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THE POLITICAL ECONOMY OF AUTOCRACIES. RISK AND HUMAN DEVELOPMENT UNDER AUTHORITARIAN RULE

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PRESENTA

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Dedicatoria

A mi madre, María Luisa. Ella es y ha sido siempre mi más grande soporte. Gracias a ella soy lo que soy. Su amor y apoyo incondicional me impulsan siempre a ser una mejor persona. Te amo, mamá.

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Una pequeña nota introductoria sobre el contexto en el que se terminó de escribir esta tesis

El año 2020 ha sido, sin duda, muy diferente para la humanidad. Esta tesis se termina de escribir en el contexto de una pandemia con un impacto no visto en por lo menos 100 años. Posiblemente sea el año en el que el mundo "tuvo que cerrar". La pandemia de COVID-19 ha cambiado la forma en la que opera básicamente cualquier actividad, lo cual provocó dos crisis sin precedentes: la de salud y la económica. Al menos así es para el caso mexicano. Al momento de escribir estas líneas (agosto 2020) se estima que han muerto más de 50 mil mexicanas y mexicanos de acuerdo con las cifras oficiales. Es decir, las muertes reales podrían ser muchas más que esas. Igualmente, el INEGI estimó una caída en la economía de cerca de 20 puntos porcentuales del PIB para el segundo trimestre de este año comparado con el mismo trimestre del año anterior.

Estudiar un doctorado no es fácil, involucra dedicarle varios años a una profesión en la que adquieres habilidades para la investigación mientras te conviertes en un "experto" en tu campo de estudio. Es todo un reto, especialmente en una institución como el CIDE, en la que la excelencia académica es uno de los valores privilegiados (lo cual agradezco). Sin embargo, en ocasiones se enfatiza tanto la calidad académica que pasa por encima de algo que debería ser igualmente valioso: la salud mental de las y los estudiantes. Mantener la salud mental en un posgrado de excelencia es una tarea complicada, ahora imaginemos cómo es tratar de terminar una tesis con el contexto del primer párrafo.

No solo tienes la presión de tu comité doctoral para entregar la mejor investigación posible, sino que tienes que trabajar en unas condiciones emocionales adversas, en las que el distanciamiento social, como se le conoce eufemísticamente a este encierro colectivo, puede durar muchos meses más (cinco y contando), o incluso periodos intermitentes de aislamiento durante algunos años. Tienes que concentrarte para no cometer errores. Tienes que detectar inconsistencias para que tus revisores estén de acuerdo en que mereces ser uno de ellos, un "colega". Sin embargo, tienes que hacerlo mientras tienes miedo de tú o tus seres queridos contraigan una enfermedad potencialmente mortal. Tienes que hacerlo a sabiendas de que es muy poco probable que encuentres trabajo en el corto plazo porque la economía está en crisis. En fin, tienes que hacerlo.

Quisiera que esta nota sirva para dos cosas. En primer lugar, para dejar constancia que esta tesis se terminó en un contexto muy adverso. Es una suerte de tesis resiliente. De la misma

forma, esta tesis no es perfecta y, posiblemente, pudo ser mucho mejor con condiciones más favorables. No es pretexto, cada error es mi responsabilidad, pero también es cierto que hay que remar contra una doble marea (el contexto y algún revisor poco empático). En segundo lugar, espero que esta nota sirva para ser leída en el futuro como recuerdo de que es posible superar obstáculos y cumplir objetivos, a pesar de una pandemia. Asimismo, espero que sea leída en mejores condiciones que en las que fue escrita.

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Introduction

Robert Mugabe and the Zimbabwe African National Union–Patriotic Front (ZANU-PF) ruled Zimbabwe from 1980 to 2017, when former Vice President Emmerson Mnangagwa performed a coup and overthrew Mugabe. During the 1980s it was the legislature that appointed the president. However, Zimbabwe began to hold executive elections in 1990. As a result, Robert Mugabe has been put to the popular vote ever since. Mugabe won the 1990 and 1996 elections very easily. He won 83 and 93 percent of the vote respectively (Reuter & Gandhi, 2011). However, Mugabe faced an unprecedented electoral challenge in 2002 when opposition groups posed an actual electoral challenge.

The Movement for Democratic Change (MDC) brought together a coalition of human rights organizations and students who sought to defeat Mugabe at the ballot box. The MDC began to put pressure on the regime to improve people's conditions and to respect human rights. For the first time since he was appointed as a ruler, Mugabe was at risk of losing power through executive elections. One of the many actions that Mugabe used to avoid being defeated was the implementation of a policy that would improve people's quality of life through land redistribution. Mugabe won the 2002 election again, but would only obtained 56 percent of the vote (Bratton & Eldred Masunungure, 2007; Kriger, 2005; Reuter & Gandhi, 2011; Richardson, 2009).

There are other examples of how different autocrats implement policies to improve citizens' quality of life when they are at risk of losing power through elections. An expansion of health services coverage was implemented in Taiwan in 1988. This policy is understood because the government party, the KMT, began to lose electoral support since opposition parties were allowed in 1986 (Chiang, 1997). Similarly, it has been identified that authoritarian executive elections have been key to improving the provision of public goods in Brazil, Mexico, Peru, and Venezuela (Haggard et al., 2008).

Authoritarian leaders have also improved people's quality of life when important members of the elite break with the regime. Uganda's case in 2015 might illustrate this, as president Yoweri Museveni faced the defection of Prime Minister Amama Mbabazi. The former prime minister would threaten Museveni's regime by competing in executive elections. This split was one of the greatest sources of instability for Museveni's government (Khisa, 2016). To try to solve the crisis, Museveni again used multiple strategies. The repression against “traitors”

was already a characteristic of this autocrat (Khisa, 2016). However, Mbabazi's defection forced Museveni to implement a greater distribution of economic benefits among a series of networks that supported his government, but which could be co-opted to support Mbabazi's candidacy. Financial support for youth and women's groups can be pointed out (Khisa, 2016).

These examples have one thing in common: authoritarian leaders tend to improve the conditions of their citizens under certain conditions. However, this observation seems to contradict what is expected in such regimes. Some scholars argue that authoritarian leaders prefer to maximize their income at the expense of their populations, leading to low public goods provision, less redistribution and poor economic performance across these regimes (Acemoglu & Robinson, 2000; Meltzer & Richard, 1981; Niskanen, 1997; Persson & Tabellini, 2003).

Therefore, in this research, I seek to explain why authoritarian leaders sometimes implement welfare policies. My argument is that autocrats at risk of losing power are more likely to be responsive to social demands and therefore have a greater propensity to implement redistribution and public spending policies that improve the human development of the population. More specifically, I argue that the risk of losing power, and thus of implementing redistributive policies, is greater in the presence of executive elections or splits within the authoritarian elite.

In this study, I analyze the different implications of my general argument in three different articles. In the first of them, I address the risk of losing power from the perspective of executive elections. My particular argument is that only executive elections can put autocrats at risk. It should be noted that autocracies that hold such elections tend to improve human development compared to autocracies that do not hold any kind of election or that only hold legislative ones. Similarly, I argue that competitive executive elections are even riskier for autocrats. Therefore, citizens' well-being increases more when autocrats face competitive electoral processes. To test this argument, I analyze data from 135 autocracies over time and the evidence of statistical models supports this argument.

In the second chapter, I analyze the risk of losing power and its effects on human development from the perspective of splits within the authoritarian elite. My particular argument is that the split of important members of the elite can put autocrats at risk because "traitors" have incentives to overthrow autocrats. In consequence, authoritarian leaders might respond with an implementation of welfare policies to counter the threat of defectors. To test this argument, I

use information from 246 executive elections in authoritarian regimes. I analyze elections because defections tend to occur shortly before the ruler's renewal processes. Empirical evidence shows that autocrats facing such splits are more likely to improve people's quality of life.

In the third and final chapter, I analyze the theory of splits within the elite and extend their implications for electoral authoritarianisms. As a result, I study the interaction between splits within the elite and electoral competitiveness. My argument is that the combination of these two risk factors should make it more likely that autocrats will implement welfare policies. To test this extension of my argument I use an integrated mixed research design with evidence from the Mexican case. I analyze both national and subnational partisan defections and competitiveness in executive elections. At the national level, I study the three most important defections that the PRI faced during the authoritarian era. Using process tracing, I analyze the causal patterns of the three splits and how they affected the implementation of policies to improve the living conditions of citizens. To complement the qualitative findings, I also conduct quantitative follow-up analyses. At the subnational level, I conducted a series of statistical models to analyze the effects of defections in local PRI structures on social spending in Mexico's states. The evidence consistently shows that splits within the PRI led different autocrats to implement development policies so that the ruling party would not lose power.

As can be observed, my research has two main independent variables: executive elections and splits within the elite. Taken as a whole, it could be thought that both variables are part of an underlying process of weakening authoritarian regimes and therefore endogenous to a third variable. However, this does not necessarily happen that way. While it is true that I claim that executive elections in particular can be risky to autocrats, literature has found that incorporation of political institutions are not a symptom of weakening, in fact, literature has shown that regimes with political institutions such as elections, legislatures, and parties tend to be strengthened and, therefore, to last longer over time compared to fully closed autocracies (Blaydes, 2011; Gandhi, 2008; Gandhi & Lust-Okar, 2009; Geddes, 2003, 2006; Geddes et al., 2018; Geddes, Wright, et al., 2014; Lust-Okar, 2006; Svolik, 2009, 2012; Wright, 2008; Wright & Bak, 2016; Wright & Escribà-Folch, 2012).

The splits within the elite, in contrast, could follow a different path. Defections do tend to respond to times of crisis in the authoritarian regime. For example, economic crises are a very relevant trigger for defections (Hale & Colton, 2017; Khisa, 2016; Langston, 2002; Reuter &

Gandhi, 2011; Reuter & Szakonyi, 2019). Therefore, the argument that it is the same process that determines the presence of both variables can be dismissed.

As for the relationship between the two independent variables, it could plausibly be argued that splits might lead to a political opening in the regime and therefore to the incorporation of executive elections or executive elections with greater competitiveness. Similarly, the presence of elections could incentivize splits within the elite that, in closed autocracies, would not have happened. This is because in closed autocracies the only way to break with the regime and "compete" for power is through a coup, which, as I explain later, is very risky. Hence, there could be a double causal relationship between these variables, which undoubtedly represents an empirical challenge.

As for the effect that both executive elections and splits might have on human development, I argue over the three chapters that each of the individual variables might positively affect people's well-being because both variables are, in themselves, triggers for risk scenarios for autocrats. However, I also argue that there could be an interactive effect, especially when executive elections are competitive. For this reason, in the third chapter, I integrate both variables and show the effects that electoral competitiveness and splits within the elite might have in the case of Mexico.

Executive Elections and Human Development in Authoritarian Regimes

Abstract: Why do some authoritarian regimes improve human development whereas others do little to contribute to their citizen's well-being? Despite considerable research that explains redistribution and good economic performance in democracies, little is known about why and to what extent autocrats act to improve people's living conditions in their countries. I argue that authoritarian leaders that allow executive elections face a greater short-term risk of turnover compared to autocrats that do not allow any elections or that only allow legislative ones. The former should thus be more responsive to voters. I test the argument using data from 135 autocracies between 1972 and 2008. Statistical analysis shows that only executive elections raise the level of human development in authoritarian regimes. The effect of executive elections on human development is observable only in the short-term. I also test for potential endogeneity in the causal relation using fixed effects two stage least squares estimations. Evidence suggests that after one year, the introduction of executive elections has no effect on human development.

Keywords: human development, authoritarian regimes, executive elections, risk, instrumental variables.

Introduction

Why are some authoritarian regimes more likely to improve human development whereas others do little to contribute to their citizen's well-being? Despite considerable research examining redistribution and economic performance among democratic nations, little is known about why and to what extent authoritarian regimes might work to improve the quality of life of their citizens as well. Instead, most research to date focuses on how the electoral connection between voters and elected governments affects redistribution among democratic governments. Scholars have examined how electoral rules matter for redistributive policies (Iversen & Soskice, 2006, 2011; Persson et al., 2000; Persson & Tabellini, 2003; Rickard, 2009), arguing that proportional representation systems tend to increase redistribution compared to those of the majority due to the formation of broader coalitions among the proportional systems. Scholars have also explained how greater electoral participation raises redistribution. Turnout increases are generally observed among poor people, who are beneficiated from redistribution (Acemoglu & Robinson, 2001; Kasara & Suryanarayan, 2015; Mahler, 2008; Mahler et al., 2014; Mueller & Stratmann, 2003; Rickard, 2009). This leads to variation in people's well-being among democracies as well.

The weaker or absent electoral connection between citizens and leaders in autocracies suggests that these regimes should not undertake policies that enhance human development. In contrast to democracies where electoral connections are created between voters and leaders, in authoritarian settings elections serve to increase the dependence of voters on the regime (Cox, 2009; Fearon, 2011; Gandhi & Lust-Okar, 2009; Gandhi & Przeworski, 2006; Schedler, 2016; Simpser, 2013; Treisman, 2018), provide information about opposition groups (Blaydes, 2011; Brownlee, 2007; Cox, 2009; Magaloni, 2006; Malesky & Schuler, 2008; Miller, 2014), and legitimize authoritarian rule (Linz, 2000; Schedler, 2002a, 2002b; Wintrobe, 1998), all for the purpose of strengthening the regime and raising its chances of survival (Cox, 2009; Fearon, 2011; Gandhi, 2008; Gandhi & Lust-Okar, 2009; Gandhi & Przeworski, 2006; Geddes, 2006; Schedler, 2016; Simpser, 2013; Svolik, 2012; Treisman, 2018).

Yet, empirical evidence shows that authoritarian regimes sometimes promote citizen well-being (Albertus, 2013, 2015; Albertus & Menaldo, 2014; Miller, 2014, 2015; Ross, 2006), potentially enhancing the level of human development (Miller, 2014, 2015; Ross, 2006). In this study, I focus on the role of executive elections in promoting human development in

authoritarian regimes. Although authoritarian executive elections are not meant to build the same electoral connection between voters and leaders as in democratic ones, authoritarian elections raise the risk of regime instability (Knutsen et al., 2017; Little et al., 2015; Lucardi, 2019; Tucker, 2007), which might force authoritarian leaders to provide benefits to citizens to raise their support. Specifically, I argue that, in order to reduce the risk of being ousted from power, authoritarian leaders facing executive elections will instrumentally consider raising the level of human development in their nations.

However, not all elections provide the same risk of regime instability. Because multiparty executive elections pose the greatest risk to regime survival (Lucardi, 2019), I argue that leaders facing such contests will be more likely to engage in human development policies than those holding dominant party executive races. Because executive elections, even multi-party but manipulated ones, provide a greater risk of transition than legislative ones (Knutsen et al., 2017; Lucardi, 2019; Tucker, 2007), I argue that authoritarian leaders facing any type of executive election will be more likely to improve human development scores than those holding only legislative elections. Legislative elections have little or no impact on executive turnover because they are used to co-opt or bargain with opposition forces (Gandhi & Przeworski, 2006; Magaloni, 2008), with the resources deployed during and after legislative elections serving these purposes instead.

In making this argument, I diverge from Miller (2015) because I focus exclusively on the effect of executive elections. Miller (2015) argues that electoral autocracies will be more likely to improve human development because they hold multi-party elections. Such elections might produce electoral pressure and political openness, which might make autocrats more likely to satisfy voters' demands. However, Miller (2015) does not distinguish between the different effects of executive and legislative elections on human development. In fact, both elections are implicitly collapsed into one category in his study. However, scholarly literature suggests that executive elections could be more risky for autocrats than legislative ones (Knutsen et al., 2017; Little et al., 2015; Lucardi, 2019). Building on these studies, I argue that autocrats will be more likely to improve human development when they face greater risks of losing power. Therefore, I distinguish between executive and legislative elections and claim that only executive elections matter for improving human development.

I also contribute to the limited but growing number of studies examining when and why authoritarian leaders undertake redistributive policies. First, Albertus and Menaldo (2014) and Albertus (2015) show that the expropriation and land redistribution can be used by authoritarian leaders to stave off factional splits and strengthen authoritarian regimes. Second, Wallace (2013) shows that favoritism in the redistribution to urban over rural areas might increase regime stability in the short-term but can undermine authoritarian regimes in the long run (Wallace, 2013). In contrast with these studies, I focus on how executive elections might affect autocrat's incentives to implement policies aiming to improve human development in the short-term.

I test my argument using data from 135 authoritarian regimes between 1978 and 2008. Cross sectional time series analysis of the impact of different types of authoritarian elections, across different types of authoritarian regimes, shows that executive elections are strongly associated with subsequent rises in human development scores, captured through changes in infant mortality rates. I also test my theory through a fixed effects two stage least squares (FE2SLS) strategy to address a potential problem of endogeneity. Evidence shows that the effect of executive elections is only observed in the short-term, as no impact on human development is present beyond one year. In contrast, evidence shows that legislative elections might have the reverse effect, as living conditions worsen. These findings might imply that authoritarian leaders facing executive elections might directly target their resources at likely opposition voters. This also implies that co-opting the opposition or legislative negotiations could be useless in improving human development as authoritarian leaders would not have to appeal directly to voters, since the opposition would not pose a threat for the regime's survival.

Electoral Authoritarian Institutions and Regime Survival

Authoritarian leaders could take advantage of a variety of political institutions–once only associated with democratic regimes–to ensure their regimes' survival (Blaydes, 2011; Cox, 2009; Fearon, 2011; Gandhi, 2008; Gandhi & Lust-Okar, 2009; Gandhi & Przeworski, 2006; Geddes, 2006; Geddes et al., 2018; Lucardi, 2019; Lust-Okar, 2006; Magaloni, 2006; Miller, 2014, 2015; Schedler, 2016; Svolik, 2012; Treisman, 2018). Specifically, authoritarian leaders might capitalize on the building of political parties, legislatures, and elections in their regimes for the purpose of aligning the political interests of the members of the elite, the opposition, and

voters with the regime to prolong their rule (Blaydes, 2011; Cheibub & Gandhi, 2010; Gandhi, 2008).

Geddes (2003) pointed out that party-based authoritarian rule seems to survive longer than other types of regimes. The alignment of interests between citizens who want to maintain their benefits and autocrats who want to rule makes authoritarianism with political parties more stable (Geddes, 2003). Similarly, Geddes, Wright and Frantz (2014) show how the breakdowns in the single-party regimes tend to be less violent than those of personalistic and military regimes (Geddes, Wright, et al., 2014).

Autocrats use legislatures to announce policy preferences and reach agreements with different groups over them (Gandhi, 2008). Dictators face threats to legitimacy and must ensure the cooperation of members of the elite with whom they rule (Gandhi, 2008; Gandhi & Przeworski, 2006). Legislatures can also help authoritarian leaders to co-opt their opponents. In this vein, Magaloni (2008) argues that legislatures facilitate power-sharing. Furthermore, legislatures create an arena where pro- and anti-regime groups find a space for discussion and monitoring, facilitating repeated interactions and making the agreements taken more credible. Legislatures can also be a way for the regime to identify and address social discontent (Malesky & Schuler, 2008).

However, for parties and legislatures to play these roles, there must be elections for parties to compete in and offices to secure (Brancati, 2014). Scholars have noted that authoritarian elections serve a variety of functions. They work to signal strength to the opposition and that resistance to the regime is futile, either because they demonstrate that the regime enjoys widespread support or because they demonstrate that it has the capacity to manipulate elections (Geddes, 2006; Magaloni, 2006; Simpser, 2013). Authoritarian elections also provide information to the regime (Miller, 2014). For instance, elections help identify where the opposition has greater electoral force (Cox, 2009). In this sense, the regime can locate the disgruntled voters (Brownlee, 2007; Magaloni, 2006).

Authoritarian elections can also be used as mechanisms of distribution of benefits. (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012). Blaydes (2011) argues that elections are necessary to distribute the benefits of the regime because they make both the elites and the citizens perceive the patronage as fair, which prevents likely resentments. Lust-Okar (2006) points out that, in countries like Jordan, where the state has a monopoly on

financial resources, legislative elections tend to strengthen the regime because they allow the regime to allocate jobs and resources to both elites and citizens.

Executive and legislative elections serve different purposes for authoritarian regimes and are thus associated with different risks. The role of executive elections might be for demonstrating legitimacy (Wintrobe, 1998), show power or popularity (Knutsen et al., 2017), especially when autocrats commit fraud (Simpser, 2013) or seek to gather information (Cox, 2009; Miller, 2014). In contrast, the role of legislative elections seems to be the distribution of benefits between the various factions of the regime (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012) and the co-optation of the opposition, possibly to avoid splits (Gandhi & Przeworski, 2006).

Even so, while both executive and legislative elections can be useful to authoritarian leaders for various reasons, they can be risky to the stability of the regime (Knutsen et al., 2017; Little et al., 2015; Lucardi, 2019; Tucker, 2007). Building on this literature, in the section below, I explain how the different roles of executive and legislative elections for authoritarian regimes generates different risks associated with each, and how executive elections might lead to an improvement in human development whereas legislative elections do not.

Authoritarian Elections and Human Development

Before addressing why executive elections are so risky for authoritarian regimes and why this encourages them to take an interest in citizen welfare, it is important to explain why autocrats allow executive elections in the first place. Executive elections provide a series of benefits to authoritarian leaders. Autocrats use executive elections to show legitimacy (Wintrobe, 1998), demonstrate power (Knutsen et al., 2017; Simpser, 2013), and gather information (Cox, 2009; Miller, 2014). Moreover, autocrats might allow executive elections because of international pressure in order to accede to international credits or aid (Miller, 2015).

However, executive elections are also risky for autocrats (Lucardi, 2019). At their most basic, executive elections are risky because they are winner-takes-all (Donno, 2013) and victory is not always assured (Fearon, 2011; Higashijima, 2015a; Levitsky & Way, 2010; Lucardi, 2019; Schedler, 2002b). Knutsen, Nygård and Wig (2017) argue that executive elections might provide signs of the regime's popularity or might reveal the strength of the opposition through rallies, electoral mobilizations or riots (Knutsen et al., 2017). In the same vein, competitive executive

elections can be even more risky because they allow opponents to coordinate against the government, hence the risk of losing power increases (Lucardi, 2019). Even after victory, executive election results can generate mass protests (Knutsen et al., 2017; Little et al., 2015; Tucker, 2007) or even coups (Frantz & Stein, 2016; Lucardi, 2019; Powell & Thyne, 2011; Wig & Rød, 2014).

There are some cases that illustrate how executive elections can be risky. For example, Guatemala's military regime held an executive election in March 1982. General Rodríguez, the regimen's candidate, won the election. However, as the regime's intelligence and security forces anticipated, there were various allegations of fraud. This in turn led to mass rebellions that made an escalation of violence more likely. Consequently, the military executed a coup to overthrow incumbent Lucas García, and a new military junta was form under the leadership of General Montt. Even if autocrats retain power, executive elections might present unexpected shifts in electoral support for opposition groups. The cases of Mexico in 1988, and Singapore in 2001 are clear examples of how the autocrats survived but faced a more competitive election (Miller, 2015).

Autocrats that allow executive elections can use multiple strategies to manage the threats arising from such institutions. They can commit fraud (Cantú, 2019; Schedler, 2002a; Simpser, 2013; Ziblatt, 2009), deploy the military or police forces to repress both opposition and voters (Bhasin & Gandhi, 2013) or engage in political budget cycles (Higashijima, 2015b). Other scholars even suggest that authoritarian leaders can also engage in land redistribution (Albertus, 2015; Albertus & Menaldo, 2014).

Yet, strategies such as committing fraud or repressing, even though they might be widely used among autocracies, are not infallible and are also risky. For instance, fraud can trigger antigovernment protests (Little et al., 2015; Tucker, 2007) or international pressure on the regime (von Borzyskowski, 2019). Repression might cause international condemnation (Chenoweth & Stephan, 2011; Levitsky & Way, 2010) and disagreements among regime's supporters, including the military or the police forces for fear of possible persecution (Levitsky & Way, 2010; Nepstad, 2013).

However, a less studied tool for autocrats to ensure the benefits of executive elections and deal with the unwanted consequences is to enact policies that demonstrably improve human development in the short-term as a consequence of them. I argue that autocrats holding executive

elections should be more likely to improve human development within their regimes because executive elections increase the risk of losing power. In other words, improving human development becomes an additional electoral strategy for regime survival

The idea of idea of government's economic performance to ensure citizens to be able to access to minimal wellbeing conditions is at the core of the concept of human development (Programa de Naciones Unidas para el Desarrollo, 2019). In this regard, I am not the first to point out that autocrats might try to improve economic performance to guarantee support. The relationship between economic indicators and survival of authoritarian regimes has been well studied (Burke, 2012; Lucardi, 2019; Magaloni, 2006; Treisman, 2015). Similarly, authoritarian leaders also seem to provide public goods to maximize their survival in power (Bueno de Mesquita et al., 2005; Bueno de Mesquita & Smith, 2012; Olson, 1993), with public goods provision depending on the time horizon of authoritarian leaders (Olson, 1993) or the relative size of the selectorate and the ruling coalition (Bueno de Mesquita et al., 2005).

However, my theory diverges from these studies in its focus on the short-term risk associated to executive elections. Furthermore, my argument points out that this type of risk might lead to an improvement in human development outcomes in the short-term. I claim that authoritarian leaders might be forced to appeal directly to voters. In order to strengthen their rule, autocrats must obtain electoral support to face opposition groups. Appealing to voters might be the best strategy in the face of an executive elections no try to ensure their support. Autocrats might try to generate an electoral connection with voters to strengthen offering better living conditions. Therefore, an authoritarian leader facing the risk posed by an executive election might be more likely to improve people's quality of life, and hence human development, with the goal of aligning voters' interests with the regime's survival. I thus expect:

H1: Authoritarian regimes that allow executive elections will enjoy better human development levels than authoritarian regimes that do not allow executive elections.

However, because executive elections might create an immediate-term risk of losing power, this means that autocrats must engage into human development policies that show results in the same period. I argue that autocrats must focus its development-oriented measures to improve voters' well-being. If voters observe that the regime has recently taken visible actions

to improve people's living conditions, they will be more likely to support the authoritarian leader at the ballot box. However, since executive elections might not generate such risk in the long run, autocrats might not be forced to improve human development beyond a short period of time. I thus expect:

H2: The effect of authoritarian executive elections on human development will be more likely to occur in the short-term than in the long run.

The risk of losing power is even greater when multiple parties are allowed to compete for the executive (Lucardi, 2019). Ambitious leaders in the authoritarian elite might observe they have the opportunity to take power for themselves through executive elections, which might generate an alliance between these past members of the regime and the opposition. The objective of this alliance would be to defeat the regime at the polls (Lucardi, 2019; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019). The nature of executive elections might also lead to an institutional scenario in which opposition parties might coordinate to present a common candidate (Howard & Roessler, 2006). An example of this is what happened in Venezuela in 2013, when the *Mesa de Unidad Democrática* brought together the opposition of Hugo Chávez's regime to present Henrique Capriles as a single candidate on the part of the opposition. Furthermore, Higashijima (2015) points out that there is a possibility that the authoritarian regime might have an error in calculating the risk of losing an executive election. This might happen because the regime underestimated the opposition's electoral mobilization power.

Building on this insight, I argue that competitive executive elections might raise the incentives for authoritarian leaders to improve voter's well-being even more than where executive elections are dominated by the regime. Electoral competitiveness might increase the likelihood of the opposition being organized around a common candidate, which in turn might raise the chances of success of a non-government candidate, as well as a miscalculation by the regime. This leads to:

H3: Autocracies that hold competitive executive elections are more likely to enjoy better human development scores than autocracies holding non-competitive executive elections.

As noted above, legislative elections provide a series of benefits to authoritarian regimes, including helping them to distribute benefits (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012) and coopt the opposition (Gandhi & Przeworski, 2006). This means that the risks associated with legislative elections could be related to unsuccessful negotiations with the opposition. This could obstruct the government's actions in the short- or medium-term but should not threaten the regime. Similarly, the distribution of spoils among the elite could lead to splits in legislative spaces, as the regime's losers could ally with the opposition (Reuter & Gandhi, 2011). However, these splits are unlikely to produce instability in the regime because they might occur in spaces with little political influence, such as legislative posts. The role of legislative elections seems to be the distribution of benefits between the various factions of the regime and the opposition, possibly to avoid splits (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012).

Importantly, and despite these risks, legislative elections do not represent a risk to regime survival, at least not in the immediate term. Even if the regime loses the majority in the legislative body, there is always the possibility of bargaining or co-opting the opposition (Gandhi & Przeworski, 2006; Magaloni, 2008). Their argument is that the co-optation of opposition in an authoritarian regime often happens through the distribution of legislative seats. This cooptation is more likely to occur when the authoritarian leader needs more opposition cooperation from the opposition. In other words, when the leader is in a position of relative weakness compared to the opposition groups, when there is little ideological distance from the opposition that can access the legislature or when the losses of the opposition by cooperating. This argument implies that authoritarian leaders might be able to overcome losses in legislative elections through such strategies avoiding a short-term instability. It also means that legislative elections should have no effect on autocrats' incentives to engage in human development policies as a consequence of holding legislative elections. That is:

H4: Legislative elections in authoritarian regimes do not have short- or long-term effects on human development.

This prediction diverges from Miller (2015) in one key aspect. I focus on the effect of executive elections on human development whereas Miller (2015) points out the effect of

electoral authoritarianisms on the same dependent variable. That is, he shows the potential effect of both, executive and legislative elections. In contrast, I claim that only executive election matters. Miller (2015) finds evidence of a connection between electoral authoritarianisms and improvements in human development outcomes. However, this finding could be consequence of his definition of electoral authoritarianism, which is based on multi-party elections, without distinguishing between executive and legislative ones. Therefore, both types of elections are implicitly collapsed. In other words, Miller's study might be confounding the effect of executive elections by not differentiating between the types of election (executive and legislative).

The case of Zimbabwe in 2002 illustrates my argument. Robert Mugabe and the Zimbabwe African National Union–Patriotic Front (ZANU-PF) ruled the country from 1980 to 2017. The president was selected by the legislature; however, President Mugabe was first elected by popular vote in 1990. Mugabe easily won the 1990 and 1996 executive elections with 83 and 93 percent of the vote (Reuter & Gandhi, 2011). However, in 2002 he faced an unprecedented electoral challenge. The Movement for Democratic Change (MDC), a coalition of human rights organizations and students, competed for power in 2002. The MDC introduced a big pressure on the Zimbabwe's authoritarian regime claiming for openness and human rights. For the first time, Mugabe was at real risk to be ousted. Thus, the autocrat was forced to implement a major land redistribution program. Mugabe would also win the 2002 election, but now with only 56 percent of the vote (Bratton & Eldred Masunungure, 2007; Kriger, 2005; Reuter & Gandhi, 2011; Richardson, 2009).

Data and Modelling Strategy

I examine data for 135 autocracies from 1972 to 2008. The sample consists of more than 3,800 country-year observations for which information is available. On average, there are 27 time points for each autocracy. I include autocracies following the typology proposed by Geddes, Wright and Frantz (2014; 2018) that distinguishes democracies from autocracies, before classifying autocracies as single-party, military, monarchical and personalistic regimes. Geddes, Wright and Frantz (2014; 2018) use the following criteria for a regime to be considered authoritarian: the government leader has accessed power by a means other than competitive and fair elections; the leader came to power by competitive and fair elections but modified formal

or informal rules to limit elections or if the military prevents one or more parties from participating in the election or if they make policy decisions in important areas.

To test the argument, I use the infant mortality rate to capture the dependent variable of human development. Infant mortality measures the number of deaths from birth and one year of life for every 1,000 live births (World Bank, 2019). This variable has several theoretical and methodological advantages. First, the infant mortality rate gives an account of an outcome that is strongly associated with well-being, as survival at birth is a necessary condition to be able to access development (Touchton et al., 2017). In addition, the infant mortality rate may proxy for other basic conditions for human development, such as access to clean water, social security, women's education, literacy in general, caloric intake and income. Thus, the infant mortality rate has been used as a good indicator of human development (Ross, 2006).

Infant mortality might produce changes in human development in the short-term. Government actions, such as maternal care, investment in the nourishment of both mothers and children, as well as increases in mothers' education might lead to changes in the infant mortality rate very rapidly (Aquino et al., 2008). There are other human development measures such as the Human Development Index, literacy, school building, attendance outcomes, school enrollment, etc. However, although these outcomes might be observed in the short-term, their effect on human development might be observed in the medium or long term, as educational policies might take generations to show an effect on human development (Touchton & Wampler, 2013).

There are two main explanatory variables[1]: (1) whether an autocracy allows executive elections or not in a given year[2], and (2) whether an autocracy allows minimally competitive executive elections or not. Both variables are binary measures based on the Lexical Index of Electoral Democracy (Skaaning et al., 2015). The first variable relies on the categorization proposed by the index indicating the presence or absence of executive elections, regardless if they are competitive or not. The second variable is my own recoding of the Index. This variable

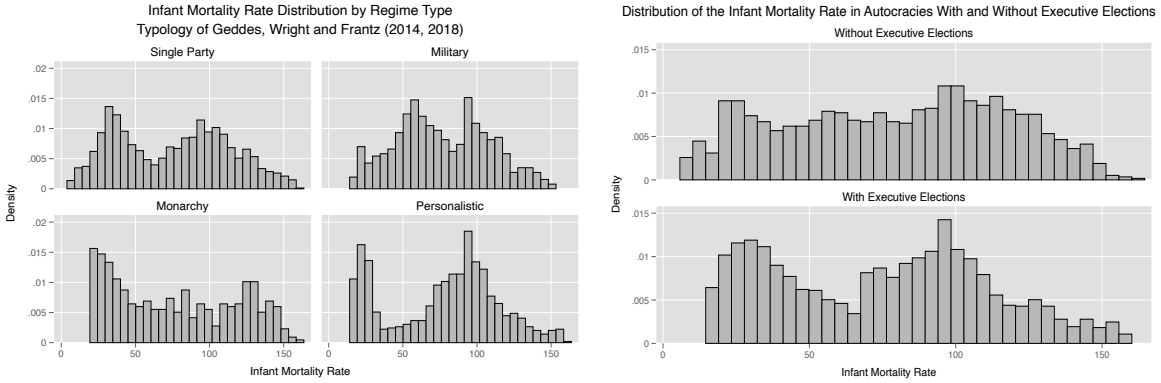
[1] Both main independent variables follow the same logic. For example, the first one captures whether or not an autocracy allows executive elections and not electoral years. For instance, if one autocracy does not allow executive elections in year *t-1* this variable will take value of zero. In contrast, if the same autocracy now allows executive elections in year *t,* the executive elections variables will change and take value of one.

[2] The variable measures presence of executive elections, however executive elections are generally observed with legislative elections, thus, when the variable takes value of 1 does not imply that the country only allows executive elections, but executive elections are allowed. For that reason, it was necessary to add the legislative elections control to the empirical modelling.

takes value of 1 when two conditions are true: the country holds executive elections and the country holds minimally competitive elections. If any of these conditions is false, the variable takes value of 0. An election is categorized as competitive in the Index when there is universal suffrage, and multiparty competition, and a nonzero probability for opposition parties to win.

In the sample there are 59 authoritarian regimes that did not hold any executive election during the period covered. These averaged 67,94 infant deaths per 1,000 live births. The 125 regimes that introduced executive elections, in contrast, averaged an infant mortality rate of 48.75. Monarchies have the lowest infant mortality rate of autocracies, an average of 52.54, followed by single-party regimes with 60.44. In contrast, personalistic regimes have the highest infant mortality rate with an average of 75.65, followed by military regimes with an average of 71.58 (see Figure 1.1 and Table 1.1 for further details).

Figure 1.1. Distribution of the Infant Mortality Rate in the Sample



Source: Own elaboration based on data from Geddes, Wright and Frantz (2014, 2018) and World Bank.

Table 1.1. Descriptive Statistics of the Infant Mortality Rate and the Main Explanatory Variables

Variable	Mean	Std. Dev.	Min	Max	Observations	Source
Infant Mortality Rate	51.64	34.67	4.59	147.05	3,864	World Bank
Executive Elections	0.81	-	0	1	3,863	Lexical Index
Competitive Executive Elections	0.49	-	0	1	3,861	Lexical Index

Source: Own elaboration based on data from Skaaning et al. (2015) and World Bank.

All models control by potential confounding variables identified in the literature. In other words, I only include control variables that affect at the same time both the dependent and the independent variable and whose omission could cause a serious problem of omitted variable bias by "confounding" the effect by a third factor (Morgan & Winship, 2014). My intention is to estimate the effect of executive elections on human development. However, it is more common to observe the presence of both executive and legislative elections at the same time. Therefore, to isolate the effect of executive elections, I include as control a dummy variable indicating whether an authoritarian regime holds legislative elections or not (Skaaning et al., 2015). Thus, the omitted category if the first main independent variable will be the absence of elections.

In models that estimate the effect of competitive executive elections, I also control for the presence of non-competitive executive elections. Because the omitted category of the competitive executive election variable is the absence of executive elections or the existence of non-competitive executive elections it is necessary to include this dummy variable in order to isolate the effect of competitive executive elections and compare it with the absence of elections.

Other political controls refer to authoritarian regime types. I use the typology of Geddes, Wright and Frantz (2014, 2018) and include dummy variables that indicate whether a regime is a monarchy, a military or a personalistic regime. The omitted category is the single party regime. I control by regime type precisely because literature has found that different autocracies can affect both human development and the type of political institutions[3] (Acemoglu & Robinson, 2012, 2005; Miller, 2015; Persson & Tabellini, 2003; Ross, 2006; Wright, 2008).

All the models also include a dummy indicating whether an authoritarian regime defines itself as a communist (Miller, 2015). I incorporate this variable because communist countries tend to orient themselves towards single-party regimes with non-competitive executive elections and welfare policies that can affect human development (Geddes et al., 2018). I also include as a control the level of political violence, which I take from Miller (2015). Violence can affect the presence of executive elections because dissevering acts of contentious collective action might focus on calling for political openness (Svolik, 2013; von Borzyskowski, 2019) and pushing for welfare policies (Miller, 2014, 2015).

[3] Executive elections are more prevalent in single-party regimes, with 82.91% of these regimes having such an institution. Subsequently there are the personalist regimes with 67.73%, the military with 46.37% and, finally, the monarchies, with only 3.54%.

Socioeconomic controls include oil rents as share of GDP; GDP per capita, income from foreign aid (official development assistance as a percentage of gross national income), and percentage of urban concentration. The first two variables come from World Bank and the last two from Miller (2015). I control by oil rents because countries with higher oil resources tend not to have elections (Wright et al., 2015) and because they can affect human development policies by having more money available without tax collection. GDP per capita can affect elections because countries with higher incomes tend to have more democratic institutions (Acemoglu & Robinson, 2005; Persson & Tabellini, 2003) and can affect human development policies by having higher or lower resources available. I control for resources from international aid because they can sometimes be tied to restrictions on democratic openness, as well as affecting the resources of autocracies to implement human development policies. Finally, models control by urban concentration because autocracies with fewer rural areas are associated both more likely to incorporate elections, and with greater pressure for governments to implement development policies (Miller, 2015; Wallace, 2013).

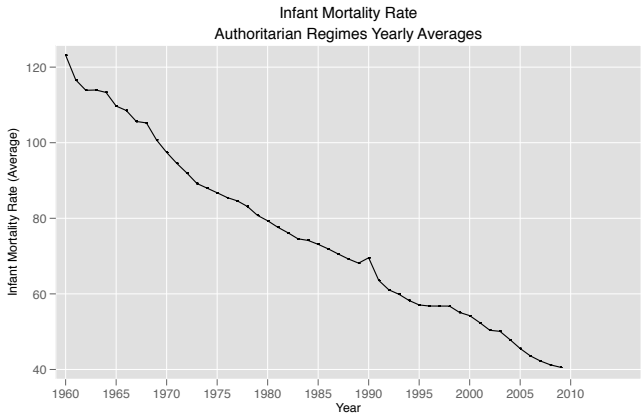
Empirical Setup

To model the data, I followed a series of steps proposed by Philips (2018)[4]. First, I conducted stationarity tests of the dependent variable. As shown in Appendix 2, the results suggested that infant mortality rate behaved as a stationary temporal process. However, as shown in Figure 1.2, the annual average infant mortality rate for authoritarian regimes has consistently decreased since 1960. This trend reveals that, in fact, infant mortality rate is not stationary. The problem with this unit root test might occur because tests for unbalanced panels might be unreliable since the null hypothesis tends to be that at least one panel does not have a unit root (Maddala & Wu, 1999)[5]. Therefore, it is necessary to take the first difference of the dependent variable.

[4] Although this proposal is based on a single time series, it is necessary to consider it when modeling panel data because autocorrelation problems of single time series remain when pooled.

[5] Even when conducting the stationary tests of the dependent variable panel-by-panel, the results suggest that most of them are nonstationary. As a result, I will use the first difference of the infant mortality rate.

Figure 1.2. Yearly Averages of the Infant Mortality Rate in Autocracies



Source: Own elaboration based on data from Skaaning et al. (2015) and World Bank.

I then analyzed each of the independent variables. I did not perform stationarity tests for dummy variables, including executive elections measures[6]. Therefore, dummy variables are modeled in a level form. Next, I performed the stationarity tests for all continuous control variables. As shown in Appendix 3, variables of political violence, the Clean Elections Index and foreign aid are stationary. Thus, they can be modeled in levels. In contrast, oil rents, GDP per capita (log) and urban concentration are not stationary. Therefore, the last three variables must be modeled in first differences.

Given the panel nature of the data, I use cross sectional time series analysis using the following models:

$$\Delta Y_{it} = \alpha + \boldsymbol{\beta X_{it}} + \boldsymbol{\delta C_{it}} + \boldsymbol{\lambda \Delta C_{it}} + \zeta_i + \eta_t + \varepsilon_{it} \dots (1)$$

$$\Delta Y_{it} = \alpha + \boldsymbol{\beta X_{it}} + \boldsymbol{\gamma X_{it-1}} + \boldsymbol{\delta C_{it}} + \boldsymbol{\theta C_{it-1}} + \boldsymbol{\lambda \Delta C_{it}} + \boldsymbol{\varphi \Delta C_{it-1}} + \zeta_i + \eta_t + \varepsilon_{it} \dots (2)$$

Equation 1 expresses a static model, in which all independent variables are specified in contemporary terms. However, there might be a temporal dynamic in which the previous values of the executive elections as well as the control variables affect the present values of both the main independent variables and the dependent variable (Beck & Katz, 2011; Philips, 2018).

[6] The main reason for not performing these tests is because it is not possible to know whether dummy variables are stationary, since they only take values of zero and one. In addition, taking the first difference of a dummy variable might cause problems with changes from zero to one and vice versa (Pickup, 2014).

Therefore, as shown in equation 2, I also specify Finite Distributed Lag (FDL) models (Beck & Katz, 2011; De Boef & Keele, 2008) to avoid a potential omitted variable bias.

In both equations, the term ΔY_{it} refers to the first difference of the infant mortality rate in a given country-year observation. The term $\boldsymbol{X_{it}}$ denotes the vector of the main independent variables expressed in contemporary terms, while the vector $\boldsymbol{X_{it-1}}$ refers to the same variables but lagged one year. Vectors $\boldsymbol{C_{it}}$ and the $\boldsymbol{\Delta C_{it}}$ denote the stationary and non-stationary control variables respectively. In both cases, these variables are specified in contemporary terms, while the vectors $\boldsymbol{C_{it-1}}$ and $\boldsymbol{\Delta C_{it-1}}$ express the same control variables but lagged one year. Parameters ζ_i and η_t denote country and year fixed effects respectively. Finally, the term ε_{it} denotes the stochastic error.

Statistical Results

Main findings are shown in Table 1.2. Models 1 (static) and 2 (FDL) address the results for *H1*, in which I argue that authoritarian regimes that allow executive elections will be more likely to enjoy greater human development levels than authoritarian regimes do not allow executive elections. Findings from both models show that the effect of the first main independent variable is negative and significant ($p<0.01$). This evidence implies that autocracies holding executive elections are strongly associated to a lower infant mortality rate compared to autocracies that do not hold such elections.

Coefficients magnitude is -0.403 (SE 0.115) for the static model and -0.303 (SE 101) for the FDL model. These effects might seem modest when compared to the average change of the dependent variable in the sample (-1.30), or with the average standard deviation (0.93). However, the estimates are based on measurements of the dependent variable per 1,000 live births. To understand these results, imagine an autocracy that goes from being an authoritarianism completely closed to be a regime that holds executive elections. Now, let's suppose that two million live births were observed in in the same autocracy the year after executive elections were introduced. If we analyze Model 1 coefficient, it is expected that the year after executive elections are introduced will have a reduction of 806 infant deaths compared to the previous year.

Models 3 (static) and 4 (FDL) address the test of *H2*, in which I argue that the effect of authoritarian executive elections on human development will be more likely to occur in the

short-term than in the long run. Both models included lagged values of the main independent variable for a five-year period. Findings in both cases point to the same conclusion. Executive elections are strongly associated with a reduction in the change in the infant mortality rate in the short-term. In line with *H1* findings, coefficients of present values of executive elections are negative and significant ($p<0.01$). However, the estimates of both models suggest that after one year the significance of the effect fades.

It is important to note that Model 2 (FDL) find a negative and significant effect ($p<0.05$) on the one-year lagged executive election variable. However, no model shows that executive elections affect the change in the dependent variable beyond this period. Therefore, there is no evidence to assume that the effect of executive elections on human development occurs in the long run.

Models 5 (static) and 6 (FDL) address the test of *H3*, in which I argue that autocracies holding competitive executive elections will be more likely to enjoy better human development scores compared to autocracies not holding such elections. Estimates from both models show that the coefficient of the second main independent variable is also negative and significant ($p<0.01$ in model 5). This evidence suggests that autocracies holding competitive executive elections are also strongly associated to a lower infant mortality rate compared to autocracies not holding such elections. Regarding their magnitude, these coefficients also appear to have a modest effect, since the static model estimate is -0.280 (SE 0.10) while that of the FDL model is -0.173 (SE 0.08). Let's go back to the previous hypothetical example but analyzing Model 5 estimate. Evidence suggests that there would be a decrease of 560 infant deaths per two million live births compared to the previous year, in which the authoritarian regime did not hold competitive executive elections.

Finally, the evidence from *H4*, in which I argue that legislative elections in authoritarian regimes will have no short or long-term effect on human development, is shown on both models 1 (static) and 2 (FDL) and models 7 (static) and 8 (FDL). The findings of these four models could be counterintuitive at first sight. In all four models, autocracies with legislative elections were found to be strongly associated with an increase in the number of infant deaths in the short-term. Findings from all four models show that the short-term effect of this variable is positive and significant ($p<0.01$). By analyzing again models 1 and 2, it is observed that the magnitude of the legislative election coefficient is 0.33 (SE 0.105) for the static model and 0.26 (SE 0.09)

for the FDL model. By using the legislative elections estimates in Model 1 and the example of hypothetical autocracy with two million live births, it is expected an increase of 660 infant deaths.

Taking these results together, I conclude the following: First, autocracies holding executive elections appear to be associated with rising human development in the short-term when compared to closed autocracies. There is no evidence to suggest that these institutions could improve people's living conditions in the long run. Second, autocracies holding competitive executive elections are also associated with improvements in human development compared to closed autocracies. And third, evidence suggests that autocracies with legislative elections are associated with a higher number of infant deaths compared to closed autocracies. These results contrast with the findings of Miller (2015). However, evidence might not be surprising, given the role of legislative elections. Recall that authoritarian legislatures are used to distribute rents among elites, rather than among the population, in order to prevent regime defections or placate opposition elites (Blaydes, 2011; Gandhi & Przeworski, 2006; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012).

Table 1.2. Main Results

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections	
Executive Elections	**-0.403*** **	**-0.303*** **	**-0.301*** **	**-0.278*** **			**-0.395*** **	**-0.278*** **
	(0.115)	**(0.101)**	**(0.111)**	**(0.102)**			**(0.120)**	**(0.0998)**
Executive Elections $(t-1)$		**-0.205** **	**-0.0829**	**-0.124**				**-0.222** **
		(0.101)	**(0.0884)**	**(0.0932)**				**(0.0985)**
Executive Elections $(t-2)$			-0.0461	-0.0852				
			(0.0569)	(0.0547)				
Executive Elections $(t-3)$			-0.0384	-0.0972				
			(0.0759)	(0.0832)				
Executive Elections $(t-4)$			0.0373	0.0841				
			(0.113)	(0.117)				
Executive Elections $(t-5)$			-0.0502	-0.0596				
			(0.0720)	(0.0731)				
Competitive Executive Elections					**-0.280*** **	**-0.173** **		
					(0.0966)	**(0.0767)**		
Competitive Executive Elections $(t-1)$						**-0.0152**		
						(0.0813)		
Legislative Elections	**0.330*** **	**0.259*** **	**0.320*** **	**0.226** **	**0.0932**	**0.0998**	**0.322*** **	**0.238*** **
	(0.105)	**(0.0871)**	**(0.106)**	**(0.0865)**	**(0.0863)**	**(0.0762)**	**(0.102)**	**(0.0878)**
Legislative Elections $(t-1)$		0.118		0.145*		-0.0588	0.0107	0.156*
		(0.0840)		(0.0857)		(0.0990)	(0.0858)	(0.0851)
Legislative Elections $(t-2)$							-0.0759	-0.0772
							(0.0726)	(0.0744)
Legislative Elections $(t-3)$							0.0856	0.0553
							(0.0718)	(0.0710)
Legislative Elections $(t-4)$							-0.0314	-0.00170
							(0.0852)	(0.0822)
Legislative Elections $(t-5)$							0.00901	-0.000274
							(0.0703)	(0.0704)
Non-Competitive Executive Elections					-0.193	-0.00480		
					(0.206)	(0.114)		
Non-Competitive Executive Elections $(t-1)$						-0.173		
						(0.151)		
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	0.0617	0.0342	0.0223	0.0302	-0.0215	-0.00776	0.0536	0.0312
	(0.111)	(0.126)	(0.125)	(0.127)	(0.116)	(0.134)	(0.125)	(0.128)
Monarchy	-0.719**	-0.732**	-0.745**	-0.735**	-0.655*	-0.575	-0.718**	-0.731**
	(0.346)	(0.314)	(0.328)	(0.309)	(0.372)	(0.364)	(0.350)	(0.318)
Personalistic Regime	0.101	0.120	0.0783	0.112	-0.0456	0.00626	0.0913	0.121

	(0.0902)	(0.101)	(0.0950)	(0.104)	(0.100)	(0.118)	(0.0951)	(0.104)
Communist Country	0.00592	-7.169***	0.00470	-7.156***	-0.251	-7.246***	-0.00101	-7.159***
	(0.150)	(1.184)	(0.152)	(1.186)	(0.167)	(1.182)	(0.150)	(1.185)
Communist Country $(t-1)$		7.654***		7.641***		7.542***		7.639***
		(1.139)		(1.141)		(1.140)		(1.142)
Political Violence	-0.0169	-0.00129	-0.0166	-0.00323	-0.0116	-0.00763	-0.0169	-0.00201
	(0.0202)	(0.0205)	(0.0206)	(0.0210)	(0.0192)	(0.0213)	(0.0205)	(0.0206)
Political Violence $(t-1)$		-0.0159		-0.0136		-0.00362		-0.0151
		(0.0202)		(0.0206)		(0.0113)		(0.0207)
Δ Oil Rents	0.00315	0.00332	0.00344	0.00307	0.00256	0.00250	0.00339	0.00313
	(0.00362)	(0.00400)	(0.00370)	(0.00394)	(0.00374)	(0.00414)	(0.00375)	(0.00400)
Δ Oil Rents $(t-1)$		5.13e-05		0.000597		-0.000231		0.000621
		(0.00174)		(0.00172)		(0.00181)		(0.00174)
Δ Log GDP per capita	-0.246	-0.420*	-0.669***	-0.597**	-0.287	-0.474**	-0.626**	-0.588**
	(0.243)	(0.225)	(0.241)	(0.231)	(0.249)	(0.232)	(0.251)	(0.235)
Δ Log GDP per capita $(t-1)$		0.141		0.0539		0.0842		0.0801
		(0.159)		(0.184)		(0.160)		(0.187)
Foreign Aid	-0.00292	-0.00378	-0.00383	-0.00427*	-0.00286	-0.00351	-0.00358	-0.00392
	(0.00375)	(0.00255)	(0.00387)	(0.00258)	(0.00356)	(0.00255)	(0.00382)	(0.00256)
Foreign Aid $(t-1)$		0.00213		0.00216		0.00128		0.00214
		(0.00278)		(0.00277)		(0.00252)		(0.00280)
Δ Urban Concentration	-0.00849	-0.00678	-0.00904	-0.00739	-0.00803	-0.00608	-0.00877	-0.00717
	(0.00560)	(0.00503)	(0.00581)	(0.00519)	(0.00557)	(0.00511)	(0.00578)	(0.00516)
Δ Urban Concentration $(t-1)$		-0.00855		-0.00857		-0.00731		-0.00851
		(0.00664)		(0.00673)		(0.00696)		(0.00672)
Constant	-2.165***	-3.343***	-2.087***	-3.301***	-2.115***	-3.340***	-2.143***	-3.332***
	(0.169)	(0.430)	(0.190)	(0.435)	(0.169)	(0.431)	(0.188)	(0.436)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,742	3,598	3,693	3,564	3,739	3,592	3,693	3,564
R-squared (Overall)	0.244	0.311	0.238	0.304	0.203	0.295	0.245	0.310
R-squared (Between)	0.160	0.163	0.156	0.153	0.078	0.149	0.176	0.169
R-squared (Within)	0.328	0.450	0.331	0.452	0.328	0.444	0.330	0.451
Number of groups	135	135	135	135	135	135	135	135

Source: Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Robustness Checks

It can be argued that the relationship between electoral institutions and human development has an important endogeneity problem. Both the incorporation of executive elections into an authoritarian regime and the implementation of human development policies might be influenced by the decisions of autocrats (Miller, 2015). It is therefore necessary to implement an additional empirical strategy to solve this problem in order to estimate the causal effect of executive elections on human development.

As a robustness check of the main findings, I reestimated the static models[7] using an instrumental variables strategy. Instrumental variables models can test whether an endogenous independent variable is associated with the dependent variable (Miller, 2015; Wooldridge, 2001). I use Fixed Effects Two Stage Least Squares models (FE2SLS) with two instrumental variables. The empirical setup of these kind of models as well as the first-stage results can be found in the Appendix 4.

I build on the insights of Miller (2015) and include a set of his instruments derived from the idea of international diffusion: the percentage of democratic neighboring countries and the percentage of neighboring autocracies that hold multi-party executive and legislative elections (electoral authoritarianisms). Both instruments that are based on the fact that countries are more likely to incorporate democratic institutions if they are surrounded by a significant percentage of democratic countries (Gleditsch & Ward, 2006). This same effect has been shown for electoral authoritarianism (Miller, 2014, 2015).

Miller (2015) argues that there are additional reasons why authoritarian regimes are more likely to introduce elections when surrounded by democratic countries or electoral authoritarianisms. First, there might be international pressure to introduce elections; authoritarian leaders might want to copy what their peers from other neighboring countries do; popular pressure for a democratic openness underpinned by citizens watching what is happening in neighboring countries; and the desire of autocrats not to be regarded as illiberal outliers. Therefore, for these estimates to be reliable, a relevant assumption needs to be met: the presence of neighboring democratic countries or electoral authoritarianisms can only affect a country's

[7] It was not possible to use this strategy in models were long run effects were calculated because the first step of IV equation must have at least as many dependent variables as instruments.

infant mortality rate through its effect on elections (exclusion restriction)[8]. Furthermore, as can be observed in the Appendix 4, by conducting the Sargan and the Bassman tests for overidentification and the validity of instruments[9], empirically the model is correctly specified. Hence, I use a set of two instrumental variables: the percentage of democratic neighboring countries and the percentage of neighboring electoral authoritarianisms. Both variables can be used as exogenous factors to estimate the effect of executive elections on human development.

Results of the FE2SLS models are shown in Table 1.3. In Model 9 the executive election variable was instrumented, and the presence of legislative elections are controls. Results confirm the inferences of the main models by showing that autocracies with this type of elections are associated with decreases in the change in the infant mortality rate. In fact, this model suggests that there could be an underestimation of the effect of executive elections. The coefficient is -6.27 (SE 2.17) and is again significant ($p<0.01$). By making the calculation of the example above, it could be expected a decrease of 31,350 infant deaths per five million live births in the year in which executive elections were introduced.

Table 1.3. Fixed Effects Instrumental Variables Estimations

VARIABLES	Model 9 Executive Elections	Model 10 Competitive Executive Elections	Model 11 Legislative Elections
Executive Elections	**-6.269*** **		**-4.364** **
	(2.175)		**(1.792)**
Competitive Executive Elections		**-3.790*** **	
		(1.348)	
Legislative Elections	**4.323*** **	**0.231**	**3.935*** **
	(1.604)	**(0.184)**	**(1.403)**
Non-Competitive Executive Elections		-0.547	
		(0.383)	
Single Party Regime	OMITTED	OMITTED	OMITTED
Military Regime	-0.464	-0.812*	0.000343
	(0.366)	(0.489)	(0.191)
Monarchy	-2.956**	-1.625**	-1.843***
	(1.442)	(0.690)	(0.536)
Personalistic Regime	0.313	-1.247**	0.0397
	(0.298)	(0.559)	(0.174)
Communist Country	0.333	-2.658***	-0.218
	(0.270)	(1.002)	(0.188)
Political Violence	-0.0801	0.00248	-0.0187
	(0.0589)	(0.0289)	(0.0343)

[8] This assumption is plausible because the presence of neighboring democratic countries or electoral authoritarianisms is unlikely to directly influence a country's welfare policies. For the same reason it can be true that instruments only affect the dependent variable through the independent variable.

[9] The null hypothesis of both tests is that the set of instruments is exogenous and therefore valid. As can be observed in the Appendix 4, the null hypothesis cannot be rejected in all the three models.

Δ Oil Rents	0.00923	0.000453	0.00932
	(0.00663)	(0.00407)	(0.00600)
Δ Log GDP per capita	0.462	-0.0526	-0.223
	(0.778)	(0.429)	(0.399)
Foreign Aid	0.00947	0.00867	0.00701
	(0.0106)	(0.00798)	(0.00759)
Δ Urban Concentration	-0.0165*	-0.00840	-0.00548
	(0.00973)	(0.00736)	(0.00642)
Constant	-1.026*	-1.416***	-2.303***
	(0.585)	(0.416)	(0.327)
Year Fixed Effects	YES	YES	YES
Observations	3,729	3,726	3,729
R-squared (Overall)	0.017	0.016	0.008
R-squared (Between)	0.001	0.004	0.030
R-squared (Within)	.	.	.
Number of groups	135	135	135

Source: Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Regarding autocracies holding competitive executive elections, Model 10 suggests that previous inferences are also valid. However, it also shows a possible underestimation. In this model the presence of competitive executive elections was instrumented and both legislative elections and non-competitive executive elections are only controls. The coefficient is -3.79 (SE 1.35) and is also significant ($p<0.01$). By making the same calculation, a decrease of 18,950 infant deaths per five million live births could be expected in the year in which competitive executive elections were introduced into that authoritarian regime.

Finally, in model 11 the variable of legislative elections was instrumented. The estimate of this model is that such elections tend to increase the number of infant deaths in autocracies. This finding is once again consistent with previous results. However, it also shows a possible underestimation of the effect. The coefficient of legislative elections is 3.93 (SE 1.40) and is also significant ($p<0.01$). By using the same calculation and in contrast to executive elections, an increase of 19,675 infant deaths per five million live births would be expected in the year in which legislative elections were introduced into that authoritarian regime.

I conducted four additional estimations of the main models but using different strategies for calculating errors. I used random effects, random coefficients, Generalized Method of Moments (GMM) system dynamic panel estimations and GMM Arellano-Bond dynamic panel estimations. Table 1.4 shows a summary of the coefficients and standard errors of short-term estimates of the main independent variables. The long-term effects as well as all model

information is shown in tables A38 through A41 in Appendix 5. As can be seen, with these reestimations there were no changes in the conclusions regarding executive elections and legislative elections. However, some of the evidence suggests that the effect of competitive executive elections might not be as robust.

Table 1.4. Additional Robustness Checks

	Executive Elections		Competitive Executive Elections		Legislative Elections		Executive Elections Controlling by Fraud	
Model	Static	FDL	Static	FDL	Static	FDL	Static	FDL
Random Effects	-0.345*** (0.107)	-0.264*** (0.097)	-0.131 (0.081)	-0.117 (0.074)	0.285*** (0.101)	0.231*** (0.085)	-0.329*** (0.105)	-0.275*** (0.098)
Random Coefficients	-0.304*** (0.110)	-0.216** (0.102)	-0.149* (0.084)	-0.0704 (0.070)	0.294*** (0.110)	0.238*** (0.091)	-0.311*** (0.110)	-0.254** (0.102)
GMM System Dynamic Panel	-0.337** (0.170)	-0.236* (0.131)	0.374*** (0.121)	0.199* (0.113)	0.766*** (0.192)	0.605*** (0.162)	-0.534*** (0.204)	-0.397*** (0.154)
GMM Arellano-Bond Dynamic Panel	-0.338** (0.133)	-0.197* (0.113)	0.136 (0.118)	0.146 (0.112)	0.509*** (0.147)	0.364*** (0.128)	-0.434*** (0.156)	-0.298*** (0.125)

Own Elaboration.
Clustered standard errors in parentheses for Random Effects and Random Coefficient Models.
Robust standard errors in parentheses for both GMM estimations.
*** p<0.01, ** p<0.05, * p<0.1.

Conclusion

This research broadens the literature on the political economy of authoritarian regimes in two ways. First, it explains how authoritarian leaders might be forced to appeal to voters and be responsive to their demands against the risk posed by executive elections in an undemocratic context (Donno, 2013; Knutsen et al., 2017; Little et al., 2015; Lucardi, 2019; Tucker, 2007). Second, it examines how authoritarian leaders might resemble democratic leaders as they seek to improve people's living conditions to preserve power through elections.

Institutions thought of as democratic-only are those that might make an improvement in human development possible in an authoritarian context. It seems that human development is used by authoritarian leaders to try to strengthen their rule. Human development into both, democracies and electoral autocracies seems to operate as a way of accessing or conserving power through elections. At the end of the day, leaders, whether authoritarian or democratic, improve human development to achieve a political objective. Clearly, the aim of authoritarian leaders for improving the quality of life of their people is to strengthen their rule.

My argument is that authoritarian regimes that allow executive elections face a higher risk of a change of leaders compared to regimes that do not hold elections, such as Middle East monarchies, especially when they become competitive, as happened in Venezuela after the death of Hugo Chávez in 2013. I claim that only executive elections matter because they might create a dynamic in which the winner takes all, unlike legislative elections as they happen in Jordan, where even if the party of the regime loses a majority, there is a possibility of co-optation or bargaining.

Empirical evidence showed results consistent with my argument. The effects found suggest that the presence of executive elections tends to reduce the in the infant mortality rate in authoritarian regimes and thus increase human development in the short-term. The short-term effect of executive elections does not mean that the infant mortality rate in autocracies will not change beyond one year, but that its changes cannot be attributed to executive elections after this period. This implies that, on average, autocracies holding executive elections tend to decrease their infant mortality rate relatively fast compared to closed autocracies and that subsequent changes in this variable are not the result of executive elections. In addition, the evidence points out that competitive executive elections also have an effect on lowering the infant mortality rate. In contrast, findings regarding legislative elections suggest that such institutions could help autocrats become more extractive. Evidence consistently showed that autocracies with legislative elections are strongly associated with a rise in the infant mortality rate and thus a decrease in human development.

The reliability of the results lies in two elements. First, models account for potential stationarity problems. Therefore, the relationship between elections and human development is not spurious and is not due to a serial correlation. Second, the instrumental variables strategy showed that the inferences of the main models are valid, despite a potential endogeneity problem. In fact, findings of the FE2SLS models seem to indicate that what exists is an underestimation of the effects. Executive election autocracies could lower the infant mortality rate more than the main models estimated.

In terms of further research, while my argument emphasizes the incentives of authoritarian leaders to survive through a strategy that improves human development, little explains, for instance, how the autocrat might target the policies. Authoritarian leaders might

target likely opposition voters to coopt them or they might try to benefit their supporters. Therefore, it is necessary to study how autocrats distribute the benefits.

In the same way, it was beyond the aim of this study to address the behavior of both voters and the regime opposition. My argument emphasizes the actions of autocrats who face executive elections and how they are forced to improve human development. However, this survival strategy might or might not be successful. Autocrats do lose executive elections (Fearon, 2011; Higashijima, 2015a; Levitsky & Way, 2010; Lucardi, 2019; Schedler, 2002b). It is therefore necessary to explore into whether voters make a prospective or retrospective assessment when they decide to vote for the regime or the opposition.

In the same way, opposition parties might modify their strategies to try to access to power as more competitive an executive election becomes, which is not explored in this research. Similarly, my argument is based on the assumption that voters might support the regime on the ballot if their well-being is improved. However, voters might be co-opted by the opposition or they could simply benefit from the regime's actions and still vote for the opposition. Unquestionably, the behavior of the opposition and voters in authoritarian regimes might change as authoritarian leaders are more at risk of losing power.

Appendix 1. Descriptive Statistics

Table A1. Descriptive Statistics of Control Variables

Variable	Mean	Std. Dev.	Min	Max	Observations	Source
Non-competitive Executive Elections	0.32	-	0	1	3,861	Lexical Index of Electoral Democracy
Legislative Elections	0.86	-	0	1	3,863	Lexical Index of Electoral Democracy
Single Party Regimes	0.49	-	0	1	3,864	Geddes, Wright and Frantz (2014)
Personalistic Regimes	0.26	-	0	1	3,864	Geddes, Wright and Frantz (2014)
Military Regimes	0.13	-	0	1	3,864	Geddes, Wright and Frantz (2014)
Monarchies	0.12	-	0	1	3,864	Geddes, Wright and Frantz (2014)
Communist Country	0.02	-	0	1	3,864	Miller (2015)
Political Violence	0.77	1.76	0	10	3,864	Miller (2015)
Clean Elections Index	0.48	0.36	0	0.98	3,585	V-Dem Project Database v9
Oil Rents	3.74	9.39	0	83.12	3,857	World Bank
Log GDP per capita	8.76	1.21	5.63	11.70	3,864	World Bank
Foreign Aid	4.98	9.50	0	185.94	3,854	World Bank

Source: Own elaboration.

Appendix 2. Unit-root Tests for Infant Mortality Rate

Table A2. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	**p-value**
Inverse chi-squared (220) P	1273.3558	0.0000
Inverse Normal Z	-17.6562	0.0000
Inverse Logit T (554) L*	-28.1220	0.0000
Modified inv. Chi-squared Pm	50.2168	0.0000

Source: Own elaboration.

Table A3. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	**p-value**
Inverse chi-squared (220) P	473.1763	0.0000
Inverse Normal Z	-1.4963	0.0673
Inverse Logit T (534) L*	-3.4800	0.0003
Modified inv. Chi-squared Pm	12.0697	0.0000

Source: Own elaboration.

Table A4. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	**p-value**
Inverse chi-squared (220) P	1472.8972	0.0000
Inverse Normal Z	-26.0874	0.0000
Inverse Logit T (554) L*	-37.0848	0.0000
Modified inv. Chi-squared Pm	59.7295	0.0000

Source: Own elaboration.

Table A5. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	1789.5163	0.0000
Inverse Normal Z	-25.8290	0.0000
Inverse Logit T (554) L*	-44.3998	0.0000
Modified inv. Chi-squared Pm	74.8238	0.0000

Source: Own elaboration.

Table A6. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	504.3204	0.0000
Inverse Normal Z	-3.2991	0.0005
Inverse Logit T (554) L*	-5.4110	0.0000
Modified inv. Chi-squared Pm	13.5544	0.0000

Source: Own elaboration.

Appendix 3. Unit-root Tests for Continuous Control Variables

Political Violence

Table A7. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	539.0932	0.0000
Inverse Normal Z	-10.9055	0.0000
Inverse Logit T (554) L*	-14.4683	0.0000
Modified inv. Chi-squared Pm	14.1029	0.0000

Source: Own elaboration.

Table A8. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	464.1275	0.0000
Inverse Normal Z	-7.7481	0.0000
Inverse Logit T (534) L*	-10.8651	0.0000
Modified inv. Chi-squared Pm	10.6839	0.0000

Source: Own elaboration.

Table A9. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	815.4468	0.0000
Inverse Normal Z	-20.4071	0.0000
Inverse Logit T (554) L*	-25.5994	0.0000
Modified inv. Chi-squared Pm	38.4196	0.0000

Source: Own elaboration.

Table A10. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	773.0641	0.0000
Inverse Normal Z	-13.6040	0.0000
Inverse Logit T (554) L*	-21.8842	0.0000
Modified inv. Chi-squared Pm	24.9182	0.0000

Source: Own elaboration.

Table A11.Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	688.5260	0.0000
Inverse Normal Z	-10.8174	0.0005
Inverse Logit T (554) L*	-18.1217	0.0000
Modified inv. Chi-squared Pm	21.0105	0.0000

Source: Own elaboration.

Clean Elections Index

Table A12. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	749.4029	0.0000
Inverse Normal Z	-10.1046	0.0000
Inverse Logit T (554) L*	-14.5672	0.0000
Modified inv. Chi-squared Pm	23.8245	0.0000

Source: Own elaboration.

Table A13. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	715.2254	0.0000
Inverse Normal Z	-9.2424	0.0000
Inverse Logit T (534) L*	-14.1513	0.0000
Modified inv. Chi-squared Pm	22.2446	0.0000

Source: Own elaboration.

Table A14. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	1084.2612	0.0000
Inverse Normal Z	-21.2646	0.0000
Inverse Logit T (554) L*	-26.2982	0.0000
Modified inv. Chi-squared Pm	30.3692	0.0000

Source: Own elaboration.

Table A15. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	776.6245	0.0000
Inverse Normal Z	-11.2057	0.0000
Inverse Logit T (554) L*	-15.8062	0.0000
Modified inv. Chi-squared Pm	25.0828	0.0000

Source: Own elaboration.

Table A16. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	756.5415	0.0000
Inverse Normal Z	-9.9045	0.0005
Inverse Logit T (554) L*	-15.2624	0.0000
Modified inv. Chi-squared Pm	24.1545	0.0000

Source: Own elaboration.

Oil Rents

Table A17. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	222.6320	0.1304
Inverse Normal Z	-4.1897	0.0000
Inverse Logit T (554) L*	-4.5662	0.0000
Modified inv. Chi-squared Pm	1.1316	0.1289

Source: Own elaboration.

Table A18. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	175.1079	0.8974
Inverse Normal Z	-3.4174	0.0003
Inverse Logit T (534) L*	-3.4073	0.0004
Modified inv. Chi-squared Pm	-1.2446	0.8934

Source: Own elaboration.

Table A19. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	424.6034	0.0000
Inverse Normal Z	-13.3462	0.0000
Inverse Logit T (554) L*	-14.5990	0.0000
Modified inv. Chi-squared Pm	20.2608	0.0000

Source: Own elaboration.

Table A20. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	241.9743	0.0285
Inverse Normal Z	-5.1741	0.0000
Inverse Logit T (554) L*	-5.4545	0.0000
Modified inv. Chi-squared Pm	1.9888	0.0234

Source: Own elaboration.

Table A21. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	207.4253	0.3818
Inverse Normal Z	-4.5576	0.0000
Inverse Logit T (554) L*	-4.8824	0.0000
Modified inv. Chi-squared Pm	0.2699	0.3936

Source: Own elaboration.

Log GDP per capita

Table A22. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	246.1451	0.0925
Inverse Normal Z	2.5675	0.9949
Inverse Logit T (554) L*	2.6044	0.9953
Modified inv. Chi-squared Pm	1.3479	0.0888

Source: Own elaboration.

Table A23. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	322.0918	0.0000
Inverse Normal Z	2.2394	0.9874
Inverse Logit T (534) L*	-0.0085	0.4966
Modified inv. Chi-squared Pm	4.9851	0.0000

Source: Own elaboration.

Table A24. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	583.6265	0.0000
Inverse Normal Z	-12.1705	0.0000
Inverse Logit T (554) L*	-13.1976	0.0000
Modified inv. Chi-squared Pm	17.6874	0.0000

Source: Own elaboration.

Table A25. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	241.9743	0.0285
Inverse Normal Z	-5.1741	0.0000
Inverse Logit T (554) L*	-5.4545	0.0000
Modified inv. Chi-squared Pm	1.9888	0.0234

Source: Own elaboration.

Table A26. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	245.7924	0.0951
Inverse Normal Z	3.3686	0.9996
Inverse Logit T (554) L*	3.4506	0.9997
Modified inv. Chi-squared Pm	1.3310	0.0916

Source: Own elaboration.

Foreign Aid

Table A27. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	389.6756	0.0000
Inverse Normal Z	-5.6159	0.0000
Inverse Logit T (554) L*	-7.4531	0.0000
Modified inv. Chi-squared Pm	7.5712	0.0000

Source: Own elaboration.

Table A28. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	362.3961	0.0000
Inverse Normal Z	-3.9826	0.0000
Inverse Logit T (534) L*	-5.7411	0.0000
Modified inv. Chi-squared Pm	6.2937	0.0000

Source: Own elaboration.

Table A29. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	710.9257	0.0000
Inverse Normal Z	-17.5578	0.0000
Inverse Logit T (554) L*	-19.9851	0.0000
Modified inv. Chi-squared Pm	27.822	0.0000

Source: Own elaboration.

Table A30. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	544.1080	0.0000
Inverse Normal Z	-8.6070	0.0000
Inverse Logit T (554) L*	-11.9996	0.0000
Modified inv. Chi-squared Pm	14.8031	0.0000

Source: Own elaboration.

Table A31. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	529.3737	0.0000
Inverse Normal Z	-8.3227	0.0000
Inverse Logit T (554) L*	-11.9701	0.0000
Modified inv. Chi-squared Pm	14.1131	0.0000

Source: Own elaboration.

Urban Concentration

Table A32. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	327.2363	0.0001
Inverse Normal Z	4.5917	1.0000
Inverse Logit T (554) L*	3.1189	0.9990
Modified inv. Chi-squared Pm	4.3099	0.0000

Source: Own elaboration.

Table A33. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	391.0029	0.0000
Inverse Normal Z	0.4467	0.6725
Inverse Logit T (534) L*	-2.4287	0.0077
Modified inv. Chi-squared Pm	7.2575	0.0000

Source: Own elaboration.

Table A34. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	**p-value**
Inverse chi-squared (220) P	581.6909	0.0000
Inverse Normal Z	-8.6958	0.0000
Inverse Logit T (554) L*	-10.4554	0.0000
Modified inv. Chi-squared Pm	16.7303	0.0000

Source: Own elaboration.

Table A35. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	314.0681	0.0004
Inverse Normal Z	4.9435	1.0000
Inverse Logit T (554) L*	4.1675	1.0000
Modified inv. Chi-squared Pm	3.7012	0.0001

Source: Own elaboration.

Table A36. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	345.2431	0.0000
Inverse Normal Z	1.3620	0.9134
Inverse Logit T (554) L*	-0.8530	0.1970
Modified inv. Chi-squared Pm	5.1422	0.0000

Source: Own elaboration.

Appendix 4: Empirical Setup for the Instrumental Variables Strategy

As stated above, the relationship between executive elections and human development could have a serious problem of endogeneity. Therefore, this additional strategy for testing my argument is based on instrumental variables with fixed-effects models (FE2SLS). These two-stage models first estimate the exogenous components of the independent variables. Then, in the second step, estimate the effect of that exogenous components on the dependent variable. Given the times-series cross-section structure of the data, the general model is again equation 1:

$$\Delta Y_{it} = \alpha + \boldsymbol{\beta X_{it}} + \boldsymbol{\delta C_{it}} + \boldsymbol{\lambda \Delta C_{it}} + \zeta_i + \eta_t + \varepsilon_{it} \dots (1)$$

However, the term $\boldsymbol{X_{it}}$ might contain values that are endogenous to ΔY_{it}. Therefore, I define $\boldsymbol{Z_{it}}$ as a vector of instrumental variables that contains the exogenous values of $\boldsymbol{X_{it}}$ and satisfies the following condition:

$$E(\varepsilon_{it} | \boldsymbol{Z_{it}}, \zeta_i) = 0$$

By using the Mundlak form (Wooldridge, 2001), fixed effects can be defined as follows:

$$\zeta_i = \psi + \boldsymbol{\theta \bar{z}} + u_i \dots (3)$$

Therefore, next equation is obtained:

$$\Delta Y_{it} = \alpha + \boldsymbol{\beta X_{it}} + \boldsymbol{\delta C_{it}} + \boldsymbol{\lambda \Delta C_{it}} + \psi + \boldsymbol{\theta \bar{z}} + \eta_t + u_i + \varepsilon_{it} \dots (4)$$

The IV models are thus based on equation 4. All of them were estimated with clustered standard errors by country.

Table A37. First-Stage Results of the Fixed Effects Instrumental Variables Estimations

VARIABLES	Model A1 DV: Executive Elections	Model A2 DV: Competitive Executive Elections	Model A3 DV: Legislative Elections
Democratic Region	**0.283*** **	**0.571*** **	**-0.159** **
	(0.085)	**(0.147)**	**(0.077)**
Electoral Authoritarianism Region	**0.053**	**0.125**	**0.066**
	(0.079)	**(0.103)**	**(0.068)**
Executive Elections			0.784***
			(0.039)
Legislative Elections	0.693***	0.205***	
	(0.055)	(0.044)	
Non-Competitive Executive Elections		0.006	
		(0.084)	
Single Party Regime	OMITTED	OMITTED	OMITTED
Military Regime	-0.081*	-0.364***	-0.102***
	(0.048)	(0.080)	(0.031)
Monarchy	-0.404	-0.347	0.323*
	(0.266)	(0.260)	(0.191)
Personalistic Regime	0.027	-0.490***	-0.065
	(0.045)	(0.063)	(0.047)
Communist Country	0.157***	-0.630***	-0.107**
	(0.045)	(0.082)	(0.042)
Political Violence	-0.020*	-0.008	0.006
	(0.011)	(0.011)	(0.009)
Δ Oil Rents	0.0009	-0.0005	-0.002
	(0.0009)	(0.005)	(0.0015)
Δ Log GDP per capita	0.117	-0.0526	-0.037
	(0.109)	(0.429)	(0.111)
Foreign Aid	0.002	0.003	-0.003
	(0.0013)	(0.002)	(0.002)
Δ Urban Concentration	-0.0011	-0.00840	-0.0007
	(0.0012)	(0.00736)	(0.001)
Constant	0.106	0.161	0.187**
	(0.081)	(0.090)	(0.087)
Year Fixed Effects	YES	YES	YES
Observations	3,742	3,739	3,742
R-squared (Overall)	0.672	0.525	0.602
R-squared (Between)	0.638	0.517	0.513
R-squared (Within)	0.643	0.488	0.634
Sargan (score) chi2(1)	1.26977 (p = 0.2598)	2.90585 (p = 0.1481)	3.34563 (p = 0.2598)
Basmann chi2(1)	1.26579 (p = 0.2606)	2.85764 (p = 0.1495)	3.346765 (p = 0.2606)
Number of groups	135	135	135

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix 5. Additional Robustness Checks

Table A38. Random Effects

VARIABLES	Model A4	Model A5	Model A6	Model A7	Model A8	Model A9	Model A10	Model A11
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections	
Executive Elections	-0.345***	-0.264***	-0.256**	-0.241**			-0.340***	-0.239**
	(0.107)	(0.0966)	(0.105)	(0.0976)			(0.110)	(0.0953)
Executive Elections $(t-1)$		-0.175*	-0.0776	-0.105				-0.191**
		(0.0981)	(0.0871)	(0.0905)				(0.0952)
Executive Elections $(t-2)$			-0.0404	-0.0798				
			(0.0564)	(0.0543)				
Executive Elections $(t-3)$			-0.0316	-0.0905				
			(0.0753)	(0.0823)				
Executive Elections $(t-4)$			0.0411	0.0881				
			(0.112)	(0.117)				
Executive Elections $(t-5)$			-0.0288	-0.0416				
			(0.0722)	(0.0730)				
Competitive Executive Elections					-0.131	-0.117		
					(0.0815)	(0.0736)		
Competitive Executive Elections $(t-1)$						0.0373		
						(0.0732)		
Legislative Elections	0.285***	0.231***	0.279***	0.201**	0.0531	0.0854	0.284***	0.210**
	(0.101)	(0.0849)	(0.102)	(0.0848)	(0.0828)	(0.0759)	(0.0968)	(0.0849)
Legislative Elections $(t-1)$		0.0949		0.120		-0.0698	0.00192	0.130
		(0.0818)		(0.0830)		(0.0973)	(0.0840)	(0.0833)
Legislative Elections $(t-2)$							-0.0743	-0.0778
							(0.0722)	(0.0743)
Legislative Elections $(t-3)$							0.0882	0.0562
							(0.0715)	(0.0701)
Legislative Elections $(t-4)$							-0.0293	0.00170
							(0.0845)	(0.0819)
Legislative Elections $(t-5)$							0.0165	0.00631
							(0.0692)	(0.0695)
Non-Competitive Executive Elections					-0.230	-0.0278		
					(0.196)	(0.107)		
Non-Competitive Executive Elections $(t-1)$						-0.184		
						(0.146)		
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	0.0396	0.0217	0.00900	0.0193	0.00577	0.0187	0.0341	0.0199
	(0.106)	(0.121)	(0.119)	(0.122)	(0.107)	(0.125)	(0.120)	(0.123)
Monarchy	-0.780***	-0.764***	-0.828***	-0.787***	-0.681***	-0.588**	-0.794***	-0.773***

	(0.202)	(0.209)	(0.213)	(0.216)	(0.210)	(0.231)	(0.208)	(0.210)
Personalistic Regime	0.0441	0.0721	0.0325	0.0684	-0.0318	0.0188	0.0424	0.0736
	(0.0801)	(0.0911)	(0.0846)	(0.0938)	(0.0888)	(0.105)	(0.0850)	(0.0935)
Communist Country	0.126	-7.172***	0.113	-7.164***	0.0309	-7.209***	0.118	-7.162***
	(0.162)	(1.178)	(0.158)	(1.180)	(0.188)	(1.173)	(0.162)	(1.179)
Communist Country $(t-1)$		7.630***		7.619***		7.596***		7.618***
		(1.136)		(1.138)		(1.134)		(1.138)
Political Violence	-0.0273	-0.00862	-0.0271	-0.0102	-0.0235	-0.00983	-0.0272	-0.00918
	(0.0194)	(0.0208)	(0.0198)	(0.0214)	(0.0185)	(0.0207)	(0.0197)	(0.0210)
Political Violence $(t-1)$		-0.0164		-0.0149		-0.00893		-0.0162
		(0.0196)		(0.0201)		(0.0198)		(0.0200)
Δ Oil Rents	0.00288	0.00294	0.00317	0.00271	0.00232	0.00217	0.00312	0.00274
	(0.00362)	(0.00400)	(0.00370)	(0.00395)	(0.00372)	(0.00409)	(0.00375)	(0.00401)
Δ Oil Rents $(t-1)$		-0.000205		0.000303		-0.000532		0.000317
		(0.00172)		(0.00171)		(0.00179)		(0.00173)
Δ Log GDP per capita	-0.234	-0.379*	-0.633***	-0.533**	-0.260	-0.415*	-0.596**	-0.525**
	(0.241)	(0.219)	(0.238)	(0.226)	(0.246)	(0.225)	(0.245)	(0.229)
Δ Log GDP per capita $(t-1)$		0.141		0.0650		0.0956		0.0907
		(0.161)		(0.185)		(0.165)		(0.188)
Foreign Aid	-0.00569*	-0.00491**	-0.00642*	-0.00528**	-0.00618**	-0.00469**	-0.00618*	-0.00501**
	(0.00317)	(0.00236)	(0.00330)	(0.00239)	(0.00308)	(0.00236)	(0.00327)	(0.00237)
Foreign Aid $(t-1)$		0.000121		8.23e-05		-0.000711		4.39e-05
		(0.00244)		(0.00240)		(0.00227)		(0.00245)
Δ Urban Concentration	-0.00895	-0.00726	-0.00939	-0.00774	-0.00855	-0.00653	-0.00916	-0.00759
	(0.00580)	(0.00519)	(0.00598)	(0.00533)	(0.00579)	(0.00523)	(0.00595)	(0.00531)
Δ Urban Concentration $(t-1)$		-0.00957		-0.00954		-0.00849		-0.00955
		(0.00669)		(0.00678)		(0.00694)		(0.00677)
Constant	-2.155***	-3.334***	-2.097***	-3.306***	-2.145***	-3.361***	-2.138***	-3.327***
	(0.185)	(0.452)	(0.204)	(0.457)	(0.187)	(0.456)	(0.204)	(0.459)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,742	3,598	3,693	3,564	3,739	3,593	3,693	3,564
R-squared (Overall)	0.268	0.333	0.265	0.330	0.257	0.334	0.268	0.333
R-squared (Between)	0.233	0.223	0.234	0.221	0.212	0.250	0.246	0.232
R-squared (Within)	0.327	0.449	0.329	0.451	0.235	0.442	0.328	0.450
Number of groups	135	135	135	135	135	135	135	135

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A39. Random Coefficients

VARIABLES	Model A12	Model A13	Model A14	Model A15	Model A16	Model A17	Model A18	Model A19
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections	
Executive Elections	-0.304***	-0.216**	-0.220**	-0.191*			-0.211*	-0.140
	(0.110)	(0.101)	(0.110)	(0.102)			(0.109)	(0.103)
Executive Elections $(t-1)$		-0.173*	-0.0830	-0.115				-0.159*
		(0.102)	(0.0916)	(0.0919)				(0.0927)
Executive Elections $(t-2)$			-0.0339	-0.0724				
			(0.0566)	(0.0553)				
Executive Elections $(t-3)$			-0.0230	-0.0706				
			(0.0801)	(0.0830)				
Executive Elections $(t-4)$			0.0342	0.0779				
			(0.112)	(0.115)				
Executive Elections $(t-5)$			-0.0458	-0.0584				
			(0.0690)	(0.0703)				
Competitive Executive Elections					-0.149*	-0.0704		
					(0.0840)	(0.0702)		
Competitive Executive Elections $(t-1)$						0.00243		
						(0.0729)		
Legislative Elections	0.294***	0.238***	0.288**	0.206**	0.201**	0.264***	0.181**	0.156*
	(0.110)	(0.0915)	(0.112)	(0.0915)	(0.102)	(0.0980)	(0.0894)	(0.0799)
Legislative Elections $(t-1)$		0.0917		0.117		-0.0442	-0.00213	0.108
		(0.0831)		(0.0854)		(0.101)	(0.0891)	(0.0852)
Legislative Elections $(t-2)$							-0.0711	-0.0717
							(0.0712)	(0.0738)
Legislative Elections $(t-3)$							0.0948	0.0601
							(0.0745)	(0.0711)
Legislative Elections $(t-4)$							-0.0385	-0.00217
							(0.0882)	(0.0846)
Legislative Elections $(t-5)$							0.0126	0.00310
							(0.0666)	(0.0679)
Non-Competitive Executive Elections					-0.0847	0.166		
					(0.225)	(0.143)		
Non-Competitive Executive Elections $(t-1)$						-0.160		
						(0.151)		
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	0.0632	0.0522	0.0270	0.0502	0.0247	0.0476	0.0607	0.0660
	(0.101)	(0.122)	(0.117)	(0.123)	(0.104)	(0.125)	(0.123)	(0.130)
Monarchy	-0.894***	-0.895***	-0.946***	-0.918***	-0.828***	-0.764***	-0.711***	-0.705***
	(0.189)	(0.181)	(0.184)	(0.182)	(0.193)	(0.195)	(0.264)	(0.257)
Personalistic Regime	0.0581	0.0750	0.0387	0.0688	-0.00801	0.0457	0.00797	0.0462

	(0.0846)	(0.0958)	(0.0887)	(0.0982)	(0.0934)	(0.107)	(0.0906)	(0.0996)
Communist Country	0.0868	-7.179***	0.0753	-7.171***	-0.00976	-7.181***	0.0503	-7.184***
	(0.142)	(1.171)	(0.142)	(1.171)	(0.168)	(1.159)	(0.136)	(1.170)
Communist Country $(t-1)$		7.646***		7.635***		7.622***		7.641***
		(1.126)		(1.127)		(1.119)		(1.129)
Political Violence	-0.0192	-0.00244	-0.0188	-0.00342	-0.0164	-0.00269	-0.0195	-0.00117
	(0.0193)	(0.0209)	(0.0197)	(0.0213)	(0.0187)	(0.0209)	(0.0201)	(0.0212)
Political Violence $(t-1)$		-0.0159		-0.0147		-0.0127		-0.0176
		(0.0196)		(0.0201)		(0.0194)		(0.0206)
Δ Oil Rents	0.00353	0.00356	0.00378	0.00331	0.00333	0.00339	0.00446	0.00396
	(0.00358)	(0.00395)	(0.00366)	(0.00390)	(0.00360)	(0.00396)	(0.00376)	(0.00403)
Δ Oil Rents $(t-1)$		0.000273		0.000750		8.36e-05		0.000819
		(0.00165)		(0.00165)		(0.00164)		(0.00172)
Δ Log GDP per capita	-0.268	-0.379*	-0.654***	-0.540**	-0.287	-0.397*	-0.562**	-0.443*
	(0.237)	(0.222)	(0.240)	(0.229)	(0.239)	(0.223)	(0.242)	(0.234)
Δ Log GDP per capita $(t-1)$		0.115		0.0471		0.0971		0.106
		(0.161)		(0.187)		(0.163)		(0.185)
Foreign Aid	-0.00599**	-0.00468**	-0.00674**	-0.00502**	-0.00589**	-0.00448**	-0.00593*	-0.00423*
	(0.00304)	(0.00224)	(0.00316)	(0.00228)	(0.00299)	(0.00221)	(0.00328)	(0.00230)
Foreign Aid $(t-1)$		-0.000413		-0.000387		-0.000733		0.000180
		(0.00196)		(0.00200)		(0.00185)		(0.00215)
Δ Urban Concentration	-0.00801	-0.00652	-0.00841	-0.00702	-0.00777	-0.00611	-0.00788	-0.00648
	(0.00540)	(0.00494)	(0.00558)	(0.00509)	(0.00529)	(0.00486)	(0.00542)	(0.00493)
Δ Urban Concentration $(t-1)$		-0.00839		-0.00836		-0.00810		-0.00931
		(0.00657)		(0.00667)		(0.00657)		(0.00664)
Constant	-2.164***	-3.363***	-2.088***	-3.325***	-2.246***	-3.538***	-2.091***	-3.305***
	(0.177)	(0.451)	(0.195)	(0.456)	(0.191)	(0.459)	(0.200)	(0.453)
Observations	3,742	3,598	3,693	3,564	3,739	3,593	3,693	3,564
Number of groups	135	135	135	135	135	135	135	135

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A40. GMM System Dynamic Panel

VARIABLES	Model A20	Model A21	Model A22	Model A23	Model A24	Model A25	Model A26	Model A27	Model A28	Model A29
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections		Effect of Clean Elections Index	
Δ Infant Mortality Rate $(t-1)$	0.205***	0.249***	0.200***	0.244***	0.194***	0.236***	0.194***	0.238***	0.181***	0.214***
	(0.0434)	(0.0562)	(0.0415)	(0.0535)	(0.0430)	(0.0536)	(0.0413)	(0.0525)	(0.0404)	(0.0498)
Executive Elections	-0.337**	-0.236*	-0.322**	-0.263**			-0.420**	-0.259**	-0.534***	-0.397***
	(0.170)	(0.131)	(0.162)	(0.134)			(0.172)	(0.130)	(0.204)	(0.154)
Executive Elections $(t-1)$		-0.182	-0.231**	-0.240*				-0.274**		-0.307**
		(0.141)	(0.113)	(0.131)				(0.128)		(0.149)
Executive Elections $(t-2)$			0.0434	-0.0500						
			(0.0820)	(0.0773)						
Executive Elections $(t-3)$			0.0686	0.00455						
			(0.0793)	(0.0790)						
Executive Elections $(t-4)$			0.116	0.192						
			(0.146)	(0.147)						
Executive Elections $(t-5)$			0.206*	0.202*						
			(0.113)	(0.104)						
Competitive Executive Elections					0.374***	0.199*				
					(0.121)	(0.113)				
Competitive Executive Elections $(t-1)$						0.451***				
						(0.104)				
Legislative Elections	0.766***	0.605***	0.799***	0.640***	0.358***	0.385***	0.762***	0.645***	0.572***	0.462***
	(0.192)	(0.162)	(0.195)	(0.163)	(0.112)	(0.0896)	(0.179)	(0.159)	(0.205)	(0.163)
Legislative Elections $(t-1)$		0.162		0.175		-0.146	-0.00741	0.112		0.0896
		(0.114)		(0.120)		(0.123)	(0.105)	(0.123)		(0.129)
Legislative Elections $(t-2)$							-0.0553	-0.0551		
							(0.0913)	(0.0895)		
Legislative Elections $(t-3)$							0.337***	0.302***		
							(0.0927)	(0.0923)		
Legislative Elections $(t-4)$							-0.00159	0.0489		
							(0.0988)	(0.101)		
Legislative Elections $(t-5)$							0.303***	0.297***		
							(0.0961)	(0.0903)		
Non-Competitive Executive Elections					-0.425	-0.0354				
					(0.272)	(0.221)				
Non-Competitive Executive Elections $(t-1)$						-0.593***				
						(0.199)				
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	-0.219	-0.247	-0.189	-0.151	0.00113	0.216	-0.0121	-0.0924	0.210	0.271
	(0.159)	(0.203)	(0.187)	(0.201)	(0.163)	(0.216)	(0.205)	(0.212)	(0.175)	(0.227)
Monarchy	-2.967**	-2.177**	-2.803**	-1.953**	-2.632**	-1.537	-2.808**	-2.061**	-2.758**	-1.965**
	(1.270)	(0.961)	(1.237)	(0.898)	(1.282)	(0.937)	(1.167)	(0.856)	(1.202)	(0.872)
Personalistic Regime	-0.188	-0.136	-0.131	-0.0602	0.0521	0.318*	-0.0924	-0.0526	0.294*	0.446***
	(0.143)	(0.128)	(0.154)	(0.138)	(0.146)	(0.175)	(0.149)	(0.135)	(0.165)	(0.163)
Communist Country	-0.455**	-7.718***	-0.474**	-7.705***	-0.213	-7.676***	-0.450*	-7.693***	-0.246	-7.687***
	(0.216)	(1.097)	(0.240)	(1.099)	(0.241)	(1.064)	(0.266)	(1.103)	(0.279)	(1.096)

Communist Country $(t-1)$		7.940***		7.919***		8.365***		7.925***		8.222***
		(1.175)		(1.177)		(1.165)		(1.175)		(1.214)
Political Violence	-0.0192	-0.0100	-0.0114	-0.00400	-0.000589	0.00841	-0.0125	0.000249	0.0102	0.0118
	(0.0222)	(0.0238)	(0.0216)	(0.0232)	(0.0228)	(0.0227)	(0.0217)	(0.0220)	(0.0214)	(0.0219)
Political Violence $(t-1)$		-0.00641		-0.00257		0.00409		-0.00906		0.00371
		(0.0181)		(0.0200)		(0.0233)		(0.0194)		(0.0185)
Clean Elections Index									1.285***	1.056***
									(0.211)	(0.218)
Clean Elections Index $(t-1)$										0.571***
										(0.179)
Δ Oil Rents	0.00645	0.00493	0.00677	0.00554	0.00663	0.00593	0.00658	0.00526	0.00776*	0.00705*
	(0.00451)	(0.00405)	(0.00452)	(0.00404)	(0.00451)	(0.00406)	(0.00455)	(0.00415)	(0.00449)	(0.00416)
Δ Oil Rents $(t-1)$		0.00298		0.00275		0.00350*		0.00243		0.00241
		(0.00194)		(0.00196)		(0.00191)		(0.00206)		(0.00203)
Δ Log GDP per capita	-0.727**	-0.821*	-0.657*	-0.755	-0.806**	-1.078**	-0.576	-0.681	-0.810**	-0.976**
	(0.347)	(0.464)	(0.390)	(0.491)	(0.347)	(0.443)	(0.389)	(0.485)	(0.352)	(0.435)
Δ Log GDP per capita $(t-1)$		0.0131		0.111		-0.122		0.196		-0.00492
		(0.246)		(0.300)		(0.244)		(0.307)		(0.283)
Foreign Aid	-0.00479	-0.00608*	-0.00325	-0.00422	-0.00409	-0.00396	-0.00352	-0.00412	-0.000592	-0.000438
	(0.00452)	(0.00341)	(0.00457)	(0.00333)	(0.00450)	(0.00291)	(0.00437)	(0.00317)	(0.00492)	(0.00340)
Foreign Aid $(t-1)$		0.00621**		0.00646**		0.00633**		0.00656**		0.00880***
		(0.00244)		(0.00258)		(0.00251)		(0.00270)		(0.00272)
Δ Urban Concentration	-0.00484	-0.00948	-0.00444	-0.00889	-0.00420	-0.00728	-0.00403	-0.00856	-0.00394	-0.00654
	(0.00606)	(0.00612)	(0.00603)	(0.00603)	(0.00596)	(0.00612)	(0.00594)	(0.00597)	(0.00617)	(0.00639)
Δ Urban Concentration $(t-1)$		-0.0189***		-0.0181***		-0.0170***		-0.0181***		-0.0161***
		(0.00546)		(0.00533)		(0.00539)		(0.00521)		(0.00558)
Constant	-1.132***	-1.093***	-1.374***	-1.400***	-1.346***	-1.492***	-1.611***	-1.554***	-1.615***	-1.708***
	(0.125)	(0.155)	(0.203)	(0.194)	(0.127)	(0.176)	(0.216)	(0.212)	(0.167)	(0.214)
Observations	3,730	3,595	3,688	3,561	3,727	3,590	3,688	3,561	3,717	3,582
Number of groups	135	135	135	135	135	135	135	135	135	135

Own elaboration.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A41. GMM Arellano-Bond Dynamic Panel

VARIABLES	Model A30 Executive and Legislative Elections	Model A31	Model A32 Long-Term Effect of Executive Elections	Model A33	Model A34 Competitive Executive Elections	Model A35	Model A36 Long-Term Effect of Legislative Elections	Model A37
Δ Infant Mortality Rate $(t-1)$	0.257***	0.313***	0.257***	0.314***	0.252***	0.308***	0.251***	0.308***
	(0.0513)	(0.0625)	(0.0510)	(0.0618)	(0.0514)	(0.0616)	(0.0510)	(0.0609)
Executive Elections	-0.338**	-0.197*	-0.254**	-0.211*			-0.370***	-0.211*
	(0.133)	(0.113)	(0.127)	(0.115)			(0.140)	(0.112)
Executive Elections $(t-1)$		-0.266*	-0.232**	-0.240*				-0.300**
		(0.140)	(0.115)	(0.138)				(0.137)
Executive Elections $(t-2)$			0.0141	-0.0596				
			(0.0765)	(0.0748)				
Executive Elections $(t-3)$			-0.00520	-0.0371				
			(0.0757)	(0.0773)				
Executive Elections $(t-4)$			0.100	0.141				
			(0.146)	(0.150)				
Executive Elections $(t-5)$			0.0932	0.0638				
			(0.0856)	(0.0833)				
Competitive Executive Elections					0.136	0.146		
					(0.118)	(0.112)		
Competitive Executive Elections $(t-1)$						0.218**		
						(0.0896)		
Legislative Elections	0.509***	0.364***	0.527***	0.388***	0.218**	0.180**	0.532***	0.399***
	(0.147)	(0.128)	(0.151)	(0.129)	(0.0906)	(0.0746)	(0.141)	(0.129)
Legislative Elections $(t-1)$		0.0895		0.100		-0.167	-0.0438	0.0708
		(0.112)		(0.115)		(0.110)	(0.0974)	(0.121)
Legislative Elections $(t-2)$							-0.0404	-0.0369
							(0.0904)	(0.0890)
Legislative Elections $(t-3)$							0.221***	0.206**
							(0.0859)	(0.0890)
Legislative Elections $(t-4)$							-0.00659	0.0182
							(0.104)	(0.106)
Legislative Elections $(t-5)$							0.191**	0.144*
							(0.0787)	(0.0754)
Non-Competitive Executive Elections					-0.226	-0.0688		
					(0.187)	(0.196)		
Non-Competitive Executive Elections $(t-1)$						-0.439***		
						(0.164)		
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	-0.355***	-0.476***	-0.404***	-0.416***	-0.273**	-0.188	-0.239	-0.365**

	(0.128)	(0.160)	(0.145)	(0.156)	(0.131)	(0.172)	(0.153)	(0.162)
Monarchy	-1.327	-1.181*	-1.367	-1.122*	-1.134	-0.721	-1.304	-1.165*
	(0.855)	(0.656)	(0.839)	(0.632)	(0.923)	(0.710)	(0.794)	(0.601)
Personalistic Regime	-0.0600	-0.102	-0.0377	-0.0631	-0.0186	0.0605	-0.0216	-0.0588
	(0.124)	(0.131)	(0.135)	(0.135)	(0.129)	(0.147)	(0.131)	(0.134)
Communist Country	-0.501***	-7.578***	-0.527***	-7.594***	-0.412**	-7.498***	-0.551***	-7.616***
	(0.172)	(1.102)	(0.171)	(1.100)	(0.188)	(1.074)	(0.174)	(1.100)
Communist Country $(t-1)$		7.979***		7.953***		8.207***		7.951***
		(1.191)		(1.188)		(1.164)		(1.184)
Political Violence	0.0152	0.0120	0.0176	0.0116	0.0237	0.0193	0.0174	0.0137
	(0.0179)	(0.0218)	(0.0180)	(0.0218)	(0.0164)	(0.0203)	(0.0184)	(0.0208)
Political Violence $(t-1)$		0.00260		0.00683		0.0108		0.00308
		(0.0189)		(0.0200)		(0.0212)		(0.0197)
Δ Oil Rents	0.00701*	0.00597	0.00703*	0.00626	0.00673	0.00585	0.00673	0.00616
	(0.00415)	(0.00402)	(0.00422)	(0.00403)	(0.00417)	(0.00402)	(0.00427)	(0.00412)
Δ Oil Rents $(t-1)$		0.00113		0.000977		0.00138		0.000996
		(0.00179)		(0.00180)		(0.00175)		(0.00185)
Δ Log GDP per capita	-0.696**	-0.733*	-0.656*	-0.628	-0.714**	-0.841**	-0.561	-0.565
	(0.309)	(0.379)	(0.351)	(0.399)	(0.310)	(0.359)	(0.346)	(0.394)
Δ Log GDP per capita $(t-1)$		-0.0379		0.0107		-0.112		0.0882
		(0.219)		(0.255)		(0.212)		(0.256)
Foreign Aid	-0.000437	-0.00179	0.000288	-0.00112	-0.000686	-0.00184	-0.000252	-0.000989
	(0.00418)	(0.00328)	(0.00424)	(0.00321)	(0.00410)	(0.00303)	(0.00418)	(0.00314)
Foreign Aid $(t-1)$		0.00672***		0.00658***		0.00602***		0.00650***
		(0.00231)		(0.00236)		(0.00203)		(0.00236)
Δ Urban Concentration	-0.00414	-0.00686	-0.00416	-0.00682	-0.00393	-0.00599	-0.00407	-0.00681
	(0.00580)	(0.00593)	(0.00585)	(0.00598)	(0.00572)	(0.00599)	(0.00579)	(0.00595)
Δ Urban Concentration $(t-1)$		-0.0125***		-0.0125***		-0.0116**		-0.0129***
		(0.00477)		(0.00477)		(0.00464)		(0.00479)
Constant	-0.989***	-0.797***	-1.050***	-0.943***	-1.117***	-1.065***	-1.279***	-1.082***
	(0.109)	(0.135)	(0.151)	(0.148)	(0.112)	(0.150)	(0.172)	(0.162)
Observations	3,583	3,448	3,542	3,415	3,578	3,441	3,542	3,415
Number of groups	135	135	135	135	135	135	135	135

Own elaboration.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix 6. Main Models in Level Form

Table A42. Main Models in Level Form

VARIABLES	Model A38	Model A39	Model A40	Model A41	Model A42	Model A43	Model A44	Model A45
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections	
Executive Elections	-0.962*	-0.980*	-1.346***	-1.074***			-0.964	-0.965**
	(0.535)	(0.514)	(0.547)	(0.443)			(0.616)	(0.440)
Executive Elections $(t-1)$		0.234	0.159	0.737				0.257
		(0.888)	(0.538)	(0.761)				(0.967)
Executive Elections $(t-2)$			-0.430*	-0.0435				
			(0.241)	(0.240)				
Executive Elections $(t-3)$			-0.323	-0.338				
			(0.294)	(0.285)				
Executive Elections $(t-4)$			0.0768	-0.220				
			(0.256)	(0.336)				
Executive Elections $(t-5)$			-1.102	-1.134*				
			(0.694)	(0.658)				
Competitive Executive Elections					-2.205**	-1.313		
					(1.061)	(0.979)		
Competitive Executive Elections $(t-1)$						-1.336*		
						(0.760)		
Legislative Elections	2.778*	2.713**	2.714*	2.779**	1.525*	1.751**	2.354*	2.648**
	(1.544)	(1.256)	(1.596)	(1.293)	(0.908)	(0.684)	(1.302)	(1.287)
Legislative Elections $(t-1)$		-0.547		-0.459		-0.0707	-0.0948	-0.151
		(1.004)		(1.028)		(0.738)	(0.540)	(0.832)
Legislative Elections $(t-2)$							-0.457*	-0.267
							(0.252)	(0.242)
Legislative Elections $(t-3)$							-0.123	-0.181
							(0.239)	(0.306)
Legislative Elections $(t-4)$							0.193	-0.269
							(0.273)	(0.191)
Legislative Elections $(t-5)$							-0.648	-0.287
							(0.604)	(0.601)
Non-Competitive Executive Elections					1.558	0.653		
					(1.674)	(1.254)		
Non-Competitive Executive Elections $(t-1)$						1.432		
						(1.154)		
Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Military Regime	0.867	1.084	0.752	1.045	-0.0637	-0.154	0.723	1.034
	(0.959)	(0.959)	(1.039)	(0.973)	(0.882)	(0.952)	(1.050)	(0.977)
Monarchy	13.93***	13.17***	13.86***	13.20***	12.95***	11.81***	14.16***	13.38***

	(2.670)	(2.977)	(2.504)	(2.876)	(1.911)	(2.080)	(2.644)	(3.006)
Personalistic Regime	0.843	1.118	0.848	1.048	-0.237	-0.261	0.897	1.156
	(1.163)	(1.176)	(1.267)	(1.242)	(1.217)	(1.234)	(1.279)	(1.262)
Communist Country	-7.986***	-9.116***	-7.850***	-9.006***	-9.820***	-9.801***	-7.904***	-9.035***
	(1.596)	(1.377)	(1.617)	(1.392)	(1.709)	(1.481)	(1.619)	(1.392)
Communist Country $(t-1)$		1.420**		1.427**		-0.154		1.391**
		(0.665)		(0.682)		(0.842)		(0.672)
Political Violence	-0.536	-0.159	-0.542	-0.182	-0.552	-0.172	-0.535	-0.167
	(0.372)	(0.255)	(0.385)	(0.252)	(0.367)	(0.264)	(0.385)	(0.256)
Political Violence $(t-1)$		-0.456*		-0.431		-0.468*		-0.441*
		(0.253)		(0.265)		(0.237)		(0.262)
Oil Rents	-0.111**	-0.0389	-0.113***	-0.0345	-0.113**	-0.0378	-0.116***	-0.0354
	(0.0437)	(0.0332)	(0.0424)	(0.0327)	(0.0443)	(0.0327)	(0.0427)	(0.0331)
Oil Rents $(t-1)$		-0.0698**		-0.0734***		-0.0719**		-0.0758***
		(0.0282)		(0.0277)		(0.0285)		(0.0280)
Log GDP per capita	5.292**	0.0404	5.350**	-0.469	5.273**	0.178	5.325**	-0.391
	(2.240)	(2.757)	(2.310)	(2.937)	(2.220)	(2.832)	(2.312)	(2.911)
Log GDP per capita $(t-1)$		5.222**		5.789***		5.079**		5.691**
		(2.020)		(2.187)		(2.114)		(2.234)
Foreign Aid	0.0682**	0.0513**	0.0641**	0.0476**	0.0787**	0.0548**	0.0646**	0.0493**
	(0.0300)	(0.0234)	(0.0310)	(0.0233)	(0.0334)	(0.0253)	(0.0302)	(0.0236)
Foreign Aid $(t-1)$		0.0400**		0.0382**		0.0493**		0.0375**
		(0.0174)		(0.0187)		(0.0189)		(0.0176)
Urban Concentration	-0.0831	0.0488	-0.0825	0.0452	-0.0822	0.0468	-0.0805	0.0493
	(0.113)	(0.0772)	(0.113)	(0.0772)	(0.112)	(0.0760)	(0.113)	(0.0768)
Urban Concentration $(t-1)$		-0.136		-0.131		-0.132		-0.133
		(0.108)		(0.107)		(0.105)		(0.107)
Constant	47.35**	45.42**	47.87**	45.83**	48.34**	46.59**	47.68**	45.51**
	(19.70)	(20.42)	(20.14)	(20.74)	(19.54)	(20.19)	(20.16)	(20.70)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,865	3,723	3,808	3,681	3,862	3,718	3,808	3,681
R-squared (Overall)	0.004	0.003	0.004	0.002	0.008	0.007	0.004	0.002
R-squared (Between)	0.061	0.058	0.046	0.046	0.046	0.041	0.048	0.048
R-squared (Within)	0.838	0.838	0.838	0.839	0.839	0.840	0.838	0.838
Number of groups	135	135	135	135	135	135	135	135

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix 7. Main Models with all Variables in First Differences

Table A43. Main Models with all Variables in First Differences

VARIABLES	Model A46	Model A47	Model A48	Model A49	Model A50	Model A51	Model A52	Model A53
	Executive and Legislative Elections		Long-Term Effect of Executive Elections		Competitive Executive Elections		Long-Term Effect of Legislative Elections	
Δ Executive Elections	-0.0458	-0.0235	-0.0550	-0.0352			-0.0277	-0.00857
	(0.0730)	(0.0887)	(0.0847)	(0.0947)			(0.0732)	(0.0892)
Δ Executive Elections $(t-1)$		-0.0433	-0.0647	-0.0556				-0.0200
		(0.137)	(0.113)	(0.153)				(0.136)
Δ Executive Elections $(t-2)$			-0.0612	-0.0478				
			(0.0625)	(0.0673)				
Δ Executive Elections $(t-3)$			-0.0801	-0.123				
			(0.104)	(0.102)				
Δ Executive Elections $(t-4)$			-0.0142	-0.0208				
			(0.0691)	(0.0699)				
Δ Executive Elections $(t-5)$			-0.0292	-0.0415				
			(0.0668)	(0.0699)				
Δ Competitive Executive Elections					-0.0351	-0.0559		
					(0.0697)	(0.0773)		
Δ Competitive Executive Elections $(t-1)$						-0.0413		
						(0.0562)		
Δ Legislative Elections	0.0935	0.0840	0.0763	0.0754	0.0894	0.113	0.0666	0.0642
	(0.0684)	(0.0869)	(0.0691)	(0.0882)	(0.0779)	(0.0814)	(0.0655)	(0.0867)
Δ Legislative Elections $(t-1)$		0.0574		0.0386		-0.00155	0.0121	0.0167
		(0.117)		(0.118)		(0.0849)	(0.0835)	(0.117)
Δ Legislative Elections $(t-2)$							-0.0862	-0.0773
							(0.0657)	(0.0683)
Δ Legislative Elections $(t-3)$							0.0277	-0.00389
							(0.0852)	(0.0814)
Δ Legislative Elections $(t-4)$							0.0124	0.00336
							(0.0586)	(0.0598)
Δ Legislative Elections $(t-5)$							-0.00892	0.00468
							(0.0608)	(0.0528)
Δ Non-Competitive Executive Elections					0.120*	0.179*		
					(0.0708)	(0.0940)		
Δ Non-Competitive Executive Elections $(t-1)$						-0.173		
						(0.173)		
Δ Single Party Regime	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED	OMITTED
Δ Military Regime	-0.107	-0.0880	-0.132	-0.0942	-0.108	-0.123	-0.0865	-0.0906
	(0.104)	(0.140)	(0.124)	(0.137)	(0.106)	(0.143)	(0.126)	(0.140)
Δ Monarchy	0.390*	0.383*	0.377	0.389	0.389*	0.377	0.406*	0.387

	(0.234)	(0.225)	(0.266)	(0.246)	(0.235)	(0.258)	(0.238)	(0.250)
Δ Personalistic Regime	0.0118	0.0555	0.0278	0.0680	0.0109	0.0471	0.0353	0.0698
	(0.0544)	(0.0639)	(0.0600)	(0.0681)	(0.0555)	(0.0727)	(0.0623)	(0.0688)
Δ Communist Country	-7.642***	-7.585***	-7.621***	-7.566***	-7.658***	-7.610***	-7.621***	-7.565***
	(1.139)	(1.139)	(1.142)	(1.143)	(1.128)	(1.129)	(1.142)	(1.143)
Δ Communist Country $(t-1)$		0.814***		0.855***		0.799***		0.857***
		(0.0660)		(0.0695)		(0.0738)		(0.0704)
Δ Political Violence	-0.0288	-0.0230	-0.0306	-0.0230	-0.0290	-0.0228	-0.0313	-0.0235
	(0.0191)	(0.0200)	(0.0199)	(0.0210)	(0.0193)	(0.0200)	(0.0197)	(0.0206)
Δ Political Violence $(t-1)$		-0.0348**		-0.0377**		-0.0339**		-0.0384**
		(0.0150)		(0.0153)		(0.0149)		(0.0154)
Δ Oil Rents	0.00192	0.000786	0.00140	0.000481	0.00192	0.000879	0.00133	0.000384
	(0.00408)	(0.00412)	(0.00390)	(0.00409)	(0.00408)	(0.00421)	(0.00394)	(0.00410)
Δ Oil Rents $(t-1)$		0.000172		-0.000613		0.000130		-0.000550
		(0.00228)		(0.00205)		(0.00228)		(0.00205)
Δ Log GDP per capita	-0.651*	-0.869***	-0.927***	-0.970***	-0.658*	-0.882***	-0.934***	-0.974***
	(0.362)	(0.307)	(0.331)	(0.319)	(0.363)	(0.310)	(0.338)	(0.326)
Δ Log GDP per capita $(t-1)$		-0.273		-0.604**		-0.252		-0.612**
		(0.302)		(0.279)		(0.300)		(0.278)
Δ Foreign Aid	-0.00292*	-0.00444*	-0.00325*	-0.00477*	-0.00281*	-0.00417	-0.00332*	-0.00476*
	(0.00164)	(0.00257)	(0.00168)	(0.00261)	(0.00164)	(0.00260)	(0.00168)	(0.00264)
Δ Foreign Aid $(t-1)$		-0.00110		-0.00150		-0.000967		-0.00151
		(0.00181)		(0.00188)		(0.00180)		(0.00184)
Δ Urban Concentration	-0.00925	-0.00881	-0.00973	-0.00828	-0.00915	-0.00869	-0.00978	-0.00843
	(0.00802)	(0.00754)	(0.00815)	(0.00746)	(0.00800)	(0.00752)	(0.00818)	(0.00751)
Δ Urban Concentration $(t-1)$		-0.0145*		-0.0154*		-0.0147*		-0.0156*
		(0.00855)		(0.00851)		(0.00849)		(0.00859)
Constant	-1.297***	-1.265***	-1.293***	-1.257***	-1.297***	-1.264***	-1.295***	-1.258***
	(0.00699)	(0.00870)	(0.00716)	(0.00891)	(0.00706)	(0.00876)	(0.00725)	(0.00892)
Observations	3,716	3,576	3,660	3,535	3,711	3,569	3,660	3,535
R-squared (Overall)	0.080	0.086	0.079	0.084	0.080	0.087	0.079	0.083
R-squared (Between)	0.020	0.013	0.007	0.001	0.020	0.014	0.005	0.001
R-squared (Within)	0.121	0.134	0.124	0.138	0.121	0.135	0.124	0.137
Number of groups	135	135	135	135	135	135	135	135

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Elite Splits, Instability and Human Development under Authoritarian Rule

Abstract: Why do some autocracies improve people's quality of life whereas others do little for their citizens' well-being? Previous research argues that authoritarian leaders do not have an incentive to improve citizen well-being, because autocrats are more concerned with extracting resources for their own benefit. However, recent research suggests that authoritarian leaders might be responsive to social demands. I argue that factional splits within the ruling elite encourage authoritarian leaders to invest in social well-being in the short-term. Because factional splits raise the short-term risk that autocrats will be overthrown, especially if opposition elites reach out to the masses, they will invest in social welfare in order to maintain citizen support. To test my argument, I use data from 246 executive elections in 78 autocracies between 1978 and 2008. Cross sectional time series analysis shows that splits within the authoritarian elite raise human development scores, providing support for this link.

Keywords: human development, authoritarian regimes, elite splits, risk, Time Series Cross-Section.

Introduction

Why do some autocracies improve people's quality of life whereas others do little to provide for their citizen's well-being? Some scholars argue that authoritarian leaders prefer to maximize their own income at the expense of their population's, leading to low public goods provision, limited redistribution and poor economic performance (Acemoglu & Robinson, 2000; Meltzer & Richard, 1981; Niskanen, 1997; Persson & Tabellini, 2003). However, other studies argue that the incentive for authoritarian leaders implement policies to improve people's living conditions is somewhat greater than that traditionally assumed. For example, autocrats sometimes engage in public goods provision and adopt redistributive policies to co-opt potential opponents and avoid mass rebellion (Gallagher & Hanson, 2009; Gandhi & Przeworski, 2006). Other scholars argue that autocrats might distribute public goods according to their government's time horizon (Olson, 1993), as well as the relative size of the wining coalition and the selectorate (Bueno de Mesquita et al., 2005).

However, few studies have focused on how factional splits within the regime might also matter to the incentive to implement policies to improve citizens' lives. To the extent that anyone has studied elite splits, they have focused on how the dynamics between political elites and economic elites might drive property redistribution, specifically that of land. In two innovative studies, Albertus (2015) and Albertus and Menaldo (2014) show how splits between the traditional economic elite and the new autocratic elite might lead to elite land redistribution to the masses to weaken this potential threat to regime stability (Albertus, 2015; Albertus & Menaldo, 2014).

Building on the work of these authors, I claim that factional splits within the political elite might also affect authoritarian social welfare policies. I argue that splits among the ruling elite might encourage authoritarian leaders to invest in policies that improve citizen's short-run well-being. Scholars have long shown that authoritarian leaders facing internal factionalism among ruling elites face a greater risk of being overthrown than those able to prevent such splits (Hale & Colton, 2017; Nepstad, 2013; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019). This risk is greater when defectors appeal to the masses because the former might seek to form alliances with the latter to oust the current leader (Albertus & Menaldo, 2014). Internal regime factionalism is important to autocrats because it might even lead to authoritarian regime

breakdown (Albertus, 2015; Albertus & Menaldo, 2014; Hale & Colton, 2017; Nepstad, 2013; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019).

I argue that the risks associated with splits within the ruling coalition to the survival of authoritarian regimes encourages autocrats to find ways to appeal to the masses and respond to their short-run demands. As such, I argue that elite splits encourage autocrats to undertake a type of policies that might rapidly improve people's quality of life to strengthen their rule against the elites that split with the regime. For this reason, authoritarian leaders facing factional splits are more likely to seek ways to improve the social welfare of their citizens, thereby raising levels of human development in their nations, at least in the short-term. In contrast, autocrats leading a cohesive ruling coalition are unlikely to undertake policies focused on the well-being of the population, as they could even harm their allies in the elite (Albertus, 2015).

The aim of this study is to build an argument regarding the incentives of autocrats to respond to the factional splits. Regime defectors could lead to instability in the short-term by trying to seize the power for themselves. In fact, splits within the ruling coalition might even lead to the breakdown of the regime, making them an important source of immediate instability (Albertus & Menaldo, 2014; Nepstad, 2013; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019). Therefore, my argument emphasizes the need for autocrats to choose policies that show results in the short-term. However, autocrats can be involved in a more complex phenomenon that is beyond the scope of this article. For example, I do not consider how the masses, or the opposition will respond to splits within the elite. As a result, this study only considers the logic that autocrats could follow to build response strategies to a scenario of instability such as that posed by the split within the elite.

To test my argument, I use data from 246 executive elections in 78 autocracies between 1978 and 2008. Cross sectional time series analysis of the impact of elite splits within the ruling coalition shows that such splits are strongly associated with an improvement in short-term human development scores, measured as changes in infant mortality rates. Similarly, evidence shows that autocrats favor the implementation of policies that show results in the short-term over those that might take longer to observe. These findings imply that autocrats handling the instability posed by elite splits might directly appeal to the masses as a survival strategy.

Authoritarian Regimes and the Incentives to Implement Welfare Policies

Most research assumes that authoritarian leaders have a greater incentive to maximize their income at the expense of their populations, leading to low public goods provision and less redistribution across these regimes in comparison with democracies (Acemoglu & Robinson, 2000; Meltzer & Richard, 1981; Niskanen, 1997; Persson & Tabellini, 2003). Authoritarian leaders are widely depicted as "stationary bandits" who extract resources from people to enrich themselves or the ruling elite, providing a minimal level of public goods to increase the productivity of the citizens they are fleecing (Lake & Baum, 2001; Olson, 1993). For these scholars, autocrats' short time horizon involves greater resource extraction and less public goods provision because autocrats who expect to be short time in power have more incentive to extract more resources and flee the regime.

Other scholars focus on the size of the ruling elite. For example, Bueno de Mesquita et al. (2005) argue that authoritarian leaders balance public and private goods based on the relative size of the selectorate and the winning coalition. Private goods benefit only the members of the authoritarian leader's support base and are therefore part of the winning coalition, which excludes the vast majority of the population. In authoritarian regimes, the winning coalition is smaller than in democracies, that is why the distribution of private goods could be a more efficient and cheaper distribution for the regime (Bueno de Mesquita et al., 2005).

In contrast, others point out that authoritarian leaders might have an incentive to provide public goods more widely than usually assumed. These scholars note that autocrats engage in public goods provision and adopt redistributive policies to co-opt potential opponents and avoid mass rebellion (Gallagher & Hanson, 2009; Gandhi & Przeworski, 2006). For example, Gandhi and Przeworski (2006) argue that some institutions, such as legislatures and legislative elections, allow autocrats to co-opt the opposition through distribution of benefits and legislative seats, which can reduce threats from these groups (Gandhi & Przeworski, 2006). Moreover, Gallagher and Hanson (2009) explain that autocrats have a repertoire of action to control power that might be divided into "carrots" (public goods provision or redistribution) and "sticks" (repression), which might deter potential mass rebellions. These arguments focus on elements outside the regime, as they analyze autocrats' strategies for threats from the opposition and the masses.

In the same vein, autocrats might also direct benefits to key groups to retain power, especially to generate clientelistic networks (Albertus et al., 2016; Magaloni, 2006). For

example, there is evidence that in Mexico, land-sharing in election years was benefited during the PRI's single-party regime. This distribution was particularly used in rural areas where the PRI had little electoral support. Eventually, the PRI managed to generate clientelistic support networks in these areas despite the cost of distribution, which was not efficient (Albertus et al., 2016). Autocrats might also improve human development as a reaction to the type of political institutions employed by the regime. Miller (2015) argues that autocracies holding competitive multiparty elections change the dynamics of public policy processes through two mechanisms that are associated with democracy: electoral pressure and political openness. His findings suggest that more competitive electoral authoritarian regimes tend to improve human development outcomes in areas such as health, education and equal rights compared to closed authoritarian regimes where there are no elections (Miller, 2015).

Most research assumes that authoritarian elites are a cohesive group. Yet, we know that splits within the authoritarian elite trigger regime instability and even regime transition (Albertus, 2015; Albertus & Menaldo, 2014; Hale & Colton, 2017; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019), In the sections below, I examine how factional splits might force autocrats to implement policies to improve people's living conditions.

Authoritarian Elite Splits and Human Development

The importance of elites in autocracies is best summarized by Bueno de Mesquita and Smith (2012) when they note "No leader, no matter how august or how revered, no matter how cruel or vindictive, ever stands alone" (Bueno de Mesquita & Smith, 2012, p. 17). Authoritarian leaders generally rule along with a small group of powerful people. This group might possess political power (government officials or partisan cadres), economic wealth (entrepreneurs) or weapons (military juntas). Examples of these groups might be the Politburo the Communist Party of China, a military junta of government such as that led by Augusto Pinochet from 1973 to 1990, or the Council of Ministers of the United Arab Emirates.

Elites play an important role in the survival of authoritarian regimes (Reuter & Szakonyi, 2019). These importance is shown in non-legislative bargaining models in which actors of different capacity and strength compete for power or seek to maintain control (Newson & Trebbi, 2018). Examples of these relationships include ethnic, religious or military groups (Acemoglu et al., 2008). This type of approach is based on non-cooperative relationships, on

possible environments of violence, and tries to explain the specific equilibrium conditions, such as leadership conservation (Newson & Trebbi, 2018). The importance of elites to authoritarian regimes is also shown in political career models (Newson & Trebbi, 2018). These approaches are based on the literature of organizational economy. Several autocracies are governed by large organizations that operate in a similar way to firms in terms of internal competition, promotions, factions and structures as discussed in the organizational economy (Gibbons & Waldman, 1999; Green & Stokey, 1983; Lazear & Rosen, 1981). Given the organizational structure, this model is particularly useful for analyzing survival of single-party regimes in which promotion and permanence depends on internal pyramidal structures (Newson & Trebbi, 2018).

Finally, elite monitoring models, based on the classic principal-agent model, also show the importance of elites to authoritarian regimes (Besley & Kudamatsu, 2007; Egorov & Sonin, 2011; Newson & Trebbi, 2018; Svolik, 2012). Svolik (2012) points out that authoritarian leaders have to solve two substantive problems if they wish to remain in power: power-sharing and power control (Svolik, 2012). Specifically, the dictator and the ruling elite share power in a scenario where the elite holds their influence on a credible threat of violence. This is because the dictator might acquire more power at the expense of the elite, which might create a conflict of interest. For this reason, the ruling elite might defect and join the opposition to attempt to stop the dictator (Reuter & Gandhi, 2011, 2011; Reuter & Szakonyi, 2019) or there might be a coup threat (Frantz & Stein, 2016; Geddes et al., 2018; Geddes, Frantz, et al., 2014; Geddes, Wright, et al., 2014; Powell & Thyne, 2011; Svolik, 2009, 2012). Examples of these sort of splits might be Mexico in 1988 when Cuauhtémoc Cárdenas decided to leave the Institutional Revolutionary Party (PRI) in Mexico during the electoral authoritarian regime to contest power through executive elections (Becerra et al., 2011; Langston, 2002), or Peru in 1975 when there was a confrontation in the ruling military coalition of General Juan Velasco because the armed forces sought a less personalistic government (Contreras Carranza & Cueto, 2007).

Elite splits can be of several types. Partisan defections and coups are the most studied splits into the authoritarian elite. For example, Reuter and Gandhi (2011) argue that the defectors of a hegemonic party might use economic crises to capitalize on support from the masses due to social discontent with the regime and thus take advantage of potential elections and defeat the authoritarian leader (Reuter & Gandhi, 2011). To understand the motives or possible gains of defectors, Reuter and Gandhi (2011) show how in Kenya, when Raila Odinga split from the

regime to support the opposition candidate Mwai Kibaki in the 2002 elections in exchange for a high seat in government. With regard to coups, Svolik (2009, 2012) points out, for example, that when members of the ruling elite suspect that the authoritarian leader is increasing his power at their expenses, they might threaten a coup (Svolik, 2009, 2012). However, in order to stop the dictator, this threat must be credible. Scholars have shown that authoritarian leaders face the most at risk of coup attempts that come from the elite rather than popular revolts (Geddes, Wright, et al., 2014; Svolik, 2012).

Elite splits change the dynamics of the ruling coalition (Albertus, 2013, 2015; Albertus & Menaldo, 2014) and undermine the stability of the regime, especially since defectors or coup plotters can ally with other groups to gain greater support against the regime. That is why splits are so risky for autocrats. For example, Albertus and Menaldo (2014) argue that elite members that split could seek an alliance with the masses to change the regime to one in which the former authoritarian leader no longer has influence (Albertus & Menaldo, 2014). Similarly, the coup plotters need a coalition as broad as possible to maximize the odds of success, thus it will also need a threat of credible force, which might fall to the military (Frantz & Stein, 2016).

Therefore, authoritarian leaders must avoid splits. To this end, autocrats might use legislative elections to distribute legislative seats, as well as economic benefits to preserve the cohesion of the authoritarian elite and generate a connection between the elite's gains and the regime's survival (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012). Similarly, autocrats try to co-opt the opposition (Gandhi & Przeworski, 2006), although the distribution of profits among the opposition can be risky if it is greater than those granted to the ruling elite (Reuter & Szakonyi, 2019).

However, once a split has occurred, authoritarian leaders might engage in repression. Even though repression is a risky strategy (Chenoweth & Stephan, 2011; Levitsky & Way, 2010) there are examples on how autocrats might use the military or police forces to repress defectors. For instance, one of the many strategies that Yoweri Museveni (Uganda's authoritarian leader since 1986) used to control the defection of Kizza Besigye (ideologue and regime minister) in 2000 was to imprison him on multiple occasions. Besigye contended against Museveni in the executive elections of 2001 and during the campaigns Besigye and his supporters suffered state harassment and intimidation (Khisa, 2016).

Even though autocrats might use repression as a tool to deter or handle splits, I argue that there is another possible strategy for authoritarian leaders to mitigate the immediate risks that come from elite splits: improving people's living conditions in the short-term. The scholarly literature has pointed out that redistributive policies might be associate with greater regime stability in the short-term by reducing grievances (Wallace, 2013). Similarly, it has been noted that strong economic performance might aid regime survival (Burke, 2012; Lucardi, 2019; Magaloni, 2006; Treisman, 2015). Building on these insights, I argue that autocrats could instrumentally use policies to improve people's living conditions and thus human development to stay in power.

If there is a split within the ruling coalition, defectors might become an immediate threat to the authoritarian regime, as they will have incentives to seize power for themselves and even to ally with the masses to create a new authoritarian regime and eliminate the political influence of the former authoritarian leader (Albertus, 2015; Albertus & Menaldo, 2014). Therefore, the authoritarian leader might have to decide the strategy to handle the threat to regime's stability that comes from the elite's split. I claim that by improving people's quality of life in the short-term or, in other words, by improving human development, the authoritarian leader might enforce his rule by aligning the masses' well-being with the regime's survival. Improving human development might enforce the stability of the regime almost immediately by avoiding a potential alliance between the elite and the masses. I thus expect:

H1: Authoritarian leaders facing splits within the elite will be more likely to improve human development in the short-term.

In contrast, when the authoritarian leader and the political ruling coalition are a cohesive group, they might agree on the level of public resources the regime will invest on human development policies. Since the winning coalition is smaller in autocracies compared to democracies, it is more likely that, for example, the provision of private goods will be preferred to public goods, as it is a more efficient distribution and directly benefits members of the dictator's inner circle (Bueno de Mesquita et al., 2005). Therefore, the quality of life of the masses in an authoritarian regime in which the elite and autocrat agree is likely to be low because public investment or the process of provide public goods to improve human development would

not benefit allies of the authoritarian leader (Albertus, 2015). On the contrary, it might harm them by reducing their spoils.

My argument also implies that elite splits create an immediate risk of losing power. Any elite that splits from the ruling coalition can threaten the survival of the regime right away. Repression in the face of a split within the elite is always a tool for the autocrat, thus the elite that split with the regime needs to act rapidly to reduce the likelihood that the regime will use the repression forces (Nepstad, 2013). Therefore, this elite might have incentives to act immediately through a new political party, or even a coup attempt (Frantz & Stein, 2016). Autocrats must therefore concentrate their policies to improve people's living conditions in the short-term. I argue that if the masses observe that the regime has taken visible short-term actions to improve their living conditions, they will be more likely to support the regime against the elites, making an alliance between elites and masses less likely. Therefore, autocrats might only invest in human development policies that are easily implemented and that might be perceived by the masses in the short-term I thus expect:

H2: The effect of elite splits on human development will occur in the short run and not in the long run.

Two cases illustrate my argument. The first example occurred in Mexico in 1952. General Miguel Henríquez Guzmán decided to leave the PRI during Mexico's electoral authoritarian regime. General Henríquez was a member of the "revolutionary family" and therefore held a high-ranking position within the party. However, President Miguel Alemán had isolated General Henríquez's group to favor university-educated members (Langston, 2002; Rodríguez Araujo, 1974). Consequently, General Henríquez and his group decided to compete in the 1952 executive elections against the official candidate, Adolfo Ruíz Cortines. Ruíz Cortines, the handpicked candidate, won the election. However, General Henríquez's split created instability in the regime (Langston, 2002) and forced new President Ruíz Cortines to undertake land redistribution policies at the beginning of his government, even though redistribution was not part of his plan of government (Silva Herzog, 1959; Velasco Toro, 1995)

The second example is Uganda in 2015. Amama Mbabazi, prime minister of the regime controlled by Yoweri Museveni, left the government to seek a presidential candidature

attempting to defeat the authoritarian leader. This defection would be one of the largest sources of instability for the government of Museveni (Khisa, 2016). To try to solve the crisis, Museveni again used multiple strategies. The repression against “traitors” was already a characteristic of this autocrat (Khisa, 2016). However, Mbabazi's defection forced Museveni to implement a greater distribution of economic benefits among a series of networks that supported his government, but which could be co-opted to support Mbabazi's candidacy. Financial support for youth and women's groups can be pointed out (Khisa, 2016).

Data and Modelling Strategy

I examine data from 78 autocracies from 1972 to 2008. The sample consists of 246 executive elections for which information was available. The sample has 3.2 elections on average for each autocracy. In order for a country to be catalogued as an autocracy, I followed the coding of Geddes, Wright and Frantz (2014). The criteria for classifying authoritarianism are: the leader of the government came to power by means other than free and fair elections; the leader came to power through free and fair elections but he amended the rules, whether formal or informal, to limit elections; or, if the military does not allow one or more parties to participate or have interference in decisions in relevant areas (Geddes, Wright, et al., 2014).

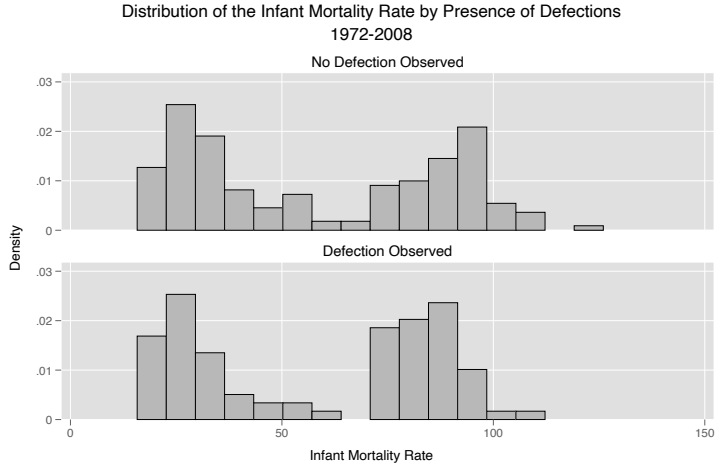
The dependent variable for capturing variations in human development is the infant mortality rate. This indicator shows the number of deaths from birth until one year of life per 1,000 live births (World Bank, 2019). Using this variable as a measurement of human development in the short-term has different advantages. First, the infant mortality rate is strongly associated with other basic conditions of human development, such as income, literacy, access to social security, women's education, access to safe water and caloric intake (Ross, 2006).

In addition, the infant mortality rate has the advantage of capturing short-term changes in human development. This variable is highly sensitive to some rapidly implementing policies, such as maternal care, mother-child nutrition, and basic mother education (Aquino et al., 2008). There are of course more indicators of human development: the Human Development Index, literacy, school building, school attendance results, etc. However, such variables tend to change slowly and their effects on human development could be observed only in the long run (Touchton & Wampler, 2013). Therefore, these measurements would not be appropriate to test my argument.

To measure splits within the authoritarian elites, I use a dichotomous variable that indicates whether a member of the government party left the party to contest power as an independent candidate or as a candidate of an opposition party in executive elections (Lucardi, 2016a). This variable takes value of one if two situations are observed: (1) a high-ranking member of the government party breaks with the regime and (2) that former party member contests power. This indicator is appropriate in terms of my argument because it captures both the split and the potential threat posed by defectors competing for power. In addition, such measurements have already been used to capture splits within the elite (Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019).

There are 160 authoritarian elections in which there was no partisan defection in the sample. The average infant mortality rate for this set of observations was 58.64. Similarly, the sample contains data of 86 elections in authoritarian regimes in which a partisan defection was observed. The average infant mortality rate for this group was 58.53. The distribution of the infant mortality rate in each of the subsets of the sample is shown in Figure 2.1. Descriptive statistics for both the dependent and independent variables are shown in Table 2.1. Similarly, the partisan defections frequency by regime type can be found in Table 2.2. There are no observations for Monarchies in this sample.

Figure 2.1. Distribution of the Infant Mortality Rate in the Sample



Source: Own elaboration based on data from World Bank and Lucardi (2016a)

Table 2.1. Descriptive Statistics of the Infant Mortality Rate and Partisan Defections

Variable	Mean	Std. Dev.	Min	Max	Observations	Source
Infant Mortality Rate	51.64	34.67	4.59	147.05	3,864	World Bank
Party Defection	0.35	-	0	1	246	Lucardi (2016)

Source: Own elaboration.

Table 2.2. Partisan Defections by Regime Type[10]

	Regime Type			
Defection	**Single Party**	**Military**	**Personalistic**	**Total**
No	91 52.91%	20 11.63%	61 35.46%	172 100%
Yes	32 43.24%	15 20.27%	27 36.49%	74 100%
Total	123 50%	35 14.23%	88 35.77%	246 100%

Source: Own elaboration based on data from Geddes, Wright and Frantz (2014, 2018) and Lucardi (2016a)

Statistical models include different controls that have been identified in literature as confounding variables. This implies that these variables could affect both the dependent variable and the main independent variable. Thus, not including such variables in the models could result in omitted variable bias (Wooldridge, 2012). Political controls include, for example, the type of authoritarian regime (Geddes et al., 2018; Geddes, Wright, et al., 2014). I include two dummy variables that indicate whether the observations are related to single-party or personalistic regimes. The omitted category is the military regimes. I include only these three types of

[10] With frequency row percentages and using the typology of Geddes, Wright and Frantz (2014, 2018).

authoritarian regime because they are the only ones in which defections can actually be observed. There are no observations for Monarchies in the sample.

Similarly, I include a measure of political violence, understood as civil and ethnic violence (Miller, 2015). This variable is important because it could be argued that violence could affect elite members' incentives to break with the regime and could also affect the infant mortality rate by leading to more deaths. The last control variable in this set captures the electoral intimidation that comes from the government (Coppedge et al., 2019). This variable is relevant because it could be argued that autocrats could react by suppressing defectors rather than improving human development. I therefore use the electoral intimidation measure to control this effect and thus analyze whether splits could lead to further human development.

Socioeconomic controls include oil rents as a share of GDP; GDP per capita; and a one-year lagged version of both variables. The source of both variables is the World Bank. I include the measure of oil rents because autocrats could use additional resources to improve human development and because the autocracies with more oil rents are more likely to allow not binding institutions (Wright, 2008; Wright et al., 2015). The changes of GDP per capita are relevant because economic crises could be a determinant of splits within the elite (Langston, 2002; Reuter & Gandhi, 2011) and could affect human development policies at the same time. Therefore, it could be argued that splits are not the cause of the implementation of policies that improve people's quality of life, but that it is economic crises.

Other economic controls include the economic resources of foreign aid (official development assistance as a percentage of gross national income) and the percentage of urban concentration. These variables come from Miller (2015). I control by foreign aid because such resources could be used to slow economic crises or to strengthen developing economies while affecting the infant mortality rate, as the regime would have greater resources than it could invest in this area. Finally, I include the percentage of urban concentration because autocracies with fewer rural areas may put more pressure on governments to implement development policies (Miller, 2015; Wallace, 2013). This could, in turn, affect the incentives of potential defectors to leave the regime or not.

Empirical Setup

To establish the correct specification of the models, I follow the suggestions of Philips (2018)[11]. I started with the stationarity analysis[12] of the dependent variable. As noted in Appendix 2, the infant mortality rate appeared to stationary. However, as shown in models of Table A37 in Appendix 4, the autoregressive term of the dependent variable obtained a coefficient that was practically equal to one. This implies that the dependent variable did not have the characteristic of being integrated in order one and therefore was not stationary. This problem arises because hypothesis tests for unbalanced panels (such as my sample) tend to make a type I error (false positive) more frequently and are therefore unreliable (Maddala & Wu, 1999). Therefore, in order to correctly model the dependent variable considering that it is not stationary, I include it in models as a first difference.

As a second step, I analyzed each of the independent variables for stationarity. However, I do not study the behavior of dichotomous variables such as the presence of defections or types of regimen because it would not be possible to respond whether or not such measures are stationary. In addition, dummy variables can only take values of zero and one. Thus, taking the first difference of these variables might lead to problems comparing changes from zero to one and vice versa (Pickup, 2014). Consequently, all dummy variables are specified in level form.

Finally, I analyzed all the continuous control variables. As shown in Appendix 3, the variables of political violence, electoral intimidation and foreign aid are stationary. Therefore, they are specified in level form in the statistical models. However, measurements of oil rents, as well as GDP per capita and urban concentration are not stationary. Thus, these variables are included in modes as first differences.

The structure of the data is cross-sectional time series. Therefore, I use two types of general models as can be observed in equations 1 and 2:

$$\Delta Y_{it} = \alpha + \beta \mathcal{X}_{it} + \boldsymbol{\delta C_{it}} + \boldsymbol{\lambda \Delta C_{it}} + \zeta_i + \eta_t + \varepsilon_{it} \dots (1)$$

[11] Philips' (2018) suggestion was built specifically for single time series. His argument is that variables on both sides of the equation have to be I(1) to avoid serial correlation problems and thus avoid spurious inferences generated by not accounting a temporal dynamic. These issues remain in panel data, thus this proposal can be extrapolated and used for pooled time series.

[12] Even though there are only 246 observations for the presence of partisan defections, the rest of the variables can be analyzed for stationarity because I use the same database from the first chapter. Thus, the infant mortality rate and all of the control variables have enough observations to conduct stationarity test in order to observe their behavior over time.

$$\Delta Y_{it} = \alpha + \beta \mathcal{X}_{it} + \boldsymbol{\delta C_{it}} + \boldsymbol{\lambda \Delta C_{it}} + \boldsymbol{\varphi \Delta C_{it-1}} + \zeta_i + \eta_t + \varepsilon_{it} \ldots (2)$$

Equation 1 represents a static model. Thus, all variables are specified in contemporaneous terms. However, as stated above, oil rents as well as previous economic crises could reveal temporal dynamics. It is thus necessary to control both the present values and the past values of these variables (Beck & Katz, 2011; Philips, 2018). Consequently, equation 2 denotes a Finite Distributed Lag (FDL) model (Beck & Katz, 2011; De Boef & Keele, 2008). It will be useful to control the potential omitted variable bias of temporal dynamics.

Equations 1 and 2 represent general modeling, thus the terms in both equations represent the same variables. The term ΔY_{it} represents the dependent variable operationalized through its first difference in an executive election and a given year. $\mathcal{X}_{it}$ denotes the presence or absence of partisan defections in a given executive election and year. The vector $\boldsymbol{C_{it}}$ represents stationary control variables, while the term $\boldsymbol{\Delta C_{it}}$ denotes controls that are not stationary and are specified in first differences. Therefore, the vector $\boldsymbol{\Delta C_{it-1}}$ also represents non-stationary but in a one-year lagged adoption. The parameters ζ_i and η_t represent fixed effects by country and by year respectively. Finally, the term ε_{it} represents the random error.

Statistical Results

The results of *H1* in which I argue that authoritarian leaders facing splits within the elite will be more likely to improve human development in the short-term are shown in Table 2.3. Evidence from the eight specified models show that partisan defections are strongly associated with lower levels in the infant mortality rate and therefore with greater human development. It should be remembered that the dependent variable is operationalized from its first difference. Thus, the coefficients change one year from the previous one. For example, Model 1 (FDL) estimates show that partisan defections are associated with an average decrease of 0.268 (SE 0.151) infant deaths at a $p<0.10$ significance level. In other words, compared to the previous year, there was a reduction in the average infant mortality rate in autocracies where partisan defections occurred. Recall that the infant mortality rate is measured by every 1,000 live births. For example, if an autocracy 5 million live births and partisan defections were observed, a decrease of 1,340 deaths would be expected compared to the previous year. It is certainly a modest effect, but it is clear that splits might improve the human development of autocracies.

Table 2.3. Effect of Partisan Defections on the Infant Mortality Rate

VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Party Defection	**-0.268***	**-0.284***	**-0.271***	**-0.293***	**-0.271***	**-0.288***	**-0.263****	**-0.265****
	(0.151)	**(0.161)**	**(0.151)**	**(0.164)**	**(0.155)**	**(0.163)**	**(0.124)**	**(0.123)**
Single Party Regime	0.0219	0.181	0.0193	0.197	0.0717	0.198	0.141	0.154
	(0.542)	(0.563)	(0.521)	(0.545)	(0.528)	(0.557)	(0.525)	(0.490)
Personalistic Regime	-0.303	-0.270	-0.273	-0.216	-0.363*	-0.324	-0.131	-0.131
	(0.191)	(0.197)	(0.186)	(0.183)	(0.205)	(0.198)	(0.190)	(0.189)
Domestic Violence	-0.0982**	-0.0826**	-0.0957**	-0.0776**	-0.103**	-0.0883**	-0.0389	-0.0372*
	(0.0468)	(0.0404)	(0.0438)	(0.0366)	(0.0441)	(0.0369)	(0.0254)	(0.0199)
Electoral Intimidation	-0.0396	-0.0647			-0.0580	-0.0758	0.0192	0.0172
	(0.127)	(0.130)			(0.132)	(0.134)	(0.120)	(0.118)
Δ Oil Rents	0.0348	0.0343	0.0341	0.0333	0.0317	0.0300		
	(0.0246)	(0.0242)	(0.0234)	(0.0230)	(0.0214)	(0.0209)		
Δ Oil Rents $(t-1)$	0.0181	0.00776	0.0171	0.00586				
	(0.0532)	(0.0512)	(0.0538)	(0.0520)				
Δ GDP per capita	-3.472	-3.670*	-3.472	-3.666*	-2.986*	-3.159*		
	(2.135)	(2.106)	(2.129)	(2.114)	(1.782)	(1.753)		
Δ GDP per capita $(t-1)$	1.503	1.353	1.528	1.380				
	(1.193)	(1.159)	(1.226)	(1.188)				
Foreign Aid	-0.0262	-0.0230	-0.0265	-0.0233	-0.0277	-0.0248		
	(0.0255)	(0.0246)	(0.0261)	(0.0250)	(0.0259)	(0.0248)		
Δ Urban Concentration	-0.0295	-0.0240	-0.0292	-0.0234	-0.0332	-0.0262		
	(0.0517)	(0.0502)	(0.0504)	(0.0486)	(0.0476)	(0.0464)		
Constant	33.15	-0.853***	34.02	-0.837***	26.15	-0.818***	1.414	-1.072***
	(37.15)	(0.170)	(36.85)	(0.177)	(34.48)	(0.183)	(21.56)	(0.226)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	207	207	209	209	209	209	246	246
R-squared (Overall)	0.050	0.047	0.048	0.047	0.045	0.045	0.022	0.021
R-squared (Between)	0.023	0.026	0.019	0.026	0.025	0.029	0.068	0.065
R-squared (Within)	0.083	0.076	0.083	0.076	0.077	0.072	0.021	0.021
Number of groups	68	68	69	69	69	69	78	78

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

The findings for *H2* are shown in Table 2.4. H2 argues that the effect of elite splits on human development will occur in the short-term and not in the long run. To test this hypothesis, I followed a slightly different strategy. My argument implies that autocrats could choose to invest in human development policies that show results in the short-term and not in the long run. Therefore, the effect of partisan defections should not be observed in the results of policies that change in the long run. Consequently, I switched the main dependent variable and conducted what amounts to a placebo test using literacy rates. This measure captures long-run human development as government investment in education is more likely to be perceived after several years (Touchton & Wampler, 2013). As can be seen in all models examining literacy rates, partisan defections showed no significant effect on the first difference of literacy. These results suggest that splits within the authoritarian elite do not appear to affect policies that show their results in the long run. As shown in Appendix 5, the literacy rate, as well as the infant mortality rate was nonstationary, as it has a strong upward trend over time. Therefore, I use its first difference.

Table 2.4. Effect of Partisan Defections on Literacy

VARIABLES	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Party Defection	-1.170	-1.192	-1.156	-1.191	-1.092	-1.128	-0.897	-0.894
	(0.851)	(0.800)	(0.849)	(0.779)	(0.815)	(0.746)	(0.607)	(0.554)
Single Party Regime	-0.0925	0.161	-0.149	0.141	-0.133	0.141	0.106	0.0861
	(0.970)	(0.796)	(0.933)	(0.681)	(0.961)	(0.754)	(0.649)	(0.486)
Personalistic Regime	0.168	0.269	0.161	0.302	0.205	0.342	0.838	0.836
	(1.310)	(1.328)	(1.259)	(1.300)	(1.189)	(1.197)	(1.014)	(1.025)
Domestic Violence	0.197	0.219	0.197	0.225	0.192	0.223	0.186	0.184
	(0.301)	(0.289)	(0.304)	(0.287)	(0.279)	(0.262)	(0.223)	(0.201)
Electoral Intimidation	-0.00306	-0.0718			0.0124	-0.0565	0.00137	0.00618
	(0.427)	(0.385)			(0.429)	(0.409)	(0.316)	(0.288)
Δ Oil Rents	-0.0639	-0.0649	-0.0642	-0.0661	-0.0448	-0.0500		
	(0.102)	(0.102)	(0.101)	(0.101)	(0.0618)	(0.0616)		
Δ Oil Rents $(t-1)$	0.0244	0.00220	0.0233	0.000926				
	(0.328)	(0.335)	(0.327)	(0.334)				
Δ GDP per capita	1.642	1.328	1.567	1.267	0.220	-0.157		
	(4.714)	(4.648)	(4.654)	(4.615)	(4.639)	(4.611)		
Δ GDP per capita $(t-1)$	-5.056	-5.349	-5.038	-5.303				
	(3.923)	(3.958)	(3.908)	(3.926)				
Foreign Aid	0.00149	0.00690	0.00100	0.00641	0.00585	0.0129		
	(0.0338)	(0.0351)	(0.0335)	(0.0348)	(0.0273)	(0.0290)		
Δ Urban Concentration	0.0750	0.0837	0.0764	0.0855	0.0612	0.0778		
	(0.144)	(0.141)	(0.143)	(0.140)	(0.0984)	(0.0930)		
Constant	62.01	0.455	60.84	0.504	67.20	0.310	-3.883	0.338
	(160.4)	(0.703)	(153.7)	(0.700)	(155.9)	(0.672)	(116.1)	(0.476)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	203	203	205	205	205	205	240	240
R-squared (Overall)	0.012	0.014	0.012	0.014	0.012	0.016	0.024	0.024
R-squared (Between)	0.017	0.038	0.017	0.039	0.031	0.073	0.117	0.117
R-squared (Within)	0.041	0.039	0.041	0.039	0.034	0.032	0.023	0.023
Number of groups	68	68	69	69	69	69	78	78

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Robustness Checks

In addition to the main models in Table 2.3, I conducted four additional specifications to test the robustness of findings with different strategies of calculating errors. I conducted random effects, pooled OLS, Seemingly Unrelated Regression (SUR) and Generalized Method of Moments (GMM) Dynamic Panels models. A summary of the main findings is shown in Table 2.5. Complete models can be found from Table A43 to Table A46 in Appendix 6. As can be observed, the main results remain unaffected. In fact, some specifications such as the GMM System Dynamic Panel models show that the estimates have even a greater magnitude and significance than the main results. Therefore, the evidence is also robust to different models.

Table 2.5. Robustness Checks

	Party Defection Coefficient Reestimations							
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Random Effects	-0.286** (0.125)	-0.296** (0.135)	-0.295** (0.124)	-0.301** (0.133)	-0.262** (0.118)	-0.266** (0.128)	-0.244** (0.106)	-0.252** (0.116)
Pooled OLS	-0.286** (0.125)	-0.296** (0.135)	-0.295** (0.124)	-0.301** (0.133)	-0.262** (0.118)	-0.266** (0.128)	-0.225** (0.099)	-0.235** (0.113)
SUR	-0.286* (0.163)	-0.296* (0.160)	-0.295* (0.161)	-0.301* (0.159)	-0.262 (0.160)	-0.266* (0.157)	-0.225 (0.150)	-0.235 (0.147)
GMM System Dynamic Panel	-0.481* (0.250)	-0.520** (0.234)	-0.504** (0.256)	-0.527** (0.244)	-0.469* (0.241)	-0.528*** (0.198)	-0.507** (0.227)	-0.572*** (0.180)

Own elaboration.
Clustered standard errors in parentheses for Random Effects and Pooled OLS Models.
Robust standard errors in parentheses for SUR and GMM Models.
*** p<0.01, ** p<0.05, * p<0.1.

Conclusion

This research expands the literature on the political economy of autocracies through three contributions. First, it explains how authoritarian leaders might appeal to the masses and be forced to be responsive to their demands to try to retain power. In other words, autocrats are acting as if they were in a democratic regime. This finding might contradict the idea that autocrats do not have incentives to invest in the well-being of their people (Acemoglu & Robinson, 2005; Meltzer & Richard, 1981; Persson & Tabellini, 2003). In both, autocracy and democracy, welfare policies might be offered in exchange for electoral support. Second, it shows that autocrats might choose policies with results observable in the short-term instead of policies that show results in the long run. It seems that authoritarian leaders only use the strategy

of implementing short-term welfare policies when they are facing immediate risk of losing power because of a factional split. Third, it proposes a new mechanism in which splits within the authoritarian elite might introduce immediate risk to authoritarian leaders, which might force them to modify their survival strategies.

In line with this story, I show how splits within the authoritarian elite might lead to an improvement in human development through a reduction in the change in the infant mortality rate. Splits might create a risk scenario for authoritarian leaders, as the elite might become a threat to the regime by trying to form an alliance with the masses to form a new government in which the old authoritarian leader and his inner circle do not have influence any longer (Albertus & Menaldo, 2014). My claim is that authoritarian leaders might invest in the well-being of people as an additional tool to counter the threat of elites and thus align the preferences of the masses with the survival of the regime.

By studying human development through the infant mortality rate, several advantages are gained, since human development can be studied with a result that shows changes in the short-term (Touchton & Wampler, 2013). Findings of my study suggest that the splits within the elite are strongly associated with an improvement in the well-being of people in authoritarian regimes by reducing the infant mortality rate. This evidence contributes to the understanding of the incentives to which public policies obey in authoritarian regimes.

While the results cannot be interpreted causally, their reliability lies in three elements. First, by incorporating fixed-effect models several characteristics of countries that are time-invariant can be controlled (Clark & Linzer, 2015). Second, placebo tests showed that there is no evidence to indicate that autocrats might use policies that affect human development in the long run, such as literacy. Third, the results proved robust to different estimation techniques.

In terms of future research, it is important to mention that this research focuses on both the risk and the actions of authoritarian leaders to manage it in the short-term. Therefore, my argument little says of which elements might force autocrats to engage into welfare policies in their respective countries in the long run. However, I do not deny the possibility of any determinants for autocrats to engage in long-term welfare policies, such as educational ones (Touchton & Wampler, 2013). In the same vein, my argument does not take into account the role of the opposition in the face of a scenario of risk to the authoritarian regime, since its

strategies for contesting power could also vary in the presence of a split into the elite as they might even incorporate defectors to their lines.

Appendix 1. Descriptive Statistics of Control Variables

Table A1. Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Observations	Source
Single Party Regime	0.35	-	0	1	246	Geddes, Wright and Frantz (2014)
Personalistic Regime	0.30	-	0	1	246	Geddes, Wright and Frantz (2014)
Political Violence	0.89	0.46	0	9	246	Miller (2015)
Electoral Intimidation	-0.63	0.98	-3.33	1.94	246	V-Dem Project Dataset v9
Oil Rents	2.91	8.01	0	57.57	235	World Bank
Log GDP per capita	8.20	0.96	5.84	10.84	246	World Bank
Foreign Aid	7.93	10.33	0	78.71	246	World Bank
Urban Concentration	23.10	17.96	0	100	246	Miller (2015)

Source: Own elaboration.

Appendix 2. Unit Root Tests Dependent Variable

Table A2. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	1273.3558	0.0000
Inverse Normal Z	-17.6562	0.0000
Inverse Logit T (554) L*	-28.1220	0.0000
Modified inv. Chi-squared Pm	50.2168	0.0000

Source: Own elaboration.

Table A3. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	473.1763	0.0000
Inverse Normal Z	-1.4963	0.0673
Inverse Logit T (534) L*	-3.4800	0.0003
Modified inv. Chi-squared Pm	12.0697	0.0000

Source: Own elaboration.

Table A4. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	1472.8972	0.0000
Inverse Normal Z	-26.0874	0.0000
Inverse Logit T (554) L*	-37.0848	0.0000
Modified inv. Chi-squared Pm	59.7295	0.0000

Source: Own elaboration.

Table A5. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	1789.5163	0.0000
Inverse Normal Z	-25.8290	0.0000
Inverse Logit T (554) L*	-44.3998	0.0000
Modified inv. Chi-squared Pm	74.8238	0.0000

Source: Own elaboration.

Table A6. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	504.3204	0.0000
Inverse Normal Z	-3.2991	0.0005
Inverse Logit T (554) L*	-5.4110	0.0000
Modified inv. Chi-squared Pm	13.5544	0.0000

Source: Own elaboration.

Appendix 3. Unit-root Tests for Continuous Control Variables

Political Violence

Table A7. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	539.0932	0.0000
Inverse Normal Z	-10.9055	0.0000
Inverse Logit T (554) L*	-14.4683	0.0000
Modified inv. Chi-squared Pm	14.1029	0.0000

Source: Own elaboration.

Table A8. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	464.1275	0.0000
Inverse Normal Z	-7.7481	0.0000
Inverse Logit T (534) L*	-10.8651	0.0000
Modified inv. Chi-squared Pm	10.6839	0.0000

Source: Own elaboration.

Table A9. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	815.4468	0.0000
Inverse Normal Z	-20.4071	0.0000
Inverse Logit T (554) L*	-25.5994	0.0000
Modified inv. Chi-squared Pm	38.4196	0.0000

Source: Own elaboration.

Table A10. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	773.0641	0.0000
Inverse Normal Z	-13.6040	0.0000
Inverse Logit T (554) L*	-21.8842	0.0000
Modified inv. Chi-squared Pm	24.9182	0.0000

Source: Own elaboration.

Table A11. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	688.5260	0.0000
Inverse Normal Z	-10.8174	0.0005
Inverse Logit T (554) L*	-18.1217	0.0000
Modified inv. Chi-squared Pm	21.0105	0.0000

Source: Own elaboration.

Electoral Intimidation

Table A12. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	459.1245	0.0000
Inverse Normal Z	-13.3456	0.0000
Inverse Logit T (554) L*	-12.4657	0.0000
Modified inv. Chi-squared Pm	13.1363	0.0000

Source: Own elaboration.

Table A13. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	466.3464	0.0000
Inverse Normal Z	-11.2464	0.0000
Inverse Logit T (534) L*	-9.2453	0.0000
Modified inv. Chi-squared Pm	12.1345	0.0000

Source: Own elaboration.

Table A14. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	751.2466	0.0000
Inverse Normal Z	-17.3465	0.0000
Inverse Logit T (554) L*	-22.1298	0.0000
Modified inv. Chi-squared Pm	45.5677	0.0000

Source: Own elaboration.

Table A15. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	864.2574	0.0000
Inverse Normal Z	-12.2383	0.0000
Inverse Logit T (554) L*	-22.3464	0.0000
Modified inv. Chi-squared Pm	26.3493	0.0000

Source: Own elaboration.

Table A16. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	735.2368	0.0000
Inverse Normal Z	-13.7885	0.0005
Inverse Logit T (554) L*	-19.3467	0.0000
Modified inv. Chi-squared Pm	22.4501	0.0000

Source: Own elaboration.

Oil Rents

Table A17. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	222.6320	0.1304
Inverse Normal Z	-4.1897	0.0000
Inverse Logit T (554) L*	-4.5662	0.0000
Modified inv. Chi-squared Pm	1.1316	0.1289

Source: Own elaboration.

Table A18. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	175.1079	0.8974
Inverse Normal Z	-3.4174	0.0003
Inverse Logit T (534) L*	-3.4073	0.0004
Modified inv. Chi-squared Pm	-1.2446	0.8934

Source: Own elaboration.

Table A19. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	424.6034	0.0000
Inverse Normal Z	-13.3462	0.0000
Inverse Logit T (554) L*	-14.5990	0.0000
Modified inv. Chi-squared Pm	20.2608	0.0000

Source: Own elaboration.

Table A20. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	241.9743	0.0285
Inverse Normal Z	-5.1741	0.0000
Inverse Logit T (554) L*	-5.4545	0.0000
Modified inv. Chi-squared Pm	1.9888	0.0234

Source: Own elaboration.

Table A21. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	207.4253	0.3818
Inverse Normal Z	-4.5576	0.0000
Inverse Logit T (554) L*	-4.8824	0.0000
Modified inv. Chi-squared Pm	0.2699	0.3936

Source: Own elaboration.

Log GDP per capita

Table A22. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	246.1451	0.0925
Inverse Normal Z	2.5675	0.9949
Inverse Logit T (554) L*	2.6044	0.9953
Modified inv. Chi-squared Pm	1.3479	0.0888

Source: Own elaboration.

Table A23. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	322.0918	0.0000
Inverse Normal Z	2.2394	0.9874
Inverse Logit T (534) L*	-0.0085	0.4966
Modified inv. Chi-squared Pm	4.9851	0.0000

Source: Own elaboration.

Table A24. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	583.6265	0.0000
Inverse Normal Z	-12.1705	0.0000
Inverse Logit T (554) L*	-13.1976	0.0000
Modified inv. Chi-squared Pm	17.6874	0.0000

Source: Own elaboration.

Table A25. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	241.9743	0.0285
Inverse Normal Z	-5.1741	0.0000
Inverse Logit T (554) L*	-5.4545	0.0000
Modified inv. Chi-squared Pm	1.9888	0.0234

Source: Own elaboration.

Table A26. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	245.7924	0.0951
Inverse Normal Z	3.3686	0.9996
Inverse Logit T (554) L*	3.4506	0.9997
Modified inv. Chi-squared Pm	1.3310	0.0916

Source: Own elaboration.

Foreign Aid

Table A27. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	389.6756	0.0000
Inverse Normal Z	-5.6159	0.0000
Inverse Logit T (554) L*	-7.4531	0.0000
Modified inv. Chi-squared Pm	7.5712	0.0000

Source: Own elaboration.

Table A28. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	362.3961	0.0000
Inverse Normal Z	-3.9826	0.0000
Inverse Logit T (534) L*	-5.7411	0.0000
Modified inv. Chi-squared Pm	6.2937	0.0000

Source: Own elaboration.

Table A29: Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	710.9257	0.0000
Inverse Normal Z	-17.5578	0.0000
Inverse Logit T (554) L*	-19.9851	0.0000
Modified inv. Chi-squared Pm	27.822	0.0000

Source: Own elaboration.

Table A30. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	544.1080	0.0000
Inverse Normal Z	-8.6070	0.0000
Inverse Logit T (554) L*	-11.9996	0.0000
Modified inv. Chi-squared Pm	14.8031	0.0000

Source: Own elaboration.

Table A31. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	529.3737	0.0000
Inverse Normal Z	-8.3227	0.0000
Inverse Logit T (554) L*	-11.9701	0.0000
Modified inv. Chi-squared Pm	14.1131	0.0000

Source: Own elaboration.

Urban Concentration

Table A32. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	327.2363	0.0001
Inverse Normal Z	4.5917	1.0000
Inverse Logit T (554) L*	3.1189	0.9990
Modified inv. Chi-squared Pm	4.3099	0.0000

Source: Own elaboration.

Table A33. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	391.0029	0.0000
Inverse Normal Z	0.4467	0.6725
Inverse Logit T (534) L*	-2.4287	0.0077
Modified inv. Chi-squared Pm	7.2575	0.0000

Source: Own elaboration.

Table A34. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	**p-value**
Inverse chi-squared (220) P	581.6909	0.0000
Inverse Normal Z	-8.6958	0.0000
Inverse Logit T (554) L*	-10.4554	0.0000
Modified inv. Chi-squared Pm	16.7303	0.0000

Source: Own elaboration.

Table A35. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	314.0681	0.0004
Inverse Normal Z	4.9435	1.0000
Inverse Logit T (554) L*	4.1675	1.0000
Modified inv. Chi-squared Pm	3.7012	0.0001

Source: Own elaboration.

Table A36. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	345.2431	0.0000
Inverse Normal Z	1.3620	0.9134
Inverse Logit T (554) L*	-0.8530	0.1970
Modified inv. Chi-squared Pm	5.1422	0.0000

Source: Own elaboration.

Appendix 4. Main Models with Lagged Dependent Variable and all Variables in Level Form

Table A37. Main Models with LDV and all Variables in Level Form

VARIABLES	Model A1	Model A2	Model A3	Model A4	Model A5	Model A6	Model A7	Model A8
Infant Mortality Rate $(t-1)$	**0.842*** **	**0.999*** **	**0.843*** **	**0.999*** **	**0.837*** **	**0.998*** **	**0.897*** **	**0.989*** **
	(0.104)	**(0.0116)**	**(0.103)**	**(0.0112)**	**(0.106)**	**(0.0106)**	**(0.0748)**	**(0.0122)**
Party Defection	**-0.299***	**-0.293***	**-0.297***	**-0.311***	**-0.259**	**-0.262***	**-0.249** **	**-0.285** **
	(0.167)	**(0.168)**	**(0.162)**	**(0.173)**	**(0.157)**	**(0.156)**	**(0.123)**	**(0.141)**
Single Party Regime	0.333	0.252	0.312	0.276	0.487	0.399	0.328	0.314
	(0.570)	(0.656)	(0.536)	(0.637)	(0.588)	(0.687)	(0.563)	(0.610)
Personalistic Regime	-0.255	-0.243	-0.238	-0.161	-0.108	-0.209	-0.0302	-0.124
	(0.275)	(0.220)	(0.285)	(0.244)	(0.308)	(0.213)	(0.228)	(0.184)
Domestic Violence	-0.144**	-0.0604	-0.142**	-0.0563	-0.108*	-0.0168	-0.0794*	-0.0239
	(0.0690)	(0.0382)	(0.0670)	(0.0376)	(0.0609)	(0.0310)	(0.0448)	(0.0265)
Electoral Intimidation	-0.0299	-0.118			0.0128	-0.0750	0.0672	-0.000103
	(0.129)	(0.156)			(0.121)	(0.147)	(0.120)	(0.129)
Δ Oil Rents	0.0129	0.0102	0.0123	0.00897	-0.00982	-0.0172		
	(0.0139)	(0.0118)	(0.0135)	(0.0123)	(0.0142)	(0.0134)		
Δ Oil Rents $(t-1)$	-0.0289	-0.0366**	-0.0276	-0.0323*				
	(0.0179)	(0.0183)	(0.0172)	(0.0174)				
Δ GDP per capita	-1.030	-2.509	-1.026	-2.501	0.902*	0.865**		
	(1.407)	(1.576)	(1.401)	(1.589)	(0.494)	(0.428)		
Δ GDP per capita $(t-1)$	1.928	3.431*	1.936	3.380*				
	(1.497)	(1.812)	(1.483)	(1.822)				
Foreign Aid	-0.0218	-0.0181	-0.0221	-0.0190	-0.0174	-0.0131		
	(0.0200)	(0.0217)	(0.0203)	(0.0225)	(0.0196)	(0.0214)		
Δ Urban Concentration	0.00123	-0.0126	0.00150	-0.0154	0.00227	-0.0108		
	(0.0221)	(0.0229)	(0.0216)	(0.0236)	(0.0209)	(0.0228)		
Constant	471.8	-8.048**	471.6	-7.603**	479.2	-7.799**	268.6	-0.516
	(292.0)	(3.798)	(290.8)	(3.501)	(292.7)	(3.590)	(192.6)	(0.546)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	209	209	211	211	211	211	246	246
R-squared (Overall)	0.992	0.998	0.992	0.998	0.992	0.998	0.998	0.998
R-squared (Between)	0.995	0.999	0.995	0.999	0.995	0.999	0.999	0.999
R-squared (Within)	0.990	0.988	0.990	0.988	0.990	0.988	0.989	0.989
Number of groups	69	69	70	70	69	69	78	78

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix 5. Unit Root Tests Literacy

Table A38. Unit-root Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	234.2981	0.4822
Inverse Normal Z	3.5607	0.9998
Inverse Logit T (554) L*	3.0258	0.9987
Modified inv. Chi-squared Pm	0.0138	0.4946

Source: Own elaboration.

Table A39. Trend-stationary Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	473.1763	0.0000
Inverse Normal Z	-1.4963	0.0000
Inverse Logit T (534) L*	-3.4800	0.0000
Modified inv. Chi-squared Pm	12.0697	0.0000

Source: Own elaboration.

Table A40. Stationarity with a Drift Dickey-Fuller test with Fisher specification

	Statistic	p-value
Inverse chi-squared (220) P	576.2110	0.0000
Inverse Normal Z	-11.9948	0.0000
Inverse Logit T (554) L*	-12.6919	0.0000
Modified inv. Chi-squared Pm	15.817	0.0000

Source: Own elaboration.

Table A41. Unit-root Dickey-Fuller test with Phillips-Perron specification

	Statistic	p-value
Inverse chi-squared (220) P	384.5849	0.0000
Inverse Normal Z	1.7183	0.9571
Inverse Logit T (554) L*	-1.2711	0.1021
Modified inv. Chi-squared Pm	6.9608	0.0000

Source: Own elaboration.

Table A42. Trend-stationary Dickey-Fuller test with Phillips-Perron specification

	Statistic	**p-value**
Inverse chi-squared (220) P	590.9247	0.0000
Inverse Normal Z	-5.3662	0.0000
Inverse Logit T (554) L*	-9.2718	0.0000
Modified inv. Chi-squared Pm	16.4988	0.0000

Source: Own elaboration.

Appendix 6. Robustness Checks

Table A43. Effect of Partisan Defections on Infant Mortality Rate (Random Effects)

VARIABLES	Model A9	Model A10	Model A11	Model A12	Model A13	Model A14	Model A15	Model A16
Party Defection	-0.286**	-0.296**	-0.295**	-0.301**	-0.262**	-0.266**	-0.244**	-0.252**
	(0.125)	(0.135)	(0.124)	(0.133)	(0.118)	(0.128)	(0.106)	(0.116)
Single Party Regime	-0.0816	-0.0653	-0.0643	-0.0531	-0.0588	-0.0524	0.0620	0.0751
	(0.224)	(0.226)	(0.195)	(0.196)	(0.219)	(0.221)	(0.256)	(0.263)
Personalistic Regime	-0.146	-0.146	-0.123	-0.124	-0.145	-0.145	-0.0897	-0.0916
	(0.150)	(0.149)	(0.127)	(0.127)	(0.148)	(0.147)	(0.139)	(0.138)
Domestic Violence	-0.0817**	-0.0789**	-0.0790**	-0.0770**	-0.0856**	-0.0844**	-0.0789***	-0.0756***
	(0.0399)	(0.0385)	(0.0401)	(0.0389)	(0.0386)	(0.0370)	(0.0273)	(0.0248)
Electoral Intimidation	-0.0215	-0.0207			-0.0182	-0.0179	0.0541	0.0532
	(0.0642)	(0.0643)			(0.0622)	(0.0623)	(0.0792)	(0.0788)
Δ Oil Rents	0.0349**	0.0338**	0.0339**	0.0331**	0.0301**	0.0297**		
	(0.0144)	(0.0140)	(0.0142)	(0.0138)	(0.0145)	(0.0143)		
Δ Oil Rents $(t-1)$	0.0303*	0.0297*	0.0300*	0.0296*				
	(0.0169)	(0.0164)	(0.0167)	(0.0162)				
Δ GDP per capita	-2.920*	-2.986*	-3.017*	-3.061*	-2.715*	-2.751*		
	(1.669)	(1.689)	(1.582)	(1.599)	(1.586)	(1.623)		
Δ GDP per capita $(t-1)$	0.515	0.469	0.515	0.481				
	(0.585)	(0.606)	(0.577)	(0.601)				
Foreign Aid	-0.0109	-0.0109	-0.0113	-0.0112	-0.0112	-0.0112		
	(0.00811)	(0.00806)	(0.00764)	(0.00759)	(0.00834)	(0.00826)		
Δ Urban Concentration	0.00113	0.00134	0.00154	0.00172	-0.00387	-0.00371		
	(0.0315)	(0.0314)	(0.0324)	(0.0322)	(0.0317)	(0.0314)		
Constant	7.487	-0.875***	5.186	-0.871***	2.504	-0.886***	6.200	-0.982***
	(23.52)	(0.214)	(22.33)	(0.211)	(22.16)	(0.208)	(19.00)	(0.125)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	207	207	209	209	209	209	246	246
R-squared (Overall)	0.067	0.066	0.066	0.066	0.061	0.061	0.032	0.031
R-squared (Between)	0.059	0.064	0.059	0.064	0.047	0.049	0.105	0.104
R-squared (Within)	0.066	0.063	0.066	0.063	0.062	0.061	0.019	0.031
Number of cowcode	68	68	69	69	69	69	78	78

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A44. Effect of Partisan Defections on Infant Mortality Rate (Pooled OLS)

VARIABLES	Model A17	Model A18	Model A19	Model A20	Model A21	Model A22	Model A23	Model A24
Party Defection	-0.286**	-0.296**	-0.295**	-0.301**	-0.262**	-0.266**	-0.225**	-0.235**
	(0.125)	(0.135)	(0.124)	(0.133)	(0.118)	(0.128)	(0.0988)	(0.113)
Single Party Regime	-0.0816	-0.0653	-0.0643	-0.0531	-0.0588	-0.0524	-0.0376	-0.0295
	(0.224)	(0.226)	(0.195)	(0.196)	(0.219)	(0.221)	(0.207)	(0.212)
Personalistic Regime	-0.146	-0.146	-0.123	-0.124	-0.145	-0.145	-0.116	-0.120
	(0.150)	(0.149)	(0.127)	(0.127)	(0.148)	(0.147)	(0.150)	(0.151)
Domestic Violence	-0.0817**	-0.0789**	-0.0790*	-0.0770*	-0.0856**	-0.0844**	-0.0833**	-0.0804**
	(0.0399)	(0.0385)	(0.0401)	(0.0389)	(0.0386)	(0.0370)	(0.0331)	(0.0311)
Electoral Intimidation	-0.0215	-0.0207			-0.0182	-0.0179	0.0199	0.0201
	(0.0642)	(0.0643)			(0.0622)	(0.0623)	(0.0756)	(0.0754)
Δ Oil Rents	0.0349**	0.0338**	0.0339**	0.0331**	0.0301**	0.0297**		
	(0.0144)	(0.0140)	(0.0142)	(0.0138)	(0.0145)	(0.0143)		
Δ Oil Rents $(t-1)$	0.0303*	0.0297*	0.0300*	0.0296*				
	(0.0169)	(0.0164)	(0.0167)	(0.0162)				
Δ GDP per capita	-2.920*	-2.986*	-3.017*	-3.061*	-2.715*	-2.751*		
	(1.669)	(1.689)	(1.582)	(1.599)	(1.586)	(1.623)		
Δ GDP per capita $(t-1)$	0.515	0.469	0.515	0.481				
	(0.585)	(0.606)	(0.577)	(0.601)				
Foreign Aid	-0.0109	-0.0109	-0.0113	-0.0112	-0.0112	-0.0112		
	(0.00811)	(0.00806)	(0.00764)	(0.00759)	(0.00834)	(0.00826)		
Δ Urban Concentration	0.00113	0.00134	0.00154	0.00172	-0.00387	-0.00371		
	(0.0315)	(0.0314)	(0.0324)	(0.0322)	(0.0317)	(0.0314)		
Constant	7.487	-0.875***	5.186	-0.871***	2.504	-0.886***	6.367	-0.980***
	(23.52)	(0.214)	(22.33)	(0.211)	(22.16)	(0.208)	(19.80)	(0.138)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	207	207	209	209	209	209	246	246
R-squared	0.067	0.066	0.066	0.066	0.061	0.061	0.033	0.033

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A45. Effect of Partisan Defections on Infant Mortality Rate (SUR Models)

VARIABLES	Model A25	Model A26	Model A27	Model A28	Model A29	Model A30	Model A31	Model A32
Party Defection	-0.286*	-0.296*	-0.295*	-0.301*	-0.262	-0.266*	-0.225	-0.235
	(0.163)	(0.160)	(0.161)	(0.159)	(0.160)	(0.157)	(0.150)	(0.147)
Single Party Regime	-0.0816	-0.0653	-0.0643	-0.0531	-0.0588	-0.0524	-0.0376	-0.0295
	(0.191)	(0.185)	(0.183)	(0.178)	(0.189)	(0.183)	(0.172)	(0.171)
Personalistic Regime	-0.146	-0.146	-0.123	-0.124	-0.145	-0.145	-0.116	-0.120
	(0.199)	(0.199)	(0.185)	(0.185)	(0.198)	(0.198)	(0.184)	(0.183)
Domestic Violence	-0.0817**	-0.0789*	-0.0790*	-0.0770*	-0.0856**	-0.0844**	-0.0833**	-0.0804**
	(0.0411)	(0.0403)	(0.0404)	(0.0397)	(0.0401)	(0.0392)	(0.0373)	(0.0364)
Electoral Intimidation	-0.0215	-0.0207			-0.0182	-0.0179	0.0199	0.0201
	(0.0843)	(0.0843)			(0.0837)	(0.0837)	(0.0760)	(0.0760)
Δ Oil Rents	0.0349	0.0338	0.0339	0.0331	0.0301	0.0297		
	(0.0278)	(0.0277)	(0.0276)	(0.0274)	(0.0275)	(0.0273)		
Δ Oil Rents $(t-1)$	0.0303	0.0297	0.0300	0.0296				
	(0.0319)	(0.0319)	(0.0318)	(0.0317)				
Δ GDP per capita	-2.920**	-2.986**	-3.017**	-3.061**	-2.715**	-2.751**		
	(1.375)	(1.361)	(1.344)	(1.333)	(1.248)	(1.222)		
Δ GDP per capita $(t-1)$	0.515	0.469	0.515	0.481				
	(1.348)	(1.342)	(1.342)	(1.336)				
Foreign Aid	-0.0109	-0.0109	-0.0113	-0.0112	-0.0112	-0.0112		
	(0.00739)	(0.00739)	(0.00719)	(0.00719)	(0.00727)	(0.00727)		
Δ Urban Concentration	0.00113	0.00134	0.00154	0.00172	-0.00387	-0.00371		
	(0.0561)	(0.0561)	(0.0558)	(0.0558)	(0.0559)	(0.0559)		
Constant	7.487	-0.875***	5.186	-0.871***	2.504	-0.886***	6.367	-0.980***
	(24.04)	(0.169)	(23.45)	(0.165)	(23.49)	(0.168)	(20.55)	(0.140)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	207	207	209	209	209	209	246	246
R-squared	0.067	0.066	0.066	0.066	0.061	0.061	0.033	0.033

Own elaboration.
Robust Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Table A46. Effect of Partisan Defections on Infant Mortality Rate (GMM System Dynamic Panel Models)

VARIABLES	Model A33	Model A34	Model A35	Model A36	Model A37	Model A38	Model A39	Model A40
Δ Infant Mortality Rate $(t-1)$	0.0253	0.0385	0.0452	0.0527	-0.0159	-0.00710	0.110	0.121
	(0.125)	(0.125)	(0.134)	(0.133)	(0.0812)	(0.0828)	(0.0706)	(0.0853)
Party Defection	-0.481*	-0.520**	-0.504**	-0.527**	-0.469*	-0.528***	-0.507**	-0.572***
	(0.250)	(0.234)	(0.256)	(0.244)	(0.241)	(0.198)	(0.227)	(0.180)
Single Party Regime	-0.149	-0.0541	-0.0850	-0.0293	-0.306	-0.225	-0.583*	-0.518*
	(0.312)	(0.334)	(0.329)	(0.342)	(0.320)	(0.288)	(0.311)	(0.277)
Personalistic Regime	0.325	0.358	0.418	0.443	0.0905	0.0766	-0.0100	-0.0581
	(0.527)	(0.543)	(0.500)	(0.517)	(0.427)	(0.414)	(0.357)	(0.359)
Domestic Violence	-0.0713	-0.0594	-0.0622	-0.0559	-0.0673	-0.0492	-0.108	-0.0852
	(0.0930)	(0.0916)	(0.0994)	(0.0982)	(0.0831)	(0.0799)	(0.0696)	(0.0614)
Electoral Intimidation	0.0220	0.00727			-0.0292	-0.0633	-0.201*	-0.199*
	(0.179)	(0.176)			(0.138)	(0.127)	(0.118)	(0.118)
Δ Oil Rents	0.145	0.136	0.144	0.140	0.110	0.0999		
	(0.109)	(0.110)	(0.110)	(0.112)	(0.0736)	(0.0748)		
Δ Oil Rents $(t-1)$	-0.111	-0.116	-0.130	-0.135				
	(0.161)	(0.168)	(0.163)	(0.167)				
Δ GDP per capita	-4.963**	-4.807**	-4.981***	-4.936**	-4.436**	-4.270**		
	(2.009)	(2.012)	(1.912)	(1.945)	(1.763)	(1.731)		
Δ GDP per capita $(t-1)$	-1.010	-1.528	-1.776	-2.093				
	(2.898)	(2.673)	(3.179)	(2.979)				
Foreign Aid	-0.0262	-0.0271	-0.0300	-0.0309*	-0.0166	-0.0143		
	(0.0172)	(0.0175)	(0.0185)	(0.0187)	(0.0113)	(0.0110)		
Δ Urban Concentration	-0.153	-0.139	-0.166	-0.162	-0.0763	-0.0530		
	(0.191)	(0.186)	(0.194)	(0.194)	(0.166)	(0.159)		
Constant	14.21	-0.728*	7.353	-0.705*	19.42	-0.822**	21.19	-0.692**
	(32.85)	(0.377)	(31.78)	(0.403)	(31.02)	(0.320)	(27.48)	(0.304)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	207	207	209	209	209	209	244	244
Prob > chi2	0.0300	0.0205	0.0111	0.0075	0.0052	0.0200	0.0011	0.0007
Number of groups	68	68	69	69	69	69	78	78

Own elaboration.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Appendix 7. Main Models in Level Form

Table A47. Effect of Partisan Defections on Infant Mortality Rate (Level Form)

VARIABLES	Model 49	Model 50	Model 51	Model 52	Model 53	Model 54	Model 55	Model 56
Party Defection	-0.532**	-2.036*	-0.427*	-1.966*	-0.479**	-2.287*	-0.133	-2.199*
	(0.272)	(1.162)	(0.231)	(1.168)	(0.244)	(1.298)	(0.259)	(1.266)
Single Party Regime	1.945	10.70***	1.672	10.27***	2.030	10.38***	1.950	15.31***
	(2.084)	(3.521)	(1.930)	(3.198)	(2.117)	(3.338)	(1.892)	(3.855)
Personalistic Regime	-0.00460	2.343	-0.267	2.600	0.391	0.216	0.843	0.538
	(0.768)	(4.274)	(0.719)	(4.338)	(0.818)	(4.481)	(0.972)	(4.230)
Domestic Violence	-0.547**	-0.197	-0.552**	-0.163	-0.550**	-0.326	-0.430*	1.226
	(0.237)	(0.612)	(0.233)	(0.600)	(0.234)	(0.569)	(0.249)	(0.780)
Electoral Intimidation	0.337	-0.480			0.337	-0.668	0.483	-1.621*
	(0.277)	(1.188)			(0.253)	(1.119)	(0.519)	(0.961)
Oil Rents	0.00379	-0.173	0.00466	-0.186	0.0122	-0.112		
	(0.0864)	(0.215)	(0.0854)	(0.206)	(0.0507)	(0.135)		
Oil Rents $(t-1)$	0.0139	0.0229	0.00395	0.0463				
	(0.0808)	(0.222)	(0.0767)	(0.216)				
GDP per capita	2.537	-30.22**	2.469	-30.35**	-1.516	-21.56***		
	(3.134)	(15.07)	(2.931)	(14.74)	(2.672)	(4.820)		
GDP per capita $(t-1)$	-4.194	10.51	-3.853	10.84				
	(2.935)	(14.30)	(2.726)	(13.86)				
Foreign Aid	-0.0277	0.0774	-0.0255	0.0731	-0.0272	0.0654		
	(0.0263)	(0.0846)	(0.0256)	(0.0829)	(0.0264)	(0.0948)		
Urban Concentration	0.00306	-0.538**	0.0180	-0.532**	-0.00227	-0.558**		
	(0.109)	(0.222)	(0.116)	(0.213)	(0.102)	(0.235)		
Constant	2,721***	231.1***	2,719***	229.8***	2,685***	247.2***	2,585***	51.67***
	(85.32)	(39.22)	(82.55)	(38.74)	(70.10)	(38.57)	(92.64)	(2.161)
Year Fixed Effects	YES	NO	YES	NO	YES	NO	YES	NO
Observations	209	209	211	211	211	211	246	246
R-squared (Overall)	0.109	0.363	0.091	0.370	0.118	0.364	0.073	0.016
R-squared (Between)	0.107	0.375	0.071	0.381	0.113	0.377	0.021	0.004
R-squared (Within)	0.941	0.496	0.941	0.507	0.942	0.493	0.918	0.205
Number of groups	69	69	70	70	69	69	78	78

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Together for Ever? Partisan Defections, Regime Instability and Human Development under Mexico's Electoral Authoritarianism

Abstract: In recent years, the literature has focused on the importance of splits within authoritarian elites. I argue that in autocracies that hold executive elections, elite splits might force autocrats to implement policies that improve people's quality of life and therefore human development. This is because such autocrats need to appeal to the masses to weaken defectors' threat to the regime. To test this argument, I use a mixed methods research design with evidence from Mexico during the Institutional Revolutionary Party (PRI) single-party regime. At the national level, I study the causal process by which different PRI autocrats responded to the three most important defections faced by the party during its authoritarian dominance: Juan Andreu Almazán (1939-1940), Miguel Henríquez Guzmán (1952) and Cuauhtémoc Cárdenas (1987-1988). At the subnational level I conducted a quantitative study in which I estimated the effect of defections within local PRI structures on per capita social spending allocations during 1989-2000. The evidence, as a whole, shows that PRI autocrats tended to invest in welfare policies as a result of partisan defections.

Keywords: partisan defections, human development policies, electoral authoritarianisms, Mexico, mixed methods

Introduction

In recent years significant scholarly attention has been devoted to the study of splits within the authoritarian elites (Albertus, 2013, 2015; Albertus & Menaldo, 2014; Frantz & Stein, 2016; Garrido de la Sierra, 2019; Hale & Colton, 2017; Langston, 2002; Nepstad, 2013; Powell & Thyne, 2011; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019). Such splits (more specifically partisan defections within electoral autocracies) have been one of the central features of several studies on the duration and survival of authoritarian governments (Brownlee, 2007; Hale & Colton, 2017; Levitsky & Way, 2010; Magaloni, 2006; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019; Svolik, 2012). In particular, splits within the elite, understood as those moments when members of the ruling coalition voluntarily leave the regime with the aim of competing for power (Reuter & Szakonyi, 2019), might be a source of important instability for authoritarian regimes (Reuter & Gandhi, 2011).

Partisan defections are usually observed shortly before an election (Garrido de la Sierra, 2019) and these splits might cause immediate instability to the authoritarian leaders (Reuter & Szakonyi, 2019). Defectors cause instability in the regime because they can encourage the masses to rally against the regime (Albertus & Menaldo, 2014), and if they participate in elections they can divide the vote that the regime expected to obtain (Reuter & Szakonyi, 2019) There are several examples in which defections have led to regime breakdowns, such as Mexico in the late 1980s (Langston, 2002), Serbia in 2000 (Levitsky & Way, 2010), Ukraine in 2004 (Way, 2005), or Nigeria in 2015 (Animashaun, 2014).

For example, Albertus and Menaldo (2014) argue that splits within the authoritarian elite can be particularly risky to autocrats because previous regime members could form an alliance with the masses. The masses led by an elite faction could seek regime change, in which the former authoritarian leader no longer had influence. This change could be a new autocracy under the leadership of the elite faction that broke with the previous regime, or even a democracy.

The literature has also focused on autocrats' possible actions to discourage splits. For example, authoritarian leaders might take advantage of legislative elections as well as legislatures to more efficiently distribute benefits among the various factions of the regime (Blaydes, 2011; Geddes, 2006; Lust-Okar, 2006; Magaloni, 2006; Svolik, 2012). Such institutions allow the regime to generate more credibly power-sharing agreements with the elite (Svolik, 2012), as well as establish mutual monitoring mechanisms (Magaloni, 2006).

Moreover, legislative elections could make the distribution of both economic benefits and legislative seats seem fairer to the elites (Gandhi & Lust-Okar, 2009; Lust-Okar, 2006). Therefore, legislatures as well as legislative elections could help the regime's survival by making splits less likely.

However, once the splits have occurred, autocrats could use another set of tools to manage regime instability. For example, Albertus (2015) argues that land redistribution among the masses could strengthen authoritarian rule. However, his argument is intended for a break with an economic elite. Albertus (2015) argues that if an autocrat rupture with a landowner economic elite that existed before the leader came to power, that elite will also produce a threat to the regime. To weaken this elite, the authoritarian leader could engage in land reform and increase redistribution among the masses. This action will have three immediate consequences: weakening the economic elite, strengthening the regime due to the support of the reform-favored masses, and increasing redistribution.

Yet, autocrats might employ strategies beyond land redistribution to reduce the potential impact of splits in their survival. Building on Albertus (2015) and Albertus and Menaldo (2014), I argue that splits within the ruling coalition in electoral authoritarian regimes also force autocrats to deploy policies designed to improve people's living conditions, thereby raising the level of the human development. Improving the living conditions of the masses helps prevent them from being co-opted by the defectors seeking to unseat the ruling leader. In contrast, when authoritarian leaders face no splits, it is unlikely that human development will rise because autocrats do not confront the risk of being ousted by defectors.

To test this argument, I examine national and subnational party splits during Mexico's electoral authoritarian regime run by the Institutional Revolutionary Party (PRI).[13] Nationally there have been three major splits (Langston, 2002): in 1940, when General Juan Andreu Almazán left the party; in 1952 with the split of General Miguel Henríquez Guzmán; and in 1988 with the split of Cuauhtémoc Cárdenas. Through a process tracing strategy, I show that all three cases pass a *hoop test* (Collier, 2011) and cannot be discarded. Qualitative evidence shows that the three splits followed the same pattern. All three created instability in the regime and

[13] The party has changed its name throughout history. It began as the National Revolutionary Party (1929) and was modified to the Party of the Mexican Revolution (1938) and finally to the Institutional Revolutionary Party (1946). However, for clarity I will refer to the party at all times as the PRI.

authoritarian leaders subsequently responded through policies to improve people's living conditions.

At a subnational level, I show how defections in gubernatorial elections affected social spending allocations per capita in the Mexican states. The data cover the period from 1989, when the PRI lost for the first time a gubernatorial executive election to 2000, when the PRI lost federal executive elections for the first time in the country's history. Quantitative evidence suggests that PRI defections might systematically improve people's living conditions by raising the levels of social spending allocations per capita. The evidence shows that rises in citizen well-being are preceded by elite splits.

Argument

Elite members in an autocracy can steadily assess their situation within the regime in terms of the benefits they derive, the costs they incur, and the threats they face. The decision to remain in the regime is therefore contingent on a number of opportunities and costs to gain more power. For example, the isolation of certain groups as well as economic crises have been found to be triggers for splits within the elite (Langston, 2002; Reuter & Gandhi, 2011). Such splits are an important source of instability in autocracies because they might lead to changes in leadership, coups, or even transitions to democracy (Albertus, 2015; Albertus & Menaldo, 2014; Hale & Colton, 2017; Reuter & Gandhi, 2011; Reuter & Szakonyi, 2019).

Once the "traitors" decide to break with the regime they can become a threat to the autocrat because they have incentives to compete for power (Albertus, 2015; Albertus & Menaldo, 2014). In fact, as stated above, one of the reasons why defectors decide to split could be the isolation of their political groups. Potential defectors might want to gain more power but cannot obtain it through the regime of which they are part (Langston, 2002). Therefore, the defectors could divide the base that supports the authoritarian leader.

Defectors could use different strategies in their attempt to defeat authoritarian leaders. For example, if the split occurred in a closed autocracy, in which no elections are held, the only option might be to execute a coup attempt (Frantz & Stein, 2016). However, coup attempts are risky, and their result is contingent (Frantz & Stein, 2016). Coup attempts are risky because if coup plotters fail, they could be persecuted, imprisoned, or killed (Nepstad, 2013). Moreover, the results are contingent because even if the coup succeeds, the same authoritarian regime could

be continued, but with an obvious change of leadership; different authoritarianism could be introduced; or even defectors could lead to a transition to democracy (Frantz & Kendall-Taylor, 2017; Geddes et al., 2018; Geddes, Frantz, et al., 2014; Kendall-Taylor et al., 2017; Svolik, 2012; Wright & Bak, 2016).

Now, possibly an elite faction that wants to gain more power in a closed autocracy might consider not executing a coup for the level of risk. However, if the same faction faced the decision of whether or not to split in an electoral authoritarianism, they could use a different strategy. In this scenario, potential defectors could choose a less risky strategy to try to seize power: they could participate in executive elections. While it is true that electoral authoritarianisms tend to unfairly favor the triumph of autocrats (Benton, 2017; Schedler, 2002a; Simpser, 2013; Tucker, 2007; Ziblatt, 2009), autocrats are not risk-free, they can actually lose elections and therefore be ousted (Donno, 2013; Higashijima, 2015a; Knutsen et al., 2017; Lucardi, 2019; Tucker, 2007).

Executive elections in authoritarian regimes tend to introduce some uncertainty (even if minimal) in the outcome. Therefore, defectors could form a new opposition political party, or they could form a coalition of parties with existing opposition groups (Albertus & Menaldo, 2014). In fact, defectors could seek to ally with the masses and thus generate a change of rulers (Albertus, 2015). In their attempt to obtain supporters, defectors could appeal to the masses and offer them better living conditions under their leadership.

Of course, authoritarian leaders could respond to this threat by deploying the regime's coercive apparatus and repress defectors. However, high levels of repression could generate more costs than benefits for election-holding autocrats. For example, repression could trigger mass protests, riots, political persecution of regime members, and international condemnation (Chenoweth & Stephan, 2011; Levitsky & Way, 2010).

Therefore, autocrats might prefer to use other tools to preserve power. I argue that authoritarian leaders could implement policies designed to improve the living conditions of the masses and thus mitigate the threat of defectors. Both defectors and authoritarian leaders thus have an incentive to appeal to the masses who become to future political control. I argue that autocrats seek to reduce the chances of defectors allying with the masses by aligning with them as well. Specifically, I claim that authoritarian leaders could engage in policies to improve human development as a strategy that weakens the threat of regime defectors. I argue that by

improving people's living conditions, autocrats might manage the crisis of a split and strengthen the regime at the same time.

Authoritarian leaders are not necessarily benevolent, they undertake policies that improve the living condition of the masses and thus human development to make them more likely to support the regime and discourage them to engage in anti-government movements. By improving human development, autocrats might strengthen their government because the masses benefiting from better living conditions would be more likely to support the regime. At the same time, the split crisis could be managed, as improving human development might make defectors less likely to succeed in trying to co-opt the masses.

There are some examples of how these actions have worked in authoritarian regimes. In Russia, subnational officers have used tax transfers to discourage other threats from the masses, such as secessionist movements (Treisman, 1999). Similarly, in China the provision of public goods at the provincial level, such as roads or drinking water services, has been a strategy of China's subnational government officials to reduce threats to national stability (Tsai, 2007).

I thus expect:

H1: Autocrats facing splits within the elite will be more likely to deploy policies designed to improve human development.

This argument builds on Albertus (2015) and Albertus and Menaldo (2014) who argue that splits between a landowner elite and the political elite could trigger further land redistribution. The logic of this argument is that autocrats and their inner circle could conflict with landowner economic elites because they seek to strengthen their regime. Therefore, if a split occurs, landowner elites could threaten the survival of autocrats. As a result, rulers could undertake further land redistribution to weaken the threat of such elites. However, my argument is different in two key elements. First, I study splits within the political elite and not between political and economic elites. Secondly, I claim that autocrats could use not only land redistribution but implement additional policies to improve the quality of life of their citizens and thus weaken the threat of defectors.

My argument also differs in its implications for electoral authoritarian regimes with competitive executive elections. Competitive executive elections might intensify the risk of

losing power (Lucardi, 2019). Thus, the opposition might have a better chance of winning when compared to autocracies with elections entirely controlled by the regime or with closed autocracies. Therefore, I argue that because the main threat to the regime is that its elite defectors could join opposition groups and contest power at the ballot box (Reuter & Gandhi, 2011), autocrats facing competitive executive elections could increase investment in human development policies because the menace of defectors is now linked to the possibility that they could compete for power in executive elections.

Therefore, the presence of executive elections that allow multi-party competition could deepen a crisis caused by splits within the elite because defectors might increase the competitiveness in an executive election. This is precisely what happened in Mexico in 1988. The split within the PRI occurred shortly before the electoral process started. Cuauhtémoc Cárdenas, leader of the defectors, challenged the government at the ballot box and the PRI faced for the first time a competitive executive election at a national level (Garrido de la Sierra, 2019; Langston, 2002; Reuter & Gandhi, 2011). This scenario caused a deep crisis in the authoritarian regime in Mexico. The government of Carlos Salinas responded with institutional changes (Langston, 2002) and a series of clientistic policies to reduce poverty aimed at strengthening the electoral support of the PRI (Cordera, 1999; Diaz-Cayeros & Magaloni, 2003). I thus expect:

H2: Autocrats facing splits within the elite before competitive executive elections will be more likely to deploy policies designed to improve human development.

Because authoritarian leaders have the resources to undertake policies that improve human development, I only focus on their reactions to defections. Defectors do not have the same tools as autocrats to affect human development. Only rulers can engage in more spending to improve the living conditions of their citizens.

Empirical Strategy

I test my argument and the alternative hypothesis using evidence for the Mexican case during the authoritarian period. This case presents several advantages in order to conduct diverse empirical tests. First, Mexico has been pointed out as a paradigmatic example of a single-party authoritarian regime (Langston, 2002; Magaloni, 2006). The PRI ruled uninterruptedly from

1929 to 2000 when the National Action Party (PAN) won the presidency (Becerra et al., 2011; Magaloni, 2006). In addition, Mexico was characterized as a typical electoral authoritarianism in which regular elections were held at the federal, state and municipal levels (Benton, 2017), but at least until 1989, when the PAN won the governorship of Baja California (Becerra et al., 2011), the PRI was always the winning party.

Despite the existence of elections in Mexico, it was the president in turn who decided who would be his successor through the technique that was called *dedazo* (Becerra et al., 2011; Langston, 2002). Although there were procedures for officially electing the PRI candidate through an assembly, the real elector was the president. Thus, the procedures within the PRI were only a front to publicly legitimize the president's decision.

Although Mexico was officially a federal country, the political system was widely centralized (Cantú & Desposato, 2012). Having a unified government, high party discipline, and the president's leadership ensured a centralized distribution of political opportunities, generating loyalty to the party and the president (Weldon, 1997). Therefore, elected officials did not account voters, but accounted for the president (Cantú & Desposato, 2012; Ugalde, 2000).

I take advantage of the country's federal structure to analyze the effect of splits within the PRI, both nationally and subnationally, on human development policies. At the national level I use a process tracing strategy to show how the three major splits that have occurred in PRI's history generated instability in the regime and how three different autocrats reacted to that crises with policies to improve people's living conditions among other tools. At the subnational level, I account for the existence of multiple splits in gubernatorial elections to conduct cross-sectional time series models and estimate the effects of splits on social spending allocations.

Using this strategy has the benefit of being able to analyze together the causal mechanism of my argument and the systematic effect that defections within the PRI could have on social spending allocations. With the case studies, I can analyze whether the causal mechanism of my theory is present in the patterns of events that were derived as a result of splits within the PRI elite. Similarly, by examining evidence at the subnational level, the sample can be expanded and the effect of splits on social spending allocations can be estimated by statistical models. I can thus combine the strengths of both qualitative and quantitative methods by examining the case studies and analyzing systematic patterns.

Qualitative Analysis

To empirically analyze the patterns of splits within the PRI at the national level, I test my hypothesis through a process tracing tool called *hoop test* (Collier, 2011). The logic of *hoop tests* is to analyze whether a hypothesis can "jump through the hoop". In other words, qualitative evidence shows whether patterns established in certain hypotheses are present in a sequence of events. Such tests establish a criterion of necessity, but not of sufficiency. Therefore, if a hypothesis does not pass a *hoop test* it can be rejected. However, if the hypothesis passes the test, it does not imply that it is true, although it is strengthened against alternative hypotheses.

In the particular case of *H1,* it would have to be observed that splits within the PRI created some form of instability in the regime. Similarly, it should be noted that PRI autocrats implemented human development policies shortly after the split occurred. For *H2*, the same pattern would have to be observed, but the split would have to occur shortly before an executive election. Furthermore, it would also have be noted that the defectors led to greater competitiveness in the election.

To analyze the determinants of PRI splits, I fundamentally build on Langston's (2002) study. In her research, Langston (2002) argues that splits within the PRI are explained by an economic disagreement and by faction's isolation. I agree with this explanation, however, my aim is to deepen both the conditions under which the splits occurred, and the reactions of the PRI autocrats to deal with them.

Split of General Juan Andreu Almazán (1939-1940)

The first major PRI split occurred in 1939. General Juan Andreu Almazán did not agree with the economic policies of President Lázaro Cárdenas, especially regarding oil, electricity and steel. Cárdenas' reforms tended to harm businessmen in the north of the country and catholic groups (Garrido, 1982; Langston, 2002; Meyer, 1985). However, Cárdenas had achieved an average growth rate of 4.55 per year of the Mexican economy during his rule (Aparicio Cabrera, 2011).

Cárdenas took power away from the group of Plutarco Elías Calles, to which Almazán belonged. Legislators of this group within the party were marginalized by Cárdenas, which generated discontent with the president (Langston, 2002). Almazán was a military man formed with Calles. He was the commander of the military zone of the northern region of Mexico

(Medina, 1981) and had the support of Calles's group. Almazán seemed to have an opportunity to unite the disgruntled groups within the PRI and thus compete for power against the faction of President Cárdenas (Garrido, 1982; Langston, 2002). However, the party elites rejected his candidacy because they thought that it was a break with the policies of Cárdenas and because they considered Almazán to be extremely right-wing (Contreras, 1985; Langston, 2002).

Cárdenas' candidate was Manuel Ávila Camacho. It was therefore clear that Almazán could not opt for open competition within the party, as the president controlled all sectors and therefore decided on nominations (Garrido, 1982; Paoli Bolio, 1985). Almazán therefore had to decide whether or not to stay in the party (Langston, 2002). Almazán decided to leave the PRI in May 1939 and seek an independent candidacy (Contreras, 1985; Langston, 2002). His ability to bring together anti-Cárdenas groups, discontent in the party sectors, as well as the army influenced Almazán's final decision (Contreras, 1985). The coalition formed by Almazán consisted of members of the Calles group, as well as deputies and senators dissatisfied with President Cárdenas.

The PRI reacted to this split with a double strategy. First, it threatened the lives of Almazán's followers while offering benefits to people who remained loyal to the party (Langston, 2002). Second, in September 1939 the PRI launched a political platform called the Second *Sexenal* Plan. Almazán ended up obtaining just 0.6% of the vote in the presidential election. There were acts of violence during election day from followers of both the PRI and Almazán (Carmona, 2020). However, Langston (2002) argues that this split created a political crisis without which the creation of institutions would not be understood in the second part of the twentieth century in Mexico. Subsequently, President Ávila Camacho received back in the PRI the followers of Almazán who decided to return. After that point there were no longer any major acts of repression (Contreras, 1985; Langston, 2002). Almazán retired to private life as an entrepreneur and died in 1965.

With regard to the second response (the Second *Sexenal* Plan), the PRI generated a series of proposals that tended to improve people's living conditions of which two sections can be pointed out: taxes and social security (PRI, 1939). One of the PRI's most relevant campaign proposals was the creation of a social security law, establishing the right of workers to medical services, pensions and job security (PRI, 1939). Similarly, the PRI promised tax reform to generate the well-being of the people through better redistribution (PRI, 1939).

Some of these campaign promises became facts. Possibly the most important was the creation of the Mexican Social Security Institute (IMSS). Institution that would aim to provide medical services to workers, as well as administer pensions and provide job security (Carmona, 2020). Therefore, the government that emerged from the 1940 election was key to the implementation of welfare policies and the protection of labor rights. To be sure, these types of policies tend to improve Mexico's human development by incorporating new health services for workers and by including job security.

Split of General Miguel Henríquez Guzmán (1952)

Langston (2002) argues that General Henríquez's split was due to a deepening of a capitalist model of development and the loss of power of the Cárdenas's group to new factions within the PRI (General Henríquez belonged to this faction). President Miguel Alemán (1946-1952) focused on increasing foreign investment, as well as modifying the economic model to generate the domestic market that was called "import substitution" because it sought to have products manufactured in the country (Villareal, 1997). This strategy also led to a decrease in land redistribution in favor of foreign companies (Rodríguez Araujo, 1974). The economy during Alemán's government grew at an average yearly rate of 5.95% (Aparicio Cabrera, 2011). Although there were suspicions that the Alemán gave preferential treatment to certain companies, which led to accusations of corruption (Langston, 2002; Rodríguez Araujo, 1974).

Regarding to the loss of power of Cárdenas's group, Alemán changed the way power could be accessed from the PRI. Alemán was the first non-military PRI president, he was an educated lawyer at the National Autonomous University of Mexico (UNAM). This government required university training and experience in bureaucracy to aspire to a political post. Thus, military experience was left behind (Camp, 1985; Centeno, 1994; Langston, 2002). Therefore, Cárdenas's group, having no experience in the bureaucracy and not having a university education was not considered in Alemán's government. Moreover, this faction feared that the successor in the presidency would have the same vision of the government, as they would have little chance of accessing important political posts (Langston, 2002; Pellicer, 1977). General Henríquez thus had the opportunity to bring together the factions that came from Cárdenas's government (1934-1940) and seek access to the presidency. Henríquez formed a new electoral movement called Federation of People's Parties of Mexico (FPPM) (Pellicer, 1977).

The official PRI candidate was Adolfo Ruíz Cortines. However, Henríquez had the confidence of several sectors of the regime (Langston, 2002). Thus, Henríquez took advantage of his popularity and the social discontent to leave the PRI. Once Henríquez decided to leave the party, PRI leaders reacted with a crisis containment strategy: they started to offer important political positions to dissidents (Langston, 2002; Pellicer, 1977; Rodríguez Araujo, 1974). Once the electoral campaign started, Ruíz Cortines was forced by his political competitors to generate promises that would improve people's living conditions. That is the case of land reform (Silva Herzog, 1959; Velasco Toro, 1995). During the Alemán's rule, land redistribution declined (Silva Herzog, 1959) and the PRI candidate had no plans to deepen this matter. However, he had to do so because it was one of the main promises of Henríquez (Velasco Toro, 1995). Henríquez lost the executive election with just 16% of the vote (Langston, 2002). Henríquez's supporters accused of fraud and protested against the election results. Henríquez himself decided to retire from politics without the PRI retaliating and died in 1972 (Estrada, 2016).

The government of President Ruíz Cortines started with an erratically redistribution of land. Only large redistributions were observed at the beginning and end of his government (Velasco Toro, 1995). In 1953, shortly after the executive election, he started with the redistribution of the large properties *La Paloma* and *Babícora* (Silva Herzog, 1959; Velasco Toro, 1995). However, land reforms were not part of Ruíz Cortines' agenda. For this reason, land redistribution during this period was observed only when it was strictly necessary (Silva Herzog, 1959).

Split of Cuauhtémoc Cárdenas (1987-1988)

The PRI lived its most paradigmatic split in 1987-1988. However, to understand the reasons for the leaving of Cuauhtémoc Cárdenas (son of President Lázaro Cárdenas) and his group, it is necessary to analyze some actions of the government of President Miguel de la Madrid (1982-1988) (Langston, 2002). First, de la Madrid faced an economic crisis that started in 1982, which led to a 470% cumulative appreciation of the dollar *vis-à-vis* the Mexican peso in that year (Quintana, 2015).

Second, the government of de la Madrid changed the economic model to reduce state intervention and liberalize the market for competition with the world. By 1985 and 1986 economic performance was still poor, thus the government undertook a deeper liberalization of

the economy (Langston, 2002; Lustig, 1998). These actions had negative effects on the middle class and the poorest (Langston, 2002).

These economic policies led de la Madrid to privilege access to political posts to people with a technical education rather than political experience (Centeno, 1994). It was the small circle of the de la Madrid that controlled all the decisions. This once again managed to isolate the group of Cuauhtémoc Cárdenas and made it difficult to access posts in government (Camp, 1985; Langston, 2002). By 1986 the time was coming to designate de la Madrid's successor. Thus, it was an important time to place a candidate who opened the opportunities within the political elite and that broke with the economic policy of the de la Madrid's government (Hernández, 1992). Cuauhtémoc Cárdenas sought to be the PRI's nominee.

However, it was Carlos Salinas de Gortari (former secretary of planning and budget in de la Madrid's government) who was selected as the official candidate (Becerra et al., 2011). Cárdenas argued that he and his group had not been taken into account in the process of nominating the candidate (Villamil, 1995). Taking advantage of the social discontent and arguing an authoritarian selection process, Cárdenas accepted the candidacy of the Authentic Party of the Mexican Revolution (PARM), the Party of the Cardenist Front of National Reconstruction (PFCRN) and the Socialist People's Party (PPS), which led to the expulsion of Cárdenas and his group from the PRI (Klesner, 2001; Robles de la Rosa, 2014).

Cárdenas' candidacy started the construction of the National Democratic Front (FDN) that would compete in the 1988 executive elections (Durand Ponte, 1995; Fox, 1994; Woldenberg, 2012). The electoral process that year resulted in the victory of Carlos Salinas, but various accusations of fraud were made (Cantú, 2019; Magaloni, 2006; Molinar & Weldon, 1990), thus the outcome of the election was controversial. The following year Cárdenas and his coalition would form the Party of the Democratic Revolution (PRD) (Espinoza Toledo & Navarrete Vela, 2013; González, 2005).

The split within the PRI caused greater competitiveness in the 1988 executive election (Becerra et al., 2011). However, Salinas came to power in a very questionable way. Therefore, the government of Salinas started among a major crisis of legitimacy (Ornelas Delgado, 2006). Since his inauguration speech, Salinas announced that he would implement a series of policies that would help Mexico to overcome the executive election crisis (Salinas de Gortari, 1988). Salinas stated that the PRI needed to implement policies "to better serve the community, to be

close to the people, to listen to their claim, to resolve their demands" (Salinas de Gortari, 1988, p. s/p). All this with the aim of improving people's well-being.

Salinas' policy response to the crisis arising from the 1988 election focused on National Solidarity Program (Pronasol) (Bertranou, 1993; Kaufman & Trejo, 1996). The official objectives of Pronasol were to allocate public resources in rural areas to give poor people the opportunity to access basic resources, such as drinking water, electricity, health, drainage, among others (Urreta et al., 1994). However, there is evidence that Pronasol had clientelistic objectives to improve PRI electoral support (Diaz-Cayeros & Magaloni, 2003; Horcasitas & Weldon, 1994), as well as to reduce the political crisis arising from the 1988 election (Kaufman & Trejo, 1996). Although the program had a decentralized structure, it was the federal government that decided where the budget was headed, which allowed the government to build client networks in rural areas (Diaz-Cayeros & Magaloni, 2003).

Even though Pronasol could have been used as a government program to generate electorally strengthening the PRI, there is evidence that, in fact that program did improve people's living conditions in some respects. For example, Pronasol helped reduce lags in access to drinking water and electricity service (Cordera, 1999). Similarly, there are case studies showing that even a clientelistic policy positively affected the well-being of the municipalities of the state of Morelos (Urreta et al., 1994).

Hoop Tests

The patterns observed in qualitative evidence reveal that *H1* passes the *hoop test* in all three cases. This happens because a necessary (but not sufficient) condition for this hypothesis to be true is autocrats implementing human development policies shortly after the split occurs. President Ávila Camacho and the PRI presented the Second *Sexenal* Plan, President Ruíz Cortínes a redistribution of the land in his first year of government, and President Salinas implemented Pronasol. Therefore, qualitative evidence points in the direction of my argument.

With regard to the evidence of *H2*, it is observed that the necessary pattern for this hypothesis to be true is present in the split of General Henríquez and that of Cuauhtémoc Cárdenas, but not completely in the split of General Almazán. In all three cases, the split occurred shortly before the executive election, which could indicate the strategic behavior of the defectors to confront the PRI. However, although Almazán participated in the election, he

won only 0.6% of the vote. Although Almazán's supporters accused electoral fraud (Langston, 2002), it is not possible to observe an increase in the competitiveness of the election.

In contrast, the pattern of H2 is clearly present in 1952 and 1988, since both Henríquez and Cárdenas forced the PRI to face executive elections with greater competitiveness. Especially in the 1988 election. Therefore, H2 completely passes the *hoop test* in two of the three cases. In the split of Almazán, on the other hand, it is only observed that the split occurred shortly before the executive election. Thus, additional assumptions would have to be added for *H2* to pass the test in this case. For instance, it would be necessary to assume a major fraud that hide the true competitiveness of the election.

Quantitative Analysis

One of the methodological advantages of using Mexico as a case study is its federal structure, as well as the existence of partisan bureaucracies and local elections. Since 1989, when the PAN first won a state election to the incumbent party, the PRI stopped controlling some states governments, as the opposition started to win elections so forcefully that fraud seemed not to be an option (Becerra et al., 2011). Furthermore, a significant percentage of that opposition governors during that time were PRI's defectors.

Table 3.1 shows all opposition governors who were elected in Mexico's authoritarian era. Note that 6 of the 16 governors nominated from opposition parties who won the election were actually PRI's defectors. In other words, 37.5% of opposition governors during the PRI's single party regime at a national level had split from the PRI. Some examples can be pointed out are Cuauhtémoc Cárdenas, who was elected as Head of Government of the Federal District (DF) in 1997, and Andrés Manuel López Obrador, who sought to be the PRI's candidate for the state of Tabasco. After failing, he split from the PRI and eventually became the Head of Government of DF in 2000.

Table 3.1. Opposition State Governors during PRI's single-party regime in Mexico

Name	State	Year of Election	Political Party	PRI Defector
Felipe González González	Aguascalientes	1998	National Action Party (PAN)	NO
Ernesto Ruffo Appel	Baja California	1989	National Action Party (PAN)	NO
Hector Terán Terán	Baja California	1995	National Action Party (PAN)	NO
Alejandro González Alcocer	Baja California	1998	National Action Party (PAN)	NO
Pablo Abner Salazar Mendiguchía	Chiapas	2000	Democratic Revolution Party (PRD)	YES
Francisco Barrio Terrazas	Chihuahua	1992	National Action Party (PAN)	NO
Cuauhtémoc Cárdenas Solórzano	Federal District (DF)	1997	Democratic Revolution Party (PRD)	YES
Andrés Manuel López Obrador	Federal District (DF)	2000	Democratic Revolution Party (PRD)	YES
Carlos Medina Plascencia	Guanajuato	1991	National Action Party (PAN)	NO
Vicente Fox Quesada	Guanajuato	1995	National Action Party (PAN)	NO
Alberto Cárdenas Jiménez	Jalisco	1995	National Action Party (PAN)	NO
Antonio Echeverría Domínguez	Nayarit	1999	National Action Party (PAN), Democratic Revolution Party (PRD), Labor Party (PT), Socialist Revolution Party (PRS)	YES

Fernando de Jesús Canales Clariond	Nuevo León	1997	National Action Party (PAN)	NO
Ignacio Loyola Vera	Queretaro	1997	National Action Party (PAN)	NO
Alfonso Sanchez Anaya	Tlaxcala	1999	Democratic Revolution Party (PRD)	YES
Ricardo Monreal Avila	Zacatecas	1998	Democratic Revolution Party (PRD)	YES

Source: Own elaboration based on data from National Electoral Institute (INE), state's electoral authorities and individual biographies.

However, in Table 3.1 only lists the defectors who were nominated by an opposition party and won the state elections in that period. The PRI had a significant number of additional defections. However, not all of them became opposition candidates or won state executive elections. Thus, in order to analyze the effect of PRI defections (and not just the one of those that led to an electoral defeat) on human development in the states of Mexico, it is necessary to include evidence of aggregated data.

I use data from Mexico's states from 1988 to 2000. The analysis unit of analysis is a state- election year for governor, thus the variables are measured every six years. Data are available for Mexico's 31 states for at least three gubernatorial elections[14] and I include two elections for Head of Government in the Federal District[15]. I chose this time period because in 1989 the PRI first lost an executive election for governor and because in 2000 the PRI lost executive elections at the federal level for the first time (Becerra et al., 2011).

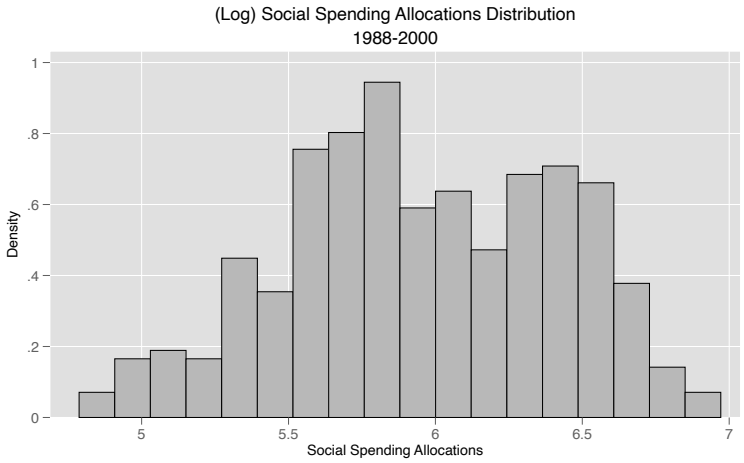
The dependent variable is logged per capita social spending allocations of the states of Mexico in constant pesos of 2013. This measure captures the spending of state governments on scholarships, subsidies, or development policies. I take this variable from the National Institute of Statistics and Geography (INEGI) of Mexico (INEGI, 2020). This variable is appropriate in terms of my argument because it measures social spending variations in policies that improve

[14] The sample period covers between three and four state-level elections.

[15] The first election of Head of Government (non-governor) in the Federal District was in 1997, as before that year the rulers were appointed by the president. Therefore, in this case I only incorporate data for the elections of 1997 and 2000 in the sample.

people's living conditions. In addition, this variable has the complete information from 1988 to date without changes in the methodology of measurement (INEGI, 2020). Figure 3.1 shows the distribution of this variable.

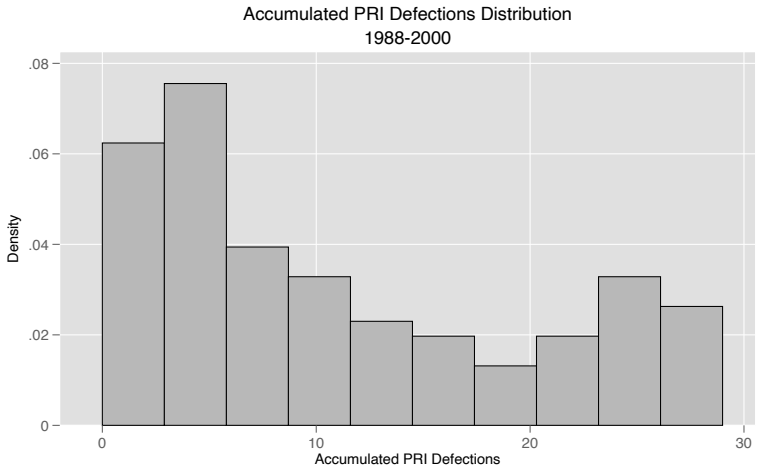
Figure 3.1. Distribution of Per Capita Social Spending Allocations



Source: Own elaboration based on data from INEGI.

The main explanatory variable is the accumulated number of resignations of aspirants to the gubernatorial PRI candidacy until the year immediately preceding the calendar year (Garrido de la Sierra, 2019). For example, if the value of accumulated resignations is presented in 1994, the data corresponds to 1993 and so on. This variable is appropriate to measure partisan defections because it not only captures whether or not there were splits within the PRI elite for a gubernatorial election, but also measures the resignations that have accumulated in a state, which can better account for whether a *priísta* ruler is at risk of his party losing the election or not. For example, in the 2000 election, the PRI in the state of Chiapas had 17 resignations until 1999 and the result of that election to governor is suggestive in terms of the risk posed by the accumulated resignations, since precisely the PRI lost that election against to Pablo Salazar Mendiguchía, who had split from the PRI in 1999. The distribution if this variable is shown in Figure 3.2.

Figure 3.2. Distribution of the Accumulated PRI Defections



Source: Own elaboration based on data from Garrido de la Sierra (2019).

Table 3.2. Descriptive Statistics of the Dependent and Independent Variables

Variable	Mean	Std. Dev.	Min.	Max.	Obs.	Source
Log Per Capita Social Spending Allocations	5.95	0.46	4.78	6.97	349	INEGI (2020)
Accumulated PRI Defections	10.83	9.35	0	29	105	Garrido de la Sierra (2019)

Source: Own elaboration.

I control for a series of variables, including those that were identified in the qualitative study. Political controls include the percentage point difference (margin) of votes between the PRI and the second place of gubernatorial, senate and presidential elections (Garrido de la Sierra, 2019) to capture the competitiveness of different elections. Positive values of these three variables imply that the PRI was the first place in the election, while negative values indicate that the PRI lost the election. Because those three elections are not always concurrent, I use the present values of the gubernatorial election, while I use the values of the election immediately preceding in the case of the Senate and president. I also estimate interactions between the three percentage margins of votes and the accumulated number of splits.

Economic controls include the growth rate at the state level, both in contemporaneous terms and lagged one year. This variable is particularly important because economic crises could explain both PRI defections (as in 1988), and the variation in the social spending allocations.

Similarly, I include the two specifications of this variable because both present economic conditions, and recent ones, could influence both the dependent and the independent variable. I include the percentage of public resources granted to PRI subnational structures. This variable is also important because party resources could help discourage splits by offering benefits within the party. Similarly, these resources could also be used to improve people's living conditions, especially in election years.

Given the panel nature of the data in Mexico, I use cross sectional time series analysis using the following general model:

$$Log\ Y_{it} = \beta_0 + \beta_1 X_{it-1} + \boldsymbol{\alpha C_{it}} + \boldsymbol{\gamma C_{it-1}} + \zeta_i + \eta_t + \varepsilon_{it}$$

The term Y_{it} corresponds to dependent variable in a state-year election for governor. However, I use a Log-Level model strategy to reduce the extreme values. The term X_{it-1} denotes the accumulated resignations of PRI gubernatorial candidates in a state-year election for governor up to the previous year. The terms $\boldsymbol{C_{it}}$ and $\boldsymbol{C_{it-1}}$ denote control variables in contemporary and past terms. The term ζ_i represents the estimated fixed effects by state while the η_t denote year fixed effects. Finally, the term ε_{it} is the stochastic error of the models.

Given the structure of the panel[16], where N > T a fixed effects strategy in which all the variables on the right-hand side of the equation are measured in levels[17] is required. It has been found that, in a panel database with these characteristics, fixed effects models are the specifications that minimizes the coefficient's bias (Clark & Linzer, 2015). Therefore, the main models include fixed effects by state. However, in order to test for robustness, I also estimated pooled OLS and random effects models.

Statistical Results

The main results are shown in Table 3.3. The first three columns show the findings for *H1*, in which I argue that autocrats facing splits within the elite will be more likely to engage into policies to improve human development. In all three models it can be pointed out that the

[16] The number of states in Mexico, including the Federal District (32) is greater than the number of time points (three on average).
[17] Due to the low level of time points, testing for stationarity was not possible.

coefficient of PRI defections is positive and significant ($p<0.05$ in model 1 and $p<0.01$ in models 2 and 3).

All the models in Table 3 are of the Log-Linear form, thus, to properly interpret the magnitude of the coefficients, they need to be multiplied by 100 and interpreted in percentage terms (Wooldridge, 2012). For instance, Model 1 suggests that for each additional PRI defection, the per capita social spending allocations will increase by 1.18%. Models 2 and 3 show analogous results, as the coefficients for PRI defections are associated with 1.54% and 1.73% increases respectively in the dependent variable.

The effect of PRI defections is clearer in specific cases. For example, in Coahuila, 14 defections were accumulated in the PRI's state structures in 1999. In these cases, Model 1 would estimate an increase of 16.52% in per capita social spending allocations for that year. Similarly, Chiapas[18] accumulated 17 defections for the same year, thus a 20.06% increase in per capita social spending allocations would be expected.

The last three columns in Table 3.3 show findings of H2, in which I argue that autocrats facing splits within the elite ahead competitive executive elections will be more likely to engage into policies to improve human development. Models 4-6 include the interaction of PRI defections with the different percentage margin of votes between the PRI and the second place of gubernatorial, senate and presidential elections. The coefficient of defections in the PRI maintained its positive sign and significance ($p<0.05$ in models 4 and 5 and $p<0.01$ in Model 6). In contrast, there were several variations in the individual coefficients of percentage margins of votes, as well as interactive terms. However, the interpretation of the individual coefficients of an interaction is not the proper way to interpret such effects (Braumoeller, 2004). Therefore, Figure 3.4 shows the effects of the three estimated interactions.

In all three interactions it can be observed that as PRI defections increase, the expected value of per capita social spending allocations also increases. However, the differences between three estimates of defections (0, 15, and 30) are only significant for a certain range of the percentage margins of votes. For example, the first interaction (defections and the margin of gubernatorial election) can be observed that the differences between the three estimated levels of defections in the PRI is only significant for the central margin values. This implies that PRI

[18] This case is particularly relevant to illustrating my argument. The PRI accumulated a large number of defections by 1999, including that of Pablo Salazar Mendiguchía, who would compete in the 2000 election with the opposition support and win the gubernatorial election.

defections are associated with a significant increase in per capita social spending allocations when the PRI begins to lose votes. However, when reaching negative margin values (indicating that the PRI lost the election), the defections are no longer significantly associated with higher per capita social spending allocations.

This same pattern is observed in the second interaction (PRI defections and Senate elections). When the PRI has an insured victory or defeat, defections are not significantly associated with increases in per capita social spending. However, as the PRI begins to lose votes in the Senate election, defections do make a difference that is associated with increased per capita social spending allocations. At least until the PRI is assured of defeat.

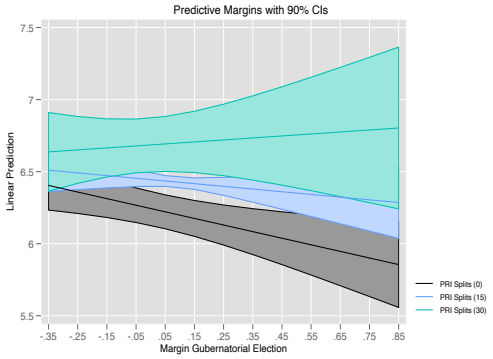
The percentage margin for the presidential election has a striking contrast. It is noted that the more assured victory for the PRI, the more per capita social spending allocations. Unlike the previous two interactions, where spending increased as the PRI lost votes, presidential elections seem to show another effect. However, defections in the PRI have their effect on the central values of the margin. Thus, party splits seem to have a significant effect on per capita social spending when the PRI begins to lose votes.

To summarize, the findings of the interactive models teach us new lessons on the logic of PRI autocrats to handle defections and potential electoral defeats. Local elections (governor and Senate) show that governors tend to increase per capita social spending allocations when they begin to lose votes. This relationship is even higher as the number of defections increases. These findings point in the direction of my argument. However, presidential elections show that governors tend to increase spending as more votes obtain while the effect of defections remain on central values of the margin. Governors might be forced by the president to invest more social spending in the presidential election to obtain a more forceful victory.

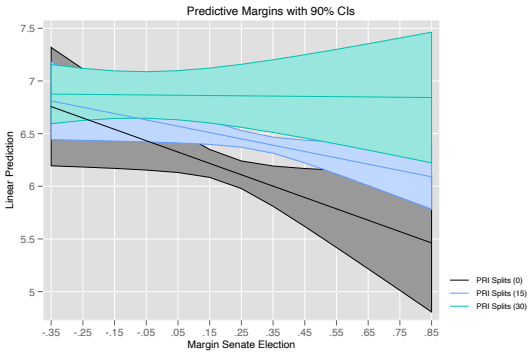
Finally, it is important to note that these findings are found despite having controlled by economic growth. Poor economic performance could incentivize partisan defections (Reuter & Gandhi, 2011). Thus, it could be argued that an increase in per capita social spending allocations is a response to economic crises and not to splits. However, this hypothesis can be dismissed once again because the coefficient of economic growth in contemporary terms is always positive and significant. That is, more growth leads to more social spending. If the hypothesis that crises are the ones that lead to the increase in social spending, a negative coefficient should have been observed.

Figure 3.3. Interactive Terms Between PRI Defections and Different Percentage Margins of Votes

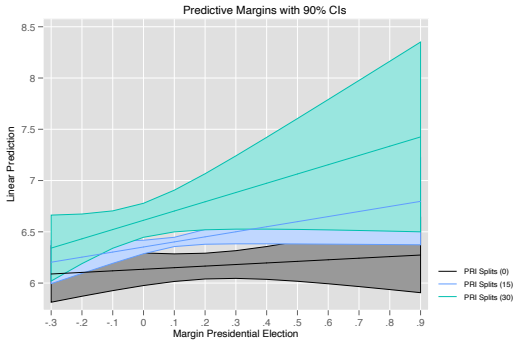
a) Margin Gubernatorial Election



b) Margin Senate Election



c) Margin Presidential Election



Source: Own elaboration.

Table 3.3. Main Results

VARIABLES	Model 1 PRI Splits Only	Model 2 Economic Growth with no lag	Model 3 Political Controls Only	Model 4 PRI Splits x Margin Gubernatorial Election	Model 5 PRI Splits x Margin Presidential Election	Model 6 PRI Splits x Margin Senate Election
PRI Defections	**0.0118****	**0.0154*****	**0.0173*****	**0.0134****	**0.0145****	**0.0148*****
	(0.00563)	**(0.00523)**	**(0.00542)**	**(0.00570)**	**(0.00548)**	**(0.00518)**
Margin Gubernatorial Election	**-0.341***	**-0.351***	**-0.378***	**-0.458****	**-0.274**	**-0.220**
	(0.190)	**(0.192)**	**(0.204)**	**(0.213)**	**(0.204)**	**(0.222)**
PRI Splits x Margin Gubernatorial Election				**0.0180**		
				(0.0137)		
Margin Presidential Election	0.273	0.221	0.189	0.252	0.154	0.267
	(0.256)	(0.254)	(0.266)	(0.246)	(0.299)	(0.269)
PRI Splits x Margin Presidential Election					**0.0227**	
					(0.0204)	
Margin Senate Election	-0.701*	-0.626	-0.393	-0.634	-0.884*	-1.078*
	(0.414)	(0.394)	(0.414)	(0.399)	(0.505)	(0.604)
PRI Splits x Margin Senate Election						**0.0319**
						(0.0239)
Economic Growth	**0.0287*****	**0.0255*****		**0.0298*****	**0.0286*****	**0.0293*****
	(0.00506)	**(0.00507)**		**(0.00526)**	**(0.00546)**	**(0.00544)**
Economic Growth $(t-1)$	-0.0164**			-0.0136	-0.0132	-0.0101
	(0.00801)			(0.00843)	(0.0101)	(0.0111)
PRI Share of Public Resources	-0.0169**	-0.0147*	-0.0182**	-0.0151*	-0.0111	-0.00915
	(0.00777)	(0.00805)	(0.00837)	(0.00776)	(0.0102)	(0.0102)
Constant	7.007***	6.827***	6.936***	6.902***	6.777***	6.683***
	(0.310)	(0.317)	(0.313)	(0.311)	(0.369)	(0.365)
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	98	98	98	98	98	98
R-squared (Overall)	0.724	0.724	0.695	0.745	0.741	0.749
R-squared (Between)	0.399	0.414	0.355	0.479	0.457	0.486
R-squared (Within)	0.819	0.816	0.795	0.823	0.824	0.827
Number of groups	32	32	32	32	32	32

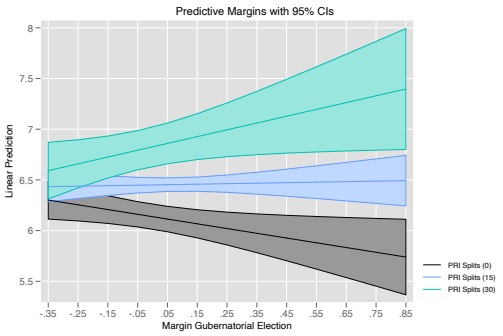
Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Robustness

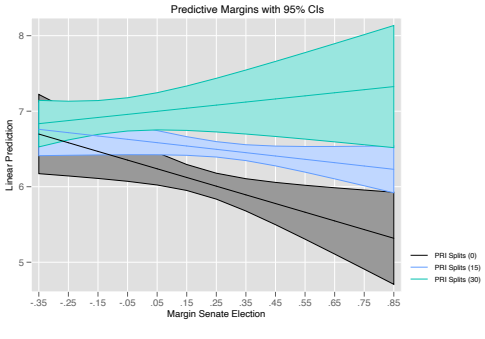
To test whether the results were robust to other types of models, I reestimated the main models in Table 3.3 using random effects and pooled OLS estimations. Results of these tests are in tables A2 and A3 of Appendix 2. The main results hold across models. In fact, findings are even more statistically significant and obtained greater magnitudes. For instance, model 7 (random effects), shows that PRI defections are associated with an increase of 1.91% ($p<0.01$) in per capita social spending allocations. Similarly, interactive models more clearly show the relationships found in the main models. For example, Figure 3.4 shows the results of the three interactions estimated through random effect models.

Figure 3.4. Interactive Terms Between PRI Defections and Different Percentage Margins of Votes (Random Effects Models)

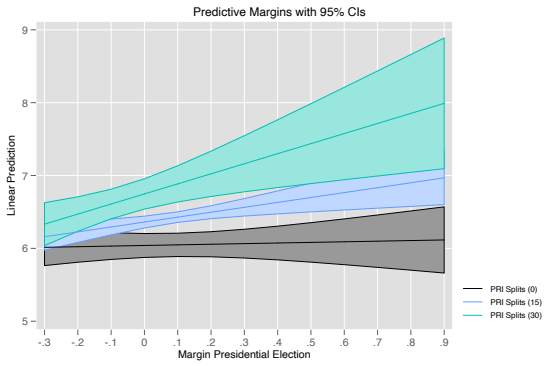
a) Margin Gubernatorial Election



b) Margin Senate Election



c) Margin Presidential Election



Source: Own elaboration.

Conclusion

The key conclusion of this study is that Mexico's evidence suggests that splits within the authoritarian elite, specifically partisan defections, might be an important determinant of increases on human development policies and social spending allocations. Qualitative evidence shows that in the three most important defections the PRI had during Mexico's authoritarian period, the same pattern appeared: PRI autocrats implemented different policies to improve people's living conditions. This pattern of response from PRI leaders is a necessary (but not sufficient) condition for my argument to be true. Similarly, the three splits within the PRI occurred shortly before the executive election. However, only two of them significantly increased competitiveness in the election. The *hoop tests* show that my hypotheses are strengthened against alternative explanations, such as repression or economic crises. However, I would like to stress that this evidence does not imply that my theory has been confirmed.

Regarding the quantitative evidence, I show how the accumulated resignations of the local PRI elites is strongly associated with increases in per capita social spending allocations in the Mexican states. In all models per capita social spending allocations levels increases as the PRI defections raises. The models estimate an increase of at least 1.18% in per capita social spending allocation for each additional defection. Furthermore, quantitative evidence also showed that competitiveness in an election might be a determining factor in increasing social spending. At least in subnational elections such the gubernatorial and Senate.

In practical terms the main finding implies that the resignations of aspirants for governor of the are strongly associated with the actions taken by the governors to try to manage the splits in the *priísta* state elite. Managing public resources is undoubtedly one of the best tools that state governments have to design strategies that seek an increase in their electoral base. Both qualitative and quantitative results suggest that state governments during the authoritarian rule in Mexico might react to a risk scenario for the PRI continuity in power (such as the one represented by the resignations of governor's PRI aspirants) with an increase in per capita social spending allocations. The higher the threat level, the greater the use of social spending that could be used in a clientelist method to secure electoral support.

Further research could deepen diverse aspects of the relation between splits within the authoritarian elite and human development. First, establishing whether the mechanism of instability and the risk of losing power is the only one that operates thus that splits might

improve human development. Second, the role of other relevant actors in authoritarian regimes, such as opposition, could be considered. Generally, opposition in authoritarian regimes faces a number of dilemmas, one of which is acceptance or rejection of electoral results (Arriola et al., 2017; Simpser, 2013). However, opposition parties may change their behavior as well, as much of the regime's defectors come to pass joining to an opposition party, just as Cuauhtémoc Cárdenas did in Mexico in 1988 (Becerra et al., 2011), especially if opposition parties are trying to use subnational influence to increase their electoral support in future national elections (Lucardi, 2016b).

Appendix 1. Descriptive Statistics of Control Variables

Table A1. Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Obs.	Source
Margin Gubernatorial Election	0.19	0.30	-0.37	0.95	111	Garrido de la Sierra (2019)
Margin Presidential Election	0.20	0.26	-0.39	0.87	111	
Margin Senate Election	0.27	0.25	-0.29	0.89	111	
Economic Growth	1.72	3.40	-10.40	6.09	99	
PRI Share of Public Resources	37.80	8.44	29.41	51.55	11	

Source: Own elaboration.

Appendix 2. Robustness Checks

Table A2. Robustness Checks (1)

VARIABLES	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
			Random Effects			
PRI Defections	**0.0191*** **	**0.0209*** **	**0.0214*** **	**0.0207*** **	**0.0203*** **	**0.0230*** **
	(0.00461)	**(0.00445)**	**(0.00518)**	**(0.00482)**	**(0.00451)**	**(0.00439)**
Margin Gubernatorial Election	**-0.151**	**-0.468** **	**-0.0254**	**-0.0170**	**-0.156**	**-0.154**
	(0.173)	**(0.210)**	**(0.166)**	**(0.166)**	**(0.172)**	**(0.191)**
PRI Splits x Margin Gubernatorial Election		**0.0345*** **				
		(0.0132)				
Margin Presidential Election	0.295	0.253	0.0844	0.294	0.281	0.261
	(0.200)	(0.200)	(0.263)	(0.215)	(0.194)	(0.197)
PRI Splits x Margin Presidential Election			**0.0393** **			
			(0.0177)			
Margin Senate Election	-0.476*	-0.398	-0.849**	-1.150**	-0.459*	-0.185
	(0.276)	(0.262)	(0.343)	(0.461)	(0.270)	(0.291)
PRI Splits x Margin Senate Election				**0.0472** **		
				(0.0216)		
Economic Growth	**0.0261*** **	**0.0287*** **	**0.0290*** **	**0.0298*** **	**0.0256*** **	
	(0.00555)	**(0.00585)**	**(0.00576)**	**(0.00564)**	**(0.00531)**	
Economic Growth $(t-1)$	-0.00686	-0.00275	-0.00557	-0.00169		
	(0.00805)	(0.00843)	(0.0107)	(0.0110)		
PRI Share of Public Resources	-0.0191***	-0.0141**	-0.0101	-0.00708	-0.0181**	-0.0226***
	(0.00699)	(0.00701)	(0.00814)	(0.00892)	(0.00725)	(0.00746)
Constant	6.891***	6.676***	6.580***	6.465***	6.816***	6.938***
	(0.292)	(0.290)	(0.321)	(0.339)	(0.307)	(0.307)
Observations	98	98	98	98	98	98
R-squared (Overall)	0.743	0.764	0.763	0.764	0.743	0.719
R-squared (Between)	0.519	0.596	0.598	0.587	0.525	0.510
R-squared (Within)	0.810	0.816	0.814	0.821	0.809	0.785
Number of groups	32	32	32	32	32	32

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table A3. Robustness Checks (2)

VARIABLES	Model 13 Pooled OLS	Model 14	Model 15	Model 16	Model 17	Model 18
PRI Defections	**0.0203*** **	**0.0219*** **	**0.0220*** **	**0.0216*** **	**0.0212*** **	**0.0236*** **
	(0.00486)	**(0.00463)**	**(0.00529)**	**(0.00503)**	**(0.00467)**	**(0.00447)**
Margin Gubernatorial Election	**-0.113**	**-0.470** **	**0.00259**	**0.0216**	**-0.113**	**-0.122**
	(0.176)	**(0.211)**	**(0.165)**	**(0.163)**	**(0.175)**	**(0.193)**
PRI Splits x Margin Gubernatorial Election		**0.0368** **				
		(0.0135)				
Margin Presidential Election	0.311	0.262	0.0811	0.308	0.304	0.278
	(0.198)	(0.197)	(0.261)	(0.211)	(0.192)	(0.195)
PRI Splits x Margin Presidential Election			**0.0413** **			
			(0.0175)			
Margin Senate Election	-0.468*	-0.386	-0.867**	-1.192**	-0.458*	-0.188
	(0.274)	(0.260)	(0.337)	(0.449)	(0.268)	(0.288)
PRI Splits x Margin Senate Election				**0.0500** **		
				(0.0213)		
Economic Growth	**0.0257*** **	**0.0286*** **	**0.0292*** **	**0.0301*** **	**0.0254*** **	
	(0.00606)	**(0.00628)**	**(0.00606)**	**(0.00614)**	**(0.00587)**	
Economic Growth $(t-1)$	-0.00480	-0.000977	-0.00484	-0.000137		
	(0.00855)	(0.00881)	(0.0109)	(0.0113)		
PRI Share of Public Resources	-0.0192**	-0.0137*	-0.00977	-0.00642	-0.0185**	-0.0229***
	(0.00705)	(0.00702)	(0.00804)	(0.00884)	(0.00730)	(0.00749)
Constant	6.859***	6.634***	6.557***	6.419***	6.806***	6.934***
	(0.299)	(0.293)	(0.320)	(0.341)	(0.311)	(0.310)
Observations	98	98	98	98	98	98
R-squared (Overall)	0.744	0.764	0.763	0.765	0.744	0.719
R-squared (Between)						
R-squared (Within)						
Number of groups	32	32	32	32	32	32

Own elaboration.
Clustered standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Conclusion

The aim of this dissertation is to explain why some authoritarian leaders might invest in the quality of life of their citizens when the exact opposite is expected. It is undeniable that autocrats are free from a set of restrictions that are present in democracies. Autocrats might not face counterweights in legislative or judicial bodies. Similarly, autocrats can manipulate electoral rules, the permissibility of new political parties and even the results of elections to some extent.

However, evidence shows that there are scenarios in which authoritarian leaders could implement welfare policies. The response of this study is that autocrats at risk of losing power could appeal to the masses and improve their living conditions. The logic of my argument is that autocrats could use welfare policies as an instrument to strengthen the regime against different threats.

My argument is that the two risk factors that could trigger the implementation of policies that improve people's autocracies' living conditions are executive elections and splits within the elite. Autocrats holding executive elections and those facing "traitors" by important members of the authoritarian elite face greater threats compared to those ruling in closed autocracies or with cohesive inner circles. As a result, my argument states that these autocrats will be more likely to use welfare policies. The objective of autocrats could be to win more votes in executive election contexts and prevent defectors from co-opting a significant set of the population to try to overthrow the regime.

Although authoritarian regimes create a null or very weak electoral connection, autocrats could act as if they were subject to democratic norms. In other words, autocrats holding executive elections or facing the threat of elite defectors might lose power if they fail obtaining the support from the masses. As in a democracy, autocrats can be defeated if they do not have sufficient support.

Empirical evidence supports this claim. In the first article of this doctoral research I show how autocracies that hold executive elections are strongly associated with significant reductions in the infant mortality rate and therefore with improvements in human development in the short-term. Similarly, findings suggest that autocracies that hold competitive executive elections also perform better by improving human development compared to closed autocracies. Surprisingly, findings of the first article also show that legislative elections have the opposite effect. In other

words, legislative elections are associated with increases in the infant mortality rate and therefore less human development.

Findings of the second article also suggest that autocrats facing splits within the elite are more likely to implement welfare policies in the short-term. Evidence shows how autocrats could also implement only policies that improve people's quality of life in the short-term in response to splits. As a result, autocrats could appeal to the masses and try to satisfy their demands as a survival strategy.

With regard to the third article, evidence of the Mexican case reinforces the findings of the two previous articles. Through an integrated mixed research design, I analyzed the three most important splits in the PRI during the authoritarian period with process tracing tools. I also studied defections of candidates for governor in the states of Mexico with statistical models. Evidence of this article suggest that splits in the PRI led to greater competitiveness in executive elections. As a result, autocrats responded with greater investment in public spending and implemented policies that would improve citizens' living conditions.

This research contributes to the field of political economy because it shows that autocrats can implement welfare policies under certain conditions. Although authoritarian leaders are not subject to democratic restrictions, they might also be at risk of losing power. My argument and empirical evidence from this research show that executive elections and splits within the elite could force autocrats to distribute more resources among the population. Even more than they would like. However, to preserve power in an autocracy, it seems that autocrats must implement welfare policies as if they were in a democracy.

Although the empirical findings of this dissertation support theoretical expectations, it is necessary to mention that my research is part of a phenomenon that is much more complex and that should be considered in future versions. My argument only accounts of the logic that autocrats could follow to try to retain power in the face of the two risk scenarios I propose: executive elections and splits within the elite. However, autocrats also interact with other actors. For example, authoritarian elites, both those that break with the regime, and those that remain; opposition groups, which could certainly react to scenarios of risk to the regime and try to take advantage; and the masses or voters in electoral autocracies.

All these actors interact strategically in a game within authoritarian regimes. However, my dissertation only shows a small portion of this dynamic. My goal is that this project can, in

the future, be the basis for accounting for the interactions that were beyond the scope of my thesis.

In addition to the above, there are other aspects of this research that require further depth at the theoretical level. For example, I assume that autocrats benefit from the opening of the regime and the incorporation of executive elections. However, this assumption can be called into question and assessed what are the specific conditions under which the benefits of this election are greater than the costs they represent. This theoretical discussion could benefit our understanding of the logic behind improvements in human development in autocracies.

Similarly, I argue that authoritarian leaders could use policies that improve people's quality of life as a strategy that complements their toolbox, which is traditionally filled of repression or fraud. In all the chapters I explain the reasons why autocrats might need to complement repressive acts towards opposition or electoral manipulation with human development policies. However, it could be further explored by the conditions under which autocrats favor the use of one or the other strategy. In other words, there could be specific contexts in which authoritarian leaders use only repression or welfare policies, or a combination of various strategies.

Finally, it is important to note that I assume that authoritarian leaders use welfare policies as a means of retaining power in the face of a risky scenario. This implies an underlying positive relationship between welfare policy spending or improvement in human development and the duration of authoritarian regimes. I do not explore this relationship because it could even be the subject of separate research, as it would be necessary to identify the causal mechanisms by which human development could promote the stability of autocracies and correctly model this relationship at the empirical level. In consequence, a future extension of my research could aim to reverse the causal relationship and use human development in autocracies as a treatment variable and the stability of regimens as a variable of results.

The political economy of authoritarian regimes is a broad and complex field. With this research I only intend to improve in our understanding of the motives of autocrats to improve the living conditions of their citizens. However, there are many questions that still need to be resolved.

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