing countries, we calculate that the global citizen-level Gini coefficient of GDP (at PPP) will be more equal in 2060 (0.571) than in 2010 (0.626).

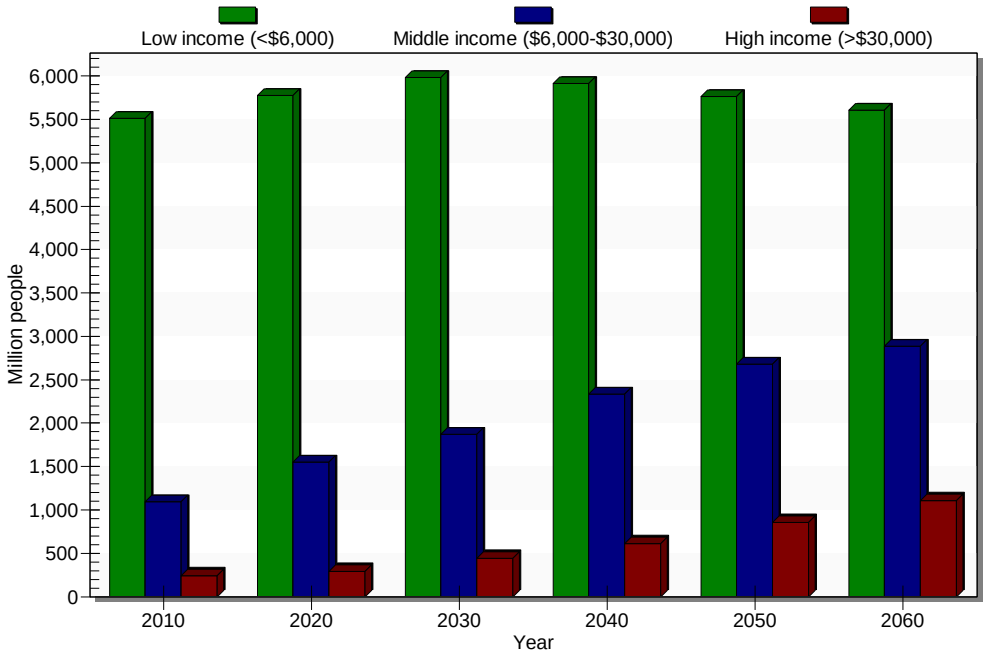

Figure 3 - Forecast Distribution of Global Population by Per Capita Income Level (2010–2060)

Turning to security, violent intrastate conflict has ebbed and flowed over the last two centuries, but on average, globally, has followed a generally cyclical pattern around only a slightly downward sloping long-term trend. Fortunately, in recent decades, intrastate conflict has been subsiding globally and has done so in all developing regions, even while conflicts in Africa are numerous and average rates for countries in South Asia are very high.

We forecast a continuing decline in the probability and average frequency of conflict in all developing regions due to significant positive changes in demographic and human development variables (see the drivers of the two security variables identified in Table 1). In total we anticipate intrastate conflict declining by more than half (as measured by country-year frequency rates) from 2010 through 2060, with the proportion of countries suffering from internal armed conflict likely to fall from 14.3 percent in 2010 to 7.2 percent in 2050.[23] This reduction needs to be put into context, however. Even by 2060, the levels of risk or vulnerability

to conflict in most developing countries will remain above the value for high-income countries in 2010. On average, the countries of sub-Saharan Africa will continue to face the greatest risk of future internal war, followed closely by those of South Asia[24] where an annual country frequency above 0.3 (one intrastate war for each three country-years) may well persist through 2060, followed by a frequency of 0.1 as a whole for sub-Saharan Africa and developing East Asia and the Pacific. The Middle East and North Africa is also likely to experience fairly high levels of conflict for some years, but its development path in the longer term actually puts it in a relatively favorable position. As countries cross the $18,000 per capita income (in 2005 dollars at PPP) threshold we found economic downturns and youth bulges tend not to increase the probability of internal war.

With respect to state capacity, over the last two centuries the ability of states to mobilize revenues has, on average, substantially risen around the world especially in high-income countries, although an upward but more mixed pattern has characterized the developing world. Consistent with Wagner's Law, total central and local government expenditures of contemporary OECD countries grew from less than 10 percent of GDP around 1870 (World Bank, 1997, p. 2) to 45 percent in 2011 (OECD, 2013). Over the more recent three decades, global historical data do not clearly show a rising global trend for central government revenues. Instead, revenues rose from about 18 percent of GDP in 1970 to about 20 percent by the early 1980s but remained generally in the range of 19–20 percent of global GDP between then and 2009.[25] Factors that have held down the government share of the global GDP in recent years include (1) the retreat of government in countries making transitions from communism to market economies; (2) the neo-liberal philosophy of fiscal discipline leading to some expenditure (and revenue) retrenchment in

Latin America and South Asia; and (3) the growing relative share within the global economy of developing economies with lower fiscal resource generation capabilities.[26]

Government effectiveness (i.e. the ability to use revenues well) is another important aspect of state capacity which we measure via corruption levels. Unfortunately, our empirical ability to assess broader historical progress on state capacity or government effectiveness beyond revenue mobilization (including variables that assess corruption and expenditure efficiency) is somewhat weak.[27]

Turning to forecasts, compared to conflict reduction we anticipate somewhat smaller gains in state capacity over the next half-century. Our forecast is that government revenue, as a share of total GDP, will increase almost everywhere, due in part to population aging, as governments will be forced to spend more in order to support their populations. Worldwide, total government revenue is forecast to rise from 36 percent of world GDP in 2010 to about 39 percent in the 2020s, before declining slowly to about 36 percent again. The decrease will likely occur because developing economies with generally lower rates of revenue-raising will grow as a share of global GDP and bring down the global average. Government expenditures, meanwhile, will undergo substantial changes. Development and demographic trends suggest that developing and high-income countries alike will see a rise in government-to-household transfers, both absolutely and relative to direct government consumption, as countries provide greater support to sub-populations including the elderly. The nature of government consumption will also change. Low-income countries, for example, will likely see public health expenditures increase as a portion of their GDP from 1.8% in 2010 to 5.2% in 2060.

Another interesting finding concerns sub-Saharan Africa's revenue capacity. In 2010, foreign aid accounted for just under 5 percent of the region's total GDP (and 16 percent of

government revenues), compared to 0.6 percent of GDP for developing countries as a whole. Going forward, the region's reliance on external assistance will likely fall steadily and steeply due to a number of factors especially economic growth rates that will exceed those of donor countries (see Figure 4). Many countries, however, will struggle to mobilize replacement revenue. As a result, East, West, and Central Africa are likely to see their total government revenues (internally and externally generated) decline by between 4 and 10 percent of their GDP though 2060.

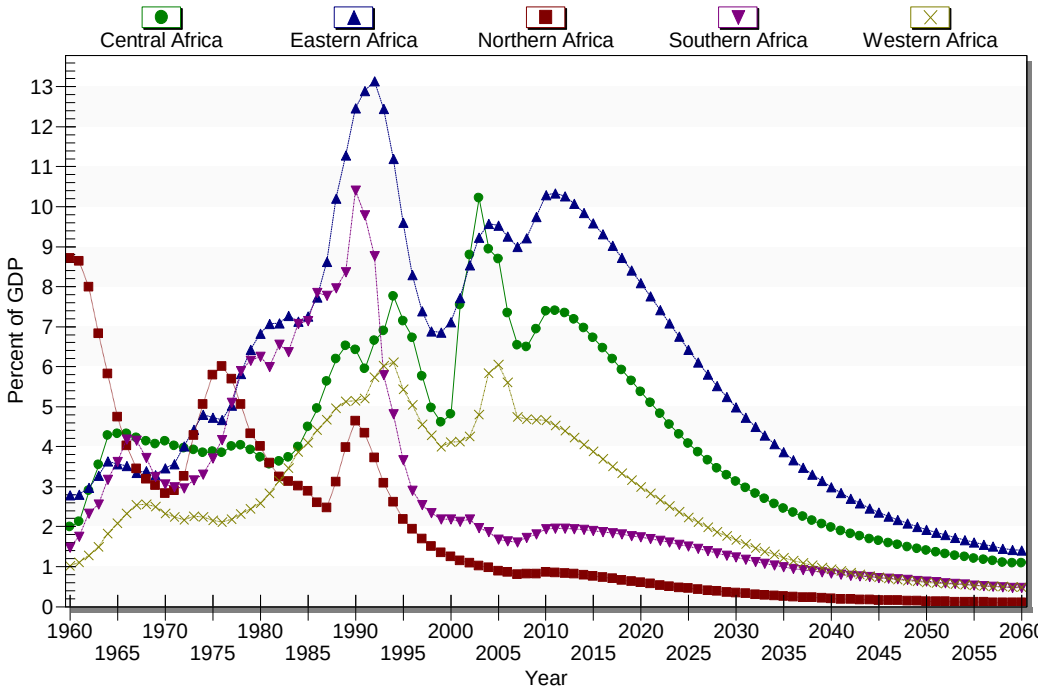

Figure 4 - History and Forecast of Foreign Aid (Net Receipts) as a Percent of GDP for African Sub-Regions (1960−2060)

We forecast that most countries will reduce corruption, thanks to increases in income. From 2010 to 2060 on our analog of the Corruption Perceptions Index or CPI (implying absence of corruption) we anticipate an increase from 2.4 to 3.6 in low-income countries, 2.9 to 4.7 for lower-middle income countries, 3.4 to 6.1 in upper-middle income countries and 6.5 to 8.9 for

high-income countries. The "biggest movers" in reducing corruption are likely to be (1) the developing countries of East Asia and the Pacific because of rapid economic growth; (2) Latin American countries for the same reason; and (3) Eastern European countries whose current levels of corruption are well above where we would expect them to be based on the fundamentals of their societies.[28] Sub-Saharan Africa, South Asia, and the Middle East and North Africa will also make progress in reducing corruption. However, we anticipate a large and persistent gap separating high-income countries (with much lower corruption) from middle and low-income countries as shown in Figure 5.

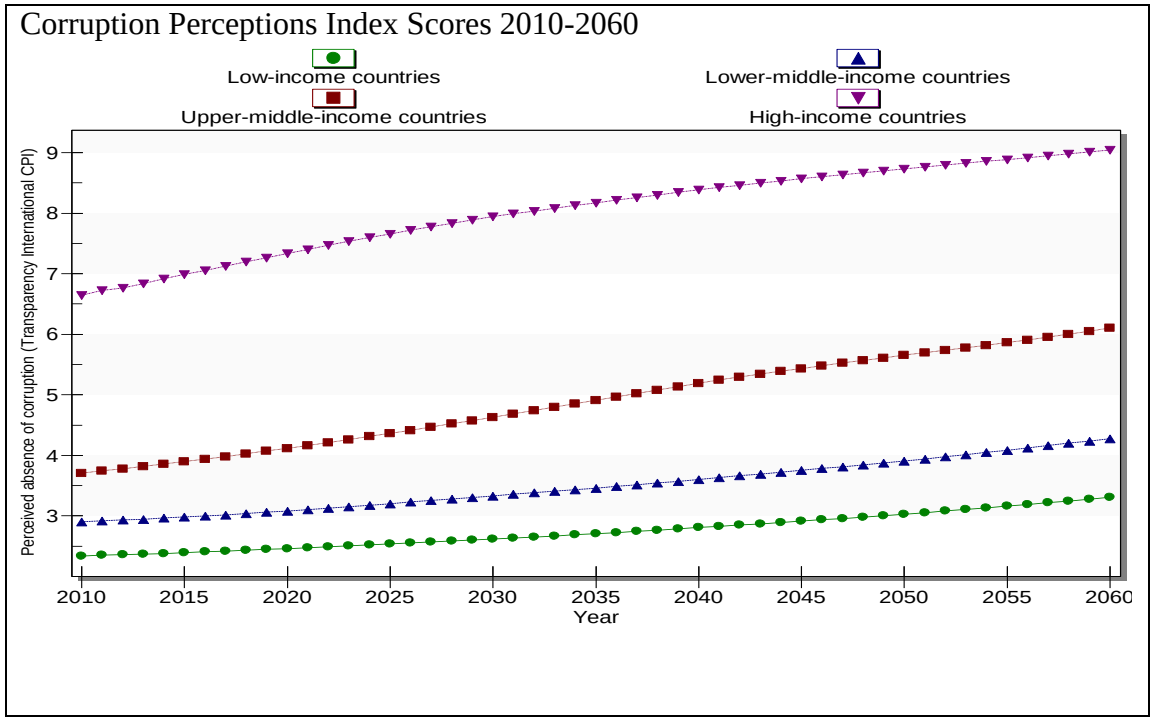

Figure 5 - Forecasts of Absence of Corruption by 2010 Country Income Level

Compared to state capacity, we expect greater advances in transitioning towards inclusive governance. Over the last two centuries, the world has witnessed a major expansion in the number of formally democratic states. As shown in Figure 6, the average 21-point (-10 to +10) polity democracy/autocracy score for sovereign states increased from -8 in 1800 to 4 in 2010.

The number of sovereign autocracies peaked at 89 in 1977 before falling to 22 in 2011, by which time 95 countries were classified as democracies. Meanwhile, the number of "anocracies" increased from 29 in 1989 to 48 in 2011.

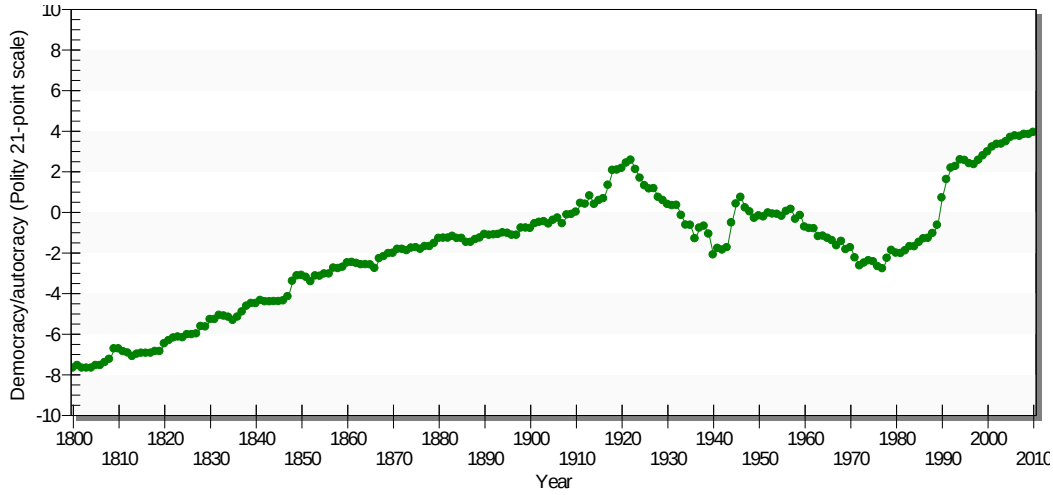

Figure 6 - Average Level of Autocracy/Democracy in the World of Sovereign States (1800–2010)

Note: The figure includes contemporary states only during the years in which they have been sovereign. World values are simple averages of state values (not population-weighted).

Today, we live in the most democratic and least authoritarian world in recorded history, and the progression towards democracy appears to be far from over given the tumultuous yet potentially encouraging trends in key regions such as the Middle East and North Africa. Although all regions of the world are likely to see some movement towards democracy, the world almost certainly will not be fully democratic in 2060. Out of the 183 countries we analyzed, 131 are forecast to be democratic by 2060, while 52 countries are likely to be anocracies. In terms of population, slightly less than 80 percent of the world's population will live under a democratic regime by 2060, while just over 20 percent will live under an anocratic regime. As shown in Figure 7, there may be a large jump in the late 2020s with the movement of populous China from autocracy to greater participation, inclusion, and – potentially – multiparty

democracy. (See Table 1 for the drivers of this change, which include gender empowerment and decline of youth bulge directly, and increase in both income and educational levels indirectly).

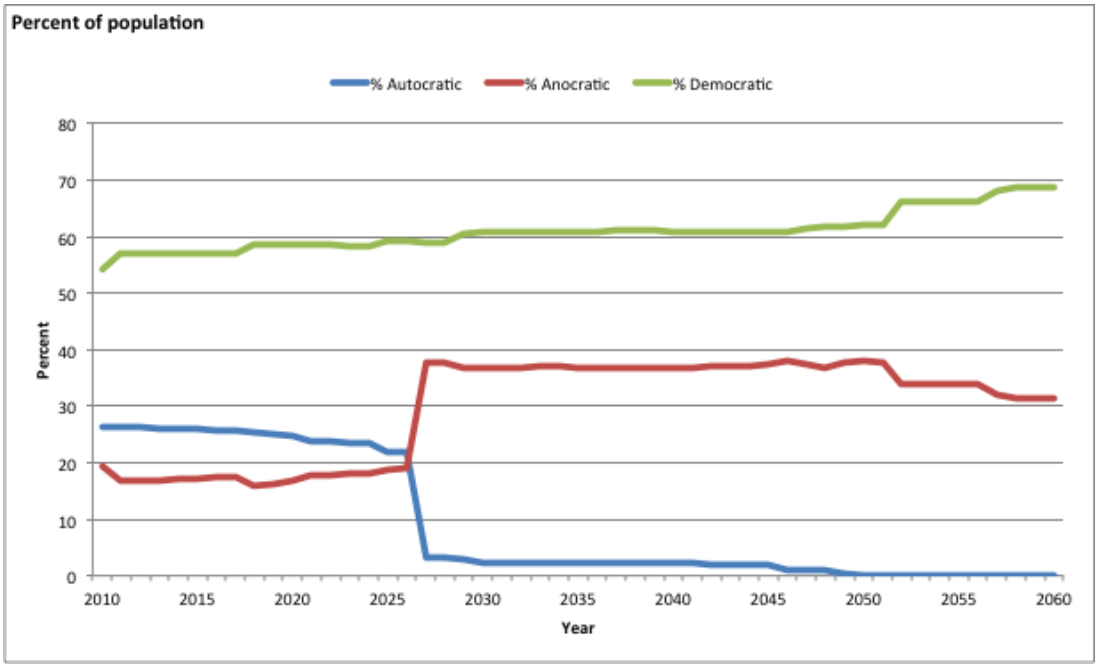

Figure 7 Forecast of Three Regime Types by Percent of Global Population Expected to be Living under Each Type (2010−2060)

In recent decades, high-income countries have experienced a high degree of regime-type stability, and for those which are democracies this will probably be true going forward. Such relative stability at high levels of democracy is also likely for much of Latin America and the Caribbean. However, many countries in other world regions may experience considerable movement up and down. Countries with substantial energy revenues may also be slow to increase democracy levels as their governments can more easily use their high levels of resource revenues to satisfy citizen demands or repress them. Lastly, although our forecasting formulation raises all countries and peoples from autocracy to at least partial democracy or "anocracy" by 2060, we admit that it seems improbable.

Expanding our exploration of inclusive governance more broadly to the rights and empowerment of women reinforces a conclusion that the last fifty years have been ones of significant progress for inclusion on many fronts.[29] Although women's empowerment has been and will likely continue to be a long and slow process, the percentage of countries granting universal female suffrage increased significantly over the last century, from around 10 percent of countries in 1917 to 98 percent in 2008 (UNDP, 2009, pp. 186-189). Using the UNDP's Gender Empowerment Measure (GEM)[30] to track both the advancement of women in governance and as an indicator of broader social inclusion, we forecast the world will experience some, but not particularly rapid improvement in gender empowerment. The population-weighted global GEM is forecasted to increase from 0.46 in 2010 to 0.55 in 2060. Slow global growth will partly be a result of the growing demographic weight of regions such as South Asia, with particularly low GEM values as shown in Figure 8. Nevertheless, over the same period, we anticipate the female share of the formal labor force to increase from 38.8 percent to 44.9 percent and women will make rapid progress compared to men in tertiary education enrollment in high-income countries, Latin America and the Caribbean, Europe and Central Asia, and East Asia and the Pacific.

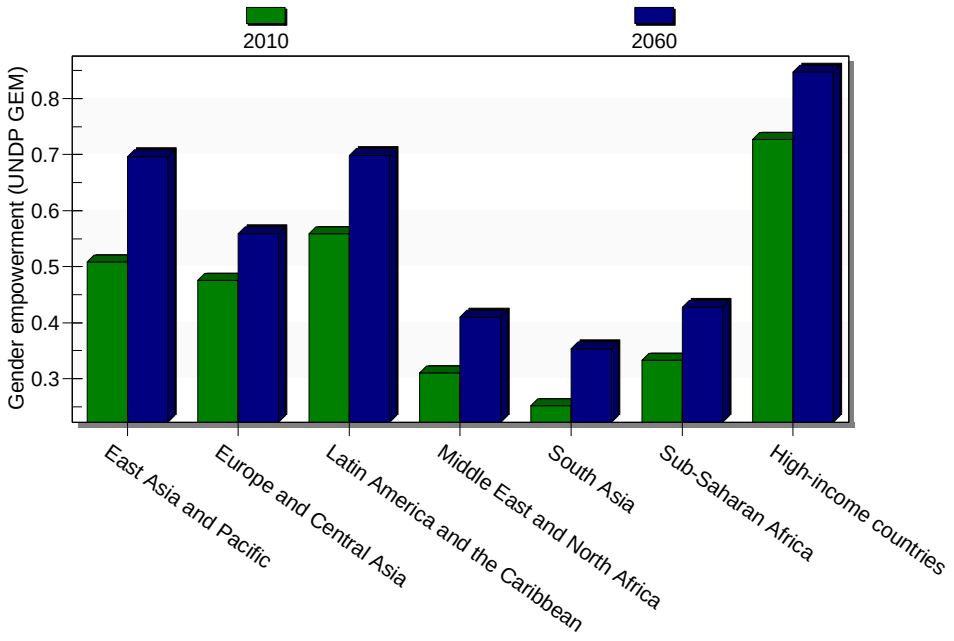

Figure 8 Forecast of the Gender Empowerment Measure (GEM) by World Region
Note: Values are population-weighted for countries in each region.

Looking at the bigger picture, we expect the IFs global composite governance index value to increase from 0.54 in 2010 to 0.70 in 2060 as shown in Table 2. The governance gap between developing and high-income countries will likely narrow and all regions will experience considerable advances in both governance and human development as shown in Table 3. Most striking in our forecast may be narrowing on the security dimension, on which we forecast upper-middle-income countries to converge with high-income ones. We also foresee progress in other country categories and security for Africa's largest countries (with the exception of the Democratic Republic of the Congo) in 2060 could be above the level of Brazil's today. We also foresee substantial progress and catch-up for upper-middle-income countries on the capacity dimension, even as high-income countries themselves advance and raise the bar for all regions of the world. However, in 2060 no developing region other than Latin America and the Caribbean

is likely to have reached the average level of governance experienced by high-income countries in 2010.

Table 2: Governance Forecasts by World Bank Income Categories (2010 to 2060)

	Low Income Countries	Lower-Middle Income Countries	Upper-Middle Income Countries	High Income Countries
Governance Security Index	0.58 > 0.78	0.43 > 0.74	0.67 > 0.92	0.90 > 0.96
-Internal War Probability	0.27 > 0.12	0.18 > 0.08	0.13 > 0.04	0.03 > 0.02
-Conflict Vulnerability	0.41 > 0.31	0.34 > 0.27	0.29 > 0.23	0.22 > 0.17
Governance Capacity Index	0.32 > 0.45	0.36 > 0.48	0.44 > 0.74	0.74 > 0.96
-Anti-Corruption (CPI)	2.34 > 3.31	2.90 > 4.27	3.70 > 6.10	6.64 > 9.04
-Gov't Revenues % of GDP	17.94 > 22.92	20.71 > 24.04	26.45 > 31.16	39.62 > 51.23
Governance Inclusion Index	0.45 > 0.59	0.55 > 0.62	0.46 > 0.69	0.81 > 0.89
-Democracy (Polity)	11.39 >14.00	13.25 > 15.62	13.91 > 16.54	16.73 > 17.92
-Gender Empowerment	0.33 > 0.44	0.30 > 0.40	0.53 > 0.70	0.73 > 0.85
Composite Governance Index	0.45 > 0.61	0.45 > 0.61	0.52 > 0.78	0.82 > 0.93

Notes: The first value in each cell is for 2010 and the second value is for 2060. The composite index is a simple average of the three sub-indices. The three indexes are averages of the two sub-component variables, scaled 0-1 between maximum and minimum scale values. See Table 1 for the drivers of the component variables.

Table 3: Global Development and Governance Base Case Forecasts for 2060

Governance Indicators	**2010 (Actual)**	**2060 (Forecast)**
Average Annual Internal War Probability for All States (0-1)	0.143	0.062
Vulnerability to Intrastate Conflict (0-1)	0.309	0.239
Corruption Perceptions Index (1-10)	4.0	5.8
Government Revenues as Percent of GDP (net of aid receipts)	35.81	35.93
Polity Score (0-20)	14.0	16.2
Gender Empowerment Measure (0-1)	0.455	0.546
IFs Governance Security Index (0-1)	0.617	0.814
IFs Governance Capacity Index (0-1)	0.454	0.619
IFs Governance Inclusion Index (0-1)	0.558	0.664
IFs Governance Composite Index (0-1)	0.543	0.699
Freedom House Score (0-12)	6.3	8.1
Government Effectiveness (1-5)	2.4	3.2
Development Indicators	**2010 (Actual)**	**2060 (Forecast)**
Adult Literacy Rate	81.80%	99.40%
Adult Female Years of Schooling (Age 15+)	6.8	9.8
Adult Male Years of Schooling (Age 15+)	7.9	10.3
Human Development Index	0.747	0.918
Life Expectancy at Birth	70.1 years	79.1 years
Mobile Phone Subscriptions (Per 100 People)	77.9	154.6
Net Enrollment Rate - Primary School	88.97	99.48
Net Enrollment Rate - Lower Secondary School	82.78	97.53
Net Enrollment Rate - Upper Secondary School	61.66	86.88
Gross Enrollment Rate - Tertiary Education	28.81	43.64
Paved Roads (% of All Roads)	58.7	79.2
Population Growth Rate (Annual)	1.15%	0.23%

Population over Age 65	522 Million	1.838 Billion
Population with Electricity (% of Total)	78.2	95.6
Population with Safe Drinking Water (% of Total)	63.8	89.0
Poverty (% of World Population below $1.25/day)	17.80%	2.90%
Poverty Headcount (below $1.25/day)	1.218 Billion	277 Million
Total Fertility Rate (Births per Woman)	2.5	2.0
Undernourished Children (% of Total)	16.30%	5.30%
Urban Population (% of Total)	51%	69%
World GDP (in 2005 US Dollars) Based on Exchange Rates	51 Trillion	226 Trillion
World Per Capita Income (in PPP 2005 US Dollars)	$9,700	$26,600
World Population	6.8 Billion	9.6 Billion

IV. Alternative Scenarios

Some might argue that the picture presented above sounds a bit too rosy. After all, a variety of obstacles including global climate change, water scarcity, demographic instabilities, passage through peaking global oil and gas production, and power transitions at the global high table could very well interrupt the virtuous cycles envisioned in our Base Case and could ensnare more countries in vicious ones. As we may indeed witness increasing pressures, especially from environmentally and demographically linked forces, we developed an alternative future scenario incorporating such global challenges.[31] Under this more pessimistic "Global Challenges" scenario, our governance composite index would increase by about one third less between 2010 and 2060 than in the Base Case with the security, capacity, and inclusion indexes all having much smaller increases. Not only would we see less improvement in governance, (for example, the global 2060 anti-corruption CPI score would drop from 6.1 to 5.2), but we would expect a much smaller global decrease in extreme poverty. Greater stress will also be placed on governments, requiring them to mobilize higher levels of revenue, and gains in GDP per capita (at PPP) will fall by more than half in 2060 for developing countries and by 29 percent for high-income countries compared to the Base Case. There will also be less progress toward gender equality and perhaps real declines in some countries. Nevertheless, even in this pessimistic

scenario, we still expect continued reduction of intrastate conflict although less of a decline than in the Base Case, and the push towards electoral democracy will suffer relatively little perhaps due to widespread diffusion of global norms in favor of democracy, non-discrimination, and the participation of women in governance, development decision-making, and conflict management.

We then developed a second and more optimistic alternative scenario involving strengthening of domestic governance globally compared to our Base Case combined with widespread implementation of policies expected to foster human development.[32] This Strengthened Governance with Development Policies (SG and DP) scenario assumes that all countries experience somewhat greater increases in domestic security (absence of intrastate war and low levels of risk); capacity (stronger revenue collection in non-OECD countries and lower levels of corruption); and inclusion (higher levels of democracy and gender empowerment). Under this scenario involving strengthened governance and pro-development policies, extreme poverty (income of less than $1.25 per day) falls dramatically (to 30 million) compared to both the Base Case (300 million) and the Global Challenges scenario (1.1 billion). It also leads to a 10 percent greater increase in global HDI over our Base Case such that in 2060 most developing regions would attain or surpass the HDI levels of high-income countries in 2010. The global Gini index for income at the household level is also anticipated to fall from 0.63 in 2010 to 0.48 in 2060 as opposed to 0.57 in our Base Case. Lastly, whereas our Base Case foresees the ratio of GDP per capita of the current members and non-members of the Organization for Economic Cooperation and Development to be at about 4-to-1 in 2060, under our optimistic SG and DP scenario this ratio could fall to as low as below 2-to-1, a level not seen globally since 1850 (see Figure 9).

Lastly, in a final twist, we forecasted a third alternative scenario involving the global challenges of the pessimistic scenario combined with the strengthened governance and pro-development policies of our optimistic scenario (Global Challenges with Strengthened Governance and Development Policies). In this case, we found that the positive governance and policy interventions completely offset the impact of the global challenges, resulting in a global HDI that is two percent higher than in our Base Case. Thus, even if various crises do occur, strengthened governance and policies that foster human development can put us in better shape than our forecasted Base Case, as shown in Table 4. Governance and policies are powerful.

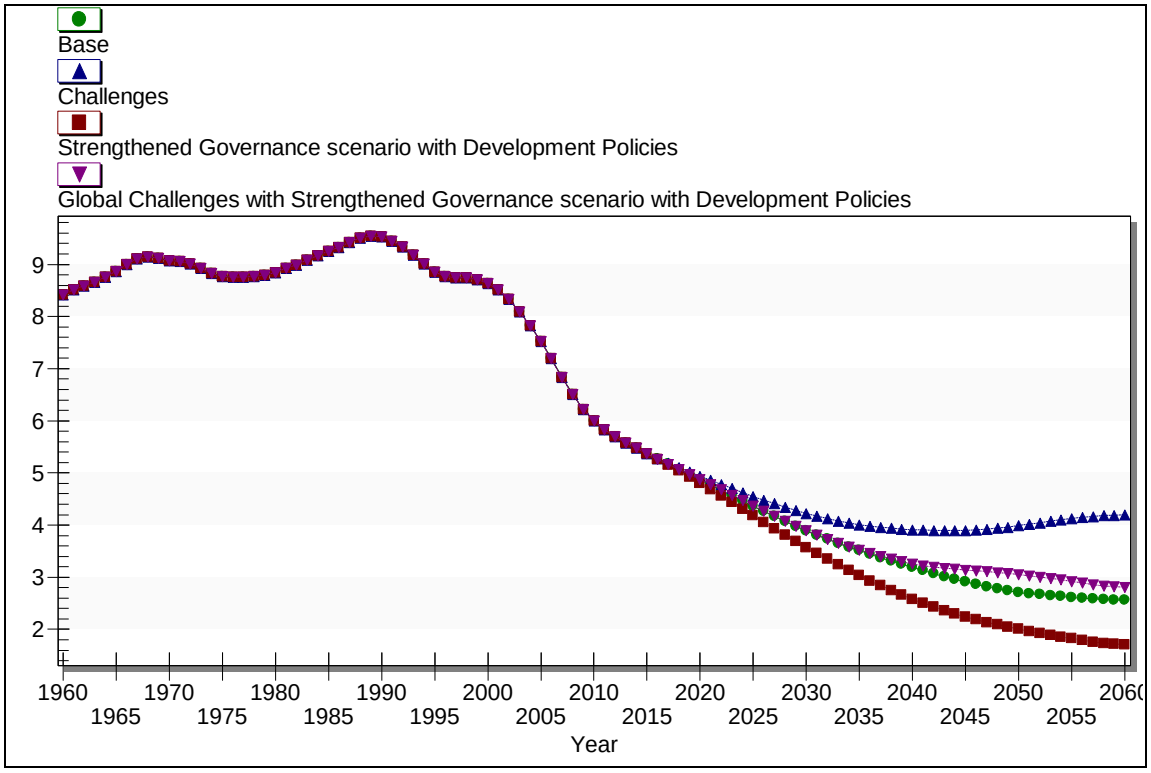

Figure 9 Ratio of Global North to Global South GDP Per Capita: History and Forecasts with Base Case and Alternative Scenarios (1960–2060)

Notes: Countries weighted by population, former communist countries excluded because of poor data quality, current OECD and non-OECD countries used as proxies for Global North and South.

Table 4: Composite IFs Governance Index (IGI) and HDI Values Under Two Possible Scenarios

Region	2010 Values		2060 Base Case		2060 Global Challenges Scenario with Strengthened Governance and Pro-Development Policies	
	IGI	HDI	IGI	HDI	IGI	HDI
East Asia and Pacific	0.46	0.64	0.73	0.86	0.88	0.85
Europe and Central Asia	0.58	0.70	0.74	0.84	0.90	0.87
High-Income Countries	0.86	0.87	0.96	0.98	0.99	0.98
Latin America and Caribbean	0.66	0.70	0.81	0.85	0.93	0.88
Middle East and North Africa	0.49	0.63	0.65	0.79	0.80	0.81
South Asia	0.41	0.51	0.60	0.77	0.73	0.81
Sub-Saharan Africa	0.49	0.39	0.61	0.68	0.76	0.72
World	**0.54**	**0.62**	**0.70**	**0.81**	**0.83**	**0.83**

Note: Regional Values are Population-Weighted by Country.

V. Conclusion

Long-term prospects for governance around the world as identified here are positive. Although there will still be gaps in 2060 between today's high-income and non-high-income countries, the overall trend is clearly one of progress. Yet, it would be prudent for the international community to actively work towards strengthening governance in all countries via the SDGs as there may be several possible impediments to improved governance in the future that we may have underestimated—even in the Global Challenges Scenario. Among the factors that may inhibit strengthened governance, firstly, some countries might try to only limit female educational expansion to primary education. While this may represent gains compared to the past, the universalization of female secondary education can bring about even greater benefits to governance as well as significant declines in fertility and infant, child, and maternal mortality (Dickson, Hughes, & Irfan, 2010; Hughes, Kuhn, Peterson, Rothman, & Solórzano, 2011). Secondly, some countries may get caught in a middle-income trap as the international

comparative advantage of cheap labor disappears and there is a pressing need for difficult restructuring of their economies (Kharas & Kohli, 2011). Thirdly, the passage from very high youth bulges to more mature demographic structures can be difficult as youth bulges often give rise to many unemployed and disaffected young men which can lead to social conflict and other problems (Cincotta & Doces, 2011). Fourthly, we anticipate a rise in anocratic/partially democratic or mixed regimes, which have historically been six times more likely than democracies and two-and-a-half times more likely than autocracies to experience societal conflict (Fearon & Laitin, 2003; Vreeland, 2008). A fifth complicated passage relates to some countries' transition away from heavy dependence on energy exports and other high-value raw materials (Ross, 2003). For countries such as Saudi Arabia and others in the Gulf, the need for that transition is great and improving governance may prove difficult without it. In the absence of governance change as great as in our Base Case, the pressures associated with incomplete transitions will almost certainly intensify over time; hopefully resolutions will be smooth, but historically they often have not been.

Despite these possible limitations, overall our Base Case forecast of governance is fairly optimistic, with virtuous feedback loops dominating global development patterns over the next half-century, as they have for most countries over the last 50 years. Much of this positive outlook is thanks to momentum created by recent progress in key dimensions of human development, in particular education, health, and income. Increasing enrollment of young people in education, improving health and lengthening life-spans, climbing income levels, falling fertility rates, and smaller youth bulges in some of the poorest countries, along with other ongoing socioeconomic changes all favor stronger governance and further development going forward. Barring large-scale disruptions such as a major plague or military conflict among the great powers, we find that

there is great positive momentum globally in both human development and improved governance in terms of domestic security, strengthening capacity and broadening inclusion.

In conclusion, our findings have much relevance for the Sustainable Development Goals (SDGs) as improved governance is not only a desirable end in itself, but also a necessary means to accomplish the other SDGs (Brinkman, 2013, pp. 93-95; UN, 2012, pp. 26-29). As evident in our analysis, there is certainly a strong case to be made that the three dimensions of governance examined here ought to be prioritized as distinct governance goals in their own right. One might even argue that instead of placing the improvement of governance as goals number 10 and 11 (out of 12), more sustainable gains for both governance and development might come from the UN placing governance security, capacity, and inclusion at the top of its list. Wherever they sit on the SDG list, there will undoubtedly be resistance from some pockets to a global development agenda aiming to make the world more peaceful, corruption-free, and democratic. The alternative to taking such bold steps would be much worse.

References

Ackerman, J. (2004). Co-governance for accountability: Beyond 'exit' and 'voice'. *World Development, 32*(3), 447-463.

Aidt, T. S. (2009). Corruption, institutions, and economic development. *Oxford Review of Economic Policy*, *25*(2), 271-291.

Arndt, C. & Oman, C. (2006). *Uses and abuses of governance indicators*. Paris: OECD.

Baldacci, E., Clements, B., Gupta, S., & Cui, Q. (2008). Social spending, human capital, and growth in developing countries. *World Development 36*(8), 1317-1341.

Bevir, M. (2009). *Key concepts in governance*. London: SAGE.

Bevir, M. (2012). *Governance: A very short introduction*. New York: Oxford University Press.

Bingham, L. B., Bunachi, T. & O'Leary, R. (2005). The new governance: Practices and processes for stakeholder and citizen participation in the work of government. *Public Administration Review, 65*(5), 547-558.

Brandt, P. T., Freeman, J. R., & Schrodt, P. A. (2011). Real time, time series forecasting of inter- and intra-state political conflict. *Conflict Management & Peace Science, 28*(1), 41-64.

Brinkman, H.-J. (2013). Peace, justice and governance in the post-2015 development framework. *Journal of Peacebuilding & Development, 8*(3), 92-101.

Bueno de Mesquita, B. (2002). *Predicting politics.* Columbus: Ohio State University Press.

Burke, M. B., Miguel, E., Satyanath, S., Dykema, J. A., & Lobell, D. B. (2009). Warming increases the risk of civil war in Africa. *Proceedings of the National Academy of Sciences, 106*(49), 20670−20674.

Busby, J. W., Smith, T. G., White, K. L., & Strange, S. M. (2013). Climate change and insecurity: Mapping vulnerability in Africa? *International Security, 37*(4), 132-172.

Chhotray, V., & Hulme, D. (2009). Contrasting visions for aid and governance in the 21st century: The white house millennium challenge account and DFID's drivers of change. *World Development, 37*(1), 36-49.

Cilliers, J, Hughes, B., & Moyer, J. (2011). *African futures 2050: The next 40 years*. Pretoria, South Africa and Denver, CO: Institute for Security Studies and Frederick S. Pardee Center for International Futures.

Cincotta, R. P., & Doces, J. (2011). The age-structural maturity thesis: The impact of the youth bulge on the advent and stability of liberal democracy. In J. A. Goldstone, E. Kaufmann & M. D. Toft (Eds.), *Political demography: How population changes are reshaping security and national politics* (pp. 98-116). New York: Palgrave-MacMillan.

Clemens, M. A., Kenny, C. J., & Moss, T. J. (2007). The trouble with the MDGs: Confronting expectations of aid and development success. *World Development, 35*(5), 735-751.

Collier, P. (2007). *The bottom billion: Why the poorest countries are failing and what can be done about it*. New York: Oxford University Press.

Commission on Global Governance. (1995). *Our global neighborhood.* Oxford: Oxford University Press.

Coppedge, M., et al. (2011). Conceptualizing and measuring democracy: A new approach. *Perspectives on Politics, 9*(2), 247-267.

Dahl, R. A. (1971). *Polyarchy: Participation and opposition*. New Haven: Yale University Press.

Dahl, R. A. (1989). *Democracy and its critics*. New Haven: Yale University Press.

Diamond, L., & Morlino, L. (Eds). (2005). *Assessing the quality of democracy*. Baltimore: Johns Hopkins University Press.

Dickson, J. R., Hughes, B. B., & Irfan, M. T. (2010). *Advancing global education*. Boulder, CO: Paradigm Press.

Dryzek, J. S. (1996). Political inclusion and the dynamics of democratization. *American Political Science Review, 90*(3), 475-487.

Dyer, G. (2010). *Climate wars: The fight for survival as the world overheats.* Oxford: Oneworld.

Easterly, W. (2009). How the millennium development goals are unfair to Africa. *World Development, 37*(1), 26-35.

Englehart, N. (2009). State capacity, state failure, and human rights. *Journal of Peace Research, 46*(2), 163-180.

Faguet, J.-P. (2014). Decentralization and governance. *World Development, 53*(1), 2-13.

Fearon, J., & Laitin, D. (2003). Ethnicity, insurgency, and civil war. *American Political Science Review, 97*(1), 75-90.

Fukuyama, F. (2013). What is governance? *Governance, 26*(3), 347-368.

Gates, S., Hegre, H., Nygård, H. M., & Strand, H. (2012). Development consequences of armed conflict. *World Development, 40*(9), 1713-1722.

Gleditsch, K. S., & Ward, M. D. (2013). Forecasting is difficult, especially about the future: Using contentious issues to forecast interstate disputes. *Journal of Peace Research, 50*(1), 17-31.

Grindle, M. (2004). Good enough governance: Poverty reduction and reform in developing countries. *Governance, 17*(4), 525-548.

Halleröd, B., Rothstein, B., Daoud, A., & Nandy, S. (2013). Bad governance and poor children: A comparative analysis of government efficiency and severe child deprivation in 68 low- and middle-income countries. *World Development, 48*(1), 19-31.

Hanf, M., Van-Melle, A., Fraisse, F., Roger, A., Carme, B., & Nacher, M. (2011). Corruption kills: Estimating the global impact of corruption on children deaths. *PLoS One, 6*(11), e26990. doi:10.1371/journal.pone.0026990.

Hegre, H., Karlsen, J., Nygård, H., Strand, H., & Urdal, H. (2013). Predicting armed conflict, 2010–2050. *International Studies Quarterly*, 57(2), 250-270.

Hendrix, C. S. (2010). Measuring state capacity: Theoretical and empirical implications for the study of civil conflict. *Journal of Peace Research*, *47*(3), 273-285.

Hewitt, J. J., Wilkenfeld, J., & Gurr, T. R. (2010). *Peace and conflict 2010.* Boulder, CO: Paradigm Publishers.

Hewitt, J. J., Wilkenfeld, J., & Gurr, T. R. (2012). *Peace and conflict 2012.* Boulder, CO: Paradigm Publishers.

Hughes, B. B., Kuhn, R., Peterson, C. M., Rothman, D. S., & Solórzano, J. R. (2011). *Improving Global Health*. Boulder, CO: Paradigm Press.

Hughes, B. B. (2013). Development-oriented policies and alternative human development paths: Aggressive but reasonable interventions. UN Human Development Research Paper 2013/05. Published also in K. Malik & M. Kugler (Eds.), *Human progress and the rising South* (pp. 140-185). New York: United Nations Human Development Report.

Hurd, I. (1999). Legitimacy and authority in international politics. *International Organization, 53*(2), 379−408.

Hyden, G. C., Court, J., & Mease, K. (2004). *Making sense of governance: Empirical evidence from sixteen developing countries*. Boulder, CO: Lynne Rienner.

Jarstad, A. K., & Sisk, T. D. (Eds.) (2008). *From war to democracy: Dilemmas of peacebuilding*. New York: Cambridge University Press.

Joshi, D. (2011). Good governance, state capacity, and the millennium development goals. *Perspectives on Global Development and Technology*, *10*(2), 339-360.

Joshi, D. (2012). Varieties of developmental states: Three non-western pathways to the millennium development goals. *Journal of Developing Societies*, *28*(3), 355-378.

Joshi, D., & O'Dell, R.K. (2013). Global governance and development ideology: The United Nations and the World Bank on the left-right spectrum. *Global Governance*, *19*(2), 249-275.

Kar, D., & Curcio, K. (2011). *Illicit financial flows from developing countries: 2000-2009.* Washington, D.C.: Global Financial Integrity.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The worldwide governance indicators: Methodology and analytical issues. World Bank Policy Research Working Paper, No. 5430. Washington, D.C.: World Bank.

Keane, J. (2009). *The life and death of democracy*. New York: W.W. Norton.

Kharas, H., & Kohli, H. (2011). What is the middle income trap, why do countries fall into it, and how can it be avoided? *Global Journal of Emerging Market Economies*, *3*(3), 281–289.

Krishna, A. (2002). *Active social capital: Tracing the roots of development and democracy*. New York: Columbia University Press.

Kurki, M. (2013). *Democratic futures: Re-visioning democracy promotion*. New York: Routledge.

Kurlantzick, J. (2013). *Democracy in retreat: The revolt of the middle class and the worldwide decline of representative government*. New Haven: Yale University Press.

Levi-Faur, D. (Ed.) (2012). *The Oxford handbook of governance*. New York: Oxford University Press.

Lewin, L. (2012). *2119 - The year global democracy will be realized*. Amherst, NY: Cambria Press.

Lijphart, A. (1999). *Patterns of democracy: Government forms and performance in thirty-six countries*. New Haven: Yale University Press.

Lomborg, B. (Ed.) (2009). *Global crises, global solutions, second edition*. Cambridge, UK: Cambridge University Press.

Lucas, R.E. (1976). Econometric policy evaluation: A critique. In K. Brunner & A. H. Meltzer (Eds.), *The Phillips Curve and Labour Markets* (pp. 104-130). Amsterdam: North Holland.

Mander, H., Asif, M., Sasi, K. P., & Action Aid. (2004). *Good governance: Resource book*. Bangalore: Books for Change.

Manski, C. F., & McFadden, D. L. (1981). *Structural analysis of discrete data with econometric applications.* Cambridge: MIT Press.

Marcellino, M., & Salmon, M. (2001). Robust decision theory and the Lucas critique. Working Paper Series WP01-10. Coventry: University of Warwick Financial Econometrics Research Centre.

Migdal, J. S. (1988). *Strong societies and weak states: State-society relations and state capabilities in the third world*. Princeton: Princeton University Press.

Mill, J. S. (1958). *Considerations on representative government*. New York: Liberal Arts Press.

Moyer, J. D., & Hughes, B. B. (2012). ICTs: Do they contribute to climate change or sustainable development? *Technological Forecasting and Social Change*, *79*(5), 919-931.

Munck, G. L., & Verkuilen, J. (2002). Conceptualizing and measuring democracy: Evaluating alternative indices. *Comparative Political Studies, 35*(1), 5-34.

National Bureau of Statistics (China). (2011). *Zhongguo tongji nianjian 2010 [China statistical yearbook 2010]*. Beijing: Zhongguo Tongji Chubanshe.

National Intelligence Council (USA). (2008). *Global trends 2025: A transformed world.* Washington, D.C.: United States National Intelligence Council.

Nelson, P. J. (2007). Human rights, the millennium development goals, and the future of development cooperation. *World Development, 35*(12), 2041-2055.

North, D. C. (1990). *Institutions, institutional change and economic performance.* New York: Cambridge University Press.

North, D. C., Wallis, J. J., & Weingast, B. R. (2009). *Violence and social orders: A conceptual framework for interpreting recorded human history*. New York: Cambridge University Press.

O'Brien, S. P. (2010). Crisis early warning and decision support: Contemporary approaches and thoughts on future research. *International Studies Review*, *12*(1), 87-104.

OECD. (2013). OECD Statistics. <http://stats.oecd.org/>

Phillips, A. (1995). *The politics of presence*. Oxford: Clarendon Press.

Przeworski, A., Alvarez, M.E., Cheibub, J.A., & Limongi, F. (2000). *Democracy and development: Political institutions and well-being in the world, 1950–1990.* New York: Cambridge University Press.

Ross, M. L. (2003). The natural resource curse: How wealth can make you poor. In I. Bannon & P. Collier (Eds.), *Natural resources and violent conflict: Options and actions* (pp. 17-42). Washington D.C.: World Bank.

Rothstein, B. (2011). *The quality of government: Corruption, social trust, and inequality in international perspective.* Chicago: University of Chicago Press.

Roy, I. (2008). Civil society and good governance: (Re-) conceptualizing the interface. *World Development, 36*(4), 677-705.

Salmon, M. (1982). Error correction mechanisms. *The Economic Journal, 92*, 615-629.

Sánchez, M. V., & Cicowiez, M. (2014). Trade-offs and payoffs of investing in human development. *World Development, 62*(1), 14-29.

Skocpol, T. (1985). Bringing the state back in: Strategies of analysis in current research. In P. B. Evans, D. Rueschemeyer, & T. Skocpol (Eds.), *Bringing the State Back In* (pp. 3-37). New York: Cambridge University Press.

Sims, C. A. (1980). Macroeconomics and reality. *Econometrica, 48*, 1-48.

Speer, J. (2012). Participatory governance reform: A good strategy for increasing government responsiveness and improving public services? *World Development, 40*(12), 2379-2398.

Stiglitz, J. E., Sen, A., & Fitoussi, J. P. (2010). Report by the commission on the measurement of economic performance and social progress. Paris: Commission on the Measurement of Economic Performance and Social Progress.

Strange, S. (1996). *The retreat of the state: The diffusion of power in the world economy*. New York: Cambridge University Press.

Theisen, O. M., Gleditsch, N. P., & Buhaug, H. (2013). Is climate change a driver of armed conflict. *Climatic Change, 117*(3), 613-625.

Tilly, Charles. (1985). War Making and State Making as Organized Crime. In P. B. Evans, D. Rueschemeyer, & T. Skocpol (Eds.), *Bringing the State Back In* (pp. 169-191). New York: Cambridge University Press.

Ulfelder, J., & Lustik, M. (2007). Modelling transitions to and from democracy. *Democratization, 14*(3), 351-387.

UN. (2012). Realizing the future we want for all: Report to the secretary-general by the UN system task team on the post-2015 UN development agenda. New York: United Nations.

UN. (2013). A new global partnership: Eradicate poverty and transform economies through sustainable development – The report of the high-level panel of eminent persons on the post-2015 development agenda. New York: United Nations.

UNDP. (2009). *Human development report 2009 - Overcoming barriers: Human mobility and development*. New York: United Nations Development Programme.

UNDP. (2011). *Human development report 2011 - Sustainability and equity: A better future for all*. New York: United Nations Development Programme.

UNDP. (2012). *Governance for peace: Securing the social contract*. New York: United Nations Publications.

UNDP. (2013). *Human development report 2013 - The rise of the South: Human progress in a diverse world.* New York: Oxford University Press.

UNEP. (2007). *Global environment outlook (GEO) 4: Environment for development.* Valletta: United Nations Environment Programme.

Vreeland, J. R. (2008). The effect of political regime on civil war: Unpacking anocracy. *Journal of Conflict Resolution*, *52*(3), 401-425.

Wagner, Adolph. (1892). *Grundlegung der Politischen Ökonomie* [Foundations of Political Economy]. Leipzig: Winter Publishing.

Wängnerud, L. (2009) Women in parliaments: Descriptive and substantive representation. *Annual Review of Political Science*, *12*, 51-69.

Ward, M. D., Greenhill, B. D., & Bakke, K. M. (2010). The perils of policy by p-value: Predicting civil conflicts. *Journal of Peace Research*, *47*(4), 363−375.

Weber, M. (1978). *Economy and society: An outline of interpretive sociology*. Berkeley, CA: University of California Press.

Weber, W. E., & Wagner, R. E. (1977). Wagner's law, fiscal institutions, and the growth of government. *National Tax Journal, 30*(1), 59–68.

Weiss, T. G. (2000). Governance, good governance and global governance: Conceptual and actual challenges. *Third World Quarterly*, *21*(5), 795-814.

Wendt, A. (2003). Why a world state is inevitable. *European Journal of International Relations*, *9*(4), 491−542.

Wilson, D., & Dragunasu, R. (2008). The expanding middle: The exploding world middle class and falling global inequality. Goldman Sachs Global Economics Paper, No. 170. New York: Goldman Sachs.

Winters, M. S., & Martinez, G. (2015). The role of governance in determining foreign aid flow composition. *World Development*, http:dx.doi.org/10.1016/j.worlddev.2014.09.020.

World Bank. (1997). *World development report 1997: The state in a changing world*. New York: Oxford University Press.

World Bank. (2011). *World development report 2011: Conflict, security, and development.* Washington, D.C.: World Bank.

World Bank. (2013). *World development indicators 2013.* Washington, D.C.: World Bank.

Wyndow, P., Li, J., & Mattes, E. (2013). Female empowerment as a core driver of democratic development: A dynamic panel model from 1980 to 2005. *World Development, 52*(1), 34-53.

[1] Limited attempts at long-range forecasting are presumably due to the fact that governance patterns do not change in consistent fashion over time and because of considerable uncertainty and disagreement about the nature and complexity of causal relationships. Among the limited forecasts of democratization, Bueno de Mesquita (2002, p. 141) predicted that three-fourths of states will be democratic in 2028; Lewin (2012, p. 5) foresaw a "democratic world order" emerging by the year 2119; Przeworski, Alvarez, Cheibub, & Limongi (2000, pp. 276-277) predicted that in 2030 most of humanity would be living in democracies; Cincotta and Doces (2011, p. 112) expected increasing demographic maturity and the dissipation of youth bulges to strengthen the probability of movement towards liberal democracy

[2] See [Removed for Peer Review] for an extended treatment of many of the topics in this article.

[3] Maintaining such control and stability is difficult, however, and states do not always succeed. Thomas Hobbes also saw a need for a strong sovereign, or Leviathan, to create order.

[4] North (1990) has elaborated on the importance of a consistent and fair rule of law to develop a modern, dynamic economy.

[5] The model and its associated database are available at [Removed for Peer Review]. The database draws from international organizations, think tanks, academic research projects, and other sources covering as much of the period since 1960 as available in each series. The forecasts in this paper used IFs version 6.68 with 183 countries. The current IFs version has been expanded to 186 countries.

[6] The named linkages in Figure 1 represent only a small illustrative subset of the dynamic connections between the block components.

[7] Full IFs documentation is available at [Removed for Peer Review].

[8] Low inter-correlations between each of the two indicators of each governance component reveal that they are capturing independent and distinct phenomena.

[9] Other candidate indicators were rejected due to a) their time-series being too short to forecast (beginning only in the 1990s or 2000s), b) unreliable data, c) coding measures which have changed over time, d) unsuitable aggregation measures, and e) indicators that did not clearly map on to our conceptual framework.

[10] Algorithmic elements are tied in part to our efforts to fit the IFs forecasting approach at least relatively well to historical data from 1960 through 2010. In formulating the equations, we always experimented with alternative forms such as logarithmic, polynomial, and power equations both statistically and in forecasting. Sometimes the best form according to statistical fit on historical data produces unrealistic behavior in forecasting because of major changes in the behavior of drivers (such as reaching saturation values). Due to "over-fitting" (adding variables and tuning a model to fit a sample of data), models that fit history well do not always forecast well (Ward, Greenhill, and Bakke 2010). One approach to improving such models is to split the sample and test forecasts against that part not used to build the model.

[11] For a full literature review on the drivers of security, capacity, and inclusion see Chapter 3 of [Removed for Peer Review].

[12] We defined intra-state conflict as internal war (combining what the PITF labels revolutionary war, ethnic war, and genocide or politicide).

[13] As Hendrix (2010) argues, state capacity is best assessed through a combination of tax capacity measures and surveys of bureaucratic quality, and the CPI serves as a longitudinal measure of the latter (Englehart, 2009).

[14] The World Bank's World Development Indicators (WDI) include government revenue data for 216 developed and developing territories from 1960 to the present. Although the WDI states that its current revenue data are for general government (that is, both central and local levels), our comparisons with OECD data suggest they only cover the central government. Hence, in certain cases we use OECD data as well.

[15] Modifying Migdal's (1988, p. 281) suggestion of 30%, we only assessed general government tax revenue collection increases up to 45% of GDP as signifying increased state capacity.

[16] The creation of a model with fully endogenized driving variables and forward linkages sometimes leads to the exclusion of variables that we would prefer to include if stronger databases for endogenization were available. One such variable is horizontal inequalities, which in the future we would like to use as a driver for internal conflict.

[17] See Chapter 4 of [Removed for Peer Review] for more details on these formulations and their foundations.

[18] For instance, political risk analysis seldom looks beyond three years (e.g., Hewitt *et al*. 2010). Exceptions, like the forecasts of Bueno de Mesquita (2002), Busby *et al*. (2013) and Hegre *et al*. (2013), are few. Most social science analysis also relies on models that fit historical data rather than forecasting future years (Ulfelder & Lustik 2007).

[19] [Removed for Peer Review] provides a complete review of the organizations and academic studies which have conducted long-range forecasting for these variables. See [Removed for Peer Review] for the latest country and regional forecasts of governance and other systems across all of our scenarios.

[20] Our development of a global, long-term forecast has advanced the exploration of governance futures compared to previous studies as discussed in this paper, but there are additional steps that could be done to further strengthen governance forecasting Some areas for future efforts include: 1) improving the representation of government finance including the division of general government into central and local governments; 2) linking forecasts of long-term risks (which tend to change slowly) with short-term inputs from real-world event monitoring; 3) expanding the set of variables related to each of the three dimensions of governance; 4) replacing the Gender Empowerment Measure, which is based on a series from the UNDP that they have ceased updating, with an alternative; 5) adding broader measures of inclusion such as inclusion across socio-economic classes and of racial, ethnic, and religious minorities. Perhaps our greatest limitation is that we did not develop a representation of capacity and inclusion at the levels of global and local (i.e. sub-national) governing systems.

[21] The HDI, a measure which combines income, education, and health, was calculated based on the UNDP 2010 methodology.

[22] Our forecast has a smaller number of Chinese and Indians reaching this level of consumption than predicted by Wilson and Dragusanu (2008, p. 6).

[23] These findings are also very close to the forecasts of Hegre *et al.* (2013).

[24] Aside from sub-Saharan Africa and South Asia, several other countries appeared vulnerable to conflict especially Yemen, Djibouti, and Iraq but also Egypt, Algeria, Libya, Iran, Syria, Palestine, Morocco, Jordan, Tunisia, and Lebanon in the Middle East and North Africa and Myanmar, Papua New Guinea, North Korea, Laos and Timor-Leste in East Asia. At a slightly lower risk level were Turkmenistan, Uzbekistan, Azerbaijan, Tajikistan, Kazakhstan, and Russia in Central Asia and Haiti, Colombia, Guatemala, Venezuela, Bolivia, and Honduras in the Americas. We do not have a more sanguine forecast for South Asia due to an implicit

assumption that some interacting combination of historical grievances and factors (such as deep social fractionalization) that we cannot explicitly forecast continues to generate conflict potential.

[25] Data on government revenues are not always accurate. For example, the National Bureau of Statistics of China 2011 estimates a revenue/GDP ratio of 31.1 percent in 1978 which dropped to a nadir of 10.3 percent in 1995, and then steadily rose to 20.1 percent in 2009. The World Bank's WDI, however, estimates current government revenues in China at only 5.8 percent in 1990 and 10.1 percent in 2009. These discrepancies may reflect the difference between general government and central government statistics, but illustrate the difficulty of assessing revenues as a share of GDP. There are also problems in assessing revenue shares of GDP in state-controlled economies due to the prominent role of state-operated enterprises.

[26] As countries become more well-to-do, their local government expenditures tend to increase significantly so that general expenditures can rise, even when central government expenditures stabilize or rise more slowly.

[27] Most time-series government capacity measures have been in existence for less than 20 years and are not structured to allow consistency in longitudinal analysis.

[28] This appears to be a legacy of abrupt transitions from communism to market-based economies.

[29] Statistical studies also find female educational attainment and labor force participation strongly associated with democratic development (Wyndow, Li, & Mattes, 2013).

[30] The GEM runs from 0 to 1 with higher values indicating greater equality between women and men.

[31] The scenario included exogenous interventions that increased fertility and decreased migration and that represented several potential impact points of environmental stress including reduced agricultural yields, higher undernutrition, reduced access to safe water and sanitation, reduced progress against use of indoor solid fuels, and slower economic growth with greater inequality. Full details of this scenario are explained in Chapter 6 of [Removed for Peer Review].

[32] Policies details are outlined in Hughes 2013 and UNDP 2013. Complete details of this scenario are available in Chapter 7 of [Removed for Peer Review].