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Electoral Rule Choice in Transitional Economies

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Abstract:

The Arab Spring and subsequent global unrest 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 on advanced democracies shows the economic structure of a nation impacted its choice of electoral rule system. This paper looks at what determines electoral rule choice in transitional nations. Using a panel database with 65 transitional 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. Findings show that countries characterized as coordinated market economies due to widespread primary education, which supports co-specific assets, and prominent industrial sectors have more proportional electoral rule systems.

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. As of now, only Tunisia has emerged from internal conflict as a democracy. These uprisings and their consequences 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

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[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 previous three waves of democracy come from the book by Huntington (1991). At the time of publication, Huntington stated that three waves of democracy have occurred in the world. The first wave was from 1828 until 1922, and included most of the advanced democracies known today, namely the United States and Western Europe. The second wave occurred at the end of World War 2 until 1962. The third wave was from 1974 until the mid 1990s, or the time at which he was writing. The metaphor of the wave suggests that in a certain period of time, a large number of countries democratized. This period of wide-scale democratizations is the building of the wave. Then, later on in the period of time, the wave begins to crash. At this point, some democracies do not stick, and therefore their countries revert back to their old regime, or, in general, the pattern of widespread democratization halts.

the same: a government transitioning from a non-democratic regime 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.

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 exists in transitioning countries by using simple, disaggregated macroeconomic indicators. After, it is predicted that a more coordinated economy will produce more proportional electoral systems. Coordinated economies rely on strategic or non-market coordination, meaning that economic actors work together to achieve results outside of market forces. A liberal economy functions by mainly using market forces to solve coordination problems.

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 intends to extend the existing theoretical framework to transition countries, including two participants in the Arab Spring, Morocco and Tunisia, to evaluate their electoral rule choices when building new government institutions. The remaining countries studied in this paper include nations from Latin and South America, nations from Sub-Saharan Africa, nations affected by the dissolution of the USSR, and emerging economies in Asia. Specifically, this paper tests 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.

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. In a second step, additional regressions use only a democratic sample to witness the differences between non-democratic and democratic regimes undergoing the transition process. This step is a necessary addition to the previous work since many transitional nations cannot be considered as democratic, and the theoretical framework is set for democratic countries. Although the addition of using the democratic sample touches the previous literature more closely, it is an interesting exercise to see how this theory works for countries in general in the developing world, whether they are considered democracies or not.

The findings show that strategic coordination, as measured by basic attainment of education levels, a strong industrial sector, a focus away from exports, which are likely commodity goods, and a weaker reliance on equity markets to access finance, tends to encourage the adoption of proportional representation electoral rules. The findings are stronger in democracies.

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 contributes to different strands of literature, including the varieties of capitalism, electoral rule and political institutions adoption, and transitions to democracy literature. Because of the multidisciplinary approach used in this paper, a range of literature is required to build upon.

Two systems of capitalism are considered in this paper, 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. The 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. Since capabilities of the firm are relational, and the firm must coordinate with the economic actors connected to the success of the firm, 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, the coordinated market economy (CME) or the liberal market economy (LME). These five spheres will help determine the relevant macro indicators used in the empirical part of this paper.

Non-market relationships define the way in which coordinated market economies build and exploit their core competencies (Hall and Soskice, 2001). Vocational training systems, technology transfers, labour market regulation, and employee representation characterize coordinated capitalist countries. In coordinated economies, employers are more prone to cooperating with unions, especially to ensure that the workers are well trained and that the workers can acquire the skills required by the firms so they can benefit from their comparative advantage.

In liberal capitalist countries, firms coordinate mainly through the competitive market (Hall and Soskice, 2001). There is an emphasis on flexible labour markets, which favour general education and skills, and the dismantling of unions, thus the businesses or firms have little incentive to protect their employees, as their employees have no specific skills unique to their firm or industry (Soskice and Iversen, 2011).

CMEs and LMEs each have institutional complementarities (ICs) operating across their respective political economic spheres. ICs occur when the presence of one set of institutions raises the returns available from another institution. Amable (2016) states that when jointly present, ICs reinforce one another and improve the function and stability of specific institutional configurations. Within the VOC literature, this becomes quite relevant as ICs imply there is no 'right way' of configuring an institutional set up, only that one institutional presence in an economy impacts another. In VOCs, the feedback of one institution on another becomes evident. For example, companies in CMEs often provide training for their workers, such that their workers develop specific skills. Since these skills can only benefit a specific firm or industry, workers require incentives to develop these skills in case they lose their job, and therefore the firm or government within the capitalist system will provide insurance to the worker.

Development on 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 varieties of capitalism 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). Although the inclusion of developing countries using new categories provides insight into the way in which the respective countries or regions work, the new VOCs are, in most cases, extremely specific and limited to regions, such as Eastern Europe. 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.

The varieties of economic capitalism are extremely relevant to political institutions in democracies and in countries that are transitioning to democracies. Before considering political institutions, however, one should first understand how democracies are shaped. Lijphart (1999) divides democracies into two separate camps, majoritarian democracies and consensus democracies, in an effort to understand the differences across democratic states. The camps are defined by the underlying belief of to whom governments are responsible. Majoritarian countries believe the government should be accountable to the majority of the people, while consensus governments should be accountable to "as many people as possible". Lijphart finds that consensus governments tend to multi party systems with proportional representation, while majoritarian governments tend to two party systems with higher levels of disproportionality.

Although Lijphart does not identify how the electoral systems and resulting number of parties connects to the economic structure of a country, Cusack, Iversen, and Soskice (CIS) (2007) begin to tackle this problem by raising the question of how 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.

The countries choosing the PR electoral system in the early 20th century, categorized in the literature as protocorporatist countries, developed methods of political decision making based on negotiation that helped solved the collective action problems that emerged with divergent group interests. The switch to PR away from the majoritarian electoral system developed as the processes of industrialization and urbanization made local interests more relevant at the national level. Thus, in order to protect group interests at the national level, parties in the protocorporatist countries became professionally organized to represent the local economic interests of a group at the national level.

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 needed to maintain 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.

The divide between protocorporatist countries and weakly coordinated countries can be likened to the division between coordinated capitalist countries and liberal capitalist countries.

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 best 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.

3. Theory

This paper tests the work of Hall and Soskice (2001) and CIS (2007, 2010) on a sample of transitioning countries. 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.

In general, the concepts derived from the work by CIS (2007, 2010) are applied to this study. There are, however, a few notable exceptions. The first problem comes from the nature of national continuity. In the existing literature, all 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 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 indicators such as education or other macroeconomic variables 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. Sample Selection

A database constructed in particular for this study is used in this paper. Included in the final version of the database are 65 countries, selected from the Bertelsmann Transformation Index (BTI) from Bertelsmann Stiftung. Every country evaluated from the BTI was used in this database if there was also available election data and economic data for the country in question. The countries used are shown in the appendix. 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 is 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.[2]

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

$$\frac{1}{\sum s_i^2}$$

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.

This measure does not determine the actual number of parties in a system, and the same value of effective number of parties can arise from a variety of different party configurations. However, it still works as a proxy in this case by providing a numerical figure of the effective number of parties resulting from an election within a country.[3]

This variable was chosen due to the availability of data and because of the abundant use of the effective number of parties as a measure of proportionality in the literature. It should be

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[2] 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.

[3] Gallagher, M. (2014, August 29). Electoral Systems. Retrieved February 9, 2015.

noted that criticism of the index has come up[4], and another measure of proportionality, the effective electoral threshold, is often purported to be a stronger tool to measure the proportionality of an electoral rule system. However, as Gallagher (1991) points out, no single method is uniquely accepted as a means to measure proportionality. Moreover, only in rare scenarios can one calculate the electoral threshold with certainty. Electoral thresholds cannot be deduced uniquely from electoral laws and when clearly stated electoral thresholds may differ in their seat allocations across a nation. Additionally, calculating the threshold from the average district magnitude typically gives an overestimation due to the presence of large districts (Kalandrakis, 2002).

Lastly, using OECD data, 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. The correlation coefficient is -0.67 and a regression run using the OECD data shows that the p-value is significant at one percent and the R-squared value is 0.4426. For these reasons, the effective number of parties is regarded as the best available variable for this study.

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, whether it reflects either a CME or LME, 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 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 five 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)[5].

The compilation of the economic coordination index uses 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

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[4] Golosov (2010) states that the mathematical devised by Laakso and Taagepera is associated with the serious problem that the index does not differentiate well between cases of one-party dominance and two-party constellations.

[5] 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.

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. A score of 0 represents very weak or absent non-market coordination, whereas a score of 4 represents a high level of non-market coordination. The effective number of parties measures the proportionality of the electoral system.

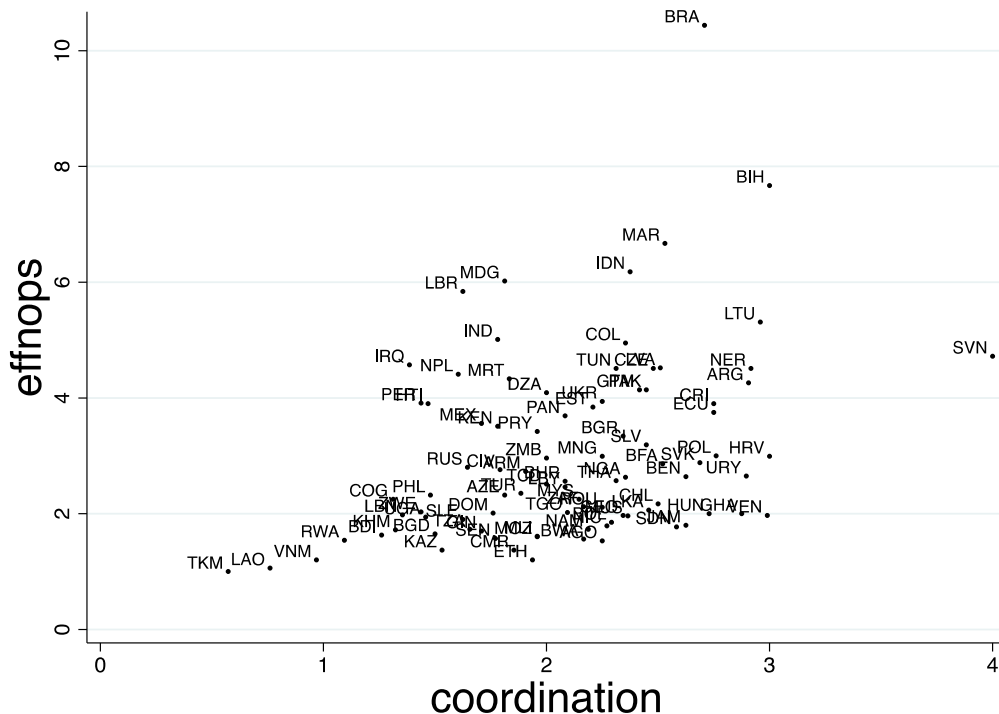**Figure 1: Correlation Between the Number of Effective Parties and Coordination**

Figure 1 shows the correlation between the effective number of parties and the coordination variables from the 2012 version of the IPD for the full sample of countries. When the effective number of parties is regressed on coordination, the result is positive and significant at a one percent level. The correlation coefficient is 0.3665.

The graph shown in figure 1 includes 91 countries[6]. In the northeast quadrant of the graph, 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.

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[6] Due to additional data available, more countries are evaluated in this descriptive statistic than in the final regressions. All countries included in the regression are included in this graphic.

Figure 2: Correlation Between the Effective Number of Parties and Coordination for the Democratic Sub Sample
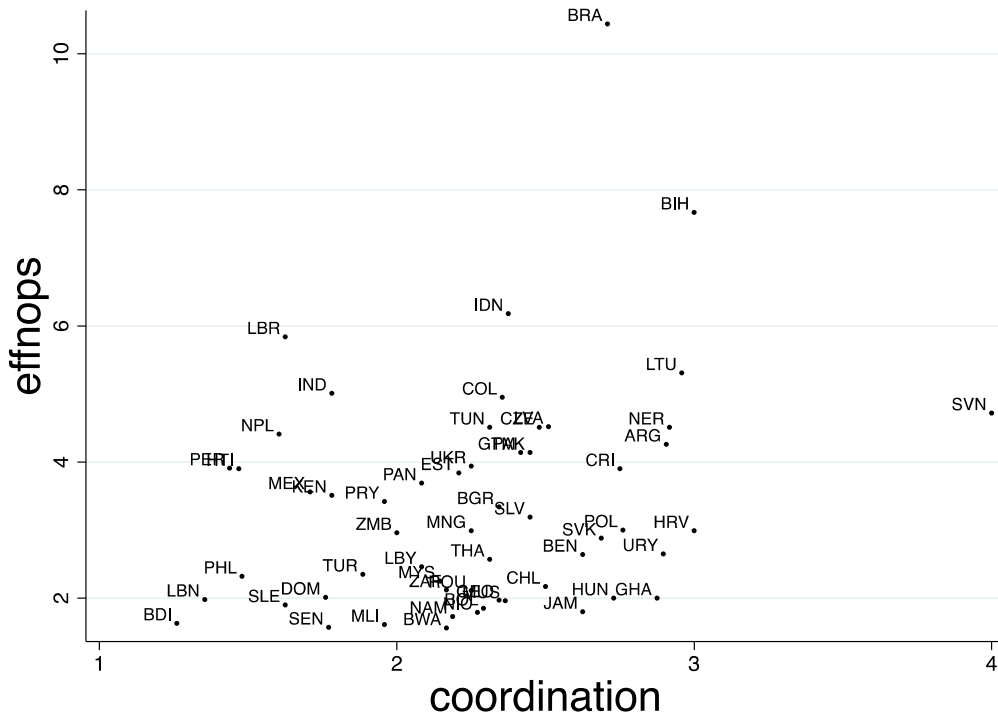

Figure 2 shows the correlation between the effective number of parties and the coordination variables from the 2012 version of the IPD for the democratic countries. When the effective number of parties is regressed on coordination, the result is positive and significant at a five percent level. The correlation coefficient is 0.2705.

However, many of these countries in the southwest quadrant of figure 1, notably the specific ones mentioned above, are not authentic democracies. For this reason, the graph shown in figure 2 includes 57 countries, which represent the democratic sub-sample from the database. Figure 2 shows a mixture of majoritarian, PR, and mixed electoral rules are found in the southwest quadrant of the graph. Notably, Burundi, Lebanon, Philippines, Sierra Leone, Senegal, Dominican Republic, and Mali are found in this section.[7] The electoral rules corresponding to these countries are, respectively, PR, majoritarian, mixed, majoritarian, mixed, PR, and majoritarian. This trend continues into the middle of the scatter plot, but disappears as the points move further to the northeast quadrant. In the section of the graph corresponding to the countries with the highest level of coordination and the highest number of effective parties, and here only PR electoral systems remain. Countries found in the section include Brazil, Bosnia and Herzegovina, Slovenia, Indonesia, Lithuania, Niger, Argentina, and Colombia. The correlation between coordination and the effective number of parties does not

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[7] The 2012 update for the Polity IV database does not include data for Mali, Haiti, and Bosnia and Herzegovina, however the Freedom House "Freedom in the World" database considers the Bosnia and Haiti to be "partly free", which, for the purposes of this paper, is considered as democratic. Mali in 2012 was considered "free" in the Freedom House report.

simply translate into the fact that low coordination in an economy and a small number of effective parties corresponds to majoritarian electoral rules, but so far the data suggests that there is a tendency for high coordination in an economy and a large number of effective parties to correspond with proportional electoral rules.

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.

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, over a 50 percent share of people employed in the informal sector, or over 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.[8]

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

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[8] ILO Database from "Women and men in the informal economy – Statistical picture." Found in ILO LABORSTA Internet by ILO and WIEGO.

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 work force is not ruled 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.

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. Exports within the industrial sector levied a premium on the ability of firms to differentiate their products, thus encouraging firms to take advantage of specific skills. CIS state that a strong export sector works as an indicator of the necessity for compromises over wages and training, which is a known feature of coordinated economies (CIS, 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 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.

Primary. Primary education, as measured by the total primary completion rate[9], is expected to have a positive relation to the effective number of parties in this study.

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[9] 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

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.

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.

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.

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repeaters in that grade, divided by the total number of children of official graduation age. (Source: World Bank Data)

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 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.

Turner (2006), with a similar study, finds that in the OECD during the 1980s in CMEs, unions traded wage restraint for employment, which limited the amount of unemployment in the economy. Additionally, the CME structure helps with the inflation and unemployment trade off, whereas in LMEs, low (but not lower than in the CMEs) unemployment corresponded to higher inflation. Despite these positive findings that unemployment should be lower in coordinated economies, Turner (2006), unlike Kenworthy (2002), states this relationship is unique only to the 1980s.

In a more time-consistent manner, Pontusson (2005) provides a convincing argument for the relationship between coordinated economies, or social market economies (SMEs) as he coins the group of countries, of advanced democracies and unemployment. Pontusson divides the category of advanced democracies in to Nordic SMEs, Continental SMEs, and LMEs. He uses this division to visually display unemployment performance across five different time periods, 1980-84, 1985-89, 1990-94, 1995-1999, and 2000-2003. In three time periods out of five, from 1980-1994, the average unemployment in both Nordic and Continental SMEs was lower than in LMEs. After taking the average of the unemployment levels for Nordic and Continental SMEs, the unemployment level becomes lower for SMEs as a group than the LME category across all five periods. Pontusson admits that LMEs have succeeded in lowering unemployment in this time period, but his analysis clearly shows that, overtime, coordinated economies succeeded in maintaining lower levels of unemployment compared to liberal economies. This finding aligns with the theory of coordinated capitalism, as the economy-wide collective bargaining practice found in CMEs encourages wage restraint, which may help improve the trade off between unemployment and inflation. Also, unemployment benefits, a notable feature of CMEs, are linked to lower levels of unemployment in coordinated economies.

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.

Capital. The variable *capital* stands for the market capitalization [10] of listed domestic companies, as a percentage of GDP, and can be thought of as a proxy for the stock market. This variable comes from the World Bank. Hall and Soskice (2001) consider that firms must be able to raise finance as a key component of VOCs. Firms operating within a liberal economy typically use bond and equity markets for external finance more often and more intensely than in coordinated economies. Jackson and Deeg (2006) extend this idea by stating LMEs are more market-based than CMEs, and work in more securities-market oriented systems. Conversely, CMEs tend to be bank based, as bank based systems are likely to support investment in non-tangible assets, like employee training. Hall and Gingerich (2004) state CMEs ability to access finance is linked to their reputation rather than their share value, whereas LMEs tend to rely on large equity markets.

Importantly, Hall and Gingerich note that recently CMEs have placed more emphasis on the stock market when attempting to access finance, but this pattern holds true for LMEs also. In liberal countries there is a greater reliance on market capitalization compared to bank-based means of accessing finance, even if CMEs are starting to rely more on equity markets. For this reason, *capital* should be positively associated with more liberal economies, and therefore should inversely related to coordinated economies. *Capital* should have a negative relation 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, is a dummy variable that accounts for if the year in question was an election year. *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.

Secondly, the variable *overthrow* 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 *overthrow* 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 *overthrow* includes the successful occurrence of a coup d'état, "auto-coups"[11], 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

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[10] Market Capitalization represents the share price multiplied by the number of shares outstanding for listed domestic companies.

[11] 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"

armed forces, the ousting of the leader by rebel forces, and an assassination of the executive. *Overthrow* 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.

Overthrow 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.

A third dummy variable indicating whether a country actually has adopted a proportional representation electoral system, *pr*, is included in the last model in this paper. The *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.

4.4. Empirical strategy

In this paper, both a fixed effect (FE) regression and a random effect (RE) regression 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.

In order to correct for potential endogeneity, the primary model is improved by using a lagged five year moving average for the independent variables. In additional to the potential endogeneity, panel heteroskedasticity and autocorrelation are accounted for by using a panel-corrected standard error model. Finally, the model is run using the full sample, and a democratic sample. Testing the model using a democratic sample is more credible, as it aligns more closely with the original literature corresponding to the advanced democracies. The specifics of the empirical strategy are outlined further in the results section.

5. Results

The primary model for this paper is a fixed effects model that regresses the effective number of parties on the five macroeconomic indicators selected for this study: exports, primary education completion rate, manufacturing, the unemployment rate, and the market capitalization. The fixed effect results for the primary model are shown in table 1, with column one showing the results using the full sample, and column two showing the results using the democratic sample. A country is considered democratic if it scores a six or higher

on the Polity IV index. In 2012, 46 out of the 65 countries considered in this paper scored a six or higher on the Polity IV index. When considering the time period 1995 to 2012, 52 countries scored a six or higher on the Polity IV index for at least one year. In order to take into consideration that the Polity IV score may change for a country in this sample, and drastically at that, an average of the Polity IV index is taken for each country and a separate model is run using this score as the democracy benchmark. The results are shown in the appendix. As there are significant data constraints for this set of countries, these results should be seen as a first attempt to uncover if and how the economic structure of a transitioning country impacts their electoral rule system.

Table 1: The determinants of the effective number of parties (FE model)

	effnops (1)	*effnops* (2)
exports	-0.032**	-0.041***
	(0.014)	(0.015)
primary	0.041**	0.047*
	(0.020)	(0.026)
manufacture	0.085*	0.061
	(0.042)	(0.042)
unemployment	0.039	0.003
	(0.032)	(0.028)
capital	0.002	-0.003
	(0.005)	(0.007)
constant	-0.903	-0.322
	(2.031)	(2.597)
observations	686	515
R^2	0.138	0.199

Table 1 shows the regression results for the fixed effects model. The *effnops* is the dependent variable, standing for the effective number of parties. The first column represents the results from the full sample, and the second column represents the results for the democratic country sample.
The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Exports is negative with five percent level of significance in column one and a one percent level of significance in column two.

The primary completion rate, *primary*, has a positive sign and is significant at a five percent level in the first column and a ten percent level in the second column. 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.

Manufacture and unemployment are positive. *Manufacture* is significant at a ten percent level when using the full sample, but not with the democratic sample. Due to the organizing

quality of coordinated economies, industrialization, for which manufacturing is a proxy, is facilitated. Industry requires a high level of organization and cooperation, and is thus will be stronger in economies with high levels of coordination. *Unemployment* is not significant in either model. *Capital* is positive in column one and negative in column two, but not significant.

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. Therefore, the next step considered was the implementation of five-year lags for the macroeconomic indicators to evaluate the effect of the economic structure on the level of proportionality found in the electoral system. This helps account for the endogeneity problem.

A five year lag 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 lag longer than five years would be too limiting for this study.

A five year lag may account for an endogeneity problem in the model, but the presence of the lagged independent variables may pose an additional issue. The independent variables change from year to year. For example, unemployment can increase or decrease by a significant percentage one year from the next. However, the effective number of parties stays stationary until the next election for each country. This means that a stationary dependent variable is often being regressed on the independent variables changing annually. To account for this potential source of trouble, moving averages, created for each independent variable, are used in the regression. To be consistent with the previous analysis, a five-year lagged moving average is used. For example, if one considers the variable *unemployment* at time *t*, the moving average associated with it is composed of the average of *unemployment* of the previous five years, *t-1, t-2, t-3, t-4,* and *t-5*. This accomplishes a similar task as with the lagged variables, but in a more smooth and reliable way.

With panel data, it is often advised to work under "panel error assumptions", notably that panel data is subject to panel heteroskedasticity and autocorrelation. Following the suggestion of Beck and Katz (1995), a model using panel-corrected standard errors (PCSE) corrects for these issues. The PCSE model is shown in table 2 for the full sample, and table 3 for the democratic sample. The PCSE model is more appropriate for this study, as it corrects for any potential autocorrelation and heteroskedasticity.[12]

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[12] Using the xtpcse model that specifies there is first order autocorrelation with coefficients that are common across all panels and heteroskedasticity. An additional model for the democratic sample, shown in the appendix, replicates this procedure using the specification of first order autocorrelation that are specific to each panel. The results of the two models are similar. The signs of the coefficients do not change, but the significance of a few variables increases in strength.

**Table 2: The determinants of the effective number of parties
(PCSE model, full sample)**

	effnops (1)	*effnops* (2)	*effnops* (3)	*effnops* (4)
exports	-0.024***	-0.021**	-0.021**	-0.021***
	(0.009)	(0.009)	(0.009)	(0.008)
primary	0.004	-0.001	-0.002	-0.008
	(0.014)	(0.016)	(0.016)	(0.015)
manufacture	0.111***	0.103***	0.103***	0.099***
	(0.026)	(0.027)	(0.027)	(0.025)
unemployment	0.004	0.005	0.007	-0.011
	(0.02)	(0.019)	(0.020)	(0.019)
capital	0.001	-0.000	0.000	0.003
	(0.009)	(0.009)	(0.009)	(0.009)
pr		0.449	0.456	0.568
		(0.362)	(0.359)	(0.348)
electionyear			-0.018	-0.111
			(0.054)	(0.074)
overthrow				0.023***
				(0.009)
constant	2.165*	2.348**	2.383**	2.997***
	(1.150)	(1.133)	(1.128)	(1.138)
observations	293	288	288	287
R^2	0.3612	0.3804	0.3806	0.3852

Table 2 shows the regression results for PCSE model using the full sample. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*.
The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

In table 2, column one contains the five macroeconomic independent variables, column two adds the dummy variable *pr*, which indicates if a country has a proportional representation system, column three adds the dummy variable *electionyear*, which indicates if the year in question in the times series was an election year, and finally column four adds the dummy variable *overthrow*, which indicates if the year in question in the time series experienced a non-democratic change of leadership. This manner of structuring the regression is used for the remainder of this paper.

In the PCSE model using the full sample, *exports* is negative and significant at a one percent level for columns one and four, and five percent level for columns two and three. The primary completion rate is, contrary to expectations, negative in second to fourth columns.

Notably, it is not significant. *Manufacture* is positive and significant at a one percent level across the columns. *Unemployment* is positive in the first three columns and negative in the last column, but not significant. *Capital* is negative in only the second column, but it is not significant in model two. The proportional representation dummy variable is positive, but not significant. The variable *electionyear* is negative, but not significant. *Overthrow* is positive, which goes against the original prediction made in this paper, and significant at a one percent level.

The democratic sample, shown in table 3, tells a slightly different picture from the full sample. The variable e*xports* is negative and significant at a five percent level across all columns. *Primary* is now positive, as predicted, and significant at a one percent level for the first specification run, and a five percent level for the following ones. *Manufacture* is also positive and significant at a one percent level for all columns. *Unemployment* is negative, but only significant in column four. *Capital* is negative, as predicted, and significant at a ten percent level across all regressions run under this model with the democratic sample except for in column four.

The variable *overthrow* is positive and at one percent level in the last specification. The sign of this variable is the opposite of what was predicted. It could be that the non-democratic change in leadership is coming from a popular democracy movement in order to change an authoritarian ruler. This motivates strong support from a variety of different parties and classes in the country. Thus, if the year in question is a year of a successful popular revolution, it could end up being more proportional. The variable *electionyear* is negative and significant in column four at a ten percent level. It was predicted that if a year happened to be an election year, there should be no effect on the proportionality of the electoral system.

It is notable that *pr* is not significant in this regression, as a proportional representation electoral rule system should indeed be more proportional. Using a feasible generalized least squares (FGLS) regression, shown as a robust check in the appendix, the *pr* variable becomes significant. However, it is not advised to use the FGLS model in cases where N > t, or in cases where the number of panels is larger than the number of time series. The FGLS models should be therefore interpreted with caution.

From this set of regressions it is shown that in democracies *exports* is negative and significant. This result is similar to the findings from the models run with the full sample. This paper considered that the sign of exports might be reversed to what is expected by the traditional theory due to the composition of exported goods from developing countries. Unfortunately the data does not indicate what type of goods are being exported, but the findings do suggest that, whatever they may be, the mechanism at work is different to that of advanced democracies. The idea put forth after this finding is that many developing countries tend to rely on commodity based exports. The extraction or production of such goods does not require a high level of skills or an advanced organized economic structure.

Table 3: The determinants of the effective number of parties
(PCSE model, democratic sample)

	effnops (1)	*effnops* (2)	*effnops* (3)	*effnops* (4)
exports	-0.021**	-0.019**	-0.019**	-0.019**
	(0.008)	(0.008)	(0.008)	(0.008)
primary	0.038***	0.034**	0.034**	0.033**
	(0.014)	(0.016)	(0.016)	(0.016)
manufacture	0.081***	0.079***	0.080***	0.075***
	(0.029)	(0.026)	(0.026)	(0.026)
unemployment	-0.030	-0.026	-0.028	-0.054***
	(0.022)	(0.019)	(0.021)	(0.020)
capital	-0.014*	-0.014*	-0.014*	-0.013
	(0.008)	(0.008)	(0.008)	(0.008)
pr		0.319	0.294	0.360
		(0.379)	(0.389)	(0.379)
electionyear			0.014	-0.114*
			(0.051)	(0.069)
overthrow				0.026***
				(0.008)
constant	-0.039	0.046	0.036	0.386
	(1.350)	(1.194)	(1.209)	(1.156)
observations	244	242	242	241
R^2	0.4636	0.4848	0.4852	0.5011

Table 3 shows the regression results for the PCSE model using the democratic sub-sample. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*.
The standard errors are in parenthesis.
* $p < 0.10$; **$p< 0.05$; ***$p< 0.01$

From the models using the democratic sample it is shown that the primary completion rate and manufacturing strength of an economy positively influence the proportionality of the electoral rule system. This finding complements the predictions made in this paper, as more coordinated economic systems should have a lower level of educational inequality, and thus actively promote basic education to all citizens, a need for a basic minimum level of education, on which specific skills can be built, and economic activities that thrive from organization and cooperation, like the manufacturing sector.

Notably, *primary* was not significant in the full sample, which included non-democratic transitioning countries. This finding may emerge because democracies typically have stronger and more inclusive institutions, which are able to translate equipped citizens into productive sectors. *Manufacture* still remained relevant in the full sample, indicated that it is

indeed an important component for improving the proportionality of the electoral system across economies in general.

From the democratic sample, the next key indicators that successfully explain proportionality in the electoral system are the unemployment rate and the capitalization of the market. The finding that *unemployment* is negative comes from the theory that coordinated economies tend to have lower levels of unemployment. This tendency found in CMEs positively influences electoral rule proportionality. The variable *capital* also has a negative relation to the effective number of parties, or proportionality of the electoral rule system. The negative relation comes from the idea that economies that do not rely on the market to coordinate activities tend to have a weaker reliance on market capitalization, and instead they use a more bank-based approach when attempting to gain access to finance.

Comparing the results from the full sample, where *unemployment* and *capital* are not significant, to the results from the democratic sample, noted above, these variables corresponding to coordinated economies are evidently stronger in democracies. This finding makes sense, since democracies tend to be more capitalistic than non-democracies (for example, autocracies or dictatorships where an elite controls the market), and also because democracies tend to have more powerful institutions, which, in and of itself means economic and political institutions will be stronger, and also that a linkage is enabled between the economy and political sphere.

6. Conclusion

This paper shows how economic structure can determine whether a country is of the more coordinated or the more liberal type of economic system. Moreover, it shows that coordinated economies, characterized by skilled production, widespread primary education, cooperation between firms and the labour force, and lower levels of capitalization 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 democratic capitalist economy tend to produce proportional representation electoral systems.

Using a thorough database covering a large spectrum of transitioning countries in the time period from 1995 to 2012, it has been shown how economic structures, namely a coordinated versus a liberal economy, tend toward different electoral rule choices when a country establishes their political institutions during a democratic transition. This paper attempts to disaggregate coordination in the economy to simple macroeconomic indicators. In turn, these variables representing the economic coordination in a country are used to test if more coordinated economics lead to PR electoral rules. This paper does not suggest that the exact same mechanism found historically in the CMEs and LMEs of advanced democracies is at work in developing countries, only that patterns in countries emerge and certain underlying characteristics of an economy tend to encourage different electoral rule systems.

The findings from this paper support the idea that coordinated economies tend to develop proportional representation electoral rules in democratic countries. Coordinated economies

are characterized by inclusive and widespread primary education systems that encourage a minimum level of education, upon which more specific skills can be added, strong manufacturing sectors, lower levels of unemployment, and a focus on exports.

On the other hand, liberal economies with weak coordinating structures tend to support majoritarian electoral rule systems. These liberal economies have higher levels of education inequality, leading to a smaller population that can be equipped with specific skills, 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.

The results noted above were stronger in the democratic sample, although there was some weak support for the theories presented by this paper for the full sample. This dichotomy between countries from the original data set does not come as a great surprise. Democracies tend to support more functional and more inclusive institutions, both economic and political. It then makes sense that coordinated countries with stronger institutions will see effects of their economic institutions in other sectors of the government, like the political institution electoral rules. Also, democratic countries are more likely to be capitalist economies. As the original theory of varieties of capitalism is in based off capitalist economies, it follows that in these types of countries, the mechanism linking coordinated economies and proportional representation will be stronger.

Although the concept of institutional complementarities was mentioned only briefly in this paper, it remains a key concept for the VOC literature. The results from the democratic sample show that a variety of institutional factors are at play in influencing the proportionality of the electoral rule system. These different variables work as a specific institutional configuration in order to create a more proportional electoral rule system in the case of a coordinated economy, and a two-party electoral rule system model in the case of a liberal economy. Despite being outside the scope of this paper, it would be interesting to discover if interactions between different institutions are occurring in this sample of countries.

Acknowledgments

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Appendix

Table 4 shows the PCSE model where autocorrelation is specific to each panel. The PCSE model shown in table 3 in the paper specifies that autocorrelation is common across panels.

Table 4: The determinants of the effective number of parties
(PCSE model with autocorrelation specific to each panel, democratic sample)

	effnops (1)	*effnops* (2)	*effnops* (3)	*effnops* (4)
exports	-0.031***	-0.033***	-0.028***	-0.028***
	(0.009)	(0.010)	(0.010)	(0.009)
primary	0.043***	0.042***	0.045***	0.046***
	(0.013)	(0.014)	(0.014)	(0.014)
manufacture	0.067**	0.090***	0.076**	0.075**
	(0.032)	(0.028)	(0.037)	(0.033)
unemployment	-0.039***	-0.029**	-0.033*	-0.066***
	(0.015)	(0.015)	(0.019)	(0.020)
capital	-0.022***	-0.020**	-0.020**	-0.017**
	(0.009)	(0.008)	(0.008)	(0.008)
pr		0.082	-0.025	0.039
		(0.395)	(0.458)	(0.454)
electionyear			0.009	-0.107*
			(0.048)	(0.060)
overthrow				0.023***
				(0.008)
constant	0.615	0.155	0.075	0.150
	(0.882)	(1.192)	(1.214)	(1.174)
observations	244	242	242	241

R^2	0.8060	0.7764	0.7795	0.7816

Table 4 shows the regression results for PCSE model with autocorrelation is specific to each panel using the democratic sample. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*.
The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Table 5 shows a cross section time series feasible generalized least square regression with the full sample and corrections for autocorrelation and heteroskedasticity. The force command was used to gain regression results.

Table 5: The determinants of the effective number of parties
(FGLS model, full sample)

	effnops (1)	*effnops* (2)	*effnops* (3)	*effnops* (4)
exports	-0.034***	-0.030***	-0.030***	-0.032***
	(0.004)	(0.004)	(0.004)	(0.004)
primary	-0.002	-0.006	-0.006	-0.011*
	(0.004)	(0.006)	(0.006)	(0.006)
manufacture	0.122***	0.118***	0.118***	0.093***
	(0.014)	(0.016)	(0.017)	(0.013)
unemployment	-0.009	-0.002	-0.003	-0.018***
	(0.010)	(0.010)	(0.011)	(0.005)
capital	-0.001	0.000	0.000	-0.001
	(0.003)	(0.003)	(0.003)	(0.003)
pr		0.315	0.313	0.430**
		(0.211)	(0.211)	(0.202)
electionyear			0.013	-0.052**
			(0.029)	(0.021)
overthrow				0.023***
				(0.005)
constant	2.975***	2.911***	2.913***	3.968***
	(0.311)	(0.533)	(0.533)	(0.504)
observations	290	285	285	284

Table 5 shows the regression results for the FGLS model using the full sample. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*.
The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Table 6 shows a cross section time series feasible generalized least square regression with the democratic sample and corrections for autocorrelation and heteroskedasticity. The force command was used to gain regression results. The democratic sample using the FGLS regression strongly supports the argument portrayed in this paper. However, as mentioned in the body of the paper, it is debatable whether one can use the FGLS model in cases where N > t, or in cases where the number of panels is larger than the number of time series.

Table 6: The determinants of the effective number of parties
(FGLS model, democratic sample)

	effnops (1)	effnops (2)	effnops (3)	effnops (4)
exports	-0.017***	-0.012**	-0.012**	-0.011**
	(0.005)	(0.005)	(0.005)	(0.005)
primary	0.035***	0.025**	0.028***	0.029**
	(0.010)	(0.011)	(0.011)	(0.012)
manufacture	0.113***	0.087***	0.088***	0.076***
	(0.015)	(0.019)	(0.019)	(0.019)
unemployment	-0.019	-0.014	-0.017	-0.039***
	(0.013)	(0.013)	(0.013)	(0.014)
capital	-0.010***	-0.009**	-0.009***	-0.009**
	(0.004)	(0.004)	(0.004)	(0.004)
pr		0.663***	0.583**	0.545**
		(0.241)	(0.244)	(0.251)
electionyear			0.049*	0.011
			(0.027)	(0.040)
overthrow				0.017***
				(0.005)
constant	-0.805	-0.204	-0.403	-0.119
	(0.793)	(0.874)	(0.890)	(0.962)
observations	242	240	240	239

Table 6 shows the regression results for FGLS model using the democratic sample. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*.
The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Table 7 shows a panel-corrected standard errors model, with a democratic sub-sample that considers a country democratic if the overall Polity IV score average from 1995 to 2012 is above 6.

Table 7: The determinants of the effective number of parties
(PCSE model, democratic sample with threshold of democracy as the average Polity IV score from 1995 to 2012)

	effnops (1)	*effnops* (2)	*effnops* (3)	*effnops* (4)
exports	-0.018**	-0.014*	-0.014*	-0.014**
	(0.008)	(0.008)	(0.007)	(0.007)
primary	0.080**	0.084***	0.087***	0.082***
	(0.032)	(0.031)	(0.031)	(0.030)
manufacture	0.039	0.014	0.01	0.009
	(0.029)	(0.025)	(0.024)	(0.024)
unemployment	-0.023	-0.021	-0.028	-0.046**
	(0.019)	(0.019)	(0.020)	(0.020)
capital	-0.023***	-0.022**	-0.022***	-0.021***
	(0.009)	(0.008)	(0.008)	(0.008)
pr		0.870**	0.903**	0.919***
		(0.370)	(0.356)	(0.354)
electionyear			0.038	-0.101
			(0.049)	(0.079)
overthrow				0.022**
				(0.009)
constant	-3.388	-4.165	-4.38	-3.82
	(2.951)	(2.899)	(2.857)	(2.837)
	206	206	206	205
observations				
	0.4821	0.4966	0.4969	0.509

Table 7 shows the regression results for PCSE model including only those countries that scored an average of a six or higher on the Polity IV index from 1995 to 2012. The *effnops* is the dependent variable, standing for the effective number of parties. The first column is from only the five macroeconomic independent variables, the second column adds *pr*, the third column adds *electionyear,* and the fourth column adds *overthrow*. The standard errors are in parenthesis.
* $p < 0.10$; **$p < 0.05$; ***$p < 0.01$

Table 8 displays the countries used for the regressions in this paper. The name of the country is in column one, the Polity IV score is in column two, and the type of electoral rule system family is in column three, where "PR" stands for proportional representation, "MAJ" is majoritarian system, and "IN TRANS" stands for 'in transition'. A country is considered a democracy if the Polity IV score is a six or above. The same criterion is used in this paper to determine whether or not a country is a democracy for the purpose of these analyses. The data is from the year 2012, and comes from the Center for Systemic Peace. The score may differ from the rest of the years in the panel data, and the reader is encouraged to consult

the Polity IV dataset for additional materials. The data for the electoral rule system family comes from the International Institute for Democracy and Electoral Assistance (IDEA), except for in the case of Armenia, which comes from the Inter-Parliamentary Union.

The score for Tunisia is from 2010, as the years 2011 and 2012 were transition years for the country. Tunisia is now considered a democracy, and in 2014 had a Polity IV score of 7.

Table 8: Countries, Polity IV Scores, and Electoral Rule System Family

Country	Polity IV	Electoral Rules						
Argentina	8	PR	Indonesia	8	PR	Peru	9	PR
Armenia	5	MIX	Jamaica	9	MAJ	Philippines	8	MIX
Azerbaijan	-7	MAJ	Kazakhstan	-6	PR	Poland	10	PR
Bangladesh	5	MAJ	Kenya	8	MAJ	Romania	9	MIX
Bhutan	3	MAJ	Kyrgyz Republic	7	PR	Russian Federation	4	PR
Bolivia	7	MIX	Latvia	8	PR	Slovak Republic	10	PR
Botswana	8	MAJ	Lebanon	6	MAJ	Slovenia	10	PR
Chile	10	PR	Lithuania	10	MIX	South Africa	9	PR
Colombia	7	PR	Macedonia	9	PR	Sri Lanka	3	PR
Costa Rica	10	PR	Malawi	6	MAJ	Tanzania	-1	MAJ
Cote d'Ivoire	4	MAJ	Malaysia	6	MAJ	Thailand	7	IN TRANS
Croatia	9	PR	Mauritius	10	MAJ	Tunisia	-4	PR
Czech Republic	9	PR	Mexico	8	MIX	Turkey	9	PR
Dominican Republic	8	PR	Mongolia	10	MIX	Uganda	-1	MAJ
Ecuador	5	PR	Morocco	-4	PR	Ukraine	6	MIX
El Salvador	8	PR	Namibia	6	PR	Uzbekistan	-9	MAJ
Estonia	9	PR	Nepal	6	MIX	Uruguay	10	PR
Georgia	6	MIX	Nigeria	4	MAJ	Venezuela	-3	MIX
Ghana	8	MAJ	Pakistan	6	MIX	Vietnam	-7	MAJ
Guatemala	8	PR	Panama	9	PR	Zambia	7	MAJ
Hungary	10	MIX	Papua New Guinea	5	MAJ	Zimbabwe	1	MAJ
India	9	MAJ	Paraguay	8	PR			

Table 9 shows all the variables used in this analysis, accompanied by their definition, their expected sign in relation to the dependent variable, the effective number of parties, and the source of the data

Table 9: Explanation of Variables

	Variable name	Definition		Source
Dependent variable				
	effective number of parties (*effnops*)	The number of effective parties, giving the 'in effect' number of parties in a legislature resulting from an election.		Parline Database (Inter-parliamentary Union)
Independent variables			**Expected sign**	
	exports (*exports*)	Exports of goods and services, as a percentage of GDP.	-	World Bank, World Development Indicators (WDI)
	primary completion rate (*primary*)	The gross intake ratio to the last grade of primary education.	+	World Bank, (WDI)
	manufacture (*manufacture*)	The amount of manufacturing as a percentage of value added to GDP.	+	World Bank, (WDI)
	unemployment (*unemployment*)	The share of the labour force that is without work but available for and seeking employment.	-	World Bank, (WDI)
	capital (*capital*)	Market capitalization of listed domestic companies, as a percentage of GDP.	-	World Bank, (WDI)
Dummy variables				
	election year (*electionyear*)	Takes the value of 1 if the year in question is an election year, 0 if it is not.	no expectation	Database of Political Institutions (DPI)
	overthrow (*overthrow*)	Takes the value of 1 if the year in question experienced an overthrow of leadership, 0 if it did not.	-	Center for Systemic Peace: coup d'état events
	proportional representation (*pr*)	Takes the value of 1 if candidates are elected based on the percent of votes received by their party and/or if DPI sources call the system "proportional representation".	+	DPI