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The challenge of empirically assessing the effects of constitutions

Vlad Tarko^a

^a Economics Department, George Mason University, Enterprise Hall, 4400 University Drive, Fairfax, VA 22030, USA

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The challenge of empirically assessing the effects of constitutions

Vlad Tarko*

*Economics Department, George Mason University, Enterprise Hall, 4400 University Drive,
Fairfax, VA 22030, USA*

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Mutually supporting methodologies are necessary for building a convincing case establishing a particular effect. Strengths and weaknesses of four empirical methods are discussed. Econometric methods quantify the relative importance of different factors and may assess the time frame over which constitutions matter, but have difficulties in dealing with nonlinear interactions among constitutional and cultural details. Cluster analysis can be a pre-requisite to other methods, and an analytic method in itself, useful for identifying the details that really matter and discovering surprising patterns in the data. I discuss the application of cluster analysis on the *Comparative Constitutions Project* database. Qualitative comparative analysis can reveal the hidden structure of interactions among different variables, but robustness checks are difficult to perform. Case studies are useful for distinguishing between rules-in-use and rules-in-form and for discovering important informal aspects. They can deal with complex nonlinearities well, but they are often hard to generalize.

Keywords: cluster analysis; *Comparative Constitutions Project*; qualitative comparative analysis; case studies; analytic narratives; comparative histories

Jel Classification: B41; P50; K00; K42; O50

1. Introduction

Over the past decade, the empirical side of constitutional economics and political science has received a boost from two main sources. On one hand, Persson and Tabellini (2003) set out to try to use advanced econometric techniques to address the effects of the electoral system on fiscal policies, political corruption, and productivity [their results have been partially challenged and partially confirmed by Blume, Müller, Voigt, and Wolf (2009)]. On the other hand, the *Comparative Constitutions Project*, started by Zachary Elkins, Tom Ginsburg, and James Melton, created databases of (1) virtually all constitutions in existence today coding for hundreds to characteristics, (2) a chronology of constitutional events spanning back to 1789, and (3) a list of military occupations and constitution making attempts in occupied states.¹ These databases have served so far for various political science studies, the most important of which is Elkins, Ginsburg, and Melton's (2009) book about the conditions under which constitutions endure. The comparative constitutions database has not been used so far in economic studies, but the potential should be obvious.

These developments have raised certain methodological issues. Authors like Alesina (2007) argue that the development of such econometric approaches needs to *replace* other methods, which are perceived to be less rigorous. This goes against the contrary proposals by authors like Goldschmidt and Remmele (2005) that economics needs to expand its

*Email: vtarko@gmu.edu

perspective towards more anthropological approaches, or Klaes (2004) who argues that non-deterministic evolutionary approaches to economic change require a certain degree of ‘vagueness’. Are such approaches necessarily heterodox (Bögenhold, 2010; Mearman, 2012)?

One way of thinking about this issue is to note that ‘models serve as “substitute systems” of the target systems they represent’ and that ‘systems in the real world are characteristically all too complex to be tractable targets for direct examination, therefore they are represented by much simpler model systems’ (Mäki, 2005). Consequently, different types of models will abstract from reality in different ways, and each approach will have certain strengths and weaknesses. When dealing with complex problems, one is bound to need a diversity of methods, and ‘[i]t is important for social scientists to recognize that all methods generate results that contain some level of uncertainty’ (Poteete, Janssen, & Ostrom, 2010, p. 4). Rather than deciding which method is ‘the best’ and reject all others in its favor, we are better off considering the comparative advantages of a variety of methods, and adopt what Williamson (2009) has called a ‘pragmatic methodology’ which tries to ‘keep it simple; get it right; make it plausible’:

Keeping it simple is accomplished by stripping away inessentials, thereby to focus on first order effects – the main case, as it were – after which qualifications, refinements and extensions can be introduced. Getting it right entails working out the logic. And making it plausible means to preserve contact with the phenomena and eschew fanciful constructions.

This article discusses the strengths and weaknesses of four empirical methods in constitutional political economy – econometrics, cluster analysis, qualitative comparative analysis (QCA), and case studies – from the perspective of such a ‘pragmatic methodology’.

2. Econometrics

The *Comparative Constitutions Project* identifies 665 characteristics of constitutions (from the type of electoral system to the various rights guaranteed by the constitution) but covers ‘only’ 184 countries. Moreover, the constitutional characteristics form nonlinear combinations (for instance, the right to property does not work very well just by itself, but it works in conjunction with a functional justice system), which increases the number of possibilities even more. There are thus a lot more variables than data points, which creates a serious challenge to standard econometric techniques.

We can contrast the *de jure* constitution with *de facto* constitution. The *Comparative Constitutions Project* maps only the *de jure* constitutions, but in fact various informal rules may play an important role (Bogart & Richardson, 2009; Dixit, 2004; Greif, 2006; Harrison & Huntington, 2000; Lamoreaux, 2011; Tabellini, 2008, 2010; Williamson, 2009). The constitutional approach focuses on the constitutional constraints and enablers of collective action (Ostrom, 1999), but the important action may happen at other levels (Ostrom & Ostrom, 2004, p. 134). Because economic outcomes may be partly determined by cultural factors, ‘holding observable constitutional determinants constant may not be enough’ (Persson & Tabellini, 2003, p. 115).

An analysis of the effects of constitutions may aim to understand numerous possible kinds of effects. For the purpose of illustration, I focus here on economic growth. Formally, the analysis of other matters encounters similar issues. The purpose of an econometric study of constitutional effects on economic growth would be to answer the following questions:

- (1) Which constitutional and cultural details are most important for economic growth?
- (2) Under what time frame (how long or short) do constitutional details manifest themselves most saliently?

To understand the limits of the econometric approach I first describe the ideal way in which such an analysis would be performed, and then I discuss how close we can get to this ideal given the practical limitations of our data. When setting up such an analysis we need to bear in mind that ‘additional variables consume degrees of freedom in a context of limited data availability’, that ‘[t]he assumption that observations are independent . . . is called into question by globalization, diffusion effects, and actor-centered theories that emphasize strategic interactions’, and that it is often the case that ‘interaction effects, dummy variables, hierarchical models, and other similar statistical fixes do not accurately reflect the relationships posited in the underlying theories’ (Poteete et al., 2010, p. 13).

Let us denote country x 's per capita growth in year y by $g_x(y)$. This could be measured by GDP per capita, median income, median consumption, and so on. World average per capita growth in year y is:

$$g_w(y) = \frac{1}{N} \sum_{x=1}^N g_x(y).$$

The average growth over a period of time T starting from year Y is

$$\langle g_x \rangle = \frac{1}{T} \sum_{y=Y}^{Y+T} g_x(y),$$

$$\langle g_w \rangle = \frac{1}{T} \sum_{y=Y}^{Y+T} g_w(y) = \frac{1}{TN} \sum_{y=Y}^{Y+T} \sum_{x=1}^N g_x(y).$$

In order to try to account for the fact that the growth of one country is influenced by the growth of other countries, we need to measure the economic performance of country x over period T relative to world (or perhaps regional) growth. One can argue for two different definitions of relative performance:

$$G_x^1 = \frac{1}{T} \frac{\langle g_x \rangle}{\langle g_w \rangle} = \frac{1}{T} \frac{\sum_{y=Y}^{Y+T} g_x(y)}{\sum_{y=Y}^{Y+T} g_w(y)} = \frac{N}{T} \frac{\sum_{y=Y}^{Y+T} g_x(y)}{\sum_{y=Y}^{Y+T} \sum_{x=1}^N g_x(y)},$$

$$G_x^2 = \left\langle \frac{g_x}{g_w} \right\rangle = \frac{1}{T} \sum_{y=Y}^{Y+T} \frac{g_x(y)}{g_w(y)} = \frac{N}{T} \sum_{y=Y}^{Y+T} \frac{g_x(y)}{\sum_{x=1}^N g_x(y)}.$$

The problem with the first concept is that it does not account for the short-term effects of constitutions, e.g. in constraining policies. A regression of G_x^1 on various constitutional characteristics would miss such details and over-emphasize the importance of factors that favor catch-up growth to the detriment of factors that foster intrinsic growth. Conversely, the problem with the second concept is that annual economic growth is determined mainly by short-term policies and random real business cycle factors, rather than by constitutional details. Thus, a possible small R^2 of a regression of G_x^2 on various constitutional characteristics, or if they turn out statistically insignificant, would not necessarily mean that constitutional details do not matter.

In other words, G_x^1 over-emphasizes the long term to the detriment of the short term, while G_x^2 does the opposite. This is due to the fact that the time period T is arbitrarily

chosen. Only question 1 posed earlier is addressed. The different kinds of issues associated with G_x^1 and G_x^2 show that *one cannot address question 1 without simultaneously addressing question 2*.

Over the short term, growth is influenced by policies and real business cycle factors, although constitutions might act as constraints on the type of policies that are enacted. In the short term, the ‘noise’ may be too large to allow us to identify the role of constitutions. By contrast, over the long term, growth in one country is partially driven by growth in other countries. Thus, countries with bad constitutions may nonetheless free-ride to some extent on the growth created in countries with good constitutions. If we look at the impact on a country’s economic growth of only its own constitutional details, this would hide the importance of constitutions in a statistical analysis. Moreover, countries with bad constitutions may be engaged only in catch-up growth – which is easier and thus will give a false signal about the constitutional details that promote rapid *endogenous* growth.

To address these problems, let us divide the interval $[Y, Y + T]$ into M intervals of size $\Delta t = T/M$:

$$[Y, Y + T] = \{[Y_1, Y_1 + \Delta t], [Y_2, Y_2 + \Delta t], \dots, [Y_n, Y_n + \Delta t], \dots, [Y_M, Y_M + \Delta t]\},$$

$$Y_n \equiv Y + (n - 1)\Delta t.$$

The average growth over the n th interval is:

$$\langle g_x \rangle_{\Delta t}^n = \frac{1}{\Delta t} \sum_{y=Y_n}^{Y_n+\Delta t} g_x(y).$$

We can now define a relative performance on the interval Δt as:

$$G_x^3(\Delta t) = \frac{1}{T} \sum_{n=1}^{T/\Delta t} \frac{\langle g_x \rangle_{\Delta t}^n}{\langle g_w \rangle_{\Delta t}^n}.$$

This is an intermediary concept between G_x^1 and G_x^2 :

$$\begin{cases} \Delta t \rightarrow T \Rightarrow G_x^3(\Delta t) \rightarrow G_x^1, \\ \Delta t \rightarrow 1 \Rightarrow G_x^3(\Delta t) \rightarrow G_x^2. \end{cases}$$

One can envision an empirical strategy that aims to discover the most relevant set of variables (constitutional characteristics and cultural features) and time frame Δt that lead to the highest R^2 regression. This max R^2 regression would simultaneously answer both questions posed at the beginning of this section. This empirical strategy can be automated, designing an algorithm to explore the space of all possible regressions and find the max R^2 regression.

To make the approach robust, one would need to use a quantitative structure–activity relationship validation method (Perkins, Fang, Tong, & Welsh, 2003; Roy, 2007). This works in the following way: (1) randomly divide the database into two sets – the training set and the prediction set; (2) generate the regression model on the training set; and then (3) test it to see how well it works on the prediction set. The R^2 on the training set is mere fitting so it does not really matter (Aldrich, 1995; Simon, 1954; Ziliak & McCloskey, 2008): especially if we take a very large number of regressions with many variables, we may simply stumble upon a meaningless pattern (even completely random data-sets often just happen to have high R^2 patterns in them) (Ioannidis, 2005; Kronmal, 1993).

Consequently, the R^2 that matters is the one from the prediction set using the model created on the training set. For a given set of variables and time frame Δt one can repeat the robustness check for n random divisions of the database into training and prediction sets and consider the average R^2 on the prediction set: $\langle R^2_{\text{prediction}} \rangle = 1/n \sum_{k=1}^n R^2_{\text{prediction}}(k)$. It is unlikely that a high $\langle R^2_{\text{prediction}} \rangle$ is due to some random pattern, and thus such validation procedures will evade the robustness problem. We would thus want to find the set of variables and the time frame Δt that maximize $\langle R^2_{\text{prediction}} \rangle$.

Persson and Tabellini (2003) do not check for this time frame issue. Nonetheless, this may be a critical matter, especially considering that constitutions are rarely kept unchanged for a very long time. For example, out of the 184 countries in the *Comparative Constitutions Project* only 11 countries have had no constitutional change since 1980: Japan, Denmark, Cyprus, Monaco, Nauru, Libya,² Australia, Solomon Islands, St. Vincent and the Grenadines, and Marshall Islands.

The regression of $G_x^3(\Delta t)$ on the constitutional and cultural details $c_x = (c_x^1, c_x^2, \dots, c_x^{\text{last}})$ would have the following nonlinear form:

$$G_x^3(\Delta t) = \beta^0 + \sum_i \beta_i^1 c_x^i + \sum_{i,j} \beta_{ij}^2 c_x^i c_x^j + \sum_{i,j,k} \beta_{ijk}^3 c_x^i c_x^j c_x^k + \dots \\ + \sum_{i,j,\dots,\text{last}} \beta_{i,j,\dots,\text{last}}^{\text{all}} c_x^i c_x^j \dots c_x^{\text{last}} + \varepsilon_x. \quad (1)$$

The nonlinear terms are necessary because the constitutional and cultural factors may work in conjunction. Thus, what matters are not the constitutional factors (e.g. rights) by themselves (taken in isolation), but *their interacting structure*: a ‘constitutional effect could interact with other determinants of performance in subtle ways. For instance, electoral rule could be a more important determinant of corruption in more developed democracies and economies’ (Persson & Tabellini, 2003, p. 122). As such, ‘linearity cannot be regarded just as a convenient local approximation; it is really a binding and important functional-form assumption’ (Persson & Tabellini, 2003, p. 138).

If we are interested in just the impact of one specific constitutional characteristic, S , conditional on other constitutional and cultural details, \mathbf{X} , we may separate Equation (1) as:

$$G_x^3(\Delta t) = \beta^0 + \alpha^1 S_x + \sum_i \alpha_i^2 S_x X_x^i + \sum_{i,j} \alpha_{ij}^3 S_x X_x^i X_x^j + \dots + \sum_{i,j,\dots,z} \alpha_{i,j,\dots,z}^{\text{all}} S_x X_x^i \dots X_x^z + \sum_i \beta_i^1 X_x^i \\ + \sum_{i,j} \beta_{ij}^2 X_x^i X_x^j + \sum_{i,j,k} \beta_{ijk}^3 X_x^i X_x^j X_x^k + \dots + \sum_{i,j,\dots,z} \beta_{i,j,\dots,z}^{\text{all}} X_x^i X_x^j \dots X_x^z + \varepsilon_x.$$

Persson and Tabellini use regressions of their economic phenomena of interest similar to this, with α s describing the effect of the constitutional characteristic of interest, S , β s the impact of the co-determinants, \mathbf{X} , and the noise ε_x being the placeholder for the unobserved characteristics. When one does linear regressions one uses only the terms $\beta^0 + \alpha^1 S_x + \sum_i \beta_i^1 X_x^i$, which is on what the bulk of Acemoglu’s (2005) review focuses.

Formula (1) is the general nonlinear form. The factors $\beta_i^1 c_x^i$ in the regression take the constitutional and cultural characteristics by themselves, the factors $\beta_{ij}^2 c_x^i c_x^j$ take them in couples of two interacting factors, the factors $\beta_{ijk}^3 c_x^i c_x^j c_x^k$ take them in groups of three interacting factors, and so on until the last term, $\beta_{i,j,\dots,\text{last}}^{\text{all}} c_x^i c_x^j \dots c_x^{\text{last}}$, which considers the group of all characteristics taken together. Once we have found the regression with the highest $\langle R^2_{\text{prediction}} \rangle$, the highest β s would indicate which are the most critical structures of

interacting constitutional rights and cultural details for economic growth over the time frame Δt . We would thus have found the answers to the two questions asked earlier. As I have mentioned, these two questions have to be answered simultaneously.

Could such a procedure actually be employed to solve our problem? In order for it to work, the number of variables would have to be sufficiently small as compared to the number of data points. But we only have 184 countries. Moreover, considering the empirical difficulty of dealing with countries that do not have a strong rule of law and, as such, the rules-in-use may be significantly different than the rules-in-form, one may need to further restrict the set of countries. As Persson and Tabellini (2003, p. 188) put it,

Naturally, it would be very interesting to estimate the effect of constitutional reform on performance for many different values of \mathbf{X} . But given the rich set of relevant determinants in \mathbf{X} and the relative scarcity of observed democracies, we simply do not have enough data for such conditional estimation. What can be more realistically estimated is the average effect of constitutional reform on performance for all countries in our sample.

In his review of Persson and Tabellini, Acemoglu (2005) discusses two econometric strategies for the identification of relevant constitutional characteristics: ‘selection on observables’ and ‘exclusion restrictions’. With respect to the second strategy, Acemoglu notes that ‘[t]he most important line of attack that researchers have against potential biases of the ordinary least squares (OLS) estimator is to use an instrumental variables (IV) strategy’. Acemoglu’s critique of Persson and Tabellini focuses mostly on their choice of instruments and recommends the development of better instruments. However, to my knowledge, no specific instrumental variable in social science has ever gone without being seriously challenged. As such, this technique seems an ingenious mathematical invention with limited actual scientific utility. If science is concerned with building consensus around a correct interpretation of the data, the instrumental variables approach does not seem to be very helpful in this regard. Rather than working at creating consensus, it works at creating additional reasons to disagree.

With respect to the first strategy, the problem is that perhaps constitutional characteristics are not independent of each other. Although there are hundreds of constitutional characteristics in the *Comparative Constitutions Project*, perhaps they come in highly correlated bundles, such that the set of *independent* variables is actually small. There is some truth to this. It turns out that all constitutions have an above 30% correlation with one another, 96% of countries have constitutions that are correlated more than 50%, and 82% of countries have constitutions that are correlated more than 70%. However, only about 1% of the constitutional characteristics have a correlation with each other bigger than 50%, less than 3% have a correlation bigger than 30%, and only about 20% have a correlation bigger than 10%. In other words, constitutional diversity is real (if a constitutional characteristic is present in one country it is not necessarily present in other country), but occurs only at the margins (any two countries have many overlapping constitutional characteristics). *All constitutions are highly correlated to each other, but taking any one constitutional characteristic, we are likely to find exceptions.* Consequently, if constitutions matter, they matter thanks to nonlinearities – small differences leading to important results. This is why the issue of nonlinear interactions among characteristics has to be taken a lot more seriously, and why Acemoglu’s critique focusing mostly on OLS issues, misses the target (by comparison, these are relatively minor problems).

Persson and Tabellini may have underestimated this issue of constitutional diversity as a result of using intuition in their selection process. Their main method of dealing with nonlinearities is matching:

if we are willing to assume conditional independence and consider countries with similar conditioning variables \mathbf{X} ; the counterfactual distribution of performance is the same as the observed distribution of performance. . . . The unobservable counterfactual outcome for a specific country is then estimated from the actual outcomes among countries with similar observable attributes. (Persson and Tabellini, 2003, pp. 138–139)

In other words,

[m]atching allows us to draw inferences from local comparisons only: as we compare countries with similar values of \mathbf{X} , we rely on counterfactuals that are not very different from the facts observed. Relaxing the functional-form assumption comes at the price of reduced efficiency in our estimates. (p. 139)

I delve more into this issue of matching in the section on cluster analysis, which is a formal method of dividing countries into categories.

Using nonlinear functional forms has a cost as ‘[c]ompared to linear regressions, we should thus expect matching estimates of constitutional effects to be associated with larger standard errors’ (p. 139). The result of cluster analysis and matching may be such a small set of countries that econometric methods may not be the best approach. There is no way around this issue if one takes nonlinearities seriously, and one *should* take them seriously. In Section 4, I describe an alternative analytic method specifically designed to deal with small sets of observations rife with nonlinearities. This method seems to be a more natural choice than econometrics precisely because econometrics works best with large sets without pervasive nonlinearities.

3. Cluster analysis

To address the matching issue in a more rigorous fashion, we can employ cluster analysis (MathWorks, 2013) on the *Comparative Constitutions Project* database (Elkins, Ginsburg, & Melton, 2010). The cluster analysis in this section focuses only on the *de jure* constitutions. Using the correlation between constitutions as the distance between countries, we find the family resemblances tree in Figure 1 and zoomed-in in Figure 2(a)–(d).³

Table 1 lists the groups of countries that appear to exist based on these constitutional family resemblances. For example, the country that has the most similar constitution to the USA is Norway, followed by Guyana, France, and Equatorial Guinea, and further related to Australia, Brunei, New Zealand, Libya, Bosnia-Herzegovina, North Korea, Austria, Lebanon, Djibouti, Tunisia, Morocco, and Mauritania.

The resulting categories are both somewhat intuitive and puzzling (e.g. USA, Australia, and New Zealand fall in the same category but the most similar constitution to North Korea’s is Austria’s; Germany’s constitution is similar to that of the Czech Republic, Poland, and Spain, as well as to that of Tanzania and Namibia).

There are at least three possible explanations for the puzzling aspects of these categories. First of all, this may showcase the importance of informal factors. North Korea, Tanzania, and Namibia might have great constitutions *on paper*, but they are simply not applied – the *de facto* institutional and power structure is very different. This raises the question of *why* they are not applied. History, culture, and the surrounding international environment may play a role, e.g. Austria has defined itself in opposition to bordering Soviet Block, while North Korea has been defined by the Korean War and its relation with communist China. But a second possible explanation is that small institutional differences may lead to large differences in outcomes. North Korea might lack certain key institutional elements that would have generated the checks-and-balances of power similar to those present in Austria. A third, related but different, possibility is that constitutions have a lot

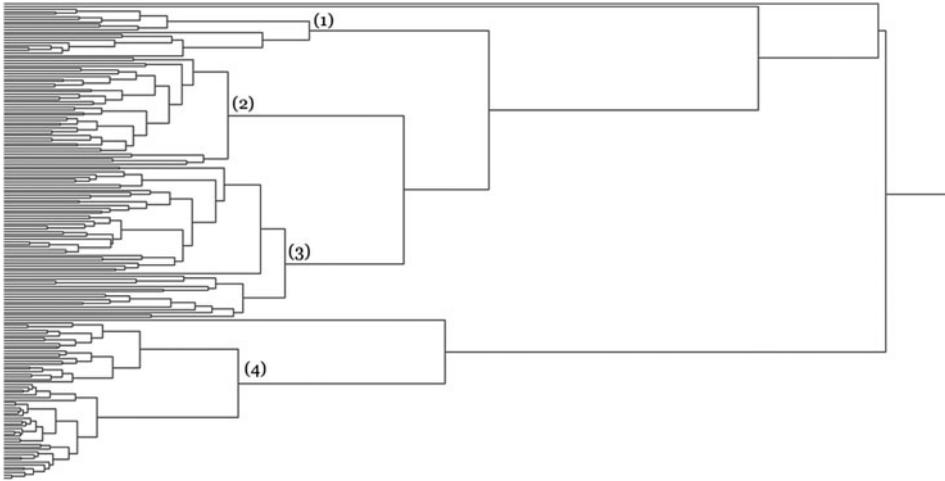


Figure 1. The family resemblance tree of all constitutions (184 countries).

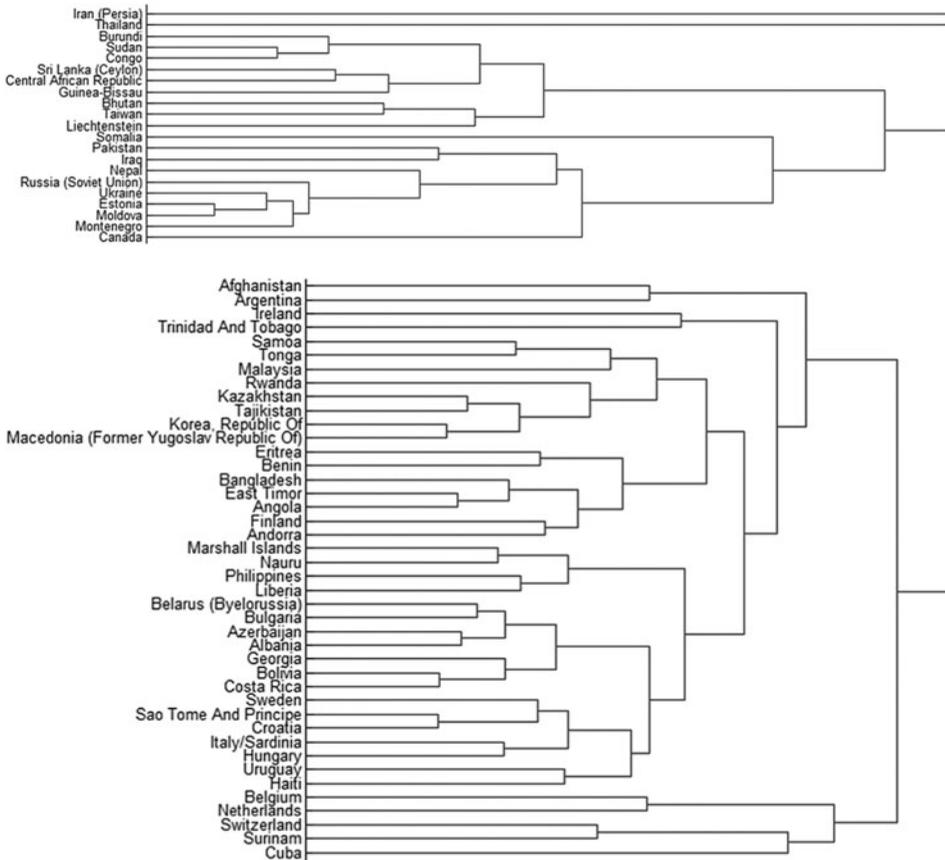


Figure 2. (a) Group (1) of countries from Figure 1, (b) Group (2) of countries from Figure 1, (c) Group (3) of countries from Figure 1, and (d) Group (4) of countries from Figure 1.

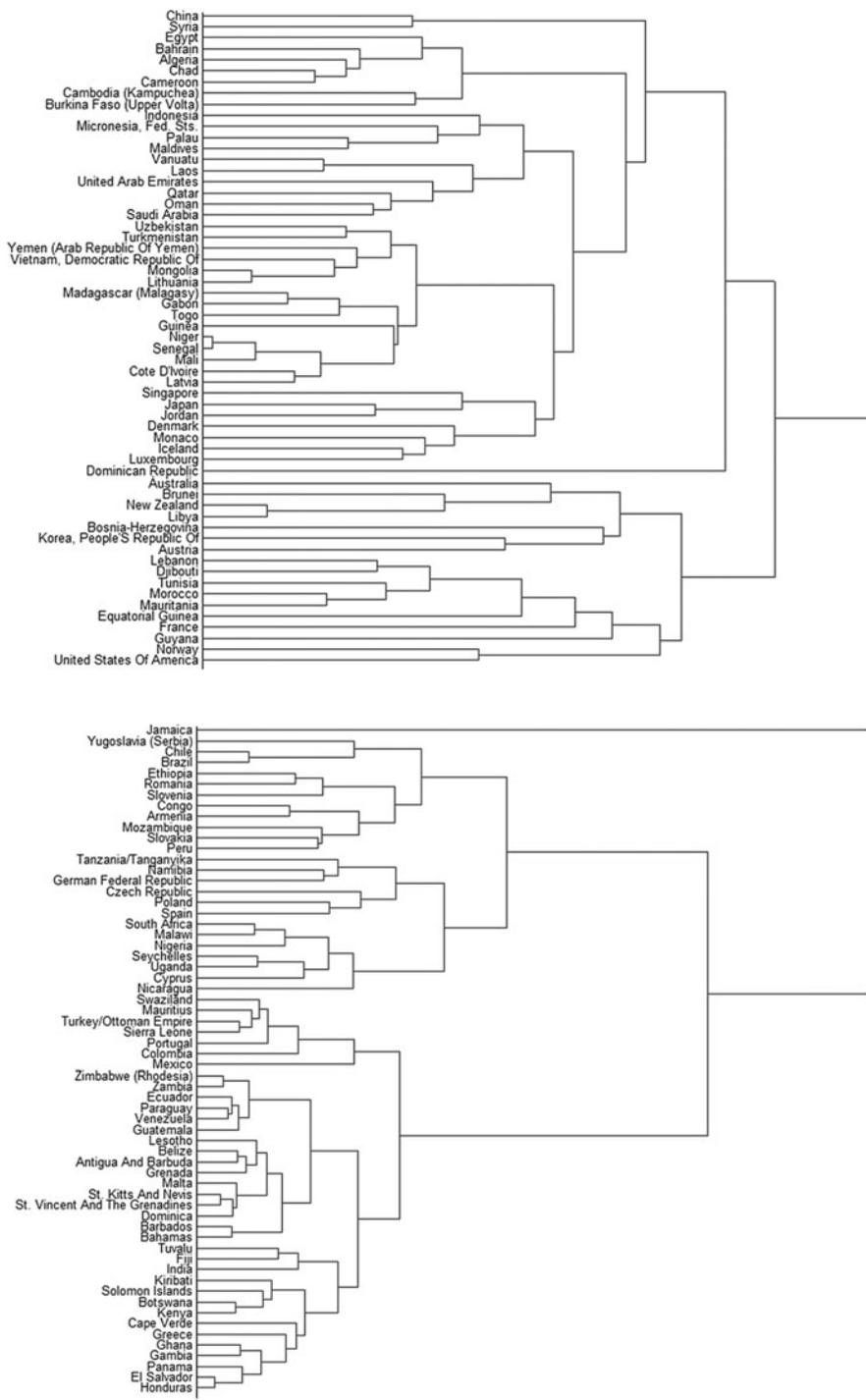


Figure 2. (Continued).

Table 1. The family resemblances of constitutions (184 countries).

Meta-group A					Meta-group B				
Group (1)		Group (2)		Group (3)		Group (4)		Group (4)	
(1.1)	(1.2)	(2.1)	(2.2)	(3.1)	(3.2)	(3.3)	(4.1)	(4.2)	(4.3)
Burundi	Somalia	Afghanistan	Belgium	China	Dominican Republic	Australia	Jamaica	Serbia	Swaziland
Sudan	Pakistan	Argentina	Netherlands	Syria	Brunei	New Zealand	Chile	Mauritius	Mauritius
Congo	Iraq	Ireland	Switzerland	Egypt	Libya	Bosnia-Herzegovina	Brazil	Turkey	Turkey
Sri Lanka	Nepal	Trinidad	Surinam	Bahrain	Algeria	North Korea	Ethiopia	Sierra Leone	Sierra Leone
Central African Republic	Russia	Tonga	Cuba	Chad	Cameroon	Austria	Romania	Portugal	Portugal
Guinea-Bissau	Estonia	Malaysia		Cambodia	Burkina Faso	Lebanon	Slovenia	Colombia	Colombia
Bhutan	Moldova	Rwanda		Indonesia	Indonesia	Djibouti	Congo	Mexico	Mexico
Taiwan	Montenegro	Kazakhstan		Micronesia	Micronesia	Tunisia	Armenia	Zimbabwe	Zimbabwe
Liechtenstein	Canada	Tajikistan		Palau	Palau	Morocco	Slovakia	Zambia	Zambia
		South Korea		Maldives	Maldives	Mauritania	Peru	Ecuador	Ecuador
		Macedonia		Vanuatu	Vanuatu	Equatorial Guinea	Paraguay	Paraguay	Paraguay
		Eritrea		Laos	Laos	France	Venezuela	Venezuela	Venezuela
		Benin		UAE	UAE	Guyana	Namibia	Guatemala	Guatemala
		Bangladesh		Qatar	Qatar	Norway	Germany	Lesotho	Lesotho
		East Timor		Oman	Oman	USA	Czech Rep.	Belize	Belize
		Angola		Saudi Arabia	Saudi Arabia		Poland	Antigua	Antigua
		Finland		Uzbekistan	Uzbekistan		Spain	Grenada	Grenada
		Andorra		Turkmenistan	Turkmenistan		South Africa	Malta	Malta
		Marshall Islands		Yemen	Yemen		Malawi	St. Kitts	St. Kitts
		Nauru		Vietnam	Vietnam		Nigeria	St. Vincent	St. Vincent
		Philippines		Mongolia	Mongolia		Seychelles	Dominica	Dominica
		Liberia		Lithuania	Lithuania		Uganda	Barbados	Barbados
		Belarus		Madagascar	Madagascar		Cyprus	Bahamas	Bahamas
		Bulgaria		Gabon	Gabon		Nicaragua	Tuvalu	Tuvalu
		Azerbaijan		Togo	Togo		Fiji	Fiji	Fiji
		Albania		Guinea	Guinea		India	India	India
		Georgia		Niger	Niger		Kiribati	Kiribati	Kiribati
		Bolivia					Solomon Islands	Solomon Islands	Solomon Islands
		Costa Rica					Botswana	Botswana	Botswana
							Kenya	Kenya	Kenya

Cape Verde
Greece
Ghana
Gambia
Panama
El Salvador
Honduras

Senegal
Mali
Cote D'Ivoire
Latvia
Singapore
Japan
Jordan
Denmark
Monaco
Iceland
Luxembourg

Sweden
Sao Tome
Croatia
Italy
Hungary
Uruguay
Haiti

Number of countries in the group

1	1	9	10	37	5	41	1	17	1	24	37
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of fluff in them, i.e. except for a few constitutional characteristics, most characteristics are not really important. This can lead the cluster analysis completely off-track because the correlation between two constitutions may turn out large because they share a lot of similar fluff.

If we base our analysis only on subsets of constitutional characteristics, the resulting clusters can differ substantially. Consider for example the clustering based on the rights sections only. Figure 3 and Table 2 show the resulting categorizations. The differences between countries are now mostly due to including more rights in the constitution, rather than of including different kinds of rights. Figure 4 and Table 3 show the resulting groups when we consider only the sections on federalism and elections. Finally, Figure 5 and Table 4 show the clustering based only on the sections defining the attributes of the executive, legislative, and judiciary.

Considering these alternative groupings, it seems hard to escape the conclusion that some informal and historical features may be at play. For example, from the perspective of the formally defined powers of the executive, legislative, and judiciary, North Korea falls in the same category as Sweden and New Zealand, and indeed its constitution pays lip service to all the features of liberal democracy.

We can consider two different possible use of cluster analysis. On one hand, it can be used merely to discover the correct matching strategy necessary as a prerequisite for a Persson and Tabellini-like analysis, for the qualitative comparative method, or suggesting possible comparative case studies. This works under the *assumption* that there is no or little constitutional fluff that would distort the clustering procedure. For example, the analysis has led to some interesting pairings of countries with similar over-all constitutions, such as South Korea–Macedonia, Sweden–Croatia, Estonia–Moldova, Switzerland–Surinam, Spain–Poland, Botswana–Kenya, Mongolia–Lithuania, Cote d’Ivoire–Latvia, Japan–Jordan, New Zealand–Libya, Norway–USA. Such pairings created based on formal constitutional similarities might be useful for comparative case studies that try to identify either (1) the importance of various informal and historical factors or (2) the importance of small institutional differences. For example, despite being far more social democratic than USA, Norway’s constitution has none of the provisions that one would associate with social democracy, such as the inclusion of the right to employment, education or healthcare, references to solidarity or fraternity or the reference to the state’s role in economic planning and development (if anything the US constitution

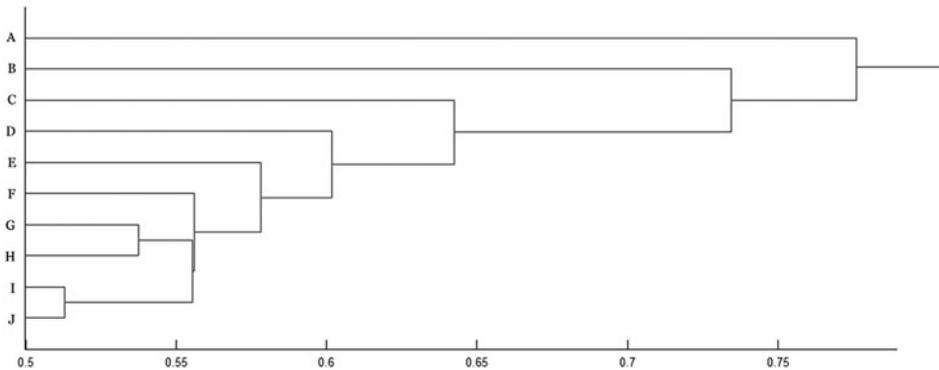


Figure 3. Constitutional family resemblances, based on rights sections only (corresponding to Table 2).

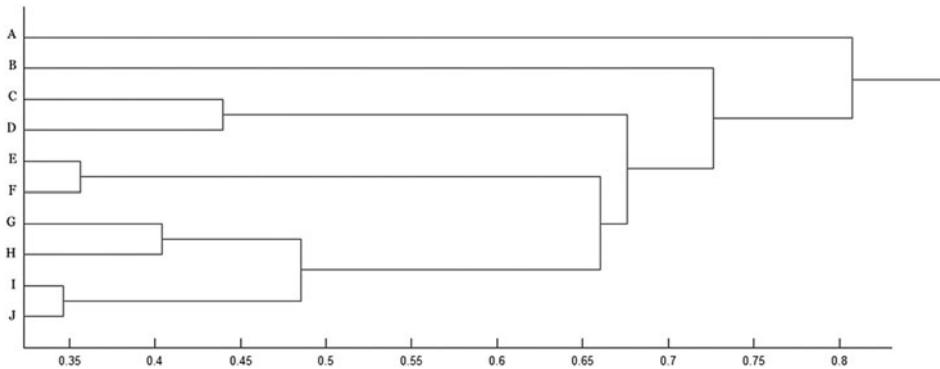


Figure 4. Constitutional family resemblances, based only on federalism and electoral system (corresponding to Table 3).

seems more social democratic as, unlike Norway's constitution, it includes provisions regarding science and art). An exception is that Norway's constitution refers to the 'protection or preservation of the environment'.

On the other hand, cluster analysis can be used as an analytic method in itself. One can try to find which subset of constitutional characteristics leads the cluster analysis to the 'proper' classification scheme. Such a strategy would *assume* that constitutions matter and focus on discovering which constitutional details are truly important. The 'proper' classification scheme would be based on the specific outcome of interest (that one assumes to be determined by the constitutional factors), pre-classifying countries based on this criterion and generating the target categorization, and then trying to find which configurations of constitutional characteristics best replicates the target categorization. For example, inspecting the resulting categorizations described earlier, it seems that the clustering based on the powers of the executive, legislative, and judiciary is roughly more in line with the basic distinctions between developed and underdeveloped countries as compared to the other categorizations based on the entire constitution or e.g. only on the rights sections.

One of the main conclusions that one may derive from this discussion on classification schemes is that it is hard to find an unobjectionable *a priori* matching strategy (i.e. basically intuition-based matching) that could then be used in a Persson and Tabellini type of approach. Instead, cluster analysis may be used to approach the problem of classification more rigorously.

The fact that cluster analysis can be used to this variety of purposes reinforces the main point in this article about the necessity of multiple methodologies. Cluster analysis, like any other method, cannot by itself certify that it is properly used. In order to be confident about the truth of conclusions drawn from a cluster analysis, one usually needs additional supporting evidence about the validity of the assumptions on which the cluster analysis has relied. For example, as we have seen, a cluster analysis on *de jure* constitutions generates some surprising pairs of countries. *If* one is confident (based on additional evidence) that one has done the cluster analysis based on the important formal factors and not on constitutional fluff, and *if* one cannot plausibly argue that the result is due to small institutional differences leading to large consequences (i.e. nonlinear interactions among institutions), such surprising pairs can be used to draw the tentative conclusion that

Table 3. The family resemblances of constitutions, based only on federalism and electoral system (corresponding to Figure 4).

A	B	C	D	E	F	G	H	I	J
Philippines	Uzbekistan	Grenada	Bahamas	Greece	Colombia	Chile	Cuba	Zimbabwe	USA
		Guatemala	Barbados	Russia	Venezuela	France	Dominica	Kiribati	Canada
		Argentina	Bosnia-	Azerbaijan	Ecuador	Poland	St. Vincent and		Haiti
		Equatorial	Herzegovina	Finland	Portugal	Hungary	The Grenadines		Dominican
		Guinea	Libya		Slovenia	Italy	St. Kitts and		Republic
		Burkina Faso	Jordan		Uganda	Albania	Nevis		Jamaica
		Mozambique	Saudi Arabia			Montenegro	Nicaragua		Trinidad-Tobago
		Iraq	United Arab			Macedonia	Costa Rica		AntiguaBarbuda
		Bahrain	Emirates			Croatia	Surinam		Mexico
		Qatar	Oman			Bulgaria			Belize
		Thailand	Japan			Moldova	Peru		Honduras
		Singapore	Brunei			Romania	Brazil		El Salvador
			Indonesia			Estonia	Bolivia		Panama
			New Zealand			Belarus	Paraguay		Guyana
			Samoa			Armenia	Ireland		Uruguay
						Georgia	Luxembourg		Netherlands
						Cape Verde	Liechtenstein		Belgium
						Guinea-Bissau	Switzerland		Monaco
						Gambia	Spain		Germany
						Senegal	Andorra		Malta
						Mauritania	Austria		Cyprus
						Niger	Czech Republic		Norway
						Cote D'Ivoire	Slovakia		Iceland
						Guinea	Serbia		Kenya
						Liberia	Latvia		Tanzania
						Sierra Leone	Lithuania		Eritrea
						Gabon	Ukraine		Lesotho
						Central African	Sweden		Mauritius
						Republic	Denmark		Lebanon
						Rwanda	Sao Tome		China
						Somalia	and Principe		North Korea
						Djibouti	Mali		India
						Madagascar	Benin		Cambodia

(Continued)

Table 3 – *continued*

A	B	C	D	E	F	G	H	I	J
						Algeria			Laos
						Turkey			Malaysia
						Afghanistan			Australia
						Turkmenistan			Vanuatu
						Tajikistan			Solomon Islands
						Kazakhstan			Fiji
						Taiwan			Nauru
						South Korea			Tonga
						Bhutan			Tuvalu
						Sri Lanka			Micronesia
						Nepal			

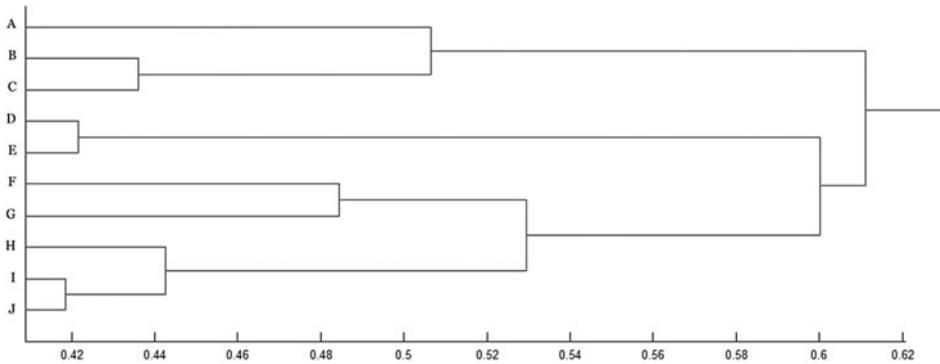


Figure 5. Constitutional family resemblances, based only on sections defining the attributes of the executive, legislative and judiciary (corresponding to Table 4).

informal matters must be the key driving force of the observed differences. This conclusion should then be further evaluated in light of in-depth case studies and analytical narratives which would try to pinpoint the exact mechanisms by which such informal matters actually work. If one would fail to convincingly find these mechanisms, one would have to go back to one's assumptions and identify the error. Thorough institutional analysis generating reliable conclusions is hard work!

4. Qualitative comparative analysis

QCA is a method developed by Ragin (1987) for analyzing social science data with the purpose of formulating causal interpretations of social phenomena (see Rihoux & Ragin, 2008 for the most up-to-date version, including a discussion of applications). In developing this method, Ragin wanted to overcome the difficulties encountered by both case-studies approaches and by econometric approaches (Ragin, 1994; see also Collier, 1993; Dion, 1998; Goldstone, 1997; Katznelson, 1997; Mahoney, 2003; Rihoux, 2006).⁴ With respect to basic econometric approaches Ragin notes two main problems: First, we often do not have the necessary amount of data to perform such analyses meaningfully. Second, linear analyses such as OLS arbitrarily rule out the very complexity that characterizes social phenomena. Rihoux (2006, p. 686) illustrates the domains of applicability of different methods, from quantitative methods (econometrics) to single case studies, with different versions of QCA occupying the intermediary domain.

In order to fend off the mathematical difficulties normally associated with nonlinearities, Ragin's method uses Boolean algebra. We have a property of interest $X \in \{0, 1\}$ and a tentative set of possible qualitative factors (Q_1, Q_2, \dots, Q_n) with $Q_k \in \{0, 1\}$. We want to determine X as a logical function of the qualitative variables:

$$X = L(Q_1, Q_2, \dots, Q_n).$$

We determine the form of the function L from the available data-set. Then, by simplifying the form of L , by reducing all redundancies present in the data-set, we uncover the underlining structure of interactions between the variables \mathbf{Q} . In other words, we aim to uncover the necessary and sufficient conditions under which X happens.

To put it differently, the n variables \mathbf{Q} define a conceptual universe of 2^n possibilities.⁵ Some of these possibilities are actually observed, while others are counterfactuals. The available empirical data are too limited to be able to cover all the counterfactuals in the

Algeria
Iraq
Jordan
Bahrain
Oman
Tajikistan
Kazakhstan
Bhutan
Cambodia
Malaysia
Fiji

same way in which one would do in the hard sciences by means of a sufficient number of controlled experiments. Instead, the method uses the empirical data-set to (1) restrict the set of counterfactuals to the subset of possibilities that are compatible with the available data, and (2) derive the simplest logical formula that codes for this subset of possibilities, thus (3) providing often unexpected insight into the structural features of the matter and aiding the task of interpretation.

To better understand how this is done, consider an example of the analysis of an empirical data-set about the adoption of the flat tax in Eastern Europe (Aligica & Evans, 2009, pp. 187–201). Aligica and Evans consider not just collective action factors but also objective fiscal and international constraints. They use six prospective Boolean variables that might explain why an Eastern European country has adopted the flat tax (Aligica & Evans, 2009, pp. 193–196): (A) tax evasion and budget pressure; (B) capital flight; (C) membership of international community; (D) civil society; (E) policy champion; (F) precedent. They recognize that complex interactions among these factors may be at play and use Ragin’s method to discover the nature of these interactions. The matrix below describes their raw data, with variable *X* being whether the country has adopted the flat tax or not

	A	B	C	D	E	F	X		A	B	C	D	E	F	X
Albania	0	0	0	0	0	1	0	Lithuania	0	1	0	0	0	1	1
Belarus	1	0	0	0	0	1	0	Macedonia	0	0	0	0	1	1	1
Bosnia	0	0	0	0	0	1	0	Moldova	0	0	0	0	0	1	0
Bulgaria	0	1	0	0	0	1	1	Poland	1	0	1	1	0	1	0
Croatia	0	0	0	0	0	1	0	Romania	0	0	0	0	1	1	1
Czech Rep.	1	1	1	1	0	1	0	Russia	1	0	0	0	1	0	1
Estonia	0	0	0	0	1	0	1	Serbia	1	1	0	0	0	0	1
Georgia	1	1	0	0	0	1	1	Slovakia	0	0	1	1	1	1	1
Hungary	1	1	1	1	0	1	0	Slovenia	0	0	1	0	0	0	0
Latvia	0	1	0	0	0	1	1	Ukraine	1	1	0	0	0	1	1

This Boolean table can be coded as a single logical formula by considering that each row is a conjunction (AND) of the values of each variable, and taking the disjunction (OR) of all rows.

Considering all the cases where $X = 1$, we obtain:

$$X = aBcdeF + abcdEf + ABcdeF + aBcdeF + aBcdeF + abcdEF + abcdEF \\ + AbcdEf + ABcdef + abCDEF + ABcedF,$$

where the lower case letters denote that the value of the variable is 0, the upper case letters denote that the value of the variable is 1, multiplication denotes logical conjunction, and + denotes logical disjunction.

Simplifying this condition⁶ we obtain:

$$X = ABcde + abCDEF + abcdE + BcdeF + bcdEf. \quad (2)$$

This is the set of sufficient conditions (based on the data-set and authors’ choice of possible explanatory variables) for the adoption of the flat tax (sufficient but not necessary, see later). This result gives more information than just the original table in the sense that it has revealed the *structure of interdependencies* present in the data-set. For example, it says

that in certain contexts, i.e. either $BcdeF$ or $bcdEf$, tax evasion and budget pressure (A) is irrelevant. Similarly, if we re-write the result factoring based on B ,

$$X = Bcde(A + F) + bE(aCDF + acd + cdF)$$

we obtain a conclusion as to when the incentive to attract more foreign investment plays the critical role in the decision to introduce the flat tax – namely when C, D, E are false, but either A or F are true. Moreover, looking at the term where B is false, we get a very interesting conclusion about the importance of ideology (Aligica & Evans, 2009, p. 201):

The striking result is that in each case where there was no real consideration over the threat of capital flight, condition E is present. And in each case where there was financial pressure from external sources, condition E is absent. In other words a policy champion was not necessary in countries that had an interest to adopt a flat tax anyway, but if that interest is nonexistent, ideas-drivers can still get the policy implemented. Therefore *both* are necessary conditions to explain the spread of the flat tax.

This is indeed a highly non-trivial conclusion and it is difficult to see how one would obtain it without using such an analytical technique which focuses on uncovering nonlinearities and on distinguishing the relevant from the irrelevant factors in a given context.

We can also do a similar analysis based on all the cases where $X = 0$:

$$x = abcdeF + AbcdeF + abcdeF + abcdeF + ABCDeF + ABCDeF + abcdeF \\ + AbCDeF + abCdef.$$

This simplifies to

$$x = ACDeF + abCdef + bcdeF.$$

We can use this, on one hand, to understand the conditions under which the flat tax is *not* adopted, and, on the other hand, by considering its negation

$$\sim (ACDeF + abCdef + bcdeF) = ACd + aB + aD + Bc + Bd + CdF + cD + cF \\ + Df + E \tag{3}$$

we obtain a far less stringent set of conditions than formula (2) under which a flat tax can be adopted. In other words, formula (2) provides the sufficient condition, while this more lax condition provides the necessary condition. If one wants to analyze the *prospects* that the flat tax is going to be adopted in other countries as well, one probably needs to pay more attention to the necessary conditions, rather than to the sufficient conditions, as countries do not necessarily repeat the exact path taken by other countries. In other words, the prospects for the adoption of a flat tax look bad if a country is not in at least one of the states of affairs described by formula (3). Rihoux and Grimm (2006) discuss at book length the use of QCA for various policy purposes.

QCA can be performed either (1) on groups of constitutionally similar countries, previously identified by cluster analysis and trying to identify the importance of additional variables; or (2) on groups of countries that are similar from some other perspective (in the Aligica and Evans example, the criterion for selecting the group of countries is geographical, but one may use other criteria as well, e.g. cultural or history-based) and trying to identify the importance of various configurations of constitutional factors.

The discussion of the necessary conditions highlights the potential problems associated with QCA. Suppose the analysis leads to a set of necessary conditions, and yet, another country that fails to meet them nonetheless follows through with the kind of reform that was supposed to be inaccessible to it. If this happens, it means that our set of variables did not in fact properly cover the conceptual universe of possibilities. Imagine for instance that in the above-mentioned analysis of the flat tax we would not have used variable E . Then, one of the states of affairs favorable to the adoption of the flat tax in formula (3), namely the state E , would have been missing. One way to try to address this problem is by means of robustness checks, repeating the analysis with a variety of sets of explanatory variables, but such checks are more difficult to perform and interpret than in the case of econometric methods [see Mahoney (2003) for an answer to such criticism]. Nonetheless, QCA remains a powerful analytic method for revealing hidden nonlinear interactions in the data-set.

5. Case studies, analytic narratives, and comparative histories

A common belief about qualitative analysis and case studies in particular is that they are only a second-best alternative to large- N studies. McKeown (1999, p. 165) summarizes this position in the following way:

When accurate measurement is too costly to be conducted repeatedly, an intensive research design . . . in which a great deal of effort is expended on a single case is preferable to relying on measurements of doubtful validity collected in an extensive design for purposes of statistical analysis.

The basis for this view is the recognition of the fact that logical inference (which forms the basis of qualitative analysis, as we have seen in Section 4) is simply a special case of probability theory (Jaynes, 2003, Chapter 1). To put it differently, there exists only one way of being rational and an argument is either valid or not, regardless of whether it is using quantitative or qualitative data. It is important to keep this in mind as some supporters of qualitative research, such as McKeown (1999), have sometimes been led astray by their belief that in order to argue for the value of qualitative studies one needs to somehow reject the idea that they are a special case of statistical inferences. As the saying goes, nothing hurts a good conclusion more than a bad argument in its favor. The value of qualitative analysis, case studies, analytic narratives, and comparative histories does not come from them being alternative kinds of scientific inferences (they are not), but by providing a better grasp of the complexities involved, by uncovering certain pieces of information that cannot be obtained otherwise, and by expanding the scope of constitutional economics beyond the study of rule of law consolidated democracies.

Determining the relevant set of variables is a major theoretical difficulty. One may perhaps think about adopting an algorithmic, mindless, approach to discovering the relevant set of variables, by simply sifting randomly through many possibilities and performing various robustness checks. In practice however, this is unfeasible even for relatively simple cases. For one thing, one would first have to actually measure numerous variables at random, somehow escaping all theoretical assumptions. But even if we have a candidate set of variables, as Ostrom (2005, p. 243) notes, '[g]iven the logic of combinatorics, it is not possible for anyone to conduct a complete analysis of the expected performance of all the potential rule changes that could be made in an effort to improve the outcomes achieved'. This type of argument about the limits of econometric methods for exploring social complexity is often not properly appreciated. Ostrom (2005) continues by describing how institutional changes actually happen (p. 244):

Participants adapt the rules, norms, and strategies of their parents and elders as well as those who are viewed as highly successful in a particular culture. They learn from neighboring systems that work better than theirs and try to discern which rules are helping their neighbors to do better. Human agents try to use reason and persuasion in their efforts to devise better rules, but the process of choice from the vast array of rules they might use always involves experimentation.

This is a description of what happens at the collective choice level, and a constitutional level analysis tries to identify the reasons why certain societies adopt more effective collective choice mechanisms than others (and, thus, implicitly, better operational rules leading to more development). This constitutional level of analysis is not concerned just with the formal constitutions in advanced democracies (Ostrom, 1999). While Persson and Tabellini (2003) type of studies are of course interesting and important, they are far from exhausting the domain of constitutional economics. When Alesina (2007) and others argue to the contrary they are missing a large set of very important questions.

One can argue that the constitutional level of analysis is actually most important for development economics studying *non*-democracies without reliable rule of law as one tries to understand the largely informal mechanisms by which a social and constitutional contract forms ‘out of chaos’, as ‘common knowledge ... shared communities of understanding [and] shared expectations about how others will behave’ emerge (Ostrom, 1997, p. 136). Studying such matters (e.g. Chamlee-Wright, 1997, 2010; Chamlee-Wright & Storr, 2010; Harrison & Huntington, 2000; Storr, 2012) is obviously trickier than the relatively simple kind of project in which Persson and Tabellini are engaged. Unfortunately, ‘in contemporary economic empirical work there is a tendency to ask *only* the kind of questions to which sophisticated econometric tools can be applied’ (Lavoie & Chamlee-Wright, 2000, p. 21). This leads to a failure to even recognize that *the fundamental scientific problem that needs solving in development economics is actually a puzzle in constitutional economics*, and, implicitly, not recognizing some of the available empirical research avenues for trying to figure out this problem and clear up some of the existing mysteries. Seen from this perspective, the idea that one could *solve* the dilemma of development economics by means of randomized controlled trials seems quite preposterous and showcases a complete lack of understanding of the nature and depth of the problem (Easterly, 2009). And it is hard to see how one could get to such a flawed idea except by falling prey to the unfortunate tendency identified by Lavoie and Chamlee-Wright of rejecting all non-econometric methods.

By contrast, a more comprehensive approach is incorporated by the ‘new comparative historical political economy’ (Boettke, Coyne, & Leeson, 2013; Boettke, Coyne, Leeson, & Sautet, 2005) and the ‘robust political economy’ method of analysis (Boettke, 2012; Boettke & Leeson, 2004; Leeson & Subrick, 2006; Pennington, 2011a, 2011b), which look in more depth at the incentives and knowledge of the relevant actors. Thus, instead of a relatively mechanical and overly aggregated input–output analysis, one adopts a more thick description in which microeconomic theory plays a much more prominent explanatory role. For example, to explain why political rules were self-enforcing in late medieval Genoa, and why the system eventually collapsed, Grief (1998) analyzes ‘the degree to which its economic system generated appropriate political incentives’ (p. 23). Similarly, Weingast (1998) looks at the causes of the US Civil War through the prism of the incentive structure of the American democracy and the beliefs prevalent at the time, and he notes that ‘[b]ecause citizen beliefs were not self-implementing, many interests had an incentive to use the national government for their own purposes’ (p. 151).

This approach does not imply a *rejection* of econometric methods, but only a significantly greater attention to the basic fact that we are dealing with human beings driven by motivations and values. Indeed, as Acemoglu (2010) has recently emphasized, a thorough econometric analysis should be preceded by a microeconomic model laying out explicitly the microeconomic dynamic. If this is not done, the results of the econometric analysis are often prone to misinterpretation. For example, precisely for this reason, the state capacity literature seems to have misinterpreted the role of state capacity in development, misinterpreting a marginal effect for a level effect (Acemoglu, García-Jimeno, & Robinson, 2013).

Importantly, the robust political economy approach offers a method of identifying when case studies are likely to be relevant (Boettke & Leeson, 2004). Probably the biggest source of skepticism toward case studies is that the author might have cherry-picked the case(s) that illustrate(s) their desired conclusion. In order to counter this source of skepticism, one must choose the ‘hard cases’ – cases where, on theoretical grounds, one least expects to find the conclusion. For example, this is the approach adopted by Ostrom (1990) in her studies of self-governing solutions to common pool resource problems. The robust political economy method allows one to identify which cases are indeed the ‘hard cases’: if the relevant actors do not seem to have the incentives and/or the knowledge to solve a given problem, and yet one documents that, nonetheless, they solve it, one can discover important and surprising facts about social order and its constitutional framework.

Similarly, the study of post-communist transition economies requires a more complex analysis than economists have first believed. As Dobbin (2005, p. 43) writes,

followers of shock therapy believed that by destroying socialist economic forms, such as collective ownership, they would unleash the power of markets. Sociological analyses suggest that no one particular system fills the void ... As Weber would predict, institutions don't change so easily. As Durkheim would suggest, social roles and social networks often explain systems change.

The flipside of this issue is the problem of ‘institutional stickiness’ (Boettke, 1996/2001; Boettke, Coyne, & Leeson, 2008; Krasnozhan, 2012): Why do some institutional reforms get overturned or fail to be properly implemented and enforced in some countries? The answer is concerned with the way in which such top-down reforms ‘fit’ with the local culture, which can either legitimize or undermine a particular change in the formal rules. As we have seen in Section 3, constitutions of countries that diverge widely in terms of economic outcomes are often surprisingly similar, and, thus, the puzzle of their development is partly rooted in cultural matters. The problem for a social scientist is then to try to understand these cultural patterns and their interactions with the formal systems of rules. So, what is the best way by which ‘you get at culture’? As Lavoie and Chamlee-Wright (2000, p. 22) argue, ‘[i]t is by way of intimate, detailed, qualitative research, immersed in the complex context of one particular situation’. However, this goes against the econometric bias:

as economists tend to look at it, a sample size of one makes for lousy statistical inference. As a result, there is a whole way of getting access to the real world which is denied to most economists, and this way of knowing happens to be the one which is best suited to studying culture.

If one considers the importance of informal elements, detailed field research is thus often unavoidable. It is often the case that

explaining economic phenomena requires acknowledging that economic action and thinking are culturally conditioned, which in turn necessitates a procedure that takes seriously the

efficacy of the cultural sphere and that does not reduce the cultural sphere to a mere economic residual. (Goldschmidt & Remmele, 2005)

As Babbie (1999, p. 280) notes, ‘field research is especially effective for studying the subtle nuances of attitudes and behaviors and for examining social processes over time ... the chief strength of this method lies in the depth of understanding it may permit’. Miller and Salkind (2002, pp. 163–164) note as well that case studies are useful for a variety of unique research goals: (1) researchers may be ‘interested in developing an in-depth discussion and analysis of a bounded system’, (2) rather than being interested in the universalizable aspects of a problem, one may want to learn ‘about an unusual case that is of intrinsic interest in its own right’, (3) in order to ‘develop in-depth understanding’, one may want to incorporate in the analysis a wide variety of information sources such as ‘documentation, archival records, interviews, direct observations, participant-observations, and physical artifacts’, (4) combining within-case analyses with cross-cases developments in order to get a better perspective of causal mechanisms, (5) ‘situate the case within its context or setting’, (6) ‘[m]ake an interpretation of the meaning of the case’.

Mahoney (2003) discusses in more detail within-case analysis, including addressing some of the most prominent criticisms (see also Weiss, 1994, pp. 26–33), and points out that it is ‘a tool specifically designed to compensate for limitations associated with cross-case methods’ (p. 360). The method can involve *pattern matching* as a ‘key tool for those comparative historical researchers who seek to avoid the determinism of nominal methods but who lack enough cases to employ these methods probabilistically’ (p. 362); *process tracing* which seeks to identify ‘the causal mechanisms that link explanatory variables with the outcome variable’ while helping ‘the analyst who works with a small number of cases avoid the mistaken spurious correlation for a causal association’ (p. 363) as well as a tool for criticizing cross-case analyses that claim to be causal, if ‘mechanisms linking the presumed explanatory variable and the outcome variable cannot be identified’ (p. 364); and *causal narrative* by which ‘the analyst attempts to validate cross-case associations by “breaking apart” variables into constituent sequences of disaggregated events and comparing these disaggregated sequences across cases’ (p. 365). A clear example of this way of analysis is Tilly’s (1993) book on the nature of revolutions. Each chapter in the book is a detailed analysis of the history of one European country and of the context in which various revolutions have occurred over the past five centuries, while the introduction chapter puts together a comparative analysis of all those cases and extracts a general theory of ‘revolutionary situations’, which, presumably, has a wider applicability than just the cases on which it was based.

Going beyond the relatively simple causal narrative approach, the importance of making mathematical microeconomic and game theoretical models explicit is now an important part of the *analytic narratives* literature (Bates, Greif, Levi, Rosenthal, & Weingast, 1998; see also Katznelson & Weingast, 2007 for more examples). This approach ‘pays close attention to stories, accounts, and context’, but ‘[i]t is analytic in that it extracts explicit and formal lines of reasoning, which facilitate both exposition and explanation’ (Bates et al., 1998, p. 10). The importance of this method for constitutional political economy has been noted by Boettke (2000). Simply put, the same argument that Acemoglu (2010) makes with respect to the need of econometrics to rely on explicit microeconomic models, also applies to narratives. It is the reliance on theoretical models that keeps the narrative from drifting into mere arbitrariness and ‘just so’ storytelling, as it often happens when intuition is the sole guide. The extent to which the analytic method in

its current applications truly succeeds is a matter of some debate (Bates, Greif, Levi, Rosenthal, & Weingast, 2000; Elster, 2000), but, even if one quibbles with the details, the desideratum is clear. As both Elster (2000) and Boettke (2000) point out, in order for the arbitrariness to be indeed curtailed, the models need to be sufficiently general – otherwise, one simply engages in a sterile mathematization of a detailed case study, adding little (except perhaps confusion) to the narrative. As Boettke (2000) put it, a successful analytical narrative has ‘thin theory’ (few and general theoretical assumptions) and ‘thick empirics’ (great attention to details and history).

This brief presentation of case studies and the causal analysis of comparative histories should be enough to illustrate several important issues. First of all, constitutional political economy involves a lot more than just the econometric analysis of electoral systems in consolidated rule of law democracies, and the difficulty of the theoretical task (due to the importance of informal matters, complex interactions among variables, and small-*N* samples) makes it necessary that we use qualitative methods and case studies. Second, these methods are not as vague or ad hoc as one might think. Economic sociologists and political scientists have actually developed fairly rigorous approaches specifically designed to address many of the criticisms (about reliability and generality) that have been aimed at qualitative research. In fact, the more one appreciates the complexity of the subject at hand and the critical importance of the nonlinearities involved, the more skeptical one is bound to become about the use of econometric approaches to constitutional economics. Third, and perhaps most important, when properly utilized, these methods have already provided significant insight into the nature and process of constitutional design, ranging from the empirical work of Ostrom (1990, 2005) on the self-organization mechanisms in small communities to the work of Goldstone (1991) and Tilly (1993) on the nature and causes of revolutions.

6. Conclusion

In his NBER review of advances in political economy, Alesina (2007) argued that the fields of public choice and constitutional economy, as they were developed by Hayek, Buchanan and Tullock, ‘remained on the sidelines of mainstream economics’ because they ‘refused to embrace the methodology of the field, which was in great transformation in the mid-1970s with the rational expectations revolution, game theory and advances in econometrics’. He also finds some fault with mainstream economists who ‘did not look outside the box, and ignored, with a hint of arrogance, the importance contributions of Public Choice’. However, one cannot help but feel that, given the kinds of strictly econometric approaches he advocates, Alesina is himself repeating the exact same error that he is warning against! As McKeown (1999, p. 162) has pointed out, ‘it is an error to attempt to squeeze all empirical practice in the social sciences into a particular statistical mold’. And as I have tried to argue throughout this article, there are very good reasons for delving into alternative methods of inquiry, and to consider qualitative and case studies approaches in particular. In fact, given the importance of informal matters, which Alesina acknowledges, it is pretty much unavoidable that quality research requires in-depth case studies and careful analyses of causal narratives.

This is not meant of course to disparage the line of research started by Persson, Tabellini and others. It is however meant to undermine the claim that their method is the only legitimate research method in constitutional political economy. I think Mahoney (2003, p. 367) is right when he writes that ‘[m]ethodological recipes for producing research are neither possible nor desirable’ and ‘an awareness of the different tools

available can help analysts improve the quality of their work and better present their findings to scholars from other traditions'. Requirements for methodological purity leading to self-congratulatory intellectual autarky among different fields of social science are harmful to the development of science. And the need to be able to talk to 'scholars from other traditions' is particularly alive in constitutional economics where the subject matter is as such that it requires empirical inputs from a wide variety of sources.

In this article, I have described several methods that have been used to approach various issues in constitutional political economy. But how do these methods complement each other? As Poteete et al. (2010, p. 5) rightly complain, often 'the challenges involved in using multiple methods are themselves overlooked' and '[p]roponents of mixed methods justify their preferred combination in logical terms and illustrate the approach with a few examples' but offer 'few specific practical suggestions' about how methods fit together in a coherent whole. To conclude, let me not fall prey to the same problem.

There are several ways in which studies performed with the different methods discussed in this article, can inform each other, but arguably one of the key issues is that of classification. As such, we can consider the following multi-method research strategy organized around cluster analysis. As I have argued, cluster analysis can be used to approach more rigorously the problem of classification of countries into similar groups, and I have performed a preliminary analysis on the *Comparative Constitutions Project* which has led to a few family resemblances trees (depending on which set of constitutional characteristics was considered). A much broader research agenda can be envisioned under the following structure:

1. Setting the *target classification scheme* of countries based on the economic effects of interest (e.g. economic development) – what we want to explain.
2. *Pure theory* determining (a) the likely or possible relevant factors and (b) some theoretical relationships among them (e.g. between economic and political freedom, and development).
3. *Cluster analysis* for identifying (a) groups (or pairs) of similar countries given a certain set of variables and (b) which set of variables best approaches the target classification.
 - 4.1. *Econometric analysis* based on the relevant set of variables identified at step 2-b or 3-b for estimating the relative importance of various factors (→ feeds back into step 2-b by challenging some of the theoretical relationships between variables).
 - 4.2. *QCA* on the relevant set of variables identified at step 2-b or 3-b for revealing the hidden causal structure of interacting factors (→ feeds back into step 2-b by challenging some of the theoretical relationships between variables).
 - 4.3. *Comparative case studies and comparative histories* delving into the detailed analysis of a few examples (which might have been identified at step 3-a) with the purpose of (a) better understanding the complex relationships between different factors and (b) identifying additional important (often informal) factors that have escaped attention (→ feeds back into step 2-a by changing the set of potentially relevant variables; also, sometimes, into step 2-b by challenging some of the theoretical relationships between variables if the case study showcases a convincing counter example to prevailing theory; and also into step 4-1 if the case studies cannot identify the actual causal mechanisms that would explain the reported correlations among variables).

Notes

1. The databases are available from <http://www.comparativeconstitutionsproject.org>.
2. The database is not yet updated to account for the ousting of Gaddafi.
3. The *Matlab* program for producing these figures and tables is:

```
D = pdist(constitutions, 'correlation');
L = linkage(D, 'average');
[H,T] = dendrogram(L,p, 'orientation', 'right', 'labels',
countries);
```

where *constitutions* is the *Comparative Constitutions Project* database (each row representing a country and each column the numeric value of a constitutional characteristic), *countries* is the vector with country names, and *p* is the desired depth for the family resemblances tree (*p* = 0 is for the full tree as in [Figures 1 and 2](#); [Figures 3 to 5](#) use *p* = 10). To list the countries in each of the resulting categories, one uses:

```
for i = 1:length(T)
    i
    countries(find(T == i))
end.
```

4. Ragin (2000) further develops the method in the attempt to cover quantitative methods as well.
5. When an additional Boolean variable is added to an existing set, the number of possibilities doubles (because each of the already existing possibilities splits into two alternatives depending on the value of the additional variable). By the same logic, if there are *n* variables, and each variable *i* can have *m_i* possible values, the total number of possibilities is $m_1 \cdot m_2 \cdot \dots \cdot m_n$. If $\forall i, m_i = m$, the result is m^n .
6. For example, using *Wolfram Mathematica*'s function `BooleanConvert`; a number of programs for performing QCA also exist: <http://www.compass.org/software.htm>. Aligica and Evans simplify the formula by hand.

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