

# Economic Diversification and Institutional Quality—Issues of Concentrated Interests

Petrus Olander 1 (1)

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#### Abstract

Recent research has provided broad accounts of what high institutional quality is; bureaucrats should be impartial and recruited on merit, public power should not be used for private gain, there should be rule of law, and property rights should be secure. Many scholars argue the reason why, in spite of this knowledge, recent institutional reforms have had limited success is that improvements are not in the interest of incumbent elites. Constraining elites is, therefore, crucial for institutional improvements. In this article, I argue that economic diversification functions as one such constraint on elite behavior, affecting their ability to form collusive coalitions. When the economy is concentrated to a few sectors, elite interests are more uniform making it easier for them to organize. However, as the economy becomes more diverse, collusion becomes harder and elites must settle for impartial institutions more often. I test the theory using cross-national time series data covering the last 25 years; the results corroborate the theory, as the economy of a country becomes more diverse, institutions become more impartial.

**Keywords** Institutions · Economic diversification · Economic concentration · Elites

#### Introduction

There is a large and growing literature on the causes and consequences of how institutions, the "humanly devised constraints that shape human interaction," (North 1990) are set up in a country. Evidence demonstrates how the choice of institutions can be a hindrance to a range of desirable outcomes, and research has identified many of the features of high-quality institutions: bureaucrats should be impartial and recruited on

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Petrus Olander petrus.olander@svet.lu.se

Department of Political Science, Lund University, Paradisgatan 5, Box 52, SE-221 00 LUND Lund, Sweden



merit, elites should not use public power for private gain, there should be rule of law, and property rights should be secure (see Evans and Rauch 1999; Dahlström et al. 2011; Mauro 1995; Rodrik 2000; North et al. 2009). Despite this knowledge, institutional reforms in the last couple of decades have had limited success (Mungiu-Pippidi 2006). A likely reason for the lack of success is that higher quality institutions are often not in the interest of those who have the power to shape the institutions (Acemoglu and Robinson 2000; Sonin 2003; North et al. 2009; Chaudhry and Garner 2007; Menaldo and Yoo 2015). When any one group or actor accumulates too much power, they can use it to cement their position, creating institutions to serve themselves at the expense of others. Therefore, constraining powerful actors from using institutions for favoritism and private gain is a central component of, and challenge to, the success of institutional reforms.

In this paper, I develop and test a theory of how diversification of economic interests can help constrain elites for forming collusive coalitions. North, Wallis, and Weingast (NWW) and Acemoglu and Robinson (A&R) argue that a pluralistic set of elite interests was instrumental in bringing about the overthrow of the English king in 1688 and ultimately producing higher quality institutions (North et al. 2009, p. 11; Acemoglu and Robinson 2012, p. 152). I argue that pluralistic elite interest will not only matter at critical junctures, but that continuous diversification and economic dynamism will inhibit the ability of elites to aggregate successfully and align their preferences and form the collusive coalitions necessary for reversing reforms. I test the theory beyond the example of events in 1688 using data on economic diversification and institutional quality covering more than 100 countries from 1984 to 2010. Results indicate that countries in which economic interests become more diversified and the dominance by single economic interest declines experience incremental improvements in institutional quality in the year that follows. To deal with endogeneity issues, I use a dynamic panel estimations and instrumental variables; the results of which support the theory.

The paper is structured as follows. In the next section, I discuss the concept of institutional quality and previous literature on changes in institutional quality, before presenting the theory that a pluralistic set of elite interests are instrumental in institutional reforms. I then present a measure of economic diversification and apply that using various estimation techniques and instrumental variables. Finally, I discuss the findings.

# Theory and Background

### **Definitions of Institutional Quality**

There is a menagerie of terms that each relate to the often opaque concept of institutional quality. In the more theoretically focused conceptual literature, arguments range from those who think focus should be limited to how institutions or governments function (e.g., Rothstein and Teorell 2008) to those who argue for more encompassing concepts such as governance that also considers, for example, the efficiency and capacity of government (e.g., Agnafors 2013; Fukuyama 2013; Alonso and Garcimartín 2018).



Focusing on the approaches used in applied empirical research, we can differentiate at least three approaches. The first is using individual sub-categories of institutional quality, overlapping but somewhat distinct. The most prominent such approach is likely the study of the causes and consequences of corruption (e.g., Mauro 1995). This practice has contributed to a change in how we consider corruption, from the idea that it might not matter, or even that it might grease the wheels (Huntington 1968) to one in which corruption is seen as detrimental for economic and political well-being. The downside of isolating certain sub-categories is that there is reason to believe that the sub-categories are part of a larger system, as found by Langbein and Knack (2010).

The second approach might be labeled *the list approach*. In this, the researchers combine the individual sub-components of the first approach into a system of institutions, creating a list of things that together can be labeled institutional quality or some variation of the term. One prominent such approach is North et al. (2009) open access order that includes secure property rights, perpetually lived organizations, and state capacity. Acemoglu and Robinson's (2012) concept of *Inclusive Institutions* contains some of the same features, though they add pluralism, which is akin to democracy, while this approach places sub-categories within a larger system of institutions and examines whether those institutions are skewed for the benefit of incumbents. A problem with the list approach is that it encompasses things that can go together, but not always do, and that it leaves the core element undefined. If the purpose of the system is to skew institutions in favor of the incumbent, we might try to define institutional quality as that "skewness."

A third approach to defining institutional quality might be termed the *least common denominator* approach, where the scholar boils down the system of sub-categories to only a core element. In this vein, Rothstein and Teorell (2008) argue that what they call Quality of Government is impartiality, more specifically the impartial implementation of laws and policies. The idea is that impartiality captures sub-categories of institutional quality. For example, the sub-category corruption can be a side payment that allows a person to bypass regulation or get preferential treatment in a way that is not stipulated in the law. Their conceptualization has been criticized for being too narrow and not sufficiently considering the efficiency and capacity of government (e.g., Agnafors 2013; Fukuyama 2013). This is particularly true if considered from the perspective of the broader governance concept; however, when used in empirical studies, more complex measures can become unruly especially if they combine both impartiality and efficiency. A government could become more impartial but in so doing might have a harder time implementing policy as previously advantaged groups resist being treated as everyone else. Arguably, the narrowness of impartiality is therefore a strength.

Rothstein and Teorell's focus on the formal codified institution is, however, one of the weaknesses of the definition since it fails to capture anything taking place before the law is written, such as regulatory capture through lobbying, or whether someone secures preferential legislation by making legal donations to a politician. This problem can be solved by defining the core of institutional quality as adherence to a norm of impartiality in the exercise of public power, rather than just the impartial implementation of laws and policies. In practice, such a norm might not be achievable, but institutions can be more or less in accordance with the norm. In this paper, I take this approach, defining institutional quality, as adherence to a norm of impartiality. However, I later operationalize impartiality of institutions using an index and use a sub-



category as an alternative measure. Thus, in practice, I adopt all three approaches to institutional quality. Admittedly, the discussion here does not exhaust the definitional debate, nor does it deal with all possible objections to the definition, but it offers a clearer picture of what I refer to when using some variation of the term institutional quality.

## Using Institutions for Favoritism and Private Gain

Considerable empirical evidence indicates that higher institutional quality increases economic growth on an aggregate level (e.g., North 1990; Mauro 1995; Evans and Rauch 1999; Olson 2000; Barro and Sala-I-Martin 2004; North et al. 2009). Nevertheless, elites historically and still today often opt for an institutional setup that is less economically productive but protects their relative standing (Acemoglu and Robinson 2000). Often, it is the apparatus of government that elites use to impose their preferred institutions on the public, since the government, in the words of Georg Stigler, is "a potential resource or threat to every industry in the society" (Stigler 1971, p. 3).

Used for private gain, the state can be a formidable bulwark protecting insiders from outsiders. However, in protecting insiders, exclusive institutions suppress innovation and retards economic development as more efficient uses of capital are prevented from being realized (Stigler 1971; Chaudhry and Garner 2007; Benmelech and Moskowitz 2007). When, for example, in the USA, trucks became an increasingly competitive way to move goods around, railroad companies mobilized and used the Interstate Commerce Commission (ICC) to protect their position (Huntington 1952). A century earlier, several of the states in the USA enacted usury laws, ostensibly to protect debtors from loan sharks. One can debate the soundness of such a policy, but as such, it might not make for favoritism. However, Benmelech and Moskowitz (2007) find evidence that the usury laws were used by those with political power to control market entry as their standing and asset ownership made them relatively immune to the regulations. These examples are not rare exceptions. Instead, it is common that what could have been economic development is blocked as narrow particularistic interests use the machinery of the state for private gain. Preventing such narrow interests from using the state is therefore of the utmost importance.

The prize for someone who can use the capacity of the state for their narrow gain is sufficiently large to guarantee a supply of people willing to try, though the role of the state and the value it represents will be somewhat different depending on the characteristics of the state in question. In some cases, the state might serve to legitimize privately held power, in some it might serve as the arena in which the collusion takes place, and in other cases, it might be an actor mediating interests to secure its own persistence. For the sake of simplicity, the theory outlined here mainly focuses on the state and governmental institutions as expressions of underlying interests emanating in society and the state and as an arena for those interests, rather than state actors having interests of their own.

No single person is powerful enough to overcome the competition for power by themselves. Therefore, to accumulate enough power to control the state, actors must form coalitions. I refer to coalitions formed to gear institutions away from impartiality as *collusive coalitions*. In *Inquiry into the Nature and Causes of the Wealth of Nations*, Adam Smith underlines that collusion is a constant impulse and that uniformity of



interests is conducive to collusion, remarking that, "[p]eople of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices" (Smith 1776, p. 82).

There is a transaction cost to forming a collusive coalition, but when interests are more uniform, that cost is lower and, therefore, more collusion will take place in such settings. To form a coalition, the partners must bargain over who should contribute what, what the aim of the coalition should be, and take precautions to make sure that once the coalition is successful, other members do not use it for other purposes. The more similar the economic interest of the prospective partners, the easier it is for them to envisage what institutions the coalition should aim to create and there is less need for bargaining. If the partners are grounded in the same economic interest, there will also be less reason to expect partners to defect, thereby decreasing the need to monitor the terms of the deal if the coalition is successful.<sup>1</sup>

Adam Smith was skeptical about the possibility of using laws to prevent collusion by unified interests and saw no use of laws to prevent conspiracy that did not also provide the would-be conspirators with a vehicle for their conspiracy (Smith 1776, p. 82). Given how government regulation frequently has come to serve the interests it is supposed to regulate, Smith seems to have had reason to worry. Ideally, a mechanism for constraining elites should be beyond the control of any one actor, group, or even the state itself.

#### **Toward More Impartial Institutions**

Competition for control of the state can be hard fought, but often it lies dormant if the incumbent elites are strong enough to discourage challengers, and the incumbents can use the state for private gain. If competition flares up however, the struggle sometimes results in a stalemate in which both sides are equally matched and further fighting is costly without the hope of gains. To decrease the costs, the adversaries might opt to diminish the conflict level by striking a deal. North, Wallis, and Weingast as well as Acemoglu and Robinson argue that the presence of a pluralistic set of actors is instrumental in making such stalemates produce improvements in institutional inclusiveness rather than just changing the people in power. Their proposed mechanism is that a diverse set of actors creates a balance as an institution that benefits one group is more likely to incur costs on another group. The group subject to the costs is then likely to oppose the move by the first group (North et al. 2009, p. 111; Acemoglu and Robinson 2012, p. 152). Both base their reasoning on the coalition in the Glorious Revolution in 1688 and make no attempt to test the theory on a broader set of cases.

NWW and A&R are not the first to argue that pluralism of interests can help prevent nefarious outcomes. For example, James Madison thought competition of interest, though in this case not economic, could help bring about more impartial institutions. In a letter to Thomas Jefferson during the debates over whether his home state of Virginia should incorporate churches, Madison wrote:

<sup>&</sup>lt;sup>1</sup> While the quote from Smith concerns economic interests, and I focus on economic interests here, fundamentally, the impact of diversity of interests should work similarly even when those interests are other than economic.



The presbyterian clergy, have at length espoused the side of the opposition, being moved either by a fear of their laity or a jealousy of the episcopalians. The mutual hatred of these sects has been much inflamed by the late Act incorporating the latter. I am far from being sorry for it, as a coalition between them could alone endanger our religious rights, and a tendency to such an event had been suspected. (Madison 1785)

It is especially illustrating here that Madison points out the need for a coalition if the churches want to be able to have the government favor them and how their hatred prevents it.

Employing a similar mechanism on more recent events, Luigi Zingales makes the argument that competition between actors in related but not identical sectors counterbalances each other in lobbying efforts. Zingales argues that the sub-prime crisis was worsened by the repeal of the Glass-Steagall act that allowed commercial banks to engage in investment banking and vice versa. The repeal demolished the balance between commercial bank interests and interests of investment banks, where previously there were two kinds of banks; increasingly, there was only one (Zingales 2012). In lobbying, this meant that the arguments heard became increasingly one-sided (e.g., Whitford 2007, p. 143; Nourse and Schacter 2002, p. 613). As a result, regulation of credit came to be captured by the banks which exacerbated the effects of the crisis (Zingales 2012, p. 55). In 1688, the mechanism ensured a more inclusive set of institutions as a diverse group of elites tried to reach an agreement. Around the turn of the millennium, the same mechanism enabled a uniform group of bankers to use the state to their advantage and benefit.

The more uniform elite interests are, the easier it is to coordinate a coalition as there are fewer conflicts of interest. If fully uniform, coordination is hardly even necessary as interests align by default. When interests are more diverse, the mediation of differences becomes harder and riskier, as setting up exclusive institutions requires that even powerful groups are excluded. In these cases, the elites trying to de-escalate the conflict level might agree to abstain from suppressing and extorting each other.

Such improvements should spur economic growth, potentially lifting millions out of poverty and wretched living conditions. However, the stalemate cannot ensure the survival of the reforms because economic growth will create winners and losers, at least in relative terms, which would shift the balance of power and break the stalemate. Unless something else constrains the winners, they will collude to use their new power to consolidate their position. Understanding what those constraints are is, therefore, imperative if institutional reforms are to be successful.

#### Explaining Survival of Institutional Reforms

I argue that diversity of interests plays a role beyond critical junctures affecting the incremental changes to institutions that take place continuously. The first reason for this is that any static set of actors could, given enough time, be able to mediate their differences. While the interest of industry as an aggregate might be at odds with that of landowners as an aggregate because more demand for labor raises costs, it may not be true for the industrialists as individuals, and in the end, it is individuals who act. The individual factory owners' interest can start to align with that of the landowners as soon



as his factory is up and running, and he might very well agree that *additional* industrial production should be blocked, as doing so increases the value of his production with less need for additional investments. Therefore, having a pluralistic set of actors is not enough; there needs to be dynamism and disruption to prevent actors from mediating their differences.

The second argument for developing the pluralist mechanism is that the mechanism fits more broadly with what we already know follows institutional improvements. An extension of the mechanism is coherent with the presence of economic growth which previous research has found to correlate with more inclusive institutions (North 1990; Mauro 1995; Evans and Rauch 1999; Olson 2000; Barro and Sala-I-Martin 2004; North et al. 2009). Further, the type of economic growth found to correlate with institutional quality is a stable but modest growth (Evans and Rauch 1999) or middle- to long-term growth (e.g., Barro and Sala-I-Martin 2004) which in turn has been found to correlate with stable growth (Pritchett 2000). Analogous to the saying about putting all the eggs in one basket, stable economic growth corresponds well with economic diversity (Wagner and Deller 1998, p. 541; Imbs and Wacziarg 2003, p. 64). The pluralist mechanism can link these empirical findings; economic diversification makes for diversity of elite interests contributing to better institutional quality, which encourages people to exploit their capital leading to economic growth, and the diverse economy makes it less sensitive to the ups and downs of individual sectors. The need for diversity, continuous disruption, and previous empirical findings leads to the hypothesis that polities in which economic interests are diverse, evenly matched, and there is continuous diversification should gradually develop more impartial institutions

#### **Data and Measures**

Below, I investigate the effect of diversification of economic interests on institutional quality. Measuring economic diversification is a two-stage process: first choosing what data to use and second summarizing that data into a measure capturing diversity.<sup>2</sup> I operationalize diversity of economic interests as a Theil index of export diversification from the International Monetary Fund's Diversification Tool Kit (IMF 2014). Having operationalized diversification, I validate the measure by comparing it to alternative measures.

The reasons for using data on export diversity/concentration and not data on domestic diversity or total diversity, such as sectoral output or employment, are straight forward; across countries, the quality and accurateness of data on exports are better than the alternatives. Data measuring export diversity/concentration is available for most of the world for all the years that I have data on institutional quality. It is standardized, more fine-grained, and has better time and cross-national coverage than alternative measures (Hausmann et al. 2011, p. 23), and it is at least partly exogenous to domestic factors.

Data on export diversification stretches back to 1962 and covers between 129 and 174 countries and uses a system of over 1000 SITC-4 product categories. While it does

<sup>&</sup>lt;sup>2</sup> For a lengthier discussion and formulas, see online appendix.



not cover the export of services, it captures even smaller shifts in exports of goods, which is important as similar but not identical activities can be highly adversarial. Consider for example the aforementioned repeal of the Glass-Steagall act. Zingales argues this change was important for the consequences of the Subprime Crisis in that it aligned interests in the finance industry. However, using a course classification system, commercial and investment banking may very well end up in the same category, thus erasing what might be important information. By using the most fine-grained categorization scheme available, we can capture transformations of industries both at the margin and the growth of new sectors.

As a summary measure of the data on export diversification, I use a Theil index from the IMF which combines diversification along two dimensions: the extensive margin and the intensive margin (Cadot et al. 2011; Papageorgiou and Spatafora 2012; Reis and Farole 2012). The extensive margin captures change in terms of new products and new export market. The intensive margin captures the evenness of the share of exports between categories (Cadot et al. 2011).

Two alternative indices, a Herfindahl-Hirschman index (HH) of export diversification based on COMTRADE (Gaulier and Zignago 2010) data and an HH index based on Gross Output data from the EU KLEMS (Kirsten 2017) project, are used as alternative measures. I preform tests detailed in the Appendix to ensure that the Theil index is actually capturing the economic diversity of a polity.<sup>3</sup>

An index constructed based on data from Political Risk Services' (PRS) International Country Risk Guide (ICRG) is used as the dependent variable measuring institutional quality. The PRS ICRG is originally a risk assessment service for business. The index used here is constructed from sub-components of the PRS ICRG indicator and is widely used in research as an indicator of institutional quality (Charron and Lapunete 2010; Menaldo 2016). The PRS data has the advantage of offering a relatively long time series going back to 1984. The index ranges from 0 to 1 and consists of three sub-components tapping into the impartiality-favoritism dimension of institutional quality. The component for corruption includes patronage, nepotism, and ties between politics and business, the law and order includes the impartiality of the legal system, and the bureaucratic quality component includes the strength and independence of the bureaucracy. The three are weighted equally. The reason for using an index is that elites in different countries might use different avenues for gearing institutions in their favor; similarly as argued by Dani Rodrik (2000), there are a multitude of different mixes of institutions we may label good; using an index allows us to gauge the overall institutional quality. As additional tests, I also run regressions using the sub-component for corruption. Finally, the ICRG is a perception-based data unlike measures that try to quantify events of, for example, corruption. There are two reasons why this is appropriate. First, looking at events of, for example, corruption has large problems in a cross-country perspective as it not only depends on the prevalence but the methods and ability of enforcement. Second, perceptions are central as it is on perceptions people make decisions rather than on what objective indicators say (Kaufmann et al. 2004).

Three sets of controls are used. The first concerns economic factors and includes the level of economic development measured as the log of GDP per capita from Penn



<sup>&</sup>lt;sup>3</sup> See online Appendix for descriptive statistics.

World Table (Heston et al. 2009) and Oil rents which is a measure of the value of crude oil as part of GDP subtracting the production cost. Oil rents are expected to have a negative impact on institutional quality and are included to avoid confusing the effect of diversification with that of the so-called resource curse (cf. Ross 1999). The second set consists of two political variables, democracy and democracy squared. Both are measured using data from Freedom House and Polity IV to increase validity and reliability (Hadenius and Teorell 2007). The reason for adding democracy squared is that the relation between democracy and institutional quality has been found to be curvilinear (Bäck and Hadenius 2008). The third set of controls is country constant and is therefore used only in models not employing fixed effects. These include the latitude of the capital of the country, ethnic fractionalization (Alesina et al. 2003), and the origin of the legal system in the country (La Porta et al. 1999).

# **Empirical Analysis**

Because there might not only be an effect running from economic diversification to institutions, but also one in which institutions influence economic diversification, we must account for this in the empirical analysis. The first section of the analysis (Table 1) contains results using fixed effects and error-correction models looking at the relationship in different time horizons. In the second section (Table 2), I use generalized methods of moments (GMM) (Arellano and Bond 1991) and system GMM (Blundell and Bond 1998) to deal with weaknesses of the estimations used in Table 1. While these techniques can never completely ensure unbiased results, they help mitigate the risk (cf. Menaldo 2016; Knutsen and Rasmussen 2018; Acemoglu et al. 2019; Grundholm and Thorsen 2019; Roodman 2009). This is further dealt with in the Online Appendix, which contains sensitivity analysis using alternative specifications and details of two-stage least square (2SLS) estimations using population size measures to instrument for economic diversification.

#### **Does Economic Diversification Correlate with Institutional Quality?**

In Table 1, country fixed effects are used throughout, looking only at within-country changes which helps to deal with the problems associated with the fact that the observations (country-year) are not independent, and helps to control for country-specific time-invariant factors. This makes theoretical sense as well, while export diversification is likely more exogenous than is domestic diversification, it will still be influenced by unobserved country-specific factors. I also lag the independent variables, leaving one year between the hypothesized cause and the expected effect.<sup>4</sup>

To correct for problems with panel heteroscedasticity, I use panel-corrected standard errors (PCSE) in models A1–A4 and A9–A11, and to account for problems associated with autocorrelation, lags of the dependent variable (LDV) are included in all models (Beck and Katz 1995). The problem with autocorrelation is that previous values of a variable explain later values; in this case, previous institutional quality has some impact on future institutional quality. We can expect autocorrelation based on most theories of

<sup>&</sup>lt;sup>4</sup> I probe the temporal relationship further in Figure A1 in Appendix.



Table 1 Time series cross-section and error correction models: economic diversification and quality of government

Dependent variable:	(A1) QoG PCSE	(A2) QoG PCSE	(A3) Corrupt PCSE	(A4) Corrupt PCSE	(A5) AQoG ECM	(A6) AQoG ECM	(A7) ACorrupt ECM	(A8) ACorrupt ECM	(A9) QoG PCSE	(A10) QoG PCSE	(A11) QoG PCSE
Diversification <sub>t-1</sub> (IMF) ADiversification (IMF)	006**	006**	051** (.025)	058** (.025)	007*** (.002) 003 (.004)	008*** (.003) 004	066** (.025) 055* (.028)	074*** (.028) 053* (.029)	7.0		
(EU KLEMS)  HH diversification <sub>t-1</sub>									(.079)	018*	018*
(COMTRADE) In GDP per capita <sub>r-1</sub>	.004	.004	.016	.030	.014**	.013**	.033	.052	.021	(.010) .010*	(.011)
	(.005)	(.005)	(.053)	(.056)	(.005)	(.005)	(.074)	(.078)	(.017)	(900.)	(900.)
∆ln GDP per capita					.097***	.105***	.232 (.247)	.302 (.253)			
Oil rents $_{t-1}$	.000 (000.)	.000)	.002	.002	**000.	**000.	.004*	.004*	004	000	000
ΔOil rents					.001***	.001***	.003*	.003			
Democracy <sub>r-1</sub>	.000	.001	.026	.032	000 (.003)	.000	.021	.025	.020	.003	.003
ΔDemocracy					.001	<pre>000 (.005)</pre>	.002	013 (.042)			
Democracy sq. <sub>t-1</sub>	000.	000	002	003	000.	000.	001	002	001	000	000



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(2000)											
Dependent variable:	(A1) QoG PCSE	(A2) QoG PCSE	(A3) Corrupt PCSE	(A4) Corrupt PCSE	(Α5) ΔQoG ECM	(A6) ΔQοG ECM	(A7) ΔCorrupt ECM	(A8) ACorrupt ECM	(A9) QoG PCSE	(A10) QoG PCSE	(A11) QoG PCSE
	(.000)	(000)	(.002)	(.002)	(0000)	(.000)	(.003)	(.003)	(.002)	(.000)	(0000)
ΔDemocracy sq.					000.	000.	.002	.004			
					(000)	(.001)	(.005)	(.005)			
No. of countries	111	68	111	68	111	68	111	68	25	111	68
No. of country-years	2587	2036	2587	2036	2475	1946	2475	1946	467	1809	1435
West included	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No

All models include a control for the trend (year), two LDVs (the dependent variable at  $L_1$  and  $L_2$ ), and country fixed effects. With the exception of the delta variables in the ECM models, all controls are lagged one year (L1). Maximum time series extends from 1984 to 2010. Dependent variable: QoG = ICRG QoG, Corrupt = ICRG control of corruption. The use of  $\Delta$  denotes change in the variable between t and  $t_{-1}$ 





Table 2 GMM estimation: diversification and quality of government

Dependent var.	(B1) GMM QoG	(B2) SysGMM QoG	(B3) GMM QoG	(B4) SysGMM QoG	(B5) GMM QoG	(B6) SysGMM QoG
Lag length	2, 3	2, 3	2, 4	2, 4	2, 5	2, 5
Diversification	019*	008*	020**	007*	022**	009*
	(.011)	(.004)	(.010)	(.004)	(.009)	(.005)
In GDP per capita	027	005	031	003	021	005
	(.022)	(.005)	(.007)	(.006)	(.021)	(.006)
Democracy	003	009*	002	007	004	009
	(.007)	(.005)	(.007)	(.005)	(.006	(.005)
Democracy sq.	.000	.001*	.000	.001	.000	.001
	(.001)	(.000)	(.001)	(.000.)	(.001)	(.001)
Oil rent	001	.001	001	.000	.000	.001
	(.001)	(.001)	(.001)	(.000.)	(.001)	(.001)
Latitude		.038		.039*		.039
		(.026)		(.023)		(.026)
Ethnic		035		031		037
Fractionalization		(.024)		(.022)		(.025)
Legal origin dummies	X	X	X	X	X	X
No. of LDVs	3	3	3	3	3	3
No. of country-years	2369	2442	2369	2442	2369	2442
No. of countries	111	108	111	108	111	108
No. of instruments	38	52	44	58	50	64
AR(2) AB score	91	26	87	41	-1.29	80
p value	.363	.796	.385	.680	0 .199	.423
Hansen test chi-square	6.18	13.36	9.61	16.15	21.52	25.35
p value	.404	.421	.650	.647	.254	.443

All independent variables are lagged one year  $(t_{-1})$ . Maximum time series extends from 1984 to 2010. Dependent variable: QoG = ICRG QoG. Robust standard errors in parenthesis

institutions as these often rely on concepts of path dependency or virtuous circles (e.g., Acemoglu and Robinson 2012) in which initial moves in one direction lead to more moves in the same direction. Having used a Lagrange multiplier test (Beck and Katz 2011) to examine the autocorrelation, I use two LDVs to account for this path dependency.

As the relationship of interest here concerns economic factors, there is a risk that globalization might affect the results. To account for this and other global trends, time is included as a control variable. With the necessary adjustments, the final specification can be written in the following way.



p < .10; \*p < .05; \*\*\*p < .01

$$QoG_{i,t} = \alpha_{\iota} + \beta_{1}DivCon_{i,t-1} + \beta_{2}Controls_{i,t-1} + \beta_{3}Global \ trend + \beta_{4}QoG_{i,t-1} + \beta_{5}QoG_{i,t-2} + \varepsilon_{\iota,\tau}$$

 $QoG_{i,t}$  is the index of institutional quality in year t, for country i. Country fixed effects are denoted by  $\alpha_t$  and the coefficient of interest is  $\beta_1$  which are various measures of diversification of the economy. Finally,  $\beta_4$  and  $\beta_5$  are the lagged dependent variables.

Figure 1 shows the bivariate relationship between the quality of government (QoG) index, on which higher values indicate more impartial government, and the Theil index of export diversification on which higher values indicate higher concentration and less diversity, across countries for the year 2010 which is the latest year available. As theory predicts, there is a negative correlation; countries having a more diverse set of elite interests, operationalized as export diversity/concentration, have a more impartial government, operationalized as the QoG index. Conversely, countries in the lower right corner have more uniform elite interests and their governments are more prone to favoritism. Notably, many countries in Western Europe and the USA are above the fitted line. There is no clear theoretical reason for why, and given that the estimations in Table 1 are done using country fixed, it does not matter where the countries are relative to one another. Figure 1 indicates that across countries, the bivariate relationship between diversification and institutional quality is consistent with the theory outlined above.

Moving on, Table 1 displays the results of the statistical inquiry into export diversification and institutional quality using a Theil index of export diversification and an index of quality of government based on PRS data. In the Theil index, lower values indicate more diversity, and the theory, therefore, suggests a negative correlation

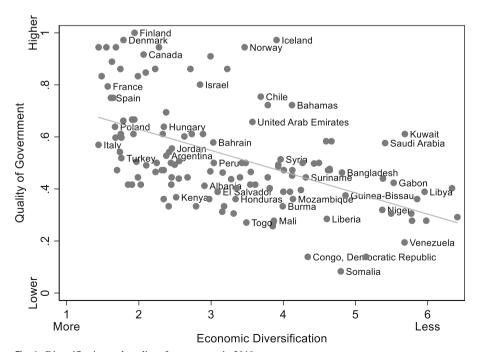


Fig. 1 Diversification and quality of government in 2010



with institutional quality. The interpretation of the negative correlation between diversification at  $t_{-1}$  and institutional quality at t is that, on average, a country that becomes more diversified will have improved its institutional quality in the following years.

Models A1 and A2 are identical in terms of specification, the only difference being that in A2, countries in Western Europe and North America (the West) have been excluded; this makes no tangible difference. In models A3 and A4, the dependent variable is the ICRG sub-component for control of corruption, in which higher values imply less corruption. The corruption component uses a different scale than the QoG index; the sizes of the coefficients are therefore not comparable. In model A4, I again exclude the Western countries. Here, however, this affects the size of the coefficient for diversification, which is slightly larger using the restricted sample.

In the models reported here, we examine the impact of export diversification, and other independent variables at  $t_{-1}$ , on institutional quality at t, while controlling for levels of institutional quality at  $t_{-1}$  and  $t_{-2}$ . As discussed, this should mitigate the expected path dependency in institutions, but it also means that any effect of historical levels of the independent variables on institutional quality should work through the LDVs and not contribute to the estimated impact here. The theory here is that diversification will not only matter at critical junctures but that diversification will affect institutional quality continuously; when diversification increases, incremental changes will be toward more impartial institutions; when diversification declines, incremental changes will be more likely to be toward more partial institutions. While a change of in diversification might matter in longer time perspectives, this effect will largely be captured by the LDVs as the first LDV is only lagged by one year. In the Online Appendix, I plot the coefficient for diversification from regressions corresponding to model A1 using lag length of 0–9 years with and without the inclusion of LDVs, as well as when moving the LDVs backwards to the same lag lengths as the independent variables. Without LDVs, the coefficient for diversification is almost ten times larger, and significant using lags up to seven years, but when LDVs are included, it is only significant up to and including two years. Quantifying the size of the effect is therefore treacherous and the results here are better thought of as an indication that there is an effect rather than what the precise size of that effect is.

To get a sense of whether there is a difference between the long- and the short-term relationship, I estimate error correction models (A5–A8). This is done by replacing the dependent variable measuring the level for the one-year change in level (e.g.,  $QoG_t - QoG_{t-1} = \Delta QoG$ ) and including both the level and change in level as independent variables. The idea is that the level variable examines the long-term relationship, and the change variable the short-term relationship. The results of models A5–A8 are consistent with a long-term effect of economic diversification on institutional quality as indicated by the statistically significant estimate for the level of diversification on QoG and the sub-component for control of corruption. For the short term, the findings are more mixed; it is only when the dependent variable is control of corruption that we can separate the coefficient for change in diversification from 0.

In the last three models in Table 1, I use two alternative measures of diversification. In model A9, I use a Herfindahl-Hirschman index of total diversification (not exports) based on EU KLEMS data covering 25 mainly Western countries, while the sign is in line with the theory, it is not distinguishable from 0 (p = .105). The measure in models A10 and A11 are also Herfindahl-Hirschman indices, but here, it is based on



COMTRADE export data aggregated at the 1-digit level; the correlation is weaker than in models A1–A4 but still significant and negative, indicating that countries in which the economy becomes more diversified, institutions become impartial in the following year.

Among the control variables, it is mostly GDP per capita that is significant in these specifications.<sup>5</sup> Even so, the other covariates are included so as not to overestimate the correlation between diversity and institutional quality; the variable measuring oil rents, for example, is included to decrease the risk that the link between export diversity and institutional quality is really only a proxy for the so-called resource curse. Oil rents are significant only in models A5–A8 and counter to expectation, have a positive sign. This is consistent with the diversity of interests being the issue rather than the type of product the interest is based on. The more general lack of significance for the control variables has likely to do with the fixed effects and LDVs capturing most of the effect.

In Table 1, I examine whether economic diversification affects institutional quality. It is, however, plausible that while diversification leads to better institutions, better institutions might in turn allow for more diverse economic activity. Therefore, in the remaining statistical analysis, I turn my attention to testing whether the relationship between economic diversification is causal.

# Does Diversification Lead to Improvements in Institutional Quality?—Results from GMM Estimation

In Table 1, I use country fixed effects, lag the independent variables, and use LDVs, but the results could suffer from Nickell-Bias due to the combination of fixed effects and LDVs (Roodman 2009), since the number of years is limited. In this section, I use dynamic panel estimators, GMM and system GMM, to moderate the risk of this and to parse out endogeneity.

In Table 2, uneven numbered models are estimated using difference GMM (Arellano and Bond 1991), and the even numbered models are estimated with system GMM (SysGMM). In difference GMM, hereafter referred to simply as GMM, first differencing is used to help deal with time-invariant omitted-variable bias. GMM can, however, be inappropriate when variables are slow moving, something system GMM can help with (Blundell and Bond 1998). In system GMM, lags of levels are also included to instrument for the LDV and other, likely, endogenous independent variables.

I follow the recommendations from David Roodman (2009) and report the Arellano-Bond Ar(2) autocorrelation tests, the Hansen *J* tests for over-identifying restrictions, and the number of instruments for each model. All models include time dummies decreasing the risk of correlation across countries in the idiosyncratic disturbance, and use orthogonal deviations, which help me maximize the sample size since the panel has gaps. In Table 2, all variables in the system GMM models except the time dummies, the historical origins of the legal system, and the latitude of the country's capital are treated as endogenous. However, the time-invariant variable for ethnic fractionalization is included only in the level equation. The time-invariant variables are not included in the GMM models since only changes are used in difference GMM.

<sup>&</sup>lt;sup>5</sup> Estimating the models excluding diversification or GDP does not change the results for either substantially.



The results of GMM estimation can be biased by the inclusion of too many instruments and cause a failure to parse out the endogenous component of the variables (Roodman 2009). Only collapsing the instruments still yields an instrument count of 274 in the GMM model and 288 in the system GMM model, which is a lot higher than the number of countries and again the Hansen result is "perfect." I therefore both collapse the instruments and limit the range of lags to use as instruments in the models going forward. In Table 2, I report what is essentially the same model but with different lag length restrictions.

The results in Table 2 are consistent with those in Table 1, the coefficient for diversification is significant, and, as expected, a more concentrated economy is linked to worse institutional quality. Looking at the first system GMM model (B2), the size of the effect of diversification on institutional quality is limited; however, the long-run effect of a one-scale step shift in diversification (about the difference between Peru and Ecuador in 2010) shifts institutional quality by 7.5 percentage points. In no model does the AR(2) test nor the Hansen test give us reason to reject the hypothesis that the instruments are valid.

In the Online Appendix (Tables A4-A6), I report the results from alternative specifications. Using the two-step approach with or without Windmeijer's finite sample correction yields a coefficient indistinguishable from zero for two of the GMM estimations but a more significant coefficient for the system GMM estimations. Finally, I switch the variable measuring diversification for the HH index based on COMTRADE data. Because the structure of the autocorrelation is different in the HH index, I am unable to replicate the system GMM models with satisfactory diagnostics using the same number of LDVs and lag lengths as in Table 2. However, adding LDVs as necessary to get an acceptable score for the AR(2) test and changing lag lengths to get an acceptable Hansen test<sup>8</sup> yield consistently significant and negative results in line with theory and the results in Table 2. In the Online Appendix, I further provide 2SLS instrumental variable estimations to further probe the causality and find results in line with those from in the main text.

#### Conclusion

Research in recent years has made what constitutes high-quality institutions increasingly clear and that such institutions are instrumental in facilitating development. Yet, our understanding of how those institutions come about and survive is still limited. This paper contributes to the debate on institutional change and persistence of change, drawing on the institutional literature and the literature on economic diversification. I introduce a theory tying diversification of economic interests to improvements in institutional quality and emphasize a mechanism for constraining elites that is beyond the control of the state and

 $<sup>^{8}</sup>$  Model corresponding to B2 (LDVs = 4, lag lengths 3–3), to B4 (LDVs = 6, lag lengths 4–4), and to B6 (LDVs = 7, lag lengths 4–5).



<sup>&</sup>lt;sup>6</sup> The Hansen test is weakened by instrument proliferation which is why we should be suspicious when the instrument count is high and Hansen is perfect (Roodman 2009). Regressions referred to in the text, not in the main text, can be found in the appendix.

<sup>&</sup>lt;sup>7</sup> The estimation of the long-run effect is made using the calculation (Diversification $\beta$ )/(1 –  $\rho$ ),  $\rho$  denoting the LDVs, using the delta method to calculate standard errors. Like the results in Table 2, the long-term results are similar for all system GMM models, and the GMM models yield a larger long-term estimate.

interest groups. When a more uniform economic interest unifies elites, they have an easier time agreeing on what institutions to create and design those institutions in a way that perpetuates their standing. When, instead, the economy of a polity is more diverse, there is less common ground around which elites can form collusive coalitions. Diversification increases the risks and the cost of colluding and makes the raison d'être of such coalitions less clear. Thus, diversification of the economy can serve as a constraint on the ability of elites to gear institutions in their favor.

In the empirical section, I first show that measures of export diversification, which are available and comparable across a large number of countries, correlate well with measures of total diversification of the economy where such measures are available. The theory is then tested and as the theory predicts, countries that become more economically diverse often experience improvements in institutional quality in subsequent years.

There is likely a recursive relationship between economic diversification and institutional quality. Diversification constrains elites from colluding, and more impartial institutions allow broader segments of society to exploit their capital and innovate, which may lead to more diversity in economic activity. In terms of the indicators used here, it can be that economic diversification leads to more impartial institutions governing trade in turn leading to further diversification. I address this problem by estimating dynamic panel models (GMM and system GMM). The results from these estimations buttress the hypothesis that the effect runs from economic diversification to institutional quality.

The theory outlined here stresses how diversification of economic interests works beyond the control of government and elites, and how it is in the attempts to manage conflicts between competing interests more impartial institutions emerge. This raises the question of how the theory applies to the many cases of state-sponsored diversification. It could be the case that, if there is central planning of the economy and the incumbents allocate sectors to different actors, while maintaining power centrally, the resulting diversification might not facilitate institutional improvements. It could however also be that some of the actors assigned to different sectors have or acquire some advantage operating in that particular sector and will develop an interest in the survival of that sector. What starts out as a centrally managed plan for the diversification of the economy could then turn into competition for beneficial institutions, favors, and state investments as agents seek to protect their position. Going forward, the efforts of oilrich states to diversify could provide insights related to this.

Looking at global trends in economic diversification, the findings in this paper are encouraging and discouraging at the same time. The global trend is toward more diversified exports, yet research by Imbs and Wacziarg published in 2003 indicates that at higher levels of economic development, countries start to re-concentrate their economic activities. This could mean that while we can be optimistic about the influence of economic diversity in low- to middle-income countries, there might be reason to worry about the consolidation of more uniform economic interests in high-income countries. Should the trend of re-concentration in advanced economies persist, we could see institutions in those polities gradually being geared to lock in the advantage and perpetuate the position held by incumbent elites.

<sup>&</sup>lt;sup>9</sup> The opposite might also be true in some cases; as actors exploit comparative advantages, a polity's economy can become less diversified if the polity opens up for trade.



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**Petrus Olander** is a Post-Doc in the STANCE project at the Department of Political Science, Lund University. His main research interests include institutions, economic diversification, state capacity and American political development.

