Electoral Rule Choice in Transitional Economies

Jessica Clement
PhD Candidate at the University of Paris 1 Panthéon-Sorbonne

Abstract:

The Arab Spring and subsequent unrest in Ukraine, Thailand, and Turkey, sparked a debate about whether a fourth wave of democracy emerged in the global political arena starting in 2010. A key issue arises from these emerging democracies, or “countries in transition”, about what types of government institutions will be adopted by the new democracies. Previous literature shows that for a small sample of advanced democracies, the way in which the economy of a nation was structured impacted their choice of electoral rule system at the turn of the 19th century. The emphasis in this paper is placed on what determines electoral rule choice in transitional nations. Using a panel database with 104 transitioning countries with data for 18 years (1995 to 2012), this paper tests the argument that more coordinated market economies tend to adopt more proportional representative electoral rule systems during a political transition, while more liberal market economies tend to adopt less proportional electoral rules. Countries characterized as coordinated market economies due to their widespread primary education, which supports co-specific asset adoption, and prominent industrial sectors are found to have more proportional electoral rule systems when compared to countries that are characterized as liberal market economies.
1. Introduction

In 2010, a wave of protests, popularly coined as the Arab Spring, started in Tunisia. Two years later, at the end of the civil uprisings, 17 Middle Eastern and North African (MENA) regimes felt at least some pressure from the people in their country, and five countries actually experienced a regime change. In Syria, a multi-sectarian civil war persists since 2011, with the original leader still in power. These uprisings resurfaced the question of emerging democracies, and the paths that a nation can choose from their transition and into their following consolidation.

The Arab Spring and subsequent unrest in Ukraine, Thailand, and Turkey, sparked a debate about whether a fourth wave of democracy emerged in the global political arena starting in 2010.¹ A different source started each democratic wave in history, but the end result stays the same: a government transitioning from a non-democratic government to a democratic one. A key issue arises from these emerging democracies, or “countries in transition”, about what types of government institutions will be adopted by the new democracies. The emphasis in this paper is placed on what determines electoral rule choice in transitional nations.

Previous work by Cusack, Iversen, and Soskice (2007, 2010) found that in Western Europe the economic structure shaped the outcomes of electoral rule choice at the turn of the 20th century. This paper supposes that the way in which an economy is structured will impact the proportionality of the electoral system, via the electoral rules adopted by a country. A Varieties of Capitalism (VoC) approach is used to determine if the coordinated market economies and liberal market economies divide in transitioning countries exists by using simple, disaggregated macroeconomic indicators.

Then, this paper intends to extend the existing theoretical framework to transition countries, including those of the Arab Spring, to evaluate their electoral rule choices when building new government institutions. Specifically, it is tested if the evolution of the organization and structure of the economy as a country undergoes a political transition impacts its electoral rule system. It is predicted that more coordinated economies, as defined by their macroeconomic characteristics, will lead to more proportional electoral rule systems. The use economic literature designed for advanced democracies entails the assumption that, until proven otherwise, the ideas and theory can extend to countries in development or in political transition.

To test this hypothesis, the effective number of parties resulting from legislative elections, which is used as a substitute for the electoral rule system, is regressed on macroeconomic indicators, which are used as proxies for coordination in this paper.

¹ From the article “Starting in Egypt: The Fourth Wave of Democratization?” by Stephan R. Grand (Feb, 2011). Grand suggests that with the collapse of the Ben Ali regime in Tunisia and the Mubarak regime struggling (at the time) in Egypt there may be a fourth wave of democracy.
The findings show that coordination, as measured by basic attainment of education levels, a strong industrial sector, a focus away from exports, which are likely commodity goods, and low and managed inflation, tends to encourage the adoption of proportional representation electoral rules.

The structure of the paper is as follows. First, the theoretical background on coordinated versus liberal market economies, the majoritarian and proportional representation (PR) electoral rule divide, and the effect of economic organization on electoral rule choices is presented. Second, a brief note about the structure of transitioning economies provides insight into the countries studied in this paper. Then, the data is explained, along with the empirical approach used in this paper. After, the results from the empirical work are given and interpreted. Finally, the conclusion summarizes the findings from this study.

2. Literature Review

This paper builds off different strands of economic and political economic literature, including the Varieties of Capitalism, electoral rule and political institutions adoption, and transitions to democracy literature.

In the VoC literature, Hall and Soskice (2001) present two systems of capitalism, coordinated capitalism and liberal capitalism. Hall and Soskice (2001) state that firms are actors seeking to exploit core competencies, or methods to develop, produce, and distribute goods profitably. Their conception of the firm is relational, meaning that to exploit the core competencies, a firm must coordinate and establish relationships with the economic actors connected to the activities of the firm. These actors include, but are not limited to, suppliers, trade unions, and governments. Hall and Soskice outline five spheres that firms need to develop in order to eliminate the coordination problems that arise with the relational nature of the firm: the industrial relation sphere, the vocational training sphere, the corporate governance sphere, the inter-firm relations sphere, and the sphere of employee relations.

The way in which a firm resolves the problems central to each of the five spheres defines the type of economic system of the national political economy. Non-market relations define coordinated market economies (CMEs), while the liberal market economies (LMEs) use a competitive market as the basis for solving problems. These five spheres help determine the relevant macro indicators used in the empirical part of this paper.

Further development of the variety of capitalism literature came after the realization that many countries did not fit into either the CME or LME category. After recognizing that a type of “mixed market economy” (MME) exists, scholars such as Amable (2003) extended the theory on VoCs to include more classifications, such as the Market-based model, the Social-Democratic model, the Continental European Model, Mediterranean Model, and the Asian Model.
Yet, the inclusion of MMEs and additional categories by Amable still largely focus on developed countries. In an attempt to extend this literature, others have created theories to explain the type of capitalism in Latin America (Bizberg 2014) and East Central Europe (Nölke and Vliegenthart 2009), but these extensions are limited to regional cases. Thus, a gap in the variety of capitalism literature continues to exist, for it is still unknown whether the theory built around advanced democracies can be applied to developing or transitioning countries.

Cusack, Iversen, and Soskice (CIS) (2007) extend the work by Hall and Soskice to consider if the economic structure of a country can influence the choice of electoral rules. CIS find that when looking at advanced democracies, those countries with coordinated economies tended to develop proportional representation electoral rules. On the other hand, the nations with liberal economies tended to develop majoritarian electoral rules.

CIS conclude that the origin of proportional representation came from the movement of economic networks from a local to national level and the key to understanding the electoral systems at the beginning of the 20th century originates in the economic structures at the end of the 19th century. With coordinated local economies, a common interest existed in a regulatory system and some form of insurance against specific assets with respect to skill acquisition. The incentives and opportunities for class collaboration inspired the proportional representation system.

On the other hand, when there was weak coordination at the local economic level, employers were in conflict with the craft base unions, and a class conflict emerged. The parties in these scenarios maintained majoritarian systems to protect against the labour left. The interest at the local level did not emerge as important groups at the national level due to the lack of organization amongst different political and economic actors. Thus, a divide between coordinated economies with PR and liberal economies with majoritarian rules emerged.

To extend their argument, CIS (2010) state that two debates are entangled in the literature. The first debate concerns the choice of electoral systems, either PR or majoritarian systems, while the second debate concerns democratization. CIS bring up the question why, after democratization struggles had passed, did the governments adopt PR in states with economies with economic interests organized at the national level, while states with liberal economies with weakly organized economic interests tended to chose majoritarian electoral systems.

CIS (2010) conclude that countries with organized economic interests led to economic agents or specific groups wanting their interests to be represented in the legislature. However, if the economy was weakly organized, political actors had incentives to uphold a majoritarian system.
The short run argument presented by CIS (2010) of PR choice aligns up with the long run analysis (CIS 2007) because a political economy that starts with heavy investment in co-specific assets will be comprised of representative parties. PR is the preferred electoral system when parties are representatives of specific interests.

Conversely, majoritarian systems keep their electoral system in place because their political economy is starting off with investments in general assets, and therefore want an electoral rule system that benefits broad campaigns that target the support of a “middle” group. In the short run, economies comprised of weakly organized interests will opt to maintain the majoritarian electoral rule system in order to protect the middle class interest.

Including the short run analysis in the argument is crucial because, although the CIS theory applies well to the emergence of Western European and Anglo-Saxon electoral rules, which have been in place since the early 20th century, the short run level of analysis extends the investigation to a set of newly democratizing countries and their choice of electoral systems. The short run analysis that complements the theory for the long run choice of electoral rules in a country by enabling the study of recently democratized nations, or nations in transition, and their chosen electoral systems.

3. Theory

This paper tests the work of CIS (2007, 2010) on a sample of transitioning countries. A country is considered to be in the transition process if it is included in the Bertelsmann Stiftung’s Transformation Index (BTI). 2 The political economic literature about the development of types of capitalism, and the following adoption of electoral rules for advanced democracies is well known. However, a gap exists in the literature and empirical works about how economies in transition adapt and then evolve their political institutions, notably their electoral rules.

The concepts derived from the work by CIS (2007, 2010) are applied to this study with a few notable exceptions. The first problem comes from the nature of national continuity. In the existing literature, the countries studied are developed nations in the occidental world. The countries in this study, by contrast, have been colonized, participated in multiple civil wars, broken apart and then re-fused back together again with different borders, and gone through numerous coup d’états or authoritarian regimes.

The way in which these transitional nations are considered should be different from the way in which the previous literature has treated the developed countries in this theory. For example, CIS (2007) considered the presence of traditional guilds to increase the level of coordination in the economy, but often in the cases of the

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2 The BTI includes only countries in either a democratic transition or consolidation process, thus they exclude all long-consolidated democratic systems.
countries in transition have experienced ruptures in their economies that have hindered the development and/or maintenance of traditional guilds. An example of this is the economic reorganization of colonized countries to serve their parent country, such as how the Belgian government set up extractive institutions in the Congo. (Acemoglu, Johnson, and Robinson, 2000) For this reason, different variables are selected for the analysis on how the economic structure impacts voting rules when the variables previously used are not available or do not have any economic sense.

Other variables to consider for this paper arise from development economics. Development economics often focuses on how certain macroeconomic indicators impact democracy and the democratic transition. Advocates of modernization theory state that as a country develops, by increases in the levels of education and income, it will become more democratic. The democratic transition coincides with social and economic developments, including demographic transitions in the population and industrialization.

If these macroeconomic indicators of education and income can impact the evolution of democracy, then it follows from here that they might also be key in understanding how the structure of the economy, as it is formed by these variables, can impact the path of democracy that a transitioning country takes.

4. Data and Empirical Approach

4.1.

A database constructed in particular for this study is used in this paper. Included in this database are 104 countries, selected from the BTI from Bertelsmann Stiftung. Every country evaluated from the BTI was used in this database if there was also available election data for the country in question. Overall the BTI indicators and Bertelsmann Countries in Transition reports include 129 countries. The election data comes from the Parline database supported by the Inter-Parliamentary Union, an organization that works closely with the United Nations.

The time period for this study ranges from 1995 to 2012. This period was chosen due to the ability of data and due to the characteristics of the countries included in this study. The macroeconomic data comes from the World Bank, and although some information is available from the years prior to 1995, attempting to extend the timeframe to an earlier start date results in large gaps of information across the panel dataset.

Also, many countries in transition phase formed in the early 1990s, either after the fall of the Berlin Wall and the dissolution of the Soviet Union, or as a result of the end of Civil Wars that largely came about during the same time with the end of the Cold War, notably in Sub-Saharan Africa. By beginning the database with the year
1995, it ensures that a substantially higher number of countries are included in the
database.

4.2. The effective number of parties

*Effective number of parties (effnops).* The dependent variable is the effective number
of parties resulting from legislative elections. When there was not a unicameral
legislature, as in the case of bicameral legislatures, all election data came from the
lower house. A unicameral legislature is a legislative system with only one body of
parliamentary members, for example the Danish parliament, the Folketing. A
bicameral parliament is a legislative system that has two houses, or bodies, the
lower house, which typically is bestowed with more power, and the upper house. An
example of a bicameral legislative system is the United States with the House of
Representatives (lower house) and the Senate (upper house). This variable is
intended to proxy the electoral rule systems studied in the literature: proportional
representation and majoritarian.

Evident differences prevent the alignment of the proxy identified in this paper and
the actual electoral rules of a system. An electoral rule is an ex ante tool to allocate
seats in a legislature. The effective number of parties is a number indicating the
fragmentation of a legislature. A more fragmented legislature represents a more
proportional legislature because each different fragment represents a separate
entity, such that a highly fragmented legislature is representative of many different
interests and parties. The effective number of parties in an ex post result derived
from the ways in which electoral rules are enacted. However, the effective number
of parties variable is an appropriate substitute to examine the electoral rules at
work, and gives significant insight into the electoral rule system by providing an
effective measure of proportionality within the political parties of government.
Here, the effective number of parties is considered to represent the proportionality
of the electoral rules system, meaning the system tends either toward PR with a
larger number of effective parties, or toward a majoritarian system with a smaller
number of effective parties.\(^3\)

The effective number of parties can be found by measuring either votes or seats
gained by each party that arise from an election. However in this paper, the number
of seats gained by each party determines how many effective parties exist. The
variable is calculated by

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\frac{1}{\sum s_i^2}
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\(^{3}\) Markku Laakso and Rein Taagepera developed the effective number of parties indicator in the late
1970s to measure party system fragmentation. The basis for the variable comes from a
fractionalization indicator constructed by Douglas Rae (1968). This variable gives the 'in effect'
number of parties in a legislature resulting from an election.
where $s$ represents party $i$’s proportion of the vote. This measure provides a more realistic representation of seats in a parliament because it places a higher weight on parties with many more seats than on parties with few seats. (Benoit 2001) A number of 4.14 implies that the party system is “in effect” as fragmented (proportional) as if there were 4.14 identically sized parties. There is a tendency for the effective number of parties to be smaller when measuring proportionality for parliamentary seats as compared to when the variable is calculated using popular votes. (Laasko and Taagepera 1979) Since the effective number of parties was calculated from the share of seats for this study, the numbers found may slightly underestimate the proportionality of the electoral system.

A common recommendation for work on electoral systems is to use the effective threshold in place of the effective number of parties, but this data was not available for the countries in this study. However, to show the appropriateness of the effective number of parties variable, a correlation between the effective number of parties and the electoral effective threshold using OECD data is represented below in figure 1. The two variables tend to correlate to one another, such that a more proportional system will have a lower effective electoral threshold and a higher number of effective parties. Using the OECD data, it is shown that the p-value is significant at one percent when the effective number of parties is regressed on the threshold, the R-squared value is 0.4426, and the correlation coefficient is -0.67. For all of the mentioned reasons, the effective number of parties is regarded as the best available variable for this study.

Figure 1: OECD effective threshold and effective number of parties
In this database, the effective number of parties changes with each election year, and then stays the same throughout the database until the next election year for a specific country.

4.3. Independent variables

The goal of this paper is to witness how the level of economic coordination, either low or high, reflecting a LME or a CME, respectively, impacts the choice of electoral rules. To achieve this, independent variables are tasked with the job of representing economic coordination within a country. Measuring economic coordination is can be tricky to define in the empirical and in the literal sense. Indeed, Hall and Gingerich (2004) state that coordination is not perfectly measured in the political economic literature. The use of six macroeconomic variables avoids the problems of using coordination indices, outlined in detail below, by evaluating the performance of the economy as suggested by the actual level of the coordination in the economy, not the way in which the written law suggests the level of coordination should be.

A first attempt to analyze the connection between the effective number of parties, or the proportionality of the electoral rule system, was made by using a compilation of economic coordination indicators found in the Institutional Profile Database (IPD)4.

The way in which the measure of coordination is represented comes from a compilation of four key economic coordination variables that are found in the IPD (2012), which included 143 countries in the 2012 round. These variables include the independence and pluralism of trade unions, redeployment and retraining mechanisms for employees and continuous vocational training, employment contract protection, and the effectiveness of social dialogue at a company level, a national level, and a branch level. Each of the separate components of coordination also has a positive relation with the proportionality of the electoral rule system, but in order to give a more encompassing view, the four indicators were combined. The effective number of parties measures the proportionality of the electoral system.

In the northeast quadrant of the graph, shown in figure 2, the section of the graph with a higher number of effective parties and a higher ranking of coordination, all countries have adopted PR systems. The most southwest quadrant of the graph, the part including Turkmenistan, Laos, Uzbekistan, and Vietnam, includes countries that have adopted majoritarian electoral rules, as stated by the Database for Political Institutions. Thus, the first attempt to see a pattern in the data reflects that there is a tendency for countries with a high level of economic coordination to have more proportional electoral rules.

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4 The IPD has four rounds from years 2001, 2006, 2009, 2012, and each year many of the variables change in their definitions and variables are added. It is a valuable resource for cross-section assessment, but is not yet appropriate for time series analysis due to the inconsistency across rounds.
Despite the initial correlation found, to further advance the knowledge about the relationship between the effective number of parties in an electoral rule system and the economic coordination of a country, a regression analysis is used in this paper.

Figure 2: Correlation between effective number of parties and coordination

Often advised variables when studying economic coordination include coordination indices, relations between firms, labour, and unions, bargaining laws, and the provision of in-house skills training. A notable example is Botero, et al (2004) that builds coordination indices for 85 countries based off of employment, collective relations, and social security laws. These indicators are beneficial for studying more developed countries, but may over estimate the strength of coordination in an economy for the cases of developing or transitioning countries.

For the study undertaken here, this is not the best way to evaluate how the economic coordination or organization influences electoral rule choices and electoral proportionality. The goal is to find out if the economic structure impacts the proportionality of the electoral rule system, and to do this it is sounder to look at the evolution of the economic system and the electoral system over time. Thus, a panel model is best for this analysis. The existing coordination indices exist at one point in time, not in a panel data format. Also, the time at which these coordination indices are made is usually much after the beginning of the democratic transition.

The next drawback in using a coordination index for this study unfortunately applies to the work done in this paper as well, and comes from the fact that countries in transition often have a large proportion of labour working in the informal sector. An International Labour Organization (ILO) report using 40 countries, 37 of which are in this study, evaluates the severity of informal labour.
Out of the 37 countries which overlap between the two studies, 19 countries have over a 50 percent share of informal jobs in total employment, or over a 50 percent share of people employed in the informal sector, or other a 50 percent share in both of these categories. When lowering the threshold to 30 percent, 29 countries fall into one of these three categories.\(^5\)

Additionally, Webster, Wood, and Brookes (2006) state that in sub-Saharan Africa, a region including an important number of the countries studied in this paper, there is a reliance on personal networks in the labour market that favour local practices over lawful ones, such that even when labour unions are present, their impact on practices in the workplace is likely to be limited in scope. For example, the 1998 Labour Law in Mozambique provides workers a sufficient level of job security and collective bargaining rights. This law is exclusive of casual workers, and therefore to avoid being subject to the 1998 Labour Law, firms increasingly began to classify their employees as casual workers. A survey conducted in Mozambique for this study found that in 46 percent of the workplaces surveyed, a collective agreement between firms and their workers was in place, but only 39 percent of the managers of the firms actually thought that their firm respected this agreement. (Webster, Wood, and Brookes 2006)

This means that despite having laws that provide (or discourage) coordination between the firm and its employees or unions, such a significant amount of the workforce is not reigned by the legal framework, making the coordination indices calculated by these laws effectively useless.

The third drawback, one that applies only to the legal way in which to measure coordination is that written laws may be carried out differently in practice than what they state to do in their written form. For example, in Mozambique a law formed in 1990 protected a high level of workers’ rights, but the law was limited because the ways in which the companies behaved (misrepresentation of company performance, mismanagement) hindered the performance of unions. Often the laws found in the rulebooks are not enforced or culturally respected (Dibben and Williams 2012).

This paper aims to examine the correlation between the economic coordination of a nation and the electoral rule system. However, due to insufficient coordination data on transitioning countries, the strategy used in this paper is to evaluate how coordinated economies impact certain macroeconomic indicators, and then use these indicators as proxies for coordination.

The macroeconomic variables serving as the independent variables in this study come from the World Bank.

\(^5\) ILO Database from “Women and men in the informal economy – Statistical picture.” Found in ILO LABORSTA Internet by ILO and WIEGO.
GDP per capita (GDP). The gross domestic product (GDP) per capita is used as a proxy for the overall level of economic development in a country. Hall and Soskice (2001) do not argue that one type of capitalist system will lead to a more prosperous path of economic development, and moreover state that both CMEs and LMEs can achieve satisfactory levels of economic development. When looking at data on the OECD countries, they find no meaningful discrepancy between coordinated and liberal economies in terms of their GDP per capita, only that different kinds of industry perform better in different national contexts.

However, when analyzing the effect of GDP per capita through the lens of an industrial relations approach, Nickell and Layard (1999) find that there is no strict connection between a more regulated labour market, as found in coordinated economies, and lower growth when compared to liberal economies. Moreover, they argue that, if anything, there may be a tendency to have higher productivity growth in coordinated economies if employment policies are in line with other firm efforts to increase the participation of its workforce.

The overall effect of GDP per capita, or overall economic development of a country, on the choice of electoral rules should be positive if labour market policies are coordinated.

Manufacturing (Manufacture). As a proxy for the level of industrialization, the amount of manufacturing as a percentage of value added to GDP is predicted to have a positive relation to the effective number of parties. Countries with high levels of industrialization face the greatest need to organize and coordinate their economic activities. Jo Martin and Swank (2012), who focus on the role of business associations and their role in labour market coordination, state that the leaders of industrialization incur the greatest need to organize to obtain economic order, and therefore higher manufacturing shares of total economic output should tend to encourage higher levels of business organization. In addition, firms in manufacturing require a more skilled labour force to produce their product. Manufacturing firms provide specific training to their workers, and workers will demand insurance for the skills in which they have developed. For this reason, the greater manufacturing is as a percentage of GDP, the more coordinated an economy should be, and therefore the more likely a country is to tend toward a proportional representation electoral rule system.

Inflation. Inflation is the next macroeconomic indicator used to evaluate how the economy can impact the proportionality of the electoral rule system. One key feature of coordinated economies is the ability of firms and employees to bargain and cooperate with one another. Bowdler and Nunziata (2007) state that when the labour market coordination was greater than the average of countries in the OECD, the inflation levels were more stable. With a high level of coordination in labour markets, the wage negotiations for workers occur in the same time period and under conditions of good communication between different labour unions. Bowdler and Nunziata (2007) found that in OECD countries, those nations with highly
coordinated labour markets had unions that had the power and willingness to restrict the inflationary effects of macroeconomic shock by using their wage setting decisions. Also, the corporatist structure in coordinated economies results in cooperation amongst firms, workers, and unions to limit wage increases, thus hindering inflationary pressures. (Bruno and Sachs, 1985)

Using the inflation of a country as an independent variable in this study serves as a medium to witness how employees and unions bargain their wages with the firms, and also how firms cooperate amongst one another with respect to setting wages. Inflation is controlled in coordinated economic systems, and, therefore, is expected to yield a negative relation on the level of proportionality.

Inflation also is affected by political instability. Aisen and Veiga (2005) find that political instability increases the level of inflation. There are obvious other causes, namely ethnic, social, and political, for political stability, but the ability of different economic actors to collaborate with one another helps minimize volatility in the political system. Countries benefiting from economic coordination are familiar with different groups capable of bargaining with one another and encouraging cooperation. From an economic viewpoint, a coordinated economy should help control political stability, and thus the level of inflation. This supports the claim that there should be a negative relation between inflation and the effective number of parties.

*Unemployment.* Unemployment is the fourth macroeconomic variable used to represent the economic coordination of the countries, and by extension, how the economic coordination will affect the proportionality of the electoral rule system.

Kenworthy (2002) analyses the relationship between corporatist countries, which are countries that are comprised of various types of institutional arrangements that reach political economic decisions by a bargaining process, and unemployment. Corporatist countries, due to the emphasis on bargaining and negotiation, align with the coordinated market economies. First Kenworthy (2002) recapitulates the literature on this subject by stating that because of wage restraint, many studies have shown a connection between low unemployment and corporatist countries. Then, he finds a relation between countries with coordinated wage-setting agreements and low unemployment in the 1980s for OECD countries. This relation continues into the 1990s, but the reasoning behind the relationship changes. In the 1990s, the link between corporatist countries and low unemployment is because of union participation in policy making instead of wage coordination. From these findings, one can extrapolate that the coordination found in the industrial relation sector, in inter-firm relations, and in the relationship between firms and employees of corporatist countries negatively affects the level of unemployment in the economy.
For this reason, low unemployment is associated with a more coordinated economic system, and therefore is predicted to have a negative relation to the effective number of parties.

*Primary education completion rate (Primary).* Primary education as measured by the total primary completion rate\(^6\), is expected to have a positive relation to the effective number of parties in this study.

Turner (2006) states that coordinated economies maintain institutions that limit the amount of inequality of education. Moreover, the mean percentage of GDP spent on social expenditures, a category that includes public education, is higher in CMEs than in LMEs.

Iversen and Soskice (2009, 2011) add to this concept by finding that there is more education equality in CMEs, and that educational performance is better in coordinated economies at the lower end of the scale. In CMEs, those with little formal education earn higher education scores as compared to their counterparts in LMEs. The link between basic educational attainment is related to the prevalence of vocational training in CMEs. Further, they conclude that businesses in CMEs require relatively high levels of literacy and numeracy, even for those from poorer backgrounds, in order to invest in further training in their workers. In LMEs, there is an increasing need for higher education, which by extension means that those who achieve a higher education also passed the primary level, but this achievement comes at the cost of increasing inequality in educational outcomes in these countries. Since the amount of educational inequality is minimized in CMEs, there should be an overall higher number of people who achieved a primary education.

Moreover, Hall and Gingerich (2009) state that training systems in coordinated economies build off what the workers employed by a firm achieve in formal schooling before employment. Therefore, firms require that workers have a limited amount of skills prior to becoming employed. Since having a primary education is a base on which to build these skills, a high level of primary education will be encouraged in coordinated economies. The primary completion rate should positively impact the proportionality of the electoral system.

*Exports.* Exports of goods and services, as a percentage of GDP, in the sense of the original theory put forth by CIS, are expected to have a positive relation to the effective number of parties in a country if they are skill-based exports. (Cusack, Iversen, and Soskice, 2007, 2010) However, in this paper the majority of the transitional countries are commodity exporters. If a country has a large export sector, but is exporting largely only commodity goods, this could reflect a lack of

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\(^6\) Primary completion rate is measured as the gross intake ratio to the last grade of primary education. It is calculated by taking the total number of students in the last grade of primary school, minus the number of repeaters in that grade, divided by the total number of children of official graduation age. (Source: World Bank Data)
coordination in the economy, notably between workers and firms, because the workers are not required to have high levels of skills or specialization to work for firms focused on commodities. For this reason, the exports variable is expected to be negatively related to the effective number of parties.

Included in extended versions of the model are two dummy variables that account for change in the electoral system. First the variable \textit{leaderchange} is a binominal variable, taking the value of 1 if there was a non-democratic change in leadership during the year considered. The data for \textit{leaderchange} comes from the Center for Systemic Peace database on coup d’état events. (Marshall and Marshall, 2014) This database holds basic information on all coup d’état events in countries with a population over 500,000 people from the years 1946 to 2013. A coup d’état is defined as “a forceful seizure of executive authority and office by a dissident/opposition faction within the country’s ruling or political elites that results in a substantial change in the executive leadership and the policies of the prior regime (although not necessarily in the nature of regime authority or mode of governance).” Revolutions or civil war outcomes are not included in this definition.

The variable \textit{leaderchange} includes the successful occurrence of a coup d’état, “auto-coups”\footnote{The definition of an auto-coups, as given by the Center for Systemic Peace, is an “indicator of the occurrence of subversion of the constitutional order by a ruling (usually elected) executive and the imposition of an autocratic regime during the year of record”}, or the observation of the (typically elected) executive implementing an authoritarian regime, thereby subverting the constitutional rules of the country, the ousting of a leader by foreign armed forces, the ousting of the leader by rebel forces, and an assassination of the executive. \textit{Leaderchange} does not include attempted, but failed, coups, or plotted, but never enacted, coups. In general, the goal of this variable is to show if, during the year being evaluated, the leader within a country changed due to non-democratic processes.

\textit{Leaderchange} is expected to be negatively related to the effective number of parties in a country, because a non-democratic means of leadership change reflects a power-grab within the country. In any situation where the government cannot control power changes within its borders, the strength of cooperation and ability to proportionally represent the people of the country is greatly weakened.

Second, is a dummy variable that accounts for if the year in question was an election year. \textit{Electionyear} takes the value of 1 if the country considered held an election that year, and the value of 0 otherwise. The presence of an election year is not expected to influence the proportionality of the electoral system.

A third dummy variable indicating whether a country actually has adopted a proportional representation electoral system, \textit{pr}, is included in the last model in this paper. The \textit{pr} variable takes the value 1 if the electoral rule system is a PR system,
and takes the value 0 if otherwise. The inclusion of this variable is a simple robustness check to see that, indeed, the PR system is associated with a higher number of effective parties.

5. Results:

In this paper, both a fixed effect regression and a random effect were run for the primary model. Only comments about the fixed effects model are made due to the empirical goals in this paper, which are to witness, over time, the evolution of the political system in each country in response to the way in which the economy becomes organized in the transition period of a country. A fixed effect model is used when interested in analyzing the effects of variables that vary over time because it takes out the country specific characteristics that do not vary over time in order to make an assessment of the net effect of each independent variable on the dependent variable. Here, this is in regard to the development of the economy in transitioning countries. That being said, the results from the fixed effect estimation and the random effect estimation are largely comparable.

The primary model for this paper is a fixed effects model that regresses the effective number of parties on the six macroeconomic indicators selected for this study, the GDP per capita, exports, unemployment rate, inflation rate, primary education completion rate, and the strength of the manufacturing sector. The fixed effect results for the primary model are shown in table 1.

Table 1: primary model (fixed effects)

<table>
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<tr>
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<tr>
<td>gdp</td>
<td>-0.000**</td>
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<tr>
<td>exports</td>
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<td>(0.004)</td>
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<tr>
<td>unemployment</td>
<td>-0.011</td>
<td>(0.017)</td>
</tr>
<tr>
<td>inflation</td>
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<td>(0.001)</td>
</tr>
<tr>
<td>primary</td>
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<td>(0.004)</td>
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<td>manufacture</td>
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<td>(0.014)</td>
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<td>(0.447)</td>
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</table>

N of Obs 1043
r2_p
The GDP per capita is negative and significant at a ten percent level.

Manufacturing, as expected, has a positive sign, and is significant at a five percent level. This aligns with the prediction that a country with a high level of manufacturing activities and a strong industrial sector requires a higher level of economic coordination. The coordination is linked to the level of industrialization, and impacts positively the proportionality of the electoral rule system.

The primary completion rate also has a positive sign and is significant at a one percent level. In coordinated economies, educational inequality should be minimized, and the amount of people with a primary education should be maximized. This finding aligns with the hypotheses made above.

Although the exports, unemployment, and inflation rate are not significant, the signs from the results are as predicted.

There exists a priori an endogeneity problem with the primary model. Here it is argued that the economic structure influences the number of effective number of parties in a country. However, one could suggest that it is in fact the type of electoral system that impacts how the economy functions. To fix the potential endogeneity problem, five year averages of the independent variables were created. For example, if one considers the variable GDP per capita at time $t$, the moving average associated with it is composed of the average of GDP per capita of the previous five years, $t-1, t-2, t-3, t-4$, and $t-5$.8

A five-year average allows enough time to reflect the impact of the economy on the proportionality in the electoral system, but is still short enough that it does not damage the integrity of the time frame in which this study is conducted. Since there are only 18 years in this sample, any time longer than five years would be too limiting for this study.

A robust fixed effects regression using the moving averages of the independent variables is used to ensure strong results, which are shown in table 2.9

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8 Initially five-year lags of the independent variables were used, but this method had problems because the dependent variable only changes with each election, whereas the independent variables change annually. For this reason, the moving averages method was adopted.

9 Additional robustness checks include a linear regression with panel-corrected standard errors, to correct for autocorrelation and heteroskedasticity, and a fit panel-data models by using GLS, also with corrections for autocorrelation and heteroskedasticity.
Table 2: robust fixed effect model with moving averages

<table>
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<th>m4</th>
</tr>
</thead>
<tbody>
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<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>magdpL5</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>b/se</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>maexportL5</td>
<td>-0.039*</td>
<td>-0.039*</td>
<td>-0.039*</td>
</tr>
<tr>
<td>b/se</td>
<td>(0.022)</td>
<td>(0.022)</td>
<td>(0.023)</td>
</tr>
<tr>
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<td>-0.029</td>
<td>-0.028</td>
<td>-0.028</td>
</tr>
<tr>
<td>b/se</td>
<td>(0.049)</td>
<td>(0.049)</td>
<td>(0.050)</td>
</tr>
<tr>
<td>mainflatio~5</td>
<td>-0.005***</td>
<td>-0.005***</td>
<td>-0.005***</td>
</tr>
<tr>
<td>b/se</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>maprimaryL5</td>
<td>0.029</td>
<td>0.029</td>
<td>0.029</td>
</tr>
<tr>
<td>b/se</td>
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<td>(0.019)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>man manufacture~5</td>
<td>0.194**</td>
<td>0.193**</td>
<td>0.193**</td>
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<tr>
<td>b/se</td>
<td>(0.074)</td>
<td>(0.074)</td>
<td>(0.074)</td>
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<td>-0.084</td>
<td>-0.033</td>
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<td>b/se</td>
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<td>(0.413)</td>
<td>(0.471)</td>
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<td>electionyear</td>
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<td>-0.040</td>
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</tr>
<tr>
<td>b/se</td>
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<td>(0.070)</td>
<td></td>
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<td>pr</td>
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<td>-0.649</td>
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<td>b/se</td>
<td>(2.035)</td>
<td>(2.047)</td>
<td>(2.046)</td>
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</table>

N of Obs | 471 | 471 | 471 | 460

r2_p

For all four specifications, the moving averages variable of exports is negative and significant at a ten percent level. Inflation is now significant at a one percent level, and has a negative sign. Manufacturing as a percentage of GDP is positive and in models one through three is significant at a five percent level, while in model four it is significant at a one percent level. The GDP per capita is now positive, as expected, although not significant. Unemployment is negative, but not significant.

The primary completion rate is positive, but only significant in the last regression run with the inclusion of the three dummy variables, leaderchange, electionyear, and pr. None of the dummy variables are significant.

The primary model shows that GDP per capita is negative and significant at a ten percent level. This may come from the possibility that increased unionization and pressures to bargain faced by the firm and its employees may depress innovation and room for growth in a country. However, the specification with moving averages is designed to avoid endogeneity and therefore is more robust. The findings from the moving averages suggest that in fact higher economic development, as measured by GDP per capita, could come from the higher productivity enabled by coordinated
economies that can develop employment policies are in line with other firm efforts to increase the participation of its workforce.

The exports of goods and services, as a percentage of GDP, were negative throughout the different specifications, and were significant in the moving averages model that provided more robust findings. Despite traditional theory predicting that coordinated economies should have higher levels of exports, this paper supposed that the opposite would be true for countries in transition. A large percentage of the transitional countries are commodity exporters. If a country is primarily exporting commodity goods, this could reflect a labour market where workers do not require specialized skills. Since the workers are not required to have high levels of skills or specialization to work for firms focused on commodities, this may transfer into a low level of coordination in the economy, notably between workers and firms. For this reason, it was predicted that the exports of a country and the effective number of parties would be negatively correlated. The findings support this hypothesis.

The primary completion rate, as expected, was positive in all regressions. In the primary model the primary completion rate was significant at a one percent level. However, in the final and most robust model, the results were not significant until the last regression run. This finding was unexpected due to the results of the previous models and the importance placed on primary education in development literature. In coordinated economies, there are lower levels of education inequality at the bottom end of the scale, and primary education is a prerequisite for further skills training, which is deemed as very important in CMEs.

Manufacturing as a percentage of GDP, serving as a proxy for the level of industrialization, was positive and significant in every model run. Nations that have high concentrations of industrial activities, because of the more complex nature of their economies, require higher levels of economic coordination. Also, these economies use workers with a higher level of skills for production, which often is supplied by the firms, thus creating more cooperation between different economic actors due to the encouragement in co-specific assets.

Inflation is negative in all regressions run for this paper, and significant in the last specification using a robust moving averages regression. The negative relation, which was the predicted result, reflects how employees, unions, and firms bargain wages. It also shows how firms themselves cooperate with each other to set wages. These different economic actors work together to ensure that inflation is controlled via wages set in the labour market in coordinated economic systems.

Unemployment is not significant in any model, and has a negative sign, as predicted, in the first and third set of regressions, while it has a positive sign in the second set with the lagged independent variables.

6. Conclusion
This paper has shown how the economic structure of a country can determine whether a country is of the more coordinated or more liberal type of economic system. Moreover, it shows that coordinated economies, characterized by inclusive and widespread primary education systems that encourage specific skill acquisition, strong manufacturing sectors, controlled levels of inflation, and a focus away from exports that are typically comprised of commodity goods, tend to produce more proportional electoral systems. Using the effective number of parties as a proxy for electoral systems, this paper claims that more coordinated economies that are undergoing a political transition from an authoritarian regime type to a democracy tend to produce proportional representation electoral systems.

On the other hand, liberal economies with weak coordination or fragmentation in the labour market leading to weak educational results tend to support majoritarian systems. These liberal or uncoordinated economies have high commodity sectors that require little cooperation between the firm and the worker, and moreover do not require that the employee gain a high level of specified skill in order to work for the commodity firm.

Interestingly, the level of unemployment in a country does not significantly impact the proportionality of the electoral rule system. The lack of impact that unemployment has on the proportionality of electoral rules is interesting due to the recent nature of the protests and revolutions in the MENA region. An possible extension to this work could be to interact the unemployment of a country with the demographic change over time since the unemployment in these countries is troublesome not only because of its level, but also because it is affecting more people than before (in absolute terms) and a different demographic niche, which is the youth population.

An additional extension to this paper would be to re-run these analyses, but with more precise indicators. When stronger coordination indicators become available for developing countries across time, this extension could shed additional light into how the structure of an economy shapes the choice of electoral rules.
7. Bibliography


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Dibben, P. and Williams, C. C. “Varieties of Capitalism and Employment


Kreuzer, M. “Historical Knowledge and Quantitative Analysis: The Case of the Origins of Proportional Representation.” (Sept, 2009)


8. Appendix:

Table 3: xtpcse regression with moving averages and correction for autocorrelation and heteroskedasticity

<table>
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<th>m3 b/se</th>
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<td>0.040**</td>
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<td>-0.011*</td>
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<td>-0.002</td>
<td>-0.002</td>
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<td>(0.356)</td>
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<tr>
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<td>(0.057)</td>
<td>(0.055)</td>
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<td>1.696***</td>
<td>1.499***</td>
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<tr>
<td></td>
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<td>(0.352)</td>
<td>(0.351)</td>
<td>(0.386)</td>
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</table>

N of Obs 471  471  471  468
r2_p 0.363  0.352  0.351  0.386

Table 3 shows the results from a linear regression with panel-corrected standard errors specification that allows corrections for autocorrelation and heteroskedasticity. These results serve as an additional robustness check. The results show that the moving averages of manufacturing as a percentage of GDP are significant at either a five or ten percent level and positive, the moving averages of exports are negative and significant at a ten percent level, and the moving averages of the primary completion rate are positive and significant at a one percent level.

The fit panel-data models by using GLS command was also used as a robustness check, although there are some indications that this command may not work well when N>t in the data, which is the case here. The results, shown in table 4, show that the moving average of manufacturing as a percentage of GDP is positive and significant at a one percent level across the four different models run. The moving average of exports is negative and significant at one percent level across all models. The moving average of the primary completion rate is positive and significant at a one percent level across all models. The moving averages of the unemployment rate is significant at a five percent level in model one and in model four, and significant at a ten percent level in models two and three, and positive across all models run.
Table 4: xtgls with moving averages and correction for autocorrelation and heteroskedasticity

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<td>b/se</td>
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<td>0.000</td>
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</tr>
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<td></td>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
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<td>0.056***</td>
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<td>(0.005)</td>
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N of Obs: 464  464  464  454
r2_p