Political Growth Collapses

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Abstract: We argue that economic collapses can result from the adoption by political actors of strategies that generate severe negative economic externalities for society. We establish the conditions for political conflict to become economically destructive and develop a diagnostics toolkit to identify when income declines are consequence of the breakdown of conflict-management arrangements. When political conflict drives a collapse in growth, we expect the onset of the contraction to coincide with the intensification of political conflict, authority to be truly contested, politically advantageous strategies to generate negative externalities, economic collapse to be driven by productivity losses, short-term biases in policies to increase with contestation of power, and the policy framework to improve once political conflict recedes. We argue that all these conditions were satisfied in two of the largest peacetime collapses in modern history: Venezuela (2012-2020) and Zimbabwe (1997-2008).

Keywords: Economic Growth, Growth Collapses, Venezuela, Zimbabwe, Political Economy, Appropriation.

JEL Codes: O11, D72, D74.

"War can never be separated from political intercourse."

Carl von Clausewitz, *On War*, 1832.

1. Introduction

Economic collapses pose a challenge to growth theory. While much of modern development economics is aimed at understanding how societies gain access to improvements in technology and institutions that lead to improved living standards, explaining economic collapses requires understanding why and how societies manage to lose their ability to use those improvements. Theories of economic development help us to understand how societies learn to be prosperous. Theories of economic collapse should help us understand why societies stop doing what they had learned to do to maintain that prosperity.

Our paper formalizes and extends the idea, originally proposed by Rodrik (1999), that the failure of domestic conflict-management institutions is key to explaining collapses in economic growth. We argue that growth collapses can stem from the adoption by political actors involved in a struggle for power of strategies that generate severe negative economic externalities on society. Most functioning political systems, we argue, have institutions that constrain political actors from adopting these "scorched-earth" strategies. When these arrangements break down, collapse ensues. We show that two of the largest peacetime economic collapses in modern history - those of Venezuela in 2012-20 and Zimbabwe in 1997-2008 - can be explained as a consequence of the descent into economically destructive political conflict.

While the world distribution of income is characterized by a high dispersion of income levels and growth rates, cases of acute, sustained, and prolonged declines of living standards are relatively rare events. Only 7 economies today have a per capita income that is less than 25 percent of what they had 30 years ago (of 158 for which there is data[2]). While many countries undergo recessions and an extensive literature in business cycle theory is devoted to understanding and dealing with such fluctuations, long secular declines in per capita incomes are a much rarer occurrence.

A handful of empirical papers have examined the correlates of growth collapses (Rodrik, 1999; Becker and Mauro, 2006; Hausmann et al, 2006; Cerra and Saxena, 2008; Reddy and Minoiu, 2009; IMF, 2018; Meneses and Saboin, 2021; Splinter and Klomp, 2021). One common finding is that there is a great incidence of collapses during armed conflict and after natural disasters. This is not surprising: that GDP declines when armies or the forces of nature act to destroy an economy's productive infrastructure should be expected.[3]

What is more surprising is seeing economies collapse in the absence of either armed conflict or natural disasters. Developing an explanation for these collapses requires understanding why actors

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[2] Calculations based on Penn World Table 10.0, RGDPNA per capita series.

[3] Among other key findings are that the likelihood of shocks causing collapses depends on a country's degree of development. In developing countries, negative shocks on exports, either on production, demand, or prices, are closely related to the incidence of collapses, as well as shocks affecting the country's terms of trade. For emerging markets, financial shocks such as sudden stops on capital flows are closely related to collapses (Becker and Mauro, 2006; Hausmann et al. 2006). Other drivers discussed in the literature are: high dependence on primary exports, mismanagement of natural resource rents, debt crises, weak conflict management institutions, political transitions, export sector's inability to rapidly adapt, and location (Rodrik, 1999; Cerra and Saxena, 2008; Reddy and Minoiu, 2009; IMF, 2018; Meneses and Saboin, 2021).

"unlearn" (or stop taking advantage of) modes of cooperation and institutional arrangements capable of sustaining higher living standards. In this paper, we present one idea for understanding peacetime economic collapses that builds on a crucial insight of Prussian general and military strategist Carl von Clausewitz (1832): that war and politics are at their essence very similar phenomena. Both entail the deployment of resources in the struggle to attain power and in both actors can find it in their interest to destroy the economy's means of production to defeat their enemies.

Why study economic collapses if they are so rare? One obvious reason is that while they may be unusual, they are particularly important to the affected economies. Even those seven economies that are more than 25 percent poorer than three decades ago are home to 174 million people today. In itself, this is motivation enough to understand what should be done to attempt to recover their living standards. Furthermore, it is plausible that the conditions that lead to collapses may become more prevalent under certain conditions such as large adverse shocks like those recently experienced by the global economy. Collapses could well become more prevalent in coming years, following the Covid-19 pandemic and the ongoing shock brought about by the Russian invasion of Ukraine. In other words – as the global pandemic has recently reminded us of – rare diseases can sometimes become common. Therefore, policymakers and leaders of economies that have not undergone collapses should want to know what they need to do to avoid falling into one, in the same way in which healthy persons want to know what they need to do to prevent serious illnesses.

Yet perhaps the most important reason to study collapses is that they may be able to offer us a unique window into the causes of long-run progress. More than perhaps any other area of economics, the study of long-run growth is hobbled by the absence of data that would be needed to test alternative causal hypotheses. In contrast to fields in which there has been a vast development of experimental or quasi-experimental techniques to identify causal factors in economic relationships, convincing empirical tests about the causes of long-term growth remain elusive. We know a lot about the correlates of economic development – richer countries tend to be healthier, better educated, freer and integrated into the global economy. But we have few ways of telling which of these factors are drivers and which are consequences of progress.

Growth collapses are episodes during which the economy's capacity to produce goods and services breaks down. They thus offer unusual windows in which we see large changes in key outcome variables while others remain relatively unchanged. A society's average level of education, demographic structure, social norms and even physical capital typically will not vary greatly during a peacetime growth collapse.[4] Pinpointing the driving factors that help precipitate a large decline in living standards can help provide greater plausibility to theories of economic transformation. In the same way in which the discipline since at least the seminal work of Rostow (1960) has focused on studying the episodes of take-off into sustained growth to understand what needs to change for growth to accelerate, a good case can be made that we need to understand what happens when economies break down to know what it is that helps sustain high living standards.

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[4] There are, of course, exceptions. If, as we argue, collapses are driven by breakdowns in cooperative conflict management arrangements, then it is likely that social norms that sustain cooperation can change rapidly as societies become more divided and polarized. Yet our point is that it is precisely these changes that can help us focus on the sources of the collapse.

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In this paper, we develop a theory of economic collapses that traces them to the breakdown of society's capacity to manage political conflict. In synthesis, we argue that some peacetime economic collapses are consequence of a descent into economically destructive political conflict (EDPC): a modality of political confrontation in which actors adopt strategies that produce large negative economic externalities on society. The model traces the descent into EDPC to its basic economic and political fundamentals, namely the interaction between the stakes of power – i.e., the distribution of the benefits of power between winners and losers of the political contest – and the endowments available to actors that dispute power. The model explains why democracies are more frequent in rich countries but also exist at lower levels of income, and how negative external shocks can cause political actors to cross the red line of adopting political strategies that have severe negative economic externalities (which we also call "scorched earth" strategies).

The paper also proposes a diagnostics toolkit to help us identify whether a period of secular declines in income is the consequence of the breakdown of conflict-management arrangements. We argue that EDPC is most likely to be at the root of the decline in incomes if the onset of the contraction coincides with the intensification of political conflict. When authority is truly contested, we show, politically advantageous strategies generate negative externalities, economic collapse is driven by productivity losses, the short-term bias in policies increases with contestation of power, and the policy framework improves once political conflict recedes.

We apply this diagnosis toolkit to two economies which are among the canonical examples of economic collapses: Venezuela between 2012 and 2020 and Zimbabwe between 1996 and 2008. These are two of the largest peacetime collapses observed in modern times; they are also the only two economies to have entered hyperinflation during the twenty-first century. We argue that in both countries economic decline occurred at a time in which power was strongly contested and was driven by the adoption of political strategies with large negative external economic effects. We also show that, consistent with the predictions of the model, the collapse was driven by productivity declines, policies became more short-term oriented when power was more hotly disputed, and policies improved as conflict receded.

The rest of this paper proceeds as follows. Section 2 considers some key stylized facts of peacetime growth collapses. Section 3 develops the model of EDPC, derives its key implications and organizes them into a proposed diagnostics toolkit. Section 4 provides a brief summary of both countries' economic crises. Section 5 shows how both cases accord with the predictions of the EDPC model as developed in the toolkit. Section 6 offers some concluding comments.

2. Measurement of growth collapses.

Let $y_t \in \mathcal{R}^+$ and $Y_t \in \mathcal{R}^+$ respectively denote an economy's level of per capita and total income at a given moment of time. We refer to a sequence of per capita income levels $\{y_t\}_{t=1}^N$ and associated total income levels $\{Y_t\}_{t=1}^N$ as that country's **history**. Let a **record** refer to the highest level of per capita income attained up until a given moment of time in a country's history. We define a collapse as the largest drop in per capita income to occur after a given record and before any subsequent record which occurs during a period in which total income Y also declines.

Formally, let $r(t)$ denote the time at which the record income corresponding to time t was reached.

$$r(t) = arg\max_i(y_i) \, | y_i \in \{y_1, \dots, y_t\}. \tag{1}$$

Let I be the subset of $r(t)$ corresponding to a country's history for which $r = t - 1$, that is, where the maximum is reached on the period immediately preceding t:

$$I = \{r(t)\} | r(t) = t - 1. \tag{2}$$

Focusing on this subset ensures that we are looking both at record levels of y and at local peak levels of y that are candidates for the start of a collapse.[5] Order these solutions from lowest to highest as $\{r_1, \dots r_I\}$. Define the time of the associated minimum to each r_i, $l(r_I)$ as the time of the minimum level of y occurring between r_i and the next record, r_{i+1} (or, in the case of r_I, and the end of the sample). That is:

$$l(r_i) = \begin{cases} arg\min_j(y_j) \, | j \in \{r_i, \dots, r_{i+1}\} \text{ for } i < I \\ arg\min_j(y_j) \, | j \in \{r_i, \dots, T\} \quad \text{for } i = I \end{cases}. \tag{3}$$

Now we define the beginning and end of the collapse episode associated with a record r_i as the time interval during which the largest decline in per capita income between each record and its associated minimum occurs and during which absolute income is also decreasing:

$$\{b(r_i), e(r_i)\} = arg\max_{t,n} (y_t - y_n) | t \geq r_i, n \leq l(r_i), n > t, Y_t > Y_n \tag{4}$$

Conditions (1)-(4) jointly define the set of collapse episodes. Condition (1) defines the moment at which the record level of per capita income corresponding to time t was reached. Since any record can be broken, there may be different records associated with any particular history of incomes. Equation (2) focuses on those records that are also immediately followed by a decline in per capita incomes, and thus serve as potential peaks for our collapse episodes. Condition (3) defines the potential minimum of the collapse episode as the lowest level of income following each record income which occurs prior to a subsequent record. This condition ensures that if an even lower level of income occurs after a subsequent record, then it is associated with a collapse episodes that corresponds to the future record.

In principle, conditions (1)-(3) could be used to define a set of per capita income collapses as the decline between a record and a subsequent minimum, independently of the level of absolute income. Yet applying just these conditions leads to some problematic results in which economies that experience both GDP growth and rapid population growth are counted as growth collapses. This includes some economies in which the rapid population growth has been caused by immigration of low-skilled workers seeking to take advantage of high wages relative to their origin country (e.g., the

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[5] The reason to focus on I is that we aim to identify a finite subset of potential peak levels of y that serve as potential starts of a collapse and that I provides the simplest way to do so . If $r(t) = t$ then either $y_{t+1} \geq y_t$, in which case it makes sense to measure the collapse from y_{t+1} instead of y_t, or $y_{t+1} < y_t$, in which case $r(t) = r(t+1) = t$ so including $r(t)$ is redundant if we include $r(t+1)$, which condition (2) will ensure. Alternatively, if $r(t) < t - 1$, then $r(t) = r(t-1)$ so it is also redundant to include it. Thus the set of time periods which are potential starts of collapses can be uniquely identified by focusing only on the cases in which $r(t) = r(t-1)$

United Arab Emirates in the 1970-2010 period). Since it seems odd to label these countries economic collapses, we introduce an additional condition, (4), that ensures that the collapse occurs during a period in which absolute income levels Y are also declining. Since it is possible that income increases between the record and its associated minimum but declines in a subset of that time period, we define the collapse as the time period associated with the largest decline of per capita income that falls strictly in the interval between a record and its associated minimum and during which absolute income Y is also declining.[6]

Figure 1 illustrates three examples of our definition applied to different hypothetical time series of y. All of these examples assume zero population growth, so that the last condition in (1d), $Y_t > Y_{t+n}$ is assumed to hold along any decline in y. In the first example, the economy recovers from a collapse to a higher level of income than its prior peak, and thus a second collapse episode begins. In the second example, the pattern is similar, yet the recovery doesn't reach the pre-collapse peak, so when the economy declines again the episode counts as the continuation of the longer-term collapse. The third example is like the first one, except that the economy has not stopped declining as of the last observation of the series.[7] Note that this definition aims at capturing long-run declines in per capita income instead of just economic recessions. Therefore, two episodes that would conventionally be viewed as separate recessions from the standpoint of business-cycle analysis are treated as one episode if they form part of a long-run secular decline in per capita income, as shown in the second example.[8]

Figure 1: Examples of Output Collapse Definition (no population growth)
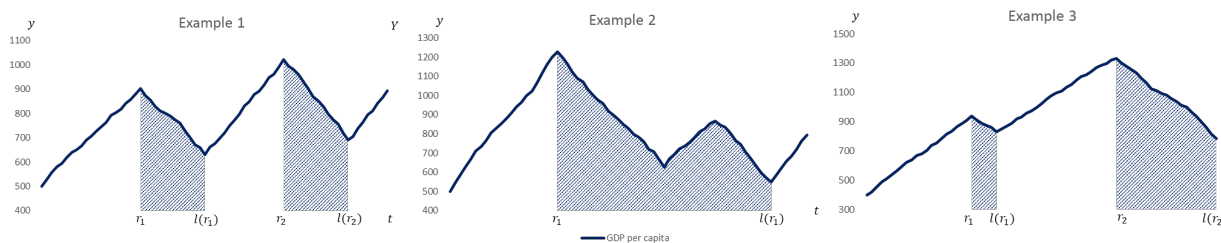
In Appendix 1, we compare our definition of an economic collapse with those used in previous studies. We classify existing definitions into two categories: full recovery definitions, which bring an episode to an end when the economy recovers its pre-collapse level of income (or other indicator of production), and partial recovery definitions, which bring it to an end when the economy starts to recover. Full recovery definitions have the problem of counting both the contraction and the recovery periods as part of the event. Partial recovery definitions have the problem of ignoring sustained

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[6] Evidently, a collapse could be associated with a small decline in y according to this definition. For the purposes of this paper, in which we use the definition only to identify the world's largest collapses and show that Venezuela and Zimbabwe belong to the list, the distinction between a small and a large collapse in GDP is moot. For more detailed empirical analysis, one may want to define a threshold drop in GDP to distinguish between large collapses and smaller contraction episodes.

[7] Note that there is a sense in which neither the second collapses of examples 1 and 3 nor the only collapse of example 2 have with certainty ended, as GDP could once again decline to below its prior minimum of T_E or T'_E.

[8] The conventional business cycle definition treats a recession as an interval between a peak and a trough independently of the preceding evolution of GDP. See, e.g., Burns and Mitchel (1946, p.3).

declines, such as that shown in example 2 of Figure 1, punctuated by periods of positive growth. Our definition addresses these problems by ensuring that an episode always comes to an end before the recovery starts, but in requiring that this happen not at the first minimum but at the lowest level of output attained before full recovery is reached.

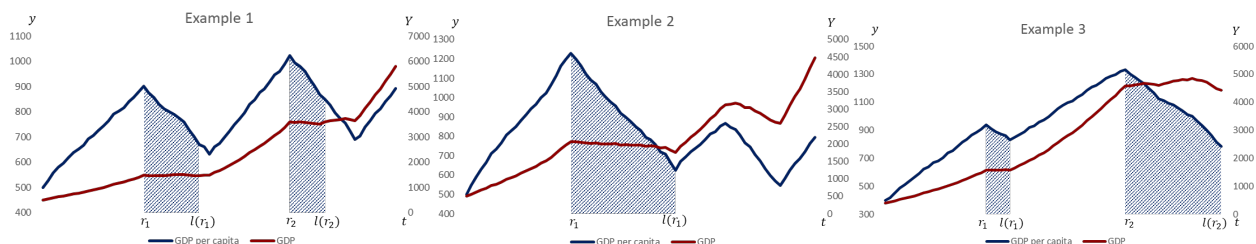**Figure 2: Examples of Output Collapse Definition (with population growth)**

Figure 2 presents three more examples with the same path of per capita incomes as in the examples of Figure 1, but now with positive population growth which we have set at a constant rate of *n=.025* a year in all three cases. Note from conditions (1a)-(1d) that population growth can only restrict the range of observed collapses, because any collapse is a subset of the range between a record *y* and its subsequent minimum. Furthermore, positive population growth can lead episodes during which income per capita is falling not to qualify as collapses, because total income is still growing. Thus, the effect of applying our definition to cases with positive population growth is that it will help us focus on truly severe collapses in which there is a decline in per capita income that is large enough so as to bring total income down even when population is growing.[9]

In fact, we see that adding the restriction that absolute income must decline restricts our collapse episode in some, though not all, of our examples. In example 1, we see that both episodes identified as collapses survive the restriction but are shorter in Figure 2 than in Figure 1 as the method selects only the time period during which total income was declining. In example 2, the method restricts us to the first dip of the double-dip contraction, as the second dip is not intense enough to offset the effect on total income of population growth. In the third case, both contraction episodes survive the additional restriction, and thus are the same as identified in Figure 1.

Figure 3 shows the results of applying our definition to Venezuela and Zimbabwe, using constant-price GDP as measured in the national accounts series collected in the Penn World Table. Aside from two small episodes, Venezuela's large contraction begins in 1977 and has not yet ended as of the last year of data, which is 2020. Note that, since Venezuela has not been able to recover its 1977 level of per capita income, our method identifies a prolonged, 43-year collapse. However, in most of the discussion below we will focus on the 2012-2020 period, which accounts for 92% of the 1977-2020 decline in living standards and is also identified as the collapse period when we use as the

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[9] The last inequality in Condition (4) makes it less likely that an economy will be classified as collapsing when its population is growing rapidly due to strong immigration (e.g., United Arab Emirates) and more likely when population is declining due to emigration (e.g., Venezuela). In the absence of reliable cross-national yearly net migration data, this is a way to ensure that we indirectly consider information on how people are voting with their feet as indicative of the evolution of a society's quality of life.

alternate PPP adjusted series. In the case of Zimbabwe, the criterion identifies 1997-2008 as the largest decline, with two smaller episodes in 1965-68 and 2018-2019. It is worth noting that even though Zimbabwe's 1972 per capita income exceeded that of 1997, our method selects just the 1997-2008 period because the absolute level of income was higher in 2008 than in 1972. This is in contrast to the case of Venezuela, in which absolute levels of income in 2020 are lower than in 1977 and the method thus selects the longer episode.

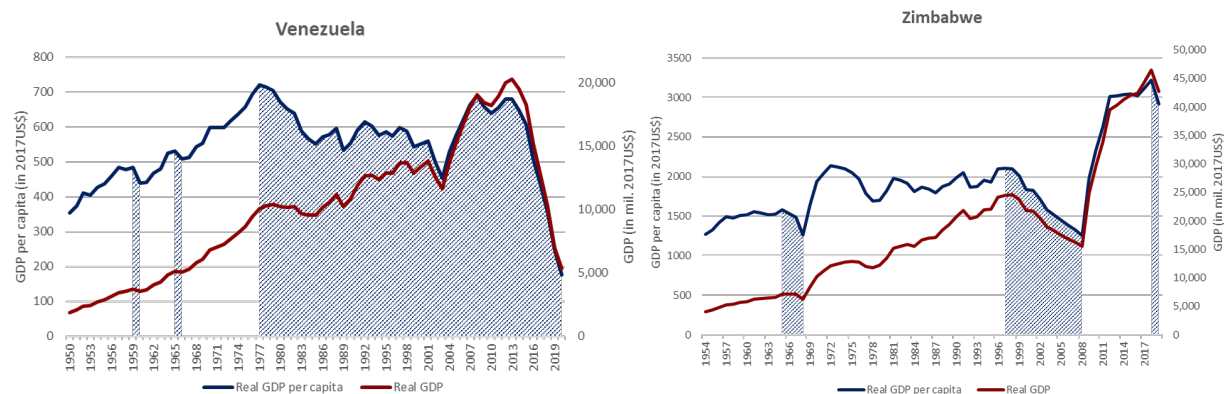**Figure 3: Venezuela and Zimbabwe collapse episodes**

Table 1 shows the ten largest growth collapses obtained from applying the definition in conditions (1)-(4) to the national accounts constant-price GDP series collected by the Penn World Table 10.0.[10] Table 2 repeats this exercise using the PPP adjusted expenditure-chained series from the Penn World Table, while Table 3 does it with an alternative PPP-adjusted series produced by the World Bank. Venezuela's economic contraction is the fifth largest in the world according to the national account series and the largest in the world according to the PPP-adjusted series, contracting respectively by 75.5 percent and by 99.0 percent. The latter number is so large that it suggests the need to be taken with a grain of salt. In fact, all GDP component and relative price data for the last years of the PWT series are extrapolated because Venezuela's last ICP benchmark study that allows calculating survey-based relative prices dates from 2011. For that reason, the World Bank excludes Venezuela from its PPP estimates after 2011. Table 3, built using the World Bank data, thus omits Venezuela.

Zimbabwe, in contrast, has the 40th largest contraction in the national accounts data between 1997 and 2008, and the 6th largest one in the PPP-adjusted data for 1996-2008, with contractions respectively of 40.3 percent and 82.1 percent. It also comes in at 10th highest in the World Bank data, with a decline of 52.4 percent in the 1998-2008 period. Among peacetime contractions, Zimbabwe is the 16th highest in the national accounts series, 2nd in the PWT PPP-adjusted series, and 4th in the World Bank series. It is worth noting that Zimbabwe's data quality at the trough of this contraction

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[10] Calculations use Penn World Table 10.0 (Feenstra et al, 2015) national accounts constant price GDP data, as recommended by Feenstra, Inklaar and Timmer (2015) when the purpose is to compare growth performance across economies. Penn World Table data is used for all countries, except Cuba, for which we use the World Bank series, and Venezuela for 2019 and 2020, for which we use the Focus Economics forecasts (PWT uses an IMF estimate for 2019 given the lack of official data and has no data for 2020). Data is not uniformly available from 1950 for all countries, as some series start at later years.

in the PPP-adjusted series is likely better than Venezuela's, as it is based on ICP survey prices instead of extrapolations.

It is worth noting that there are differences in the exact dates for the start and end of the collapse identified by the three data sets. This is not surprising, and some differences are minor. In the case of Zimbabwe, the three series pinpoint the start of the decline at similar dates (1997 in national accounts, 1996 for PWT PPP, and 1998 for World Bank PPP) and all coincide in timing the end in 1998. In the case of Venezuela, the national accounts and PWT PPP series differ significantly in the start of the collapse, which they respectively put in 1977 and 2012. As noted above, in Venezuela's national accounts data, per capita income was slightly higher at its 1977 peak than in 2012. The country thus falls in the category of "double-dip" collapses shown in Example 2 of Figure 1. Given that even in the national accounts data the 2012-2020 decline accounts for almost all of the 1977-2020 decline and that the PPP-adjusted series times the start of the collapse in 2012, we will focus on the 2012-20 period as our collapse episode in the rest of the paper.[11]

Table 1: Largest per capita GDP collapses, constant-price GDP

Rank	Rank (Peacetime)	Country	Trough-to-peak ratio (percentage decline)	Period	Years	Average percentage decline	Cumulative loss (% of initial GDP per capita)	Armed Conflict
1		Liberia	-89.2%	1974 - 1995	21	-8.7%	-733.7%	Intrastate conflict
2		Kuwait	-86.8%	1970 - 1991	21	-8.1%	-1134.3%	Interstate conflict
3		Iraq	-77.2%	1979 - 1991	12	-8.2%	-365.5%	Intra and interstate conflict
4		D.R of the Congo	-75.7%	1974 - 2002	28	-4.8%	-1190.9%	Intra and interstate conflict
5	1	Venezuela	-75.5%	1977 - 2020	43	-2.8%	-881.0%	Peacetime
6		Tajikistan	-71.4%	1990 - 1996	6	-18.6%	-289.9%	Intrastate conflict
7	2	Lebanon	-70.7%	1974 - 1976	2	-44.3%	-102.1%	Peacetime
8		Georgia	-70.6%	1990 - 1994	4	-25.2%	-214.8%	Intrastate conflict
9		Iran	-66.6%	1969 - 1988	19	-4.5%	-793.4%	Intra and interstate conflict
10		Yemen	-65.6%	2010 - 2019	9	-10.6%	-386.5%	Intrastate conflict
…								
43	16	Zimbabwe	-40.3%	1997 - 2008	10	-4.6%	-114.5%	Peacetime

Sources: Own calculations, Penn World Table and Focus Economics

Table 2: Largest per capita GDP collapses, PPP-adjusted, Penn World Table

Rank	Rank (Peacetime)	Country	Trough-to-peak ratio (percentage decline)	Period	Years	Average percentage decline	Cumulative loss (% of initial GDP per capita)	Armed Conflict
1	1	Venezuela	-99.0%	2012 - 2020	8	-37.4%	-601.9%	Peacetime
2		Liberia	-91.9%	1969 - 1996	27	-7.7%	-1053.6%	Intrastate conflict
3		Nigeria	-90.8%	1980 - 1995	15	-13.4%	-960.1%	Intrastate conflict
4		Kuwait	-82.8%	1974 - 1991	17	-8.3%	-712.5%	Interstate conflict
5		D.R of the Congo	-82.6%	1969 - 2001	32	-4.5%	-1370.3%	Intra and interstate conflict
6	2	Zimbabwe	-82.1%	1996 - 2008	12	-12.9%	-638.9%	Peacetime
7		Tajikistan	-81.4%	1990 - 1999	9	-15.4%	-553.7%	Intrastate conflict
8		Syrian Arab Republic	-80.9%	1975 - 1994	19	-8.2%	-1120.7%	Intra and interstate conflict
9		Georgia	-79.5%	1990 - 1994	4	-29.8%	-233.8%	Intrastate conflict
10	3	Zambia	-78.4%	1969 - 1995	26	-5.1%	-1489.3%	Peacetime

Sources: Own calculations, Penn World Table and Focus Economics

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[11] In fact, Zimbabwe has a similar double-dip evolution of its national accounts per capita GDP series, with 1972 per capita income exceeding that of 1996. However, because 2008 GDP exceeds 1972 GDP, this longer episode does not satisfy condition 2.

Table 3: Largest per capita GDP collapses, PPP-adjusted, World Bank

Rank	Rank (Peacetime)	Country	Trough-to-peak ratio (percentage decline)	Period	Years	Average percentage decline	Cumulative loss (% of initial GDP per capita)	Armed Conflict
1		Georgia	-72.7%	1990 - 1994	4	-26.5%	-221.4%	Intrastate conflict
2		Tajikistan	-71.4%	1990 - 1996	6	-18.6%	-289.9%	Intrastate conflict
3		Iraq	-65.0%	1990 - 1991	1	-65.0%	-65.0%	Intra and interstate conflict
4	1	Macao SAR, China	-64.4%	2013 - 2020	7	-10.7%	-184.7%	Peacetime
5		Libya	-62.4%	2010 - 2011	1	-62.4%	-62.4%	Intrastate conflict
6		Azerbaijan	-60.9%	1990 - 1995	5	-16.7%	-186.8%	Intra and interstate conflict
7		Congo, Dem. Rep.	-60.7%	1990 - 2002	12	-7.4%	-537.0%	Intrastate conflict
8	2	Equatorial Guinea	-58.8%	2008 - 2020	12	-7.0%	-365.1%	Peacetime
9	3	Ukraine	-57.5%	1990 - 1998	8	-9.9%	-323.3%	Peacetime
10	4	Zimbabwe	-52.4%	1998 - 2008	10	-7.0%	-252.0%	Peacetime

Sources: Own calculations and World Bank

Note: Venezuela is omitted from World Bank PPP data due to the absence of benchmark price series.

3. Theory

3.1 Introduction

The idea that politicians may pursue inefficient policies[12] to strengthen their chance to stay in power has a long history. In 59 BC, the Roman Tribune Clodius passed a law promising a free corn dole to all male citizens; the law quickly led to the draining of the Roman treasury but allowed Clodius to reduce the power of magistrates and send his rival Cicero into exile (Watts, 2020, p. 209; Tatum 1999). Classical thinkers ranging from David Ricardo (1817) to Benjamin Constant (1815) saw popular suffrage as inconsistent with property rights, while thinkers from the Virginia school of public choice saw electoral politics as inextricably linked with suboptimal economic outcomes as politicians would systematically try to fool voters or use the political system as a smokescreen to deviate resources to special interests (Tullock, 1983; Tollison, 1989).

In the 1980s and 1990s, scholars working in the rational-choice tradition came up with political economy signaling models in which policymakers used inefficient policies to trick voters into believing that they were more competent than they actually were. For example, policymakers could use inflationary financing ahead of elections to pay for a given level of public spending at lower tax rates; voters, uncertain as to whether these lower tax rates were due to the use of inflationary financing or greater policymaker competence in turning tax revenue into public goods, would be more likely to vote for those who implemented distortionary policies ahead of elections (Rogoff and Siebert, 1988). Alternatively, politicians could use inefficient public spending projects to transfer income to special interests. Because voters cannot tell whether a certain public project is justified or not, they are less likely to punish a politician for carrying out the project than for directly transferring funds to the special interest – even though the direct transfer is, strictly speaking, a more efficient mechanism to redistribute resources to the special interest (Coate and Morris, 1995).

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[12] We adopt the standard definition of an efficient policy as one that produces a Pareto efficient outcome, i.e., in which there is no other policy-induced outcome in which all individuals are at least equally well-off and at least one individual is strictly better off (Pareto, 1927; Lockwood, 1996).

3.2 A single-player model.

We can illustrate these intuitions in the framework of a general model in which a policymaker trades off the electoral benefits of distortionary against their welfare cost. Let the utility of the policymaker U be denoted as:

$$U = q(P)\delta R + (1 - q(P))(1 - \delta)R - \sigma W(P) \tag{5}$$

Where q is the probability of the incumbent policymaker winning the election, P is the distortionary policy, W is the welfare cost of distortionary policies, and σ is the weight that the policymaker assigns to those welfare costs. R are the rewards from power, and the incumbent is assumed to receive a fraction $\delta > 1/2$ of those rewards if she wins the election, and $1-\delta$ if she loses. We call δ the stakes of power: the higher δ, the more unequal the distribution of political rewards between winners and losers.

Production is carried out by N atomistic firms which share a common production function

$$Y_m = A(W)F(K_m, H_m) \tag{6}$$

where A denotes productivity, which is assumed to depend negatively on economic distortions W, m indexes firms and K_m and H_m respectively denote the firm's use of capital and labor. The economy has aggregate endowments of $\overline{K}$ and $\overline{H}$. Labor and capital markets are competitive and will thus clear at $K_m = \frac{\overline{K}}{N} = \overline{k}$ and $H_m = \frac{\overline{H}}{N} = \overline{h}$, so that aggregate output is given by:

$$Y = A(W)NF(\overline{k}, \overline{h}). \tag{7}$$

We assume W'>0, q'>0, W">0 and q"≤0. Then the equilibrium P is given by the solution to:

$$q'(P)(2\delta - 1)R - \sigma W'(P) = 0 \tag{8}$$

With second-order condition:

$$q''R(2\delta - 1) - \sigma W'' < 0 \tag{9}$$

(9) is ensured by the assumptions W">0, q"<0 and $\delta > \frac{1}{2}$. Differentiating equation (8) we can derive the comparative statics result:

$$\frac{dP}{d\delta} = -\frac{q'2R}{q''R(2\delta-1)-\sigma W''} > 0, \tag{10}$$

where the sign is ensured by (9) and q'>0. Equation (10) thus establishes that higher stakes of power lead to more distortionary policies and, by (7), lower incomes. The intuition is simple: the more that a policymaker has to gain from being in power – or to lose from being out of it – the greater their incentive to implement distortionary policies to avoid losing power.

Assume now a simple parameterization where $q = \Gamma + aP$ and $W = P^\beta$. Then equation (8) reduces to:

$$p = \left(\frac{a(2\delta-1)R}{\sigma\beta}\right)^{\frac{1}{\beta-1}} \tag{11}$$

With

$$\frac{dP}{da} = \frac{1}{\beta-1}\left(\frac{(2\delta-1)R}{\sigma\beta}\right)^{\frac{1}{\beta-1}} a^{\frac{2-\beta}{\beta-1}} > 0 \tag{12}$$

and

$$\frac{dP}{d\sigma} = -\frac{1}{\beta-1}\left(\frac{a(2\delta-1)R}{\beta}\right)^{\frac{1}{\beta-1}} \sigma^{-\frac{\beta}{\beta-1}} < 0 \tag{13}$$

The more responsive that electoral results are to distortionary policies, the greatest that they will be used in equilibrium, and the greater the economic cost. The greater the cost of these distortions, the less that they will be used in equilibrium.

3.3 A two-player model

In the model that we have just sketched, only the government can generate economic distortions that cause welfare losses. However, there are many cases in which other actors, including those who do not hold formal political power, can do the same. Unions can call strikes, protesters can block roads, consumers can promote boycotts, opposition parties can block government-proposed legislation, and diaspora groups can lobby for economic sanctions. If different groups control the executive and legislative branches, cooperation between them may be a pre-condition for efficient economic policies. Therefore, it is worth considering models in which more than one group can adopt strategies that cause negative external effects on the economy.

Consider now two groups that are vying for power. They can try to gain power through two means: by competing in elections or by engaging in non-electoral competition. The difference between these two modes of engagement is that the former does not generate negative external effects, while the latter does. We refer to non-electoral competition as conflict, and assume that conflict, in contrast to electoral competition, is economically destructive.

Formally, each of the two groups $i = \{1,2\}$ can either devote resources to electoral competition E_i or conflict technology P_i. They choose these to maximize expected utility V^i subject to the constraint $E_i + P_i = \overline{L_i}$. If both groups accept the results of electoral competition, then the rewards from power R will be distributed according to a distribution rule that is known *ex ante*: the winner receives a fraction $\delta > 1/2$ of these rewards, while the loser receives $1-\delta$. As above, we refer to δ as the stakes of power: the higher δ, the more unequal the distribution of political rewards between winners and losers.

Therefore, the payoff of group i in case that both groups accept the results of electoral competition is:

$$V_i^E = q\left(E_i, E_j\right)\delta R + \left(1 - q\left(E_i, E_j\right)\right)(1 - \delta)R \tag{14}$$

where q denotes the probability of i winning if she spends E_i and her opponent spends E_j. Yet groups also have another alternative: to reject the results of the election and enter conflict. In that

case, the distribution of R will be determined according to what is known in the conflict literature as a contest-success function in which the reward of each player is a function of the investment in conflict technology by her and her opponent. We write this function, which specifies what fraction of R i receives when she spends P_i and her opponent P_j, as:

$$C(P_i, P_j). \tag{15}$$

The production side is identical to that of the one-player model, with A now assumed to depend positively on $V = V_1 + V_2$, the sum of politician payoffs

$$Y = A(V)NF(\overline{k}, \overline{h}). \tag{16}$$

The dependence of A on V captures the negative externality from destructive political conflict. For example, the rewards from power to be allocated among different groups could be proportionate to tax revenue, which in itself is proportionate to GDP. If conflict destroys aggregate output, it also proportionately destroys the economy's capacity to rewards its politicians.

Temporally, the structure of play is as follows. First, each group selects E_i and P_i. Elections are then held and the winner and loser are determined. After the election's result is known, each group decides whether to recognize or disavow the result. If neither group contests the result, then the winner of the election receives δR and the loser receives $(1-\delta)R$. If either group decides to contest the result, then group i will receive $C(P_i, P_j)R$. This structure is illustrated in Figure 4.

Figure 4: Temporal structure of play
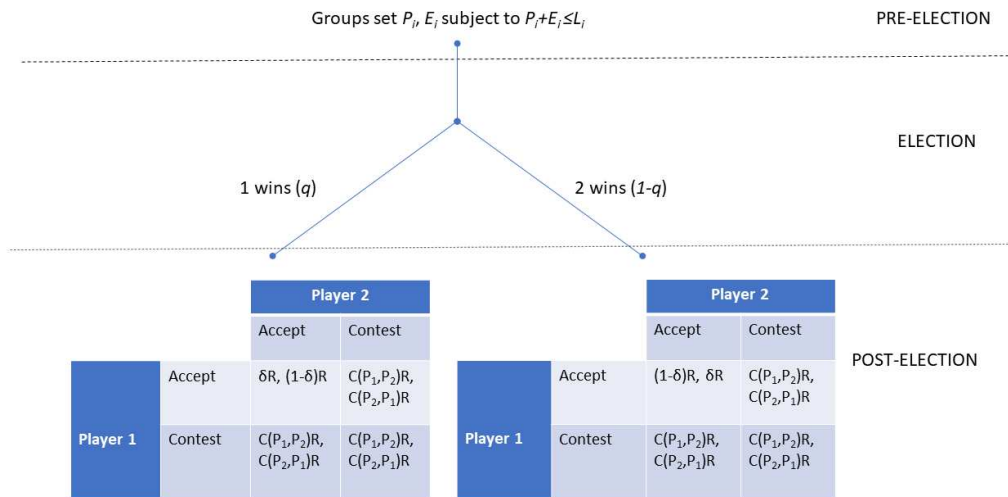
Label each party's choice of whether to accept the election's outcome conditional on the results as $A_{ij} \in \{0,1\}$. $A_{ij} = 0$ when party i decides to contest j's victory and 1 when it decides to

accept it. We allow for $A_{ii} = 0$, i.e., for party i not to recognize the outcome of its victory.[13] The reason is that recognition entails recognizing the distribution of rewards (δ and $1 - \delta$) and a party may decide that it prefers the distribution of rewards that comes out of conflict.

If either party decides not to accept the election result (i.e., $A_{1j}A_{2j} = 0$), then the groups will enter into conflict for the distribution of the endowment, leading group i to receive $C(P_i, P_j)R$. Let F_i denote the first derivative of function F with respect to its ith argument, i.e.: $F_i = \frac{\partial F(X_1...X_n)}{\partial X_i}$. I assume q is twice continuously differentiable with $q \in [0,1], q_1 > 0, q_2 < 0, q_{11} < 0$, and $q(P_i, P_i) = \frac{1}{2}$. Regarding C, I assume that it is also twice continuously differentiable with $C > 0, C_2 < 0, C_1(0, P_j) > 0 \forall P_j \geq 0, C_{11} < 0, C(0,0) = \frac{1}{2}$ and $C(P_i, P_j) + C(P_j, P_i) \leq 1$.[14]

As mentioned above, one key distinction between $C(.)$ and $q(.)$ is that conflict has an adverse impact on available resources. We model this as the requirement that $C(.)$ is strictly decreasing with respect to increases of equal magnitude in P_i and P_j when P_i and P_j are equal.

Assumption 1 *Global destructiveness of conflict:* $C(P_i, P_j) + C(P_j, P_i) < 1$ if $Pi > 0$ and $Pj > 0$.

Assumption 2 *Local destructiveness of conflict:* $C_1(P_i, P_j) + C_2(P_i. P_j) < 0$ for $P_i = P_j \geq 0$.

Note that by construction, electoral competition is neither locally nor globally destructive.[15] Both groups choose E and P to maximize expected utility subject to the constraint

$$E_i + P_i = \overline{L_i}. \tag{17}$$

Given that (9.10) determines Ei for any Pi, we can write the strategy of each party compactly as the vector $s_i = \{P_i, A_{ii}, A_{ij}\} \in S = [0, \overline{L}] \times \{0,1\}^2$. We solve for subgame perfect Nash equilibria through backward induction given the temporal structure described in Figure 4.

We can characterize each group's payoff function as:

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[13] Unless otherwise stated, we will use the label A_{ij} to refer to the decision of agent i to recognize the victory of her opponent and retain A_{ii} for the decision of agent i to recognize her own victory.

[14] Note that we do not assume $C_1 > 0$ globally because the destructive effect of conflict can lead there to be a range over which greater spending on conflict, while allowing i to capture a greater share of the pie, may destruct so much output so as to generate a marginal decline in her payoff.

[15] This is because the probability that group i wins the election is equal to the probability that group j loses it, i.e. $q(E_i, E_j) = 1 - q(E_j, E_i)$. Differentiating this expression with respect to E_i tells us that $q_1(E_i, E_j) = -q_2(E_j, E_i) = -q_2(E_i, E_j)$ when $E_i = E_j$, so that $q_1(E_i, E_j) + q_2(E_i, E_j) = 0$.

$$V^i(P,E,A) = \begin{cases} q(E_i,E_j)\delta R + \left(1-q(E_i,E_j)\right)(1-\delta)R \\ \quad if\ A_{ii}A_{ji} = 1 \cap A_{ij}A_{jj} = 1 \\ q(E_i,E_j)C(P_i,P_j)R + \left(1-q(E_i,E_j)\right)(1-\delta)R \\ \quad if\ A_{ii}A_{ji} = 0 \cap A_{ij}A_{jj} = 1 \\ q(E_i,E_j)\delta R + \left(1-q(E_i,E_j)\right)C(P_i,P_j)R \\ \quad if\ A_{ii}A_{ji} = 1 \cap A_{ij}A_{jj} = 0 \\ C(P_i,P_j)R \\ \quad if\ A_{ii}A_{ji} = 0 \cap A_{ij}A_{jj} = 0 \end{cases} \tag{18}$$

where $P = \{P_1, P_2\}, E = \{E_1, E_2\}$ and $A = \{A_{11}, A_{12}, A_{21}, A_{22}\}$. A subgame perfect Nash equilibrium is a profile of strategies $s = \{s_1, s_2\}$ that is also a Nash equilibrium for the post-election subgame (i.e., the subgame that begins once nature has selected a winner). Given that R multiplies all payoffs on (18), we henceforth normalize $R = 1$ for the rest of the analysis.

We begin with the post-election subgame. Without loss of generality, we will refer to player 1 as the winner and player 2 as the loser of the election when discussing the post-election subgame. We will thus look for the strategy profiles (A_1, A_2) that constitute Nash equilibria in this subgame (where we write A_{11} as A_1 and A_{21} as A_2 given our assumption that 1 has won). Let a **contested election** refer to an outcome in which either the winner or the loser contest the election, so that $A_1A_2 = 0$ and an **uncontested** election as one in which both the winner and loser accept the result of the election (i.e., $A_1A_2 = 1$). Let $V^1(A_1, A_2)$ and $V^2(A_2, A_1)$ denote respectively the payoffs of the winner and the loser depending on each player's decision on whether to recognize the result or not:

$$V^1(A_1, A_2) = \begin{cases} \delta R & if\ A_1A_2 = 1 \\ C(P_1,P_2)R & if\ A_1A_2 = 0 \end{cases} \tag{19}$$

$$V^2(A_2, A_1) = \begin{cases} (1-\delta)R & if\ A_1A_2 = 1 \\ C(P_2,P_1)R & if\ A_1A_2 = 0 \end{cases} \tag{20}$$

Note that if the loser accepts the results $(A_2 = 1)$ it will be a best response for the winner to accept the results $(A_1 = 1)$ when:

$$C(P_1, P_2) \leq \delta \tag{21}$$

while the winner accepts the results $(A_1 = 1)$, it will be a best response for the loser to accept the results $(A_2 = 1)$ when:

$$C(P_2, P_1) \leq (1-\delta). \tag{22}$$

However, if the loser contests the results, then the winner's payoff will be $C(P_1, P_2)$ regardless of whether she accepts or contests, making both $A_1 = 1$ and $A_1 = 0$ best responses to $A_2 = 0$. This introduces the possibility that the strategy profile $(A_1, A_2) = (0,0)$ could be a Nash equilibrium regardless of whether (9.14) or (9.15) hold. However, note that if (21) holds as a strict inequality, then $A_1 = 0$ will be a weakly dominated strategy and if (22) holds as a strict inequality, $A_2 = 0$ will also be weakly dominated. In order to eliminate this

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possibility, we will require that pure-strategy Nash equilibria also be *trembling hand perfect* in the sense of Selten (1975), that is, that they also be Nash equilibrium in a perturbed game in which all pure strategies are played with an infinitesimally small probability. Note that if either (2) or (3) hold as strict inequalities, then $(0,0)$ is not trembling hand perfect.

Imposing this restriction, we can establish that both equatons (21) and (22) must hold in order for recognition of the electoral results to be a *perfect equilibrium of the post-election subgame* and to rule out non-recognition as a perfect equilibrium. (Proofs of all propositions and additional results are in Appendix 2).

Proposition 1 *Both sides accepting the result of the election will be a trembling-hand perfect Nash equilibrium of the post-election subgame if and only if equations (21) and (22) hold. Although both sides contesting will also be a Nash equilibrium, it will not be trembling-hand perfect if (21) and (22) hold. If either (21) or (22) fail to hold, then the only Nash equilibria of the post-election subgame will be ones in which at least one of the sides contests the election.*

The case in which one of conditions (21) and (22) holds as equality will be particularly important, because as we show below actors will tend to play strategies that ensure this in the first stage. The next result argues that in these cases, another equilibrium, as well as a continuum of mixed strategy equilibria, become possible,

Corollary 1 *If both (21) and (22) hold but only one of them holds as a strict equality, then there will be another pure-strategy trembling-hand perfect Nash equilibrium in which the side that is indifferent between conflict and the election contests the result while the other side accepts it. In addition, there will be a continuum of mixed-strategy Nash equilibria in which the side that is indifferent between conflict and the election randomizes with any probability $p \in (0,1)$.*

Proposition 1 allows us to rewrite (18) as:

$$V^i(P, E, A) = \begin{cases} q(E_i, E_j)\delta R + \left(1 - q(E_i, E_j)\right)(1 - \delta)R \\ \quad \text{if } C(P_i, P_j) \leq 1 - \delta \text{ and } C(P_j, P_i) \leq 1 - \delta \\ q(E_i, E_j)C(P_i, P_j)R + \left(1 - q(E_i, E_j)\right)(1 - \delta)R \\ \quad \text{if } C(P_i, P_j) \leq 1 - \delta \text{ and } C(P_j, P_i) > 1 - \delta \\ q(E_i, E_j)\delta R + \left(1 - q(E_i, E_j)\right)C(P_i, P_j)R \\ \quad \text{if } C(P_i, P_j) > 1 - \delta \text{ and } C(P_j, P_i) \leq 1 - \delta \\ \quad\quad\quad\quad C(P_i, P_j)R \\ \quad \text{if } C(P_i, P_j) > 1 - \delta \text{ and } C(P_j, P_i) > 1 - \delta \end{cases} \tag{23}$$

Let P^* denote the choice of P by both parties in a pure-strategy SSPNE where the election is contested and P^{**} the choice of P when it is contested. We are now ready to establish the conditions for both contested election (conflict) and uncontested election (democracy) equilibria.

Proposition 2 *In any pure-strategy symmetric subgame perfect Nash equilibrium,*

$$C(P^*, P^*) = 1 - \delta \tag{24}$$

if the election is uncontested and

$$P^{**} = \frac{Argmax}{P_i \in [0, \overline{L_i}]} [C(P_i, P^{**})] \tag{25}$$

If the election is contested.

There are several important implications of Proposition 2. Namely, it allows us to establish thresholds such that conflict is viable only for sufficiently high stakes of power, democracy is sustainable for lower stakes of power, and for very low stakes of power, neither conflict nor democracy constitute symmetric equilibria.

Corollary 2 *Along any pure-strategy SSPNE where the election is uncontested, P^* will be an increasing function of δ. Furthermore, there will be a level δ such that if $\delta > \overline{\delta}$ there will be no SSPNE where the election is uncontested.*

Corollary 3 *Along any pure-strategy SSPNE where the election is contested, P^{**} will be independent of δ. Furthermore, there will be a level $\underline{d}$ such that if $d < \underline{d}$, there will be no SSPNE where the election is contested.*

Corollary 4 *There exists a $\tilde{\delta} \in (\frac{1}{2}, 1)$ such that if $\delta < \tilde{\delta}$, there is no pure strategy SSPNE.*

Last, we can establish that a symmetric equilibrium always exists. This implies that if neither symmetric conflict nor democracy equilibria exist, there will be a mixed-strategy symmetric equilibrium.

Proposition 3 *A (possibly mixed-strategy) SSPNE exists.*

Proposition 2 tells is that if the election is uncontested, then each group will spend in conflict technologies just as much as is necessary to dissuade the loser from contesting the election result. Since the election is uncontested, then these conflict technologies are not used in equilibrium – the rewards to each party are determined by the electoral contest – thus the only reason why it makes sense for groups to spend resources in developing them is that they need to dissuade their opponents from not recognizing the election's results. In other words, whoever is going to win the elections must be sufficiently powerful at fighting for power through non-electoral means to make sure that the opponent is not going to decide to take the battle to the non-electoral terrain.

Corollary 2 tells us that as the stakes of power increase in a democratic society, two things happen. The first one is that groups start spending much more resources in conflict technologies. Even though the rules of democracy are being honored, it is still the case that higher stakes of power make political actors devote more resources towards deterring their opponents from deciding not to play by the rules of the game. The second one is that there is a level of stakes of power at which democracy breaks down. If the stakes of power are too high, there is no level of spending in conflict technologies that will be able to deter players in equilibrium from disavowing election results.

Corollary 3 tells us that when society falls into conflict, the stakes of power in the electoral game become irrelevant for pretty much the same reason why electoral spending is irrelevant: the electoral contest is not binding once both sides know that the rewards will be distributed through conflict. Nevertheless, the stakes of power are determinant of the sustainability of conflict as an equilibrium. If the stakes of power are low enough, then conflict will not be a viable equilibrium. This result is directly related to the destructiveness of conflict. At any symmetric conflict equilibrium, each side is receiving strictly less than ½ of *R* because part of R is destroyed by conflict. On the other hand, at sufficiently low stakes of power, even the loser of an election is ensured of receiving close to half of *R*. They thus prefer accepting their electoral defeat to continuing immersed in conflict.

Corollary 4 tells us that if the stakes of power are sufficiently low, neither democracy nor conflict are equilibria, while Proposition 3 tells us that in these cases there will be a mixed strategy

equilibrium. This result suggests that, while high stakes of power are a problem for democratic stability, very low stakes of power can also be a problem for it. The reason is that very low stakes of power can make a democratic equilibrium vulnerable to a deviation in which one player decides to invest in weapons in order to try to take power by force.

Figure 5 shows the relationship for one parameterization of these equations. In this case, both C and q assume the power form of the contest success function (see Skaperdas and Garfinkel, 2007), but in addition C is multiplied by an exponential term in the sum of conflict investments[16]. High levels of δ are associated with a conflict equilibrium, intermediate levels with a democracy equilibrium, and low levels with a mixed-strategy equilibrium (which we describe as instability). At high levels of endowments – which should be understood as a proxy for income – both democracy and dictatorship become viable at sufficiently high δs.

Figure 5: Endowments, Stakes of Power and Sustainable Political Regimes
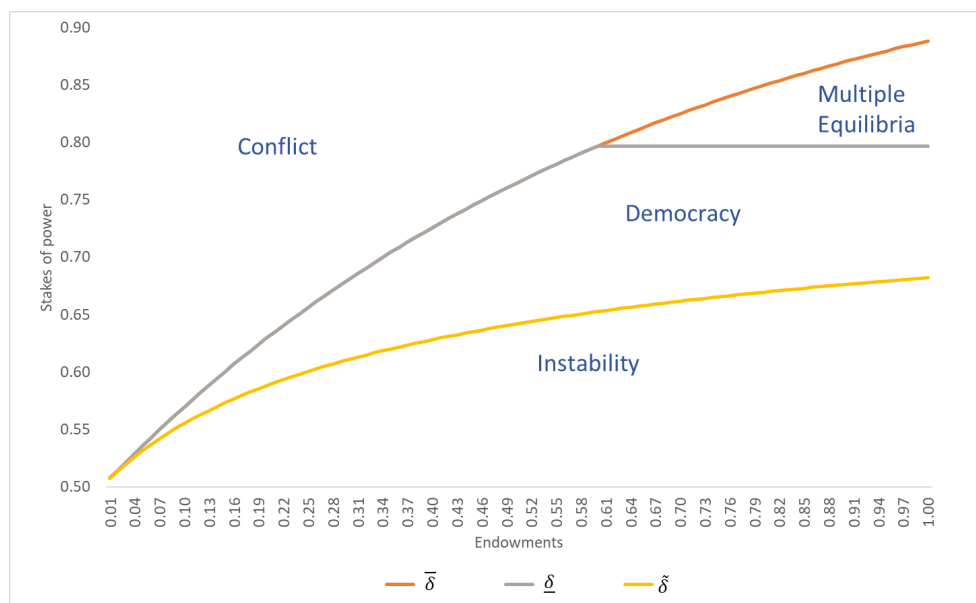

Source: Own calculations

It is worth noting that an important part of the parameter space is characterized by the absence of symmetric pure strategy equilibria. We label this area "instability" in Figure 5, borrowing from a common characterization in which cycles arise from actors adopting strategies that are best responses to their opponents', only to see those strategies change over time in ways that merit different best responses. One way to think of these are situations in which both democracies and dictatorships are unstable: the output losses generated by conflict create incentives for actors to attempt to move to a democracy, but those democracies also prove vulnerable to some actors' attempts to subvert the results of electoral competition by appealing to conflict technologies.

Figure 6 maps out the implications of our model for output, and its potential explanation for output collapses. There are only two levels of A – and thus of equilibrium output – under this model. That which corresponds to democracy, i.e., non-destructive electoral competition, and that which

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[16] For more details on this specification, see Rodríguez (2022), chapter 9.

corresponds to conflict, i.e., economically destructive political conflict. Low output can only occur at high levels of δ, where conflict is an equilibrium; high output is sustainable under democracy, which is feasible at intermediate levels of output. As economies become wealthier in terms of their endowments, then the range of stakes of power over which higher output is possible is larger.

Figure 6: Equilibrium output and stakes of power under different endowments
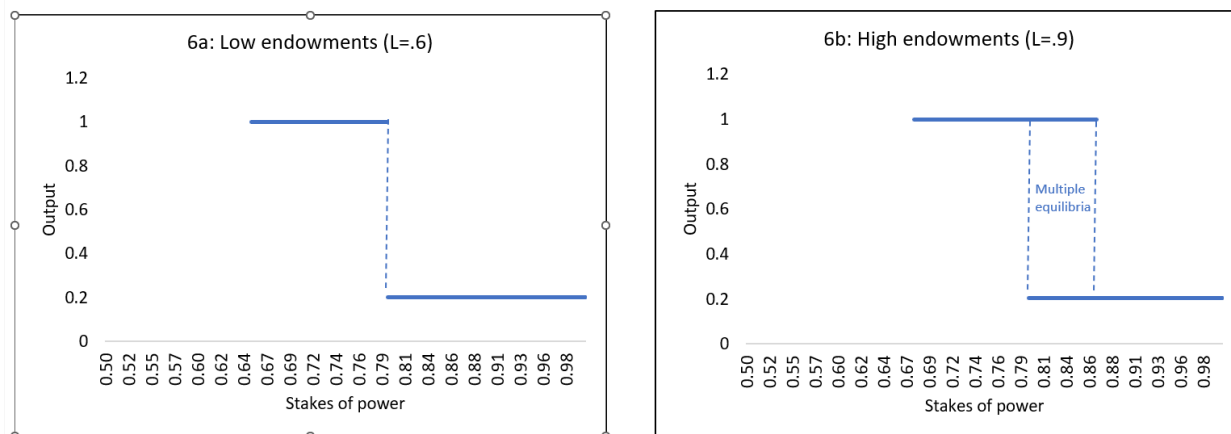
A growth collapse in this model can occur for one of two reasons. One is that an increase in the stakes of power can lead an economy to transition from a situation in which only democracy is an equilibrium to one in which only conflict is an equilibrium (panel a of Figure 6). The other one is that an economy may be in a range of parameters in which both democracy and conflict are equilibria, and actors choose to change their strategies in a way that makes them jump from one equilibrium to another (panel b of Figure 6).

3.4 Implications

We are now ready to draw out a set of implications of the models for the politico-economic trajectory of societies, and particularly for episodes of growth collapses. The idea is to consider the comparative static implications that may allow us to ascertain whether a particular episode of collapse is consistent with the framework described above. We map out the following six implications.

The onset of contraction coincides with the intensification of political conflict. In the two-player model of section 3.2, the decline in output occurs because political actors decide to change strategies from recognizing electoral defeats to disavowing them. When they do so, the loss in output is determined by the intensity of conflict as measured by how far $C(P^{**}, P^{**})$ falls below ½. As just discussed, this can happen either because of changes in the parameters $(\delta, \overline{L})$ or because of jumps from one equilibrium to another when there are multiple SSPNEs. The change in output is discrete and will occur at the same time at which actors decide to stop playing by established institutional rules of electoral competition and decide to begin engaging through non-electoral conflict.

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The stakes of power must be high, and incumbents must face a real risk of losing elections. In the one-player model of section 3.1, the equilibrium use of distortionary policies P grows with the stakes of power δ and with the responsiveness of electoral results to distortions a. A higher a is a sign that the challenger stands a real chance of ousting the incumbent through elections - if the incumbent was guaranteed to stay in power (e.g., $\Gamma=1$, $a=0$), then she would have no need to use these distortionary policies to win the election. In the two-player model of section 3.2, $q = \frac{1}{2}$ in all SSPNE, so that the incumbent is always at risk of losing an election by design. As corollaries 1 and 2 establish, increases in δ make a conflict equilibrium with lower $A(V)$ more probable.

The government and opposition must be taking actions that cause large economic losses but improve their chances of winning the contest for power. In the one-player model, economic losses are generated through the distortions caused by the policies used to win elections. The responsiveness of the probability of election victory $q(p)$ and economic distortions $W(p)$ to policies must both be large for this channel to be economically significant. Similarly, in the two-player model it is the decision to settle power disputes through conflict that generates the losses in output. Therefore, in both cases we should be able to identify specific actions through which political actors improved their prospects of attaining or holding on to power as well as the channels through which these actions caused costly economic distortions.

The economic collapse should be predominantly explained by productivity losses. In both the one and two-player models, the effect of political conflict on economic outcomes is a result of its impact on productivity, which is assumed to be directly and adversely affected by economic distortions. Of course, these distortions may also generate changes in $\overline{K}$ and $\overline{H}$, which are treated as exogenous in our model. To the extent that these are stock variables, though, we would expect them to change slowly over time, so that the onset of the collapse would be associated primarily with large productivity losses. Large declines in capital and labor stocks that are driven by other factors different than productivity changes (e.g., large increases in world interest rates or greater openness to skilled labor immigration in wealthier economies) are not symptomatic of economically destructive political conflict.

The short-term bias in macroeconomic policy should increase around elections – or other periods in which popular support is key for political survival. Although we do not model macroeconomic policy explicitly in the models sketched in sections 3.1 and 3.2, there is a significant amount of work establishing macrofoundations for equations such as (1) based on short-term policy biases that generate a political business cycle (Rogoff and Sibert 1988; Coate and Morris, 1995; Drazen 2000). The essence of these models is the idea that politicians undertake distortionary policies to fool voters as to their competence or intentions. This incentive is only present when there is an electoral motivation, which implies that the incumbent must perceive that there is both a risk of and a cost to losing power through elections.

The quality of economic policies should improve as political conflict recedes. Reductions in the cost of losing power or in the amount of political contestation should lower the incentives for policymakers to appeal to distortionary policies. Thus, when we see an incumbent consolidate power after decisively defeating their challenger in a winner-take-all conflict, we should see it more open to adopting economically more rational policies. Power-sharing agreements can have

the same effect, as they lower δ and thus diminish the incentives to appeal to distortionary policies to stay in power.

4. Economic collapses in Venezuela and Zimbabwe.

4.1   Venezuela, 2012-2020

Between 2012 and 2020, Venezuela underwent the largest peacetime economic collapse in modern world history, and the largest collapse of any economy, including those that suffered a war, in modern Latin American history (see section 1). GDP fell by 73.4% and per capita income by 70.8%; as discussed in section 2, the decline is even larger when calculated in PPP-adjusted income measures, though measurement problems may be most severe in these series. [17] Authorities stopped publishing income poverty data back in 2015 - probably a reflection of how dismal the figures had become - yet a consortium of leading national universities estimated income poverty at 94 percent in 2021, up from 48 percent in 2014 (ENCOVI, 2021). The country spent more than three years in hyperinflation, the third longest episode in documented history.[18]

The proximate driver of Venezuela's income collapse is the collapse of its oil sector. Between 2012 and 2020, the volume of oil production and oil exports fell respectively by 80% and 76%, with oil export revenue falling by an even larger 93 percent due to the additional effect of declining oil prices. Oil accounted for 96 percent of export revenue in 2012, so that the collapse of oil revenue led to a strong reduction in the country's capacity to import capital and intermediate goods, with the expected effects on production. In contrast to comparatively more diversified economies, Venezuela's near-complete specialization in hydrocarbons made its economy highly sensitive to reductions in export revenue (Rodríguez and Sachs 1999, Hausmann and Rigobón 2003, Hausmann and Rodríguez 2012).

While Venezuela's unpreparedness to deal with the 2014-16 negative terms-of-trade shock and its low ratio of production to reserves can be traced primarily to overspending and overtaxation of the oil industry, as well as more general mismanagement and corruption during the 2000-2012 oil boom, the actual *decline* in oil production coincides with the period of worsening of political conflict. Venezuelan oil production was stable during the 2008-15 period and began to decline (as did that of many high-cost producers) as oil prices fell precipitously in early 2016. But after the U.S. imposed a battery of financial and oil sanctions in the 2017-20 period, the rate of decline of Venezuelan oil production accelerated even as other high-cost producers saw production stabilize or recover in an environment of higher prices (Rodríguez, 2018, 2019; Weisbrot and Sachs, 2019). Statistical analyses of these breaks in trend using pre-trend extrapolations, synthetic control methods or regression discontinuity techniques attribute between one half to the totality of the decline in oil production to

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[17] The most recent official national accounts data published by the Central Bank of Venezuela (BCV) is for the first quarter of 2019. For 2019 and 2020 we use the consensus estimates across analysts surveyed in FocusEconomics (2021).

[18] According to the conventional Cagan (1956) definition, an economy enters hyperinflation when its monthly inflation rate surpasses 50% and exits it when the monthly rate falls below the threshold and spends the subsequent 12 months below it. Venezuela spent 37 months in hyperinflation by that standard according to data published by BCV and 40 months according to a competing index published by the opposition-controlled National Assembly elected in 2015). In both cases it is the third longest documented hyperinflation, after Nicaragua (70 months) and Greece (68 months), and above that of Azerbaijan (36 months).

the effect of sanctions (Rodríguez, 2019; Oliveros 2020; Equipo Anova 2020). Difference-in-differences estimates using a panel of firms operating in the country's Orinoco basin finds that firms with access to finance prior to the 2017 financial sanctions saw a larger deterioration in their production than those that lacked such access at the time (Rodríguez, forthcoming).

Venezuela's economic collapse occurred during a period of intensification of the country's political crisis. In 2015, Venezuela's opposition scored a stunning upset by winning a two-thirds majority of the National Assembly, marking one of its only two electoral victories in the 16 years since Hugo Chávez had risen to power. Buoyed by its strong showing, the opposition coalesced around a strategy to oust Maduro from office, initially pursued through a drive to collect signatures for a recall referendum. The government responded by using its control over courts to render the opposition's control of the Legislature ineffectual and block the referendum drive. Violent repression of protests and the jailing of an even greater number of opposition leaders, as well as an unexpected setback in the 2017 regional elections, led mainstream opposition groups to boycott the 2018 presidential elections, which Maduro won with 68% of the vote. The opposition denounced the elections as rigged and did not recognize the validity of Maduro's re-election.

The growing crisis of political legitimacy had severe economic consequences. In December of 2016, shortly after the breakdown of Vatican-mediated talks, the opposition leadership vowed to repudiate Maduro-issued debt and had the opposition-controlled National Assembly formally ask banks not to enter financing transactions with the government or central bank. In August 2017, the Trump administration issued the first of several executive orders blocking financial and commercial transactions with Venezuela's government. In January 2019, additional restrictions made it impossible for the U.S. to buy Venezuelan oil or to provide capital and inputs to Venezuela's oil and mining sectors.

In that same month, the United States, Europe and several Latin American governments recognized legislator Juan Guaidó, then serving as president of the National Assembly elected in 2015, as Venezuela's legitimate interim president, arguing that Maduro's re-election for a second term was invalid. One of the consequences of this decision was that the management of the government's offshore assets, including several Venezuela-owned U.S. refineries, was transferred to the interim government. Most international financial institutions, including the International Monetary Fund and the World Bank, decided not to engage either of the two governments (Guaidó or Maduro), leading to the *de facto* freezing of Venezuela's access to financing, including emergency funding lines used by many countries during the COVID pandemic.

4.2 Zimbabwe, 1997-2008.

Between 1997 and 2008, Zimbabwe lost more than 40 percent of its per capita GDP measured in constant prices, making it the 16th largest peacetime collapse in postwar history. As discussed in section 2, Zimbabwe's collapse is much larger, both in absolute terms and relative to other countries, when measured using PPP-adjusted GDP data, placing it among the top ten economic collapses (and among the top 4 peacetime collapses) worldwide. Although Zimbabwe's economy has recovered significantly since 2008, some of the existing series continue to put per capita income below its pre-collapse level, at per capita income levels comparable to those prior to independence in 1980.

Among the proximate causes of the collapse were the large-scale arbitrary and violent land confiscations carried out under the 2000 Fast Track Land Reform Program (FTLRP), which fundamentally transformed what had until then been a relatively efficient agricultural sector, ultimately causing large declines in agricultural output (Richardson, 2005; Clemens and Moss 2015; World Bank 2019). The 2000 program marked a radical departure from the land reform policies pursued in the first two decades after independence, which had consisted in largely voluntary purchases of land from white settlers.

That Zimbabwe could have benefitted from some type of land reform after independence is not in doubt. There is good evidence that well-designed land reforms in highly unequal countries can significantly foster economic growth (Besley and Burgess, 1998; Deininger et al, 2007). The concentration of Zimbabwe's agricultural landholdings at the time in the hands of a small minority of about six thousand white farmers fueled significant wealth inequality among persons and racial groups. Yet there were significant legal constraints on what the government could do, as the 1979 Lancaster House Agreement that put an end to the white-rule government had embedded property rights for the white minority in the new constitution.

Given these constitutional constraints, Mugabe began a program of redistribution under the "willing buyer, willing seller" model (see Kriger, 2007). The concept behind this model was that a landowner could not be forced to sell his land, and any land reform had to be carried out through voluntary land sales. By 1989 about 52 thousand families had been resettled and the government had transferred more than 3 million hectares, around 40 percent of the initial targets set in 1982 (World Bank, 2019; Center on Housing Rights and Evictions, 2001). Lands identified for redistribution included land that was fallow or undeveloped, owned by absentee or foreign landlords, or owned by farmers with more than one farm (Palmer, 1990).

There was broad political consensus in support of this strategy at the time, which was seen as an attempt at rectifying a historical injustice while respecting established property rights. Yet progress was slower than planned, as the government lacked resources to buy sufficient land from white landholders. In addition, the reform rapidly became an instrument of ZANU-PF's clientelism, with eligibility criteria flouted to transfer land to party supporters and the state purchasing land to lease it to civil servants and politicians (Kriger, 2007). As high expectations for the reform went unmet, frustrations grew.

During the 1990s, the government pushed through reforms to the constitutional framework aimed at facilitating land acquisitions. In 1990, it approved a constitutional amendment allowing the state to buy land compulsorily, requiring that compensation be "fair" rather than "adequate" and transferring the authority to decide on the fairness of compensation from courts to Parliament (Naldi, 1993). An additional legal reform in 1992 increased the power of the government to set lower compensation levels (Selby, 2006). Despite these reforms, the pace of acquisition slowed considerably: less than one million hectares were acquired for redistribution and less than 20 thousand families resettled in the 1990s, as opposed to three million hectares and more than 50 thousand families in the 1980s (Human Rights Watch, 2002).

In February 2000, the government lost a referendum on a constitutional reform that would have significantly strengthened presidential powers and expanded its authority to acquire land

compulsorily without compensation. In June, it narrowly won a parliamentary election, campaigning on the slogan "Land is the Economy; the Economy is Land" (Human Rights Watch, 2002). These results were remarkable setbacks for a government accustomed to facing little or no electoral competition.

One month after the 2000 parliamentary elections, the government announced the "fast track" resettlement program: over the next seven months, it would mark 2,706 farms covering more than six million hectares for compulsory redistribution. (Ministry of Lands, Agriculture, and Rural Resettlement, 2002). The state began sponsoring land invasions on a large scale, with a mix of government forces and vigilante groups forcibly taking over white-owned land. Agricultural production plummeted as the new owners lacked knowledge of commercial farming and distribution practices.[19] Most of the resettled farmers also lacked the necessary capital to invest in capital-intensive cash crop farming, which requires chemicals, fertilizers, and machinery. With new property rights not well-established, they were unable to collateralize their landholdings to access credit. The destruction of the agricultural base adversely impacted agroindustry, reducing exports and saddling the banking industry with non-performing loans (World Bank, 2019).

This process significantly raised insecurity in property rights not just in rural areas but also in other sectors of the economy. Exports of maize, tobacco and beef collapsed, sparking an exodus of both educated professionals and unskilled workers desperate to leave a rapidly shrinking economy. Although Zimbabwe had some of the best arable land of the continent and was a net exporter of food for much of the 20th century, malnutrition began to rise markedly.

A deep economic contraction followed. The economy shrank for nine consecutive years, living standards collapsed and the country entered hyperinflation. The currency lost all its value, virtually disappearing from use. More than five million people were thrust into poverty, more than two million emigrated and over half a million lost formal sector jobs. By 2010, Zimbabwe had the lowest Human Development Index (HDI) of 169 countries ranked by the United Nations Development Program and was one of only three countries in the world to see a decline in its HDI since 1970 (UNDP, 2010, p. 3 and Statistical Annex Table 1). The portion of the population living below US$1 a day stood at more than 80 percent in 2006, up from 36 percent in 1990. Life expectancy collapsed from 59 years in 1990 to 37 years in 2005, and was among the lowest in the world, reflecting declining nutrition and the spread of the HIV/AIDS epidemic. According to estimates of the World Food Program, at least 44 percent of the Zimbabwean population was malnourished (Department of International Development, 2008). Previously eradicated diseases like cholera reappeared, reflecting a collapse of the country's health infrastructure. Zimbabwe reported one of the highest ratios of orphans to population in the world, with an estimated 1.6 million orphans out of a population of 12 million. The country known as the "Switzerland of Africa" and "Southern Africa's Bread Basket" had turned into one of Africa's worst basket cases.[20]

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[19] The land distribution was accompanied by a massive decline in the productivity of communal farms relative to commercial land. By the end of 2002, communal farms had on average only 7 percent of the productivity of commercial farms, as opposed to 28 percent two years earlier (Richardson, 2004).
[20] See also IMF (2010).

5   Applying the Diagnostics Toolkit to Venezuela and Zimbabwe

Section 3.3 sketched seven implications of the one and two-player models of political competition that can be used to assess the extent to which specific economic contractions can be diagnosed as resulting from economically destructive political conflict. In this section, we consider the concrete answers to these diagnostic tests in the cases of Venezuela and Zimbabwe.

5.1 Did the onset of contraction coincide with the intensification of political conflict?

The contraction of Venezuela's per capita income began in 2013 and significantly intensified from 2016.[21] This timing is broadly consistent with the intensification of political conflict, which saw violent protests starting in 2014, the opposition gaining control of parliament in 2015, the government stripping the parliament of its authority in 2017, economic sanctions in 2017 and 2019, and several dozen countries withdrawing recognition of Maduro in 2019.

Of course, this coincidence in time says little about causality – nor does our model necessarily make a strong causal statement. On the contrary, our model is consistent with an interpretation in which there are bidirectional links of causation between economic underperformance and political conflict. For example, a deterioration of economic conditions caused by an exogenous shock such as declining terms of trade can trigger a shift by political actors to scorched-earth political strategies which drive down productivity and lead to a severe worsening of the economy. In both the cases of Venezuela and Zimbabwe, we see initial recessions that are not hard to explain on the basis of past policy choices and exogenous shocks later giving way to prolonged and intense declines in living standards more directly attributable to economically destructive political conflict.

Certainly, Venezuela's recession began before political conflict intensified markedly. The country entered recession in the first quarter of 2014 and dipped into double-digit rates of contraction in the fourth quarter of 2015, ahead of the opposition's surprise win in the December 2015 parliamentary elections. This initial period of negative growth can be traced back primarily to the effects of a negative terms of trade shock, as oil prices plummeted from $101 in 2013 to $36 in 2016. The economy had also undergone an unsustainable expansion in imports financed to a significant extent by oil-backed Chinese lending in the runup to the October 2012 presidential elections, and the government had begun cutting allocations of dollars for imports as early as the last quarter of 2012.

Yet in contrast to other oil-dependent economies, Venezuelan growth did not recover as oil prices rose again in the 2017-19 period. Here the effects of political strategies that targeted the economy is much clearer. Sanctions starting in 2017 strongly impacted the oil industry, driving production into a free fall. Restrictions barring U.S. entities from extending credit to Venezuela as well as an opposition campaign to name-and-shame financial sector firms that did business with the government forced the nation into running a current account surplus of 9% of GDP in 2017 – as opposed to a deficit of 4% of GDP in 2016 – in a desperate attempt to comply with debt repayments and avoid a default. The result was more import cuts and an deeper economic contraction.

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[21] As discussed in section 2, we abstract from the 1977-2012 period given that the 2012-20 decline accounts for 92% of the 1977-2020 contraction in per capita income. Since GDP growth in 2013 (1.3%) was almost the same as population growth (1.4%), it is immaterial whether we time the peak as 2012 or 2013.

In other words, Venezuela's economic collapse is the combination of two crises. The first one, which occurs primarily in the 2014-16 period, is the standard unraveling of unsustainable macroeconomic policies caused by a negative terms of trade shock. This type of contractions is well-known and amply characterized in the literature on macroeconomic populism (Dornbusch and Edwards 1992). Yet this period accounts for only one-third of the country's post-2012 decline in per capita incomes. The other two-thirds occurred in the 2017-2020 period, which saw the economy run four consecutive years of double-digit contraction. These occurred precisely at the time in which the economy lost access to international capital and goods markets as its political crisis worsened and is consistent with the prediction of the model of economically-destructive political conflict.

In the case of Zimbabwe, we also have an initial deterioration that precedes the intensification of political conflict, and which likely contributed to the increase in political contestability. There is nothing all that atypical in the first years of the contraction, and nothing very different from what many African countries are used to seeing. Yet in and around 2000 we see a severe deterioration in economic policies and the adoption of strategies that produce much larger negative economic externalities. Similarly to Venezuela, the initial period of economic deterioration led to an increase in the political strength of the opposition and effective contestability of power, leading the government to be increasingly propense to appeal to policies with a much larger social economic cost.

Economic management in the initial years following Zimbabwe's independence was reasonable. While the country was far from an economic miracle, it managed to generate steady economic growth which allowed per capita incomes to rise at annual rate of 0.9% in the 1980-1997 period. This was somewhat of an achievement given that this is the period of the "lost decade" in which many developing countries saw income declines: the median rate of growth in per capita GDP of sub-Saharan Africa for the same period was -0.2%.[22]

In the mid-1990s, the country started facing increasing fiscal constraints, as high levels of social spending, including the expansion of schools for the indigenous population, outstripped revenue growth. Eventually, the government adopted an Economic and Structural Adjustment Program (ESAP) in 1991 with the support of the IMF and World Bank. The program contemplated liberalizing economic policies, reducing price subsidies and support for loss-making SOEs, removing import restrictions and reforming agricultural marketing boards. The devaluation of the currency was supposed to render the tradable sector more competitive again (Davies and Rattsø, 2001; Kayenze, 2004).

Zimbabwe's ESAP missed virtually all macroeconomic targets. Employment stagnated, inflation accelerated, and poverty worsened. The program's ambition as well as poor sequencing were blamed for its failure, as were the unwillingness of the government to relinquish control over key parts of the economy that it saw as vital in ensuring political support (Davies, 2005; Simpson and Hawkins, 2018). Whatever the reason, its failure to revive the economy dented governing ZANU-PF party's

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[22] The unweighted average annual growth rate in the region was 0.5%, but that is impacted by some economies with extraordinarily high growth including Botswana (5.8%), Mali (5.1%) and Mauritius (4.6%). Population-weighted growth of per capita GDP in the region was -0.7%. Zimbabwe had the 12th highest growth of 42 economies in the region in this period.

popularity and led to the emergence of an opposition united under the leadership of trade union leader Morgan Tsvangirai.

As in Venezuela, the initial onset of the crisis is associated not only with external shocks but with the decision of the government to adopt costly economic policies to shore up political support. Two particularly onerous decisions were announced late in 1997. One was the granting of generous cash bonuses of around 3 thousand USD dollars plus a monthly pension of roughly USD 125 to 60 thousand war veterans, requiring a payout of around 3 percent of GDP (Chitiyo, 2000). The second was the announcement of a plan to compulsorily acquire white-owned commercial farms. Uncertainty as to how these two previously unbudgeted programs would be paid drove a run on the currency leading to the "Black Friday" of November 14, when the Zimbabwean dollar lost 75 percent of its value against the US dollar in a single day and the stock market fell to around 50 percent of its peak three months earlier. The central bank intervened by raising interest rates, setting the stage for a period of economic contraction and falling wages, to which authorities reacted by tightening price controls, exacerbating shortages across the country (Bond, 1998).

The resulting contestation of the government's political power emanated from two fronts: gras-roots demands for constitutional change and the emergence of an organized and unified opposition party capable of challenging Mugabe at the polls. We discuss these in turn.

In early 1998, a broad coalition of civil society organizations formed the National Constitutional Assembly (NCA). Driven by concerns over the steady accumulation of presidential powers through a series of constitutional amendment, the NCA initiated a campaign to push for a new constitution. Zimbabwe, having only become Independent in 1980, had drawn up its Constitution as part of the Lancaster House Agreement that put an end to the white minority-rule government in 1979 (Karekwaivanane, 2017). Many felt that these arrangements overseen by the United Kingdom drew heavily from the country's colonial past and that the country should seek to detach further from them as a mark of true independence. Yet demands for constitutional reform also sought to create a fully representative constitutional assembly, reduce the power of the presidency, and seek increased government accountability. They thus served as a magnet for the support of many who were discontent with Mugabe but unwilling to express this discontent more openly (Hatchard, 2001).

After first ignoring the NCA, Mugabe eventually agreed that a new constitution should be drafted. Yet if he thought it would be easy to co-opt the movement, he was in for a surprise. Public hearings led to repeated demands for a reduction in the power of the presidency including presidential term-limits. ZANU-PF leaders ignored these demands, producing a new draft that reinforced presidential powers. The NCA then declined to continue participating in the process and called for a "no" vote (Dorman, 2003). When the project was put to a referendum in February 2000, the draft constitution was rejected by a 56-44% margin despite the government pouring resources into the campaign. With looming parliamentary elections four months later, the result was a sharp setback to ZANU-PF, which began to see a real risk of losing power (see Ndulu, 2010).

At the same time, a different challenge to the government was arising in the political front. In September 1999, a new political party was formed, the Movement for Democratic Change (MDC). The leadership drew heavily from the trade union movements, with the secretary general of the Zimbabwe Congress of Trade Unions (ZCTU), Morgan Tsvangirai, becoming its first leader. The

party drew adherents from across society, in both urban and rural areas and among various racial groups, gaining support for its critical stance on structural adjustment and its advocacy of greater democratic openness.

ZANU-PF was able to regroup and narrowly escape defeat in the June 2000 parliamentary election, where it obtained 62 seats to the MDC's 57. Yet the election itself was marred by voted intimidation and violence and marked the first time that the government faced an effective electoral challenge. It became clear that despite its inherent electoral advantages—support in rural areas, control of the state apparatus and institutions— ZANU-PF's monopoly on the political process and government was severely weakened, and in itself couldn't guarantee a victory.

Just as in Venezuela, this change in the contestability of power coincides with the onset of the economic crisis. Zimbabwe's economic collapse, according to our definition explained in section 2, extends from 1997 to 2008. Yet the first two years of this period saw only a moderate contraction, with per capita income shrinking by 2.2% per year between 1997 and 1999. The economy would enter a tailspin in 2000, shrinking by 8.6%, and would decline at an average rate of 4.6% during the next eight years. Eighty-nine percent of the loss of per capita incomes during the collapse occurred in the period after 1999.

We thus see a similar pattern in both countries: an economic contraction, caused by some combination of external shocks and poor economic policies, leading to growing discontent with the government and the strengthening of the political opposition. This increased contestability of power spurs the two sides to adopt political strategies that cause negative economic externalities, which precipitates the subsequent economic collapse. This pattern, however, can obscure identification of the true causal channels as economic deterioration appears to precede the onset of the political crisis. What is crucial here is to understand that this initial recession, which is usually within the range of normal historical variations, serves as a trigger to the political deterioration which causes the descent into economically destructive political conflict.

5.2. Were the stakes of power high, and did incumbents face a real risk of losing power through elections?

Prior to 1999, Venezuela's political system had been labeled one of "pacted democracy" by political scholars (e.g., Karl 1987). The system was intentionally designed to limit inter-party competition and ensure cooperation among key political players. The constitution limited presidential re-election and apportioned seats in Parliament through proportional representation with closed lists.

A constitutional reform promoted by Hugo Chávez in 1999 would change all this, significantly increasing the stakes of power. It raised the presidential term to six years, with one immediate re-election (in 2009, the two-term limit was eliminated). The president obtained direct control over promotions within the armed forces, scrapping the previous requirement of Congressional approval for promotions for senior officer positions. The president's legislative powers were increased, and he also obtained powers to activate any kind of referendum, thus effectively gaining the ability to circumvent most powers of the legislature. The share of seats allocated through majority voting instead of lists rose to 60%, significantly lowering the power of political parties. Importantly, the new

Constitution enshrined the ability of the president to call elections to an all-powerful constitutional convention that could dissolve any branch of government. A study of constitutional changes enacted in the region in the 1949-2009 period finds that Venezuela's 1999 reform was the one that expanded presidential powers the most, including by enacting one of the broadest relaxations of presidential term limits in Latin America at the time (Corrales, 2018).

The opposition's victory in the 2015 elections, in which it captured 56% of the popular vote to the government's 41% and obtained exactly two-thirds of seats in the Legislature, would have empowered it to remove Supreme Court Justices, appoint electoral authorities, fire government ministers and convene elections for a constitutional convention. In other words, the opposition had become constitutionally just as powerful as the presidency, setting up a clash of constitutional powers. The government quickly appealed to its control of the Supreme Court to annul some of these legislative powers – including by invalidating the election of three legislators without which the opposition lost its supermajority.

Nevertheless, the opposition appeared to have the political strength to drive Maduro from power through other means. It settled on invoking the constitutional article that allows a recall referendum on the president to be held if requested by 20% of registered voters. Opinion surveys at the time showed that, if the referendum were to be held, Maduro would lose it by a large margin.[23] Although government loyalists continued to control the judiciary and electoral council, the results of the parliamentary election suggested that their capacity to rig elections was limited. Venezuelan bonds rallied strongly, despite falling oil prices, on rising expectations of political change.[24]

By 2016, Venezuela was a country with a very powerful executive branch which the opposition had a realistic chance of winning control of. The stakes of power had been significantly increased by the 1999 Constitution and subsequent reforms, yet the government had been able to keep electoral contestability at bay since then because a boom in oil prices had allowed it to significantly increase government spending and maintain high levels of popularity. Yet when oil prices began falling in 2014, it was no longer as easy for the government to keep the electorate happy, and the opposition saw its chances of reaching power electorally increase dramatically.

By the mid-1990s, Zimbabwe had also developed all the hallmarks of a winner-take-all political system. In the years after independence, the country consolidated the framework of a one-party state with few vestiges of political competition. After winning the initial 1980 elections with almost two-thirds of the votes, Mugabe moved to subjugate the main opposition party, ZAPU, led by revolutionary leader Joseph Nkomo and with strong support among the indigenous Ndebele group. Mugabe unleashed his feared 5th Brigade – an elite counter-insurgency force trained by North Korea – against ZAPU and its military wing, ZIPRA – in an extermination campaign known as the Gukurahundi ("the rain which blows away the chaff before the spring") which led to an estimated 20,000 deaths (O'Neill, 2012). By 1987, ZAPU was essentially forced to merge with ZANU-PF and Nkomo was pushed into an essentially decorative vice-presidential role. Mugabe would rule Zimbabwe

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[23] In its November 2016 survey, the local polling company Datanálisis (2016) found that 51.8% of voters would support the recall, as opposed to 30.5% that would oppose it.

[24] Venezuela's country risk fell from 3283 to 2813 basis points in the last three months of 2015, despite a 20% drop in oil prices in the same period.

unopposed for the next thirteen years, winning the next two elections (1990 and 1996) with more than 80 percent of the vote.

Mugabe would build a complex system of economic rewards to supporters and punishments for opponents that came to be known by the distinctive label "Mugonomics" (Raath, 2015). The strategy consisted in privatizing economic benefits for a small well-connected elite while socializing the costs of these rents. For example, between 1998 and 2001, Mugabe sent up to one-third of the Zimbabwean military to the Democratic Republic of the Congo in nominal support of the government of Laurent Kabila (Simpson and Hawkins, 2018). The exercise did not only cost hundreds of soldiers' lives, it was also extremely onerous to Zimbabwean taxpayers. Yet it enriched politically-connected senior Zimbabwean military officers who were given contracts and concessions for mining, agriculture, and transportation (see Richardon, 2005). After the coffers were emptied, the government began relying more intensively on the inflation tax, leading to a steadily rising inflation.

Mugonomics is in many ways not a new phenomenon, nor necessarily as distinctive as the name would make it sound.[25] Yet while clientelism is common across the developing world, the scope of Zimbabwe's arrangements became particularly large when rents from military activities and land redistribution became part of the system. The absence or specific destruction of key markets and property rights played an important role in making the political incentives that form the basis of a clientelar political strategy sufficiently high-powered. For example, the fact that property rights could not be transferred to new owners (see Richardson, 2005) - an element, incidentally, that also characterized the Venezuelan Housing Mission program of low-income housing (Presidency of the Republic, 2011, art. 6) – implied a relation of continued dependence between recipients and the government.[26]

The spoils of power were extremely high in Zimbabwe, as was the cost of losing power. This is partly a consequence of the violent repression unleashed by Mugabe on his opponents, which all but ensured the same outcome would be unleashed on the losers if there were a change of government. It is no coincidence that when Mugabe was no longer able to effectively wield power in 2017, he was pushed aside by ZANU-PF leaders instead of by the opposition. The inability of the opposition to formulate a credible and clear exit strategy for the incumbent politician also created a strong equilibrium for incumbents to block any change (see Dawson and Kelsall, 2012; Acemoglu and Robinson, 2012).

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[25] Bates (1981) explained why African leaders would opt for under-provision of public goods, whose non-excludability makes them particularly poor instruments for sustaining patronage networks, and instead trade money and food gifts to supporters in exchange for votes or political support. Part of Mugabe's power was managed via the highly personalized strategy of continuously shuffling occupants of high-level positions in government (see Turner and Young, 1985). This type of strategy, akin to a divide-and-rule strategy allows rulers to maintain authority over those they don't trust. Subordinates, who might be out of their position tomorrow, become easily dispensable, and cannot easily build coalitions against their bosses.

[26] In a patrimonialist system, a ruling party with a longer-term horizon and large private economic interests has incentives to grow the cake (McGuire and Olson, 1996). Corruption, while endemic, by being conducted under a centralized patronage system (Shleifer and Vishny, 1993) ensures that bribery doesn't completely destroy the rents that are being sought, as captured by the adage "it is better to own 10% of an elephant than 100% of a rat."

Political contestation went from being low to being very high near the end of the 1990s. This was likely, as already discussed, a result of the fact that the economy entered recession in 1998. By the time of the 2000 constitutional referendum and legislative elections, per capita GDP had fallen by 12.7 percent from its 1997 peak. The surprise defeat of the government in the February 2000 constitutional referendum and its near-loss of parliament in the June 2020 elections were a clear warning sign that the control over this highly centralized state could be up for grabs. After the results of these two votes, it was clear that the opposition stood a real chance of winning power in the 2002 presidential elections. The stakes were high, and power was now truly contested.

5.3   Did the government and/or the opposition take actions that caused economic losses but improved their chances of winning the contest for power?

While Venezuela's macroeconomic policies up until 2012 left much to be desired (Rodríguez, 2008; Hausmann and Rodríguez, 2012), the period starting with Nicolás Maduro's rise to the presidency after winning a very close election in 2013 saw increasing reliance on deficit monetization to fund government spending and maintained a highly overvalued official exchange rate as well as artificially low prices for government-provided public goods and services. Because of the government's reluctance to adjust nominal prices or the nominal exchange rate, the black-market premium grew exponentially, reaching a surreal 309 thousand percent in the first six months of 2018. The fiscal cost of these decisions was huge – one estimate puts the total cost of FX misalignments to the government at the time at 10 percent of GDP (Rodríguez, 2014, 2022, ch. 5).

Clearly the considerations for some of these decisions were political. For example, in late 2013, exactly one month before key municipal elections that polls indicated his party was about to lose, Maduro accused the owners of Daka, one of the country's largest electronics retailers, of price-gouging during a nationally trelevised address. Maduro claimed that the store's owners were selling products at more than 1,000% above cost and pocketing the exchange rate subsidy provided by the government to keep imported goods prices low. On the following morning, looting broke out at a Daka store in the city of Valencia in central Venezuela as hundreds of persons stormed the store and laid it bare (Euronews 2013). The government proceeded to order the military occupation of three large electronics retailers, sending soldiers along with price inspectors with orders to lower prices and to organize the long lines of persons who wanted to buy the electronics at reduced prices (Cawthorne 2013). The decision was extremely popular, providing Maduro with a ten-point boost in his approval ratings, and allowing government candidates to coast to victory in the local elections, where they took 49% of the vote to the opposition's 41%.

Even after overcoming this key political hurdle, the government continued to shelve plans to correct imbalances when political constraints resurfaced. Just one day after victory in the 2013 municipal elections, the government announced that heavily subsidized gasoline prices would be adjusted; six months later it announced that the multi-tier exchange rate system was about to come to an end (Correo del Caroní 2013; Orozco 2013). These decisions were put on hold as the government became concerned that street protests called by the opposition in early 2014 would extend to lower-income neighborhoods (Díaz, 2014).

As the political crisis intensified, the government rolled out new targeted cash transfers and food provision programs, which it used intensively to mobilize voters (Rodríguez and Navarro, 2018). The government also began to distribute control over fiefdoms in the country's Amazon to elements of the military, who colluded with irregular criminal groups and guerrilla forces to profit from a gold trade estimated to yield annually around 30 tonnes of gold, valued at $1.9bn a year at current prices (Ebus, 2020).

Starting in late 2016, blocking the access of the Maduro government to funding became a key component of the opposition's political strategy. Key actions in this regard included an explicit commitment to repudiate Maduro-issued debt, warnings to international financial entities demanding that they refuse to enter financial deals with the Maduro government, public relations campaigns to name-and-shame government financiers and the explicit lobbying and advocacy for financial and oil sanctions. From January 2019 onwards, it also included the taking of control over the Venezuelan government's international assets by the Guaidó-led interim government, on the stated objective of shielding them from the Maduro regime.

As discussed in section 4, there is strong evidence that financial and oil sanctions were among the key drivers of declining oil revenues, leading to lower import capacity and a decline in gross domestic product. In addition, the combination of financial sanctions – which impeded a restructuring of the nation's debt – and the transfer of the control over bank deposits and the ability to legally sign contracts in representation of the Venezuelan state to the Guaidó administration led to a permanent loss of access to international capital markets, forcing the country to run a current account surplus and leading to an even sharper decline in imports than would be expected just from the decline in export revenue. Spillover effects on the private sector have been significant, with many companies ceasing activities in Venezuela and financial institutions closing the accounts of Venezuelan nationals for fear of running afoul of sanctions regulations (Oliveros, 2020; Rodríguez, 2022).

Maduro's macroeconomic policies also made political sense but generated severe economic distortions. Letting the real official exchange rate appreciate is the opposite of the textbook response to a negative terms of trade shock. Coupled with tight price controls, the policy impeded reallocation of resources to the tradables sector and thus made the import and growth reductions necessary to adjust to the external shock larger (Rodríguez, 2022, ch. 5). Conditioning food aid on political support magnified the impact of the shock on food security and undernourishment. Eschewing support from multilaterals and relying on opaque loans from Russia and China raised financing costs, while increasing reliance on inflationary financing caused the spiral into hyperinflation (Iyer and Rodríguez, 2021)

In the case of Zimbabwe, Mugabe's land reforms played a crucial role in his strategy to hold on to power while single-handedly destroying one of the engines of the economy. The agricultural sector represents about 10 percent of aggregate value added today, down from 20 percent just two decades ago. However, the importance of agriculture to the economy is understated by its direct contribution to GDP. United Nations Development Program (2012) has shown that agricultural activities in Zimbabwe prior to the economic collapse provided employment and income to 60-70 percent of the population, supplied 60 percent of the raw materials required by the industrial sector, and contributed 40 percent of total export earnings.

Well-designed land reforms can, of course, serve to generate a more egalitarian wealth distribution that can help spur growth. But Mugabe's land invasions aimed to do something different: to generate politically conditioned benefits for supporters. The first beneficiaries were not farmers but supposed war veterans - most of whom were not war veterans at all, but rather previously unemployed or underemployed political activists fed and financed by ZANU-PF and buoyed by the promise of spoils. Not even a week after the 2000 referendum defeat, ZANU-PF supporters invaded several white-owned farms, claiming the white colonialists had stolen from their ancestors. In reality, nearly two-thirds of those farmers had bought their farms after independence and held titles issued by the Mugabe government. (Power, 2003).

The first group targeted by occupations were the country's six thousand white farmers and their employees, followed closely by MDC politicians, its supporters and voters, the media, the judiciary and civil society. Land invasions also aimed to cut off one of the main financial sponsors of the opposition while rewarding loyal party members, allies and potential sympathizers. Undermining property rights and the rule of law, the government and police ignored orders from the Supreme Court to stop the illegal occupation, with Mugabe openly stating that he would not implement any of the court's orders.

Asset grabs did not stop with agricultural lands. Indigenization policy, a form of policy resource nationalism, played a role in destroying any incentives for foreign investment.[27] Like the land reform, the "indigenization" policy was overtly cronyist (Matyszak, 2010), with senior personnel in the security services, senior and middle-ranking civil servants, the judiciary, prominent businesspeople and party loyalists and their families among the most favored beneficiaries.[28]

Between 1998 and 2001, Mugabe also sent 11 thousand soldiers to back the government of Laurent Kabila in the Democratic Republic of Congo (DRC) against Rwandan and Ugandan-backed rebels. While never properly disclosed, just the economic costs of this intervention has been estimated at several percentage points of GDP (Dietrich, 2000; Simpson and Hawkins, 2018). Aside from its economic cost, the intervention severely damaged the relationship with the IFIs and donors such as the US.

Inflationary financing together with low nominal interest rates allowed well-connected individuals to pocket immense profits by borrowing from local banks, purchasing hard assets and seeing the real value of their liabilities eroded by runaway inflation (Makina, 2009). Those with the

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[27] Many observers, not confined purely to ZANU-PF backers, insist that both the 2000 Fast Track Land Reform Program and the Indigenization and Empowerment Act of 2007 were intended to correct historical imbalances in the ownership of assets while securing a more equitable pattern of wealth and income distribution. Although the definition of potential beneficiaries of indigenization and empowerment as any persons disadvantaged during the period of colonialism or their descendants carefully avoided direct mention of race, the policy has in practice been implemented along racial lines, with ownership being transferred to black Zimbabweans.

[28] Although the indigenization law was approved by Parliament in 2007, the first regulations were only published in February 2010. These stated that all firms with net assets of $500 000 and above that were not already owned by indigenous Zimbabweans must be indigenized with 51 percent local ownership within 5 years. There was strong opposition within the GNU to the law and ever since the regulations were promulgated, there has been considerable confusion regarding implementation. There have been several legal opinions concluding that some provisions are *ultra vires* in terms of the constitution while others contradict existing legislation. Under Mugabe's successor, the law was essentially scrapped.

right contacts were able to access foreign currency from the central bank at massively-subsidized exchange rates, creating vast fortunes overnight while at the same time contributing to the eventual collapse of the currency. Similarly to Maduro, Mugabe gave the army control over mining fiefdoms – in this case, the Marange diamond fields, ensuring the loyalty of the military leadership and making his rule essentially coup-proof (Simpson and Hawkins, 2018).

Zimbabwe's decision to default on International Financial Institutions starting in 2000 is often seen as a turning point in its economic crisis. After all, one could envision a counterfactual in which the country tried to adhere to an IMF program and restore financing flows and growth. Yet given the political strategies that Mugabe had adopted and the growing hostility with Western governments, a resumption of loans would have been improbable. The IMF itself made clear its opposition to the Fast-Track Land Reform, with the Executive Board explicitly calling for "a speedy return to the rule of law, and…an orderly and transparent land reform program that garners domestic and international support," whole also concluding that "the brunt of the fiscal adjustment will have to come from savings in wage and defense outlays" (IMF, 2001, p.53). The Staff Report went even further, stating that "the government clearly needs to muster a broad political consensus to design and implement an adjustment package aimed at stabilizing the economy and paving the way for a resumption of sustained growth over the medium term." (IMF, 2001, p.24)

It is not hard to see why adhering to these recommendations ran counter to what Mugabe needed to do to stay in power. Had the government withdrawn its extensive support for constituents who benefitted from the FTLRP, it would have sacrificed an important part of ZANU-PF's capacity to mobilize electoral support as well as to intimidate the opposition. Running budget surpluses to repay creditors would not only have been inconsistent with Mugabe's anti-Western rhetoric – it would actually have involved a net resource transfer to the same countries that were making life difficult for Mugabe in the international stage. The experience from ESAP in the 1990s had left a bitter taste— and a realization that an IMF program would provide short-term pain on core constituencies, with elusive gains in the longer-run that would also spill over to the opposition, as well as a real risk of losing power as a consequence of implementing a structural adjustment program (Casper, 2015).

A strong case can be made that Zimbabwe would not have had access to net resource inflows from IFIs even if it had fully signed on to the IMF's economic recommendations. In December 2001, the US Congress passed the Zimbabwe Democracy and Economic Recovery Act (ZIDERA) imposing wide-ranging sanctions on the Zimbabwean government (see Matyszak, 2019 for an overview). This legislation prohibited US representatives at the International Financial Institutions from voting in favor of extending loans or grants to Zimbabwe, de facto blocking the debt restructuring of Zimbabwe's arrears. A lifting of sanctions was conditioned on restoration of the rule of law and improvements in conditions under which elections were held. The legislation required the US government to identify Zimbabweans responsible for curtailing civil and political rights and to apply targeted sanctions and travel bans against them. The EU followed suit in 2002, strengthening the pariah status of Zimbabwe. Development program assistance was reduced, ending budgetary support, and visa bans and asset freezes were adopted. The growing isolation was compounded by the suspension from the Commonwealth in the same year.

To what extent these measures were supported by Zimbabwe's opposition is unclear. In contrast to Venezuela's opposition, the MDC was much more guarded in its support for sanctions,

drawing a line between personal sanctions, which it fully supported, and economic sanctions, which it publicly claimed to oppose – although this didn't stop the government from accusing the MDC of secretly lobbying for them. [29] Zimbabwe's political history may surely have had an impact, as the War of Independence was still raw in the minds of the population, and outside interference would always be attacked by Zanu PF as neo-colonialism. Yet even if MDC formally opposed economic sanctions, it did little to nothing to try to get them reversed. In contrast, for example, Poland's Solidarity explicitly and publicly called on the U.S. government to lift economic sanctions, ultimately leading Ronald Reagan to fully lift them in 1987, despite the Soviet-backed Jaruzelski regime remaining in power at the time and making few political concessions.

In contrast to Venezuela, Zimbabwe never faced a trade embargo from its main trading partners, and the bulk of sanctions was targeted against regime officials. Yet in practice, the selective sanctions did have a chilling, even if perhaps unintended, consequence. Not only did they create a pariah status and de facto block international re-engagement, but they complicated international banking—especially problematic for a dollarized banking system—creating sometimes unsurmountable obstacles for the business environment, including in the mining sector (Matyzek, 2019). Most international operators—for fear of inadvertently violating sanctions—treat Zimbabwe with extreme caution, minimizing any risks of falling foul of punitive penalties. [30]

5.4   Can the economic collapse be predominantly explained as a result of productivity losses?

Table 4 shows the result of a growth accounting decomposition for the Venezuelan economy covering the period between 1998 and 2019. We distinguish between two sub-periods: the pre-collapse period (1998-2012) and the collapse period (2012-2019). The exercise shows that the contribution of factor accumulation – both human and physical capital – to the collapse is secondary, with the change in growth during the two periods being predominantly explained by a massive decline in total factor productivity (TFP), which fell at an annual rate of 14.1% during the collapse period. Surely, TFP growth was negative in the pre-collapse period (-0.5%), likely marking the effect of poor economic policies and deteriorating institutions, yet its magnitude its completely dwarfed by the size of the productivity decline from 2012 on.

These effects are likely partly driven by the import contraction. While the import-dependence of Venezuelan economic growth is well-documented (Rodríguez and Sachs, 1999; Hausmann and Rigobón, 2003; Hausmann and Rodríguez, 2012), it is unusual to find a role for imports in growth accounting decompositions. Rodríguez (2022) adjusts these calculations for the externalities from imports and shows that while they account for part of the decline in productivity, it is still the case that import-adjusted productivity declines faster in the collapse period, and particularly rapidly in the post-sanctions period.

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[29] See https://allafrica.com/stories/200108170180.html "The New Humanitarian | Tsvangirai warned not to call for further sanctions" and also "Zimbabwe: are targeted sanctions smart enough? On the efficacy of international restrictive measures - Zimbabwe | ReliefWeb"

[30] US slaps StanChart Zim with $18m fine | Business Times

Table 4: Sources of Growth Decomposition, Venezuela, 1998-2019.

		GDP	Capital	Human capital	TFP
1998-2012 (Pre-collapse)	Growth	2.7%	2.3%	4.3%	
	Contribution	2.7%	1.3%	1.9%	-0.5%
	Percentage contribution	100.0%	48.1%	69.1%	-17.1%
2012-2019 (Collapse)	Growth	-15.7%	-3.0%	0.4%	
	Contribution	-15.7%	-1.7%	0.2%	-14.1%
	Percentage contribution	100.0%	11.0%	-1.0%	90.0%

Sources: Penn World Table, BCV, own calculations

Table 5: Sources of Growth Decomposition, Zimbabwe, 1982-2008.

		GDP	Capital	Human capital	TFP
1982 - 1996 (Pre-collapse)	Growth	3.2%	0.9%	1.6%	
	Contribution	3.2%	0.3%	1.0%	1.9%
	Percentage contribution	100.0%	10.4%	31.3%	58.3%
1996-2008 (Collapse)	Growth	-3.6%	-1.3%	1.2%	
	Contribution	-3.6%	-0.5%	0.8%	-3.9%
	Percentage contribution	100.0%	13.6%	-20.8%	107.2%

Sources: Penn World Table, Reserve Bank of Zimbabwe, World Bank, own calculations.

Table 5 presents the same calculations for the case of Zimbabwe. In the pre-collapse period (1982-1996), GDP grew at a brisk 3.2%, and positive productivity growth accounted for nearly three-fifths of that growth. In contrast, the period of collapse from 1996-2008 witnessed a slump in TFP. The drop in TFP (-3.9% annual), which also captures the underutilization of capital and labor, exceeds the drop in GDP (-3.6%), with the productivity decline higher than the output collapse. A similar pattern is present if we adjust for import externalities. If anything, the data suggests that continued growth in human capital accumulation (a result of the aging of more educated cohorts and population growth which jointly offset the negative effects of outmigration[31]) helped cushion the decline, which would have been much larger in the absence of labor growth.

Collapsing land yields appear to be a primary contributor to the productivity decline in Zimbabwe. As already discussed, land resettlement resulted in a decline in farm productivity as resources shifted from technologically advanced large-scale commercial farms to under-capitalized, technologically backward small farms. Industry become increasingly uncompetitive, and the decline in revenue for hectare outstripped the fall in wages and other input costs. Since the government had no real plan for orderly land redistribution—as the land invasions were organized haphazardly - over

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[31] The aggregate data shows a large increase in human capital since independence. For example, average years of schooling went from 3.2 to 7.9 between 1970 and 2010 and gross secondary school enrollment went for 7 percent to 52 percent in the same period (Barro and Lee, 2013; UNESCO, 2022). The impact on the national skills base of such hemorrhaging of human capital, in particular of professionals, skilled and semi-skilled workers, is brought home by sector-specific data. One report conducted by a national research institute in 2003 found that 25 percent of emigrants were either doctors, nurses or pharmacists, a further 23 percent were engineers or scientists, with an additional 26 percent being teachers (see Chetsanga and Muchenje, 2003).

half of the vacated farms were left unclaimed and unused. Richardson (2004) estimates that the land reform movement resulted in the loss of three-fourths of the total value of land. The collapse of land values impacted bank balance sheets and had knock-on effects on macroeconomic instability. Reduced export earnings constrained the importation of key inputs, from seeds to spare parts and fuel. The decline in land productivity would also affect the availability of intermediate goods for the agro-industrial sector, driving a decline in manufacturing.

The increasing insecurity in property rights are also likely to have directly affected productivity. Note that in principle, insecurity of property rights affects the certainty-equivalent of the return to capital and thus its primary effect is on the capital stock rather than productivity. But in fact, capital accumulation did decline in the collapse period, growing -1.3% annually as opposed to a pre-collapse growth of 0.9%. Yet lack of clearly defined property rights can also have direct effects on the ability to convert inputs and human and physical capital into output, impacting the ability to enforce contracts and thus leading firms to inefficiently integrate vertically to protect against hold-up problems in the use of assets. The loss of property titles destroyed the ability to use land as a collateral for borrowing—with banks unwilling to lend to anyone who had received land that was acquired forcefully (and individuals who still had the property of their land could not exercise their right, meaning that de jure property rights in themselves were not sufficient anymore to guarantee a loan). Additionally, there was the loss of any incentive to pass along farming and entrepreneurial knowledge to new farmers. Some beneficiaries found themselves incapable or unwilling to farm the land, yet also unable to sell it to those who could (Richardson, 2004b).

Figure 7: Agricultural Output in Zimbabwe: 1980-2017
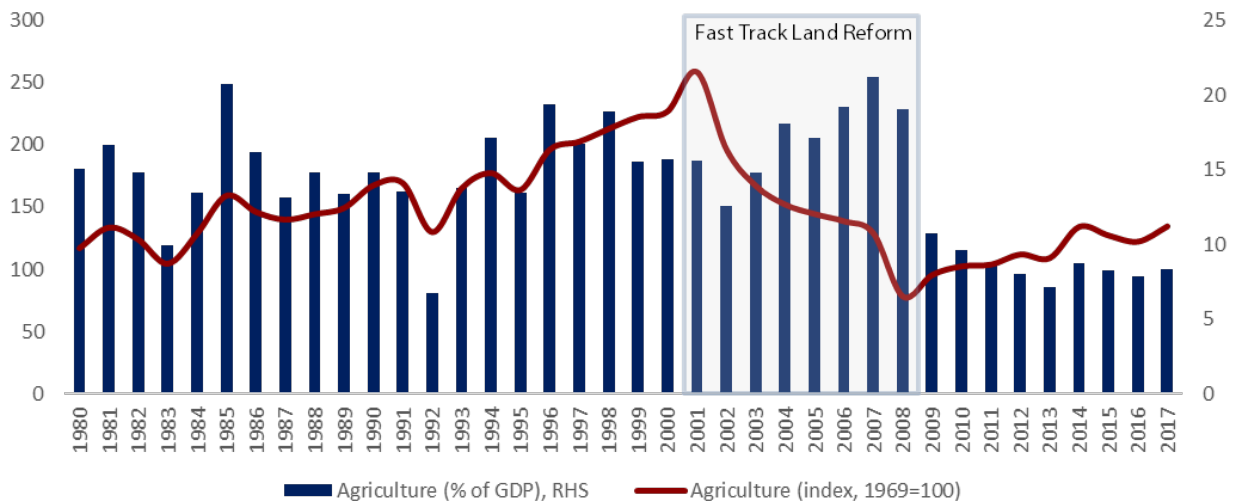
Source: World Bank (2019)

The drop in agricultural production was staggering. Maize farming, which yielded more than 1.5 million tons annually before 2000, dropped to 500,000 tons by 2003. Wheat production fell from 309,000 tons in 2000 to 27,000 tons in 2003, while tobacco production fell from 265,000 tons in 2000 to 66,000 tons in 2003. These three crops accounted for 70% of the country's agricultural production

prior to 2000 (Power, 2003). According to the World Bank, total agricultural production throughout the Fast Track Land Reform more than halved and went from a peak in 2000 to a trough 8 years later, coinciding perfectly with the most intense part of the collapse that we argue was driven by economically destructive political conflict (Figure 7). Agricultural production growth was negative throughout these 8 years, and virtually every crop was impacted, though tobacco, and to a lesser extend cotton, which were more professionalized (and were export crops) suffered more than the subsistence staple crops such as maize and soyabeans.

Venezuela and Zimbabwe thus fit quite well into the framework of productivity-driven collapses that we expect to accompany economically destructive political conflict. While physical capital accumulation turned negative, its contribution was just around 10 percent of the collapse in both cases, while human capital continued growing due to past education investments. This makes these collapses inherently distinct from those in which productive assets are destroyed, such as wars and natural disasters, and suggests that the main driving factor is the loss of the economy's ability to solve key coordination problems.

5.5 Did the short-term bias in macroeconomic policy increase around periods of electoral competition or when popular support needed to be shored up?

Table 6 shows data on the use of seigniorage and inflation tax by the Venezuelan government. Inflationary financing is the canonical example of short-term bias in macroeconomic policy. Printing money can allow the government to fund the provision of public goods at a lower tax cost, and thus temporarily fool voters into believing that policymakers are more efficient, though the negative effects are felt as soon as increases in liquidity translate into higher prices and declining real balances. Consistent with the literature on political business cycles, we expect the use of monetary financing to increase around elections or other times at which governments need to shore up popular support as part of their strategy to hold on to power.

The data shows an intensification of monetary financing in Venezuela during the collapse episode, with the inflation tax rising from a range of 2-3% of GDP in the 2011-14 period to 8-13% of GDP in the 2015-18 period. The latter period included the 2015 parliamentary elections, the 2016 recall referendum drive, 2017 elections for governors and a National Constitutional Convention, and the 2018 presidential elections. It also includes a period of intensification of opposition street protests, which reached their peak attendance in mid-2017 (Figure 8). During this four-year period, the government financed around a quarter of public sector expenditures through inflationary taxation.

Table 6: Inflation, seigniorage and inflation tax in Venezuela, 2011-2021

Year	Inflation	Pure seigniorage		Inflation tax		Total seigniorage	
		% of GDP	% of RPS expenditures	% of GDP	% of RPS expenditures	% of GDP	% of RPS expenditures
2011	28 %	-0.5%	-1.1%	2.5%	5.4%	2.0%	4.4%
2012	20 %	1.6%	3.4%	1.6%	3.4%	3.3%	6.8%
2013	56 %	1.9%	3.9%	3.0%	6.1%	5.0%	10.0%
2014	69 %	5.0%	9.7%	3.4%	6.6%	8.4%	16.2%
2015	181 %	-4.8%	-10.9%	11.3%	25.8%	6.5%	14.9%
2016	274 %	-4.0%	-8.4%	9.6%	20.0%	5.5%	11.6%
2017	863 %	3.4%	8.4%	8.1%	20.1%	11.4%	28.5%
2018	130,060 %	-10.9%	-22.5%	12.7%	26.4%	1.9%	3.9%
2019	9,585 %	-0.5%	-2.6%	1.9%	10.0%	1.4%	7.4%
2020	2,960 %	-0.6%	-3.1%	1.3%	6.6%	0.7%	3.5%
2021	686 %	0.2%	0.5%	0.6%	1.2%	0.9%	1.7%

Sources: BCV, Own calculations

Figure 8: Attendance at opposition protests in Caracas, Venezuela, 2016-2019
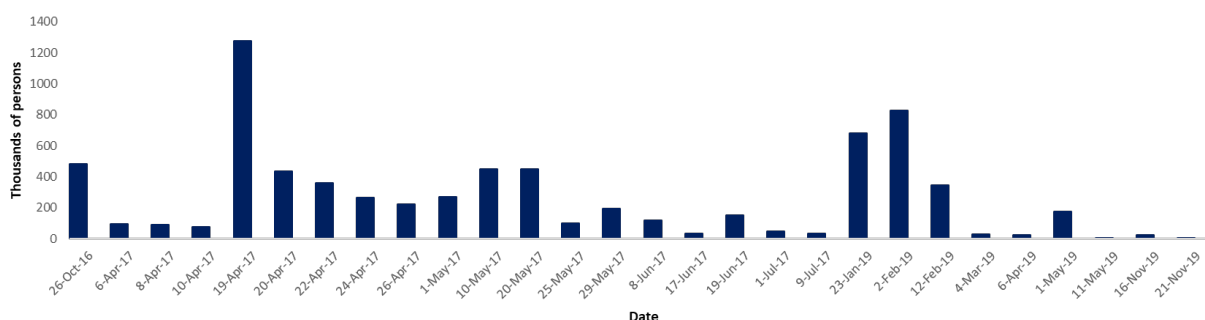
Source: Own calculations

As in Venezuela, we find that in Zimbabwe the shift to inflationary financing occurs at the time at which elections become truly contested. Total seigniorage averaged 2.4% of GDP in the 1990-1998 period. It rose to 4.3% in 1999 and 3.5% in 2000, as the government geared up for the February and June 2000 referendum and elections. Once it became clear that the government had a real challenge to its capacity to hold on power, it continued rising, reaching 13.1% of GDP in 2007, the last year for which the Reserve Bank of Zimbabwe has published the data necessary to estimate it.

In contrast to Venezuela, we don't see a decline in seigniorage in Zimbabwe as the crisis advances (Table 7). This decline is normal during hyperinflations, reflecting the fact that very high levels of inflation put the economy on the downward-sloping side of the inflation tax Laffer curve. This may be a consequence of the fact that Zimbabwe's hyperinflation was much shorter than Venezuela's. Zimbabwe spent 20 months in hyperinflation; Venezuela spent 37 months.[32] Furthermore, we have no data on 2008 for Zimbabwe, so our series only covers the initial 8 months of the country's hyperinflation; in contrast, in Venezuela our data covers the full hyperinflation as well

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[32] The timing of Zimbabwe's hyperinflation is taken from Hanke and Kruz (2012) as RBZ does not have a series of consistent CPI for that period.

as the post-hyperinflation period. Note that for Venezuela seigniorage as percent of GDP peaks in 2017 and inflation tax as percent of GDP peaks in 2018 (Venezuela entered hyperinflation at the end of 2017). Thus, it is possible that our data only captures Zimbabwe's entrance into hyperinflation, at which seigniorage and inflation tax revenues are still high, and that Zimbabwe's stabilization occurred earlier than Venezuela's, which meant that the country did not get to experience the sharp drop-off in seigniorage that we see in Venezuela and in the late stages of many other hyperinflations.

Table 7: Inflation, seigniorage and inflation tax in Zimbabwe, 1990-2007

| Year | Inflation | Pure seigniorage | | Inflation tax | | Total seigniorage | |
		% of GDP	% of government revenue	% of GDP	% of government revenue	% of GDP	% of government revenue
1990	19%	-0.3%	-1.0%	1.9%	6.9%	1.6%	5.9%
1991	30%	-0.2%	-0.7%	2.4%	9.0%	2.2%	8.2%
1992	46%	-1.4%	-5.5%	2.2%	8.6%	0.8%	3.1%
1993	19%	0.9%	3.9%	1.4%	6.0%	2.4%	9.8%
1994	21%	1.2%	5.0%	1.8%	7.9%	3.0%	13.0%
1995	26%	0.7%	3.1%	1.9%	7.9%	2.6%	11.0%
1996	17%	1.4%	5.7%	2.2%	9.5%	3.6%	15.2%
1997	20%	1.3%	5.0%	1.9%	7.5%	3.2%	12.4%
1998	47%	-1.8%	-6.9%	3.8%	15.0%	2.1%	8.1%
1999	57%	0.2%	1.0%	4.0%	17.8%	4.3%	18.8%
2000	55%	0.0%	0.0%	3.5%	14.9%	3.5%	14.8%
2001	112%	0.1%	0.6%	5.8%	33.1%	5.9%	33.8%
2002	199%	-0.7%	-5.0%	6.9%	46.7%	6.2%	41.7%
2003	599%	-2.3%	-25.4%	9.0%	100.6%	6.7%	75.2%
2004	133%	6.0%	23.3%	5.1%	19.6%	11.1%	42.8%
2005	586%	-4.4%	-24.5%	11.9%	66.2%	7.5%	41.7%
2006	1,281%	0.3%	1.5%	9.2%	52.0%	9.4%	53.5%
2007	66,212%	2.8%	20.1%	10.2%	72.4%	13.1%	92.4%

Sources: Reserve Bank of Zimbabwe, World Bank, own calculations.

Both episodes, of course, have their roots in fiscal imbalances that arose from revenue decline and the inability or unwillingness of the government to lower spending. In Venezuela, falling oil revenues and the government's unwillingness to devalue the official exchange rate hurt public finances and led the government to increasingly monetize the deficit. In Zimbabwe, five major droughts and a decline in Overseas Development Assistance due to tensions with traditional partners such as the UK as well as increased military expenditures played an important role (McIndoe, 2009; Cerra, 2016).

Yet listing the causes of declining revenues and increasing expenditures when explaining hyperinflation is little more than rephrasing the problem. Many countries face revenue shocks and virtually all governments would like to spend more than they do. A hyperinflation is a decision by

governments to use a highly distortionary inflation tax instead of other taxes to pay for a given level of expenditures. What makes Venezuela and Zimbabwe's hyperinflations atypical is that they were both run by governments that had both the legal and the real political authority to impose other taxes to fund spending, or to cut spending. In this, they contrast with the more standard cases of weak governments that lack the control of the legislative and are thus unable to adopt other taxes opting for inflationary financing, as in the canonical cases of Weimar Germany (1922-23) or Argentina under Raúl Alfonsín (1989-90). Our explanation is that the Venezuela and Zimbabwe hyperinflations formed part of political strategies to take advantage of the front-loaded benefits of inflationary taxation in periods of electoral competition under high stakes of power.

Zimbabwe's government not only printed more money and instituted more distortionary policies around elections. It also terrorized and killed more people when it saw itself threatened with losing power. The political business cycle took a vicious turn, becoming synchronized with a "political violence cycle" around elections. Mugabe revived a Rhodesian-era institution, the Joint Operations Command (JOC), nominally created to manage overall national security and which included the defense minister, the heads of army and air force, national police, and the director of national intelligence. In practice, it became the *de facto* guarantor of Mugabe and ZANU's continued rule, developing strategies to influence elections and directing the military's work to intimidate voters and manage electoral intelligence and official reporting of results. (Greenfield and Wharton, 2019).

In a now notorious television appearance in 2002, the security sector commanders warned that they would not allow opposition leader Tsvangirai to assume the presidency in the forthcoming poll.[33] In March 2008, after Tsvangirai's first-round victory, the military orchestrated a campaign of violence that amounted to a 'veto coup'. Tsvangirai withdrew from the run-off, alleging that his supporters risked death if they voted for him. Over 200 people were killed, and many more displaced (Thomas-Greenfield and Wharton, 2019). The fact that the economic losses from these episodes of terror are hard to quantify does not make them any less relevant.

5.6 Did the quality of economic policies improve as political conflict receded?

The Maduro administration began overhauling its currency system in late 2018, when it announced a lifting of exchange controls and committed to putting an end to deficit monetization. The monetary data suggests that the government partially lived up to its promise, with inflation tax financing again falling to the 1-2% of GDP range in 2019-20. Partly, of course, this may have been driven by demonetization, with Venezuelans increasingly migrating to the U.S. dollar in response to the erosion in the real value of their domestic currency holdings. Yet the government clearly took some steps to facilitate the process of migrating to a new currency (which it had previously decried). By November 2019, Maduro was calling dollarization an "escape valve" to aid economic recovery. In

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[33] Zimbabwe Defence Forces General Vitalis Zvinavashe was quoted as saying "we wish to make it very clear to all Zimbabwean citizens that the security organisations will only stand in support of those political leaders that will pursue Zimbabwean values, traditions and beliefs for thousands of lives lost in pursuit of Zimbabwe's hard-won independence…We would therefore not accept, let alone support or salute anyone with a different agenda that threatens the very existence of our sovereignty, our country and our people." (CNN, 2002; Masunungure, 2020).

January 2021, the government increased the range of transactions allowed via local USD-denominated accounts, which were legal but remained under-used in the economy (Espina, 2019; Banca y Negocios 2020; Iyer and Rodríguez, 2021). Particularly striking was the lifting of exchange controls: the black-market premium had surged to an average of 350,000% in the 12 months before the reforms, but averaged just 6.1% in 2020-21, and has even been negative at times (Iyer and Rodríguez, 2021).

One may counter that the timing of the reforms coincided with the intensification of political conflict rather than its easing, as the largest challenge to government stability came with the adoption of economic sanctions by the United States and the recognition of the interim government by 57 countries in January of 2019. While we recognize that these actions strongly threatened the government's survival, we would also suggest that the political crisis of 2019 was distinct in nature, given that elections no longer played an important part of the political survival game. As the government shifted from trying to please the electorate in the 2015-19 period to catering to the military selectorate, its choice of policies also changed.[34] Transfers such as those associated with mining concessions can be just as economically harmful in other dimensions, but no longer rely on the need to shore up voter support.

One evidence in favor of this contention is that the surge in protest activity in 2019 – as opposed to that of 2017 – appears to have been quite contained (Figure 8). Protests in support of Juan Guaidó's claim to the presidency were certainly large, reaching 829 thousand persons in Caracas in January of 2019. But they didn't reach the magnitude of the 2017 protests, and they ebbed quickly. In 2017, the opposition was able to maintain hundreds of thousands of persons in the streets through a 3-month period, while in 2019 it was hardly able to muster 50 thousand persons two weeks after Guaidó's proclamation. By March of 2019, it had become increasingly clear that if he wanted to stay in power, Maduro needed to think primarily about one actor: Venezuela's military.

By 2021, there were unequivocal signs that the economy had begun to turn the corner, partly due to the decision by the government to lift exchange controls, facilitate dollarization, and ease price controls. Oil production also began to recover as the government found ways to circumvent U.S. sanctions, with output reaching 718 tbd in December 2021 – up from a low of 339 tbd in July of 2020. According to a survey of forecasters published by Focus Economics in January of 2022, the Venezuelan economy grew 1.0% in 2021 and will grow 4.9% in 2022. The improvement in the economic policy framework and economic conditions coincides with the perception of stabilization of the Maduro regime. In February 2019, prediction markets assigned a probability of 61% to Maduro leaving office by the end of the year. By 2022, that probability was down to 3%.[35]

In Zimbabwe, the improvement in economic policies came in the context of the Government of National Unity (GNU), a power-sharing agreement established in 2009 as a result of the impasse generated by the 2008 election. Already by 2008 the economy had undergone a process of

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[34] Following Bueno de Mesquita, Smith, Siverson and Morrow (2014), we define the selectorate as the group of actors that select a nation's leader, and a minimum winning coalition as the share of the selectorate necessary for a leader to achieve or remain in power.

[35] There's a difference in the language of the 2019 and 2022 questions. In 2019, the question asked whether Maduro would leave office by the end of 2019, while the 2022 question asks which one out of ten Latin-American presidents is the next leaving office. Nevertheless, both proxy the market's estimate of the probability of Maduro remaining in office in the near-term.

spontaneous *de facto* dollarization. A more formal transition to a multicurrency system occurred in January 2009 under the GNU. An economic turnaround was also helped by the post-global financial crisis surge in commodity prices, especially of platinum and gold, allied with increased diamond production from the Chiadzwya-Marange diamond fields, private capital inflows returning, and the appreciation of the South African rand—the currency of its main trading partner.

Although Mugabe and his party retained control of the security services under the GNU, the finance ministry and economic policies were under the control of the opposition.[36] While the GNU gave the opposition a foot in the door of power, and an opportunity to enjoy the spoils of office, the reality was that the MDC was "in office, but not in power". The government ran a balanced cash budget and benefited from inflows from Western donors and recovering tax revenues, allowing increases in social spending. The country enjoyed spectacular growth rebound in this period, with per capita GDP rising at an annual rate of 19.2% between 2008 and 2013.[37] The rapid recovery, however, appears to have worked in Mugabe's favor, allowing him to sideline the MDC and eventually put an end to the GNU. Mugabe won re-election comfortably in 2013, and any plans for structural reforms were permanently shelved (Chan and Gallagher, 2017).

Growth slowed after 2013, falling to 1.3% a year in per capita terms; in 2019 the economy entered recession and inflation rose into triple digits, though it has eased more recently. While this recession has its roots in poor policies, it is very different both quantitatively and qualitatively from the 1996-2008 collapse. In our view, this recent episode of underperformance as driven primarily by poor policies of the more standard variety and is fundamentally distinct from the economically destructive political conflict that redrew property rights in the country's agricultural engine of growth at the turn of the millennium.

6   Concluding remarks.

Most growth collapses occur in wartime, when armies bomb factories and roads and workers flee their homes and jobs desperate to escape the carnage. Others occur as the result of the forces of nature, when hurricanes, earthquakes and tsunamis batter small economies. A third variety of collapses is completely manufactured by human beings (almost invariably men). No infrastructure is destroyed, no lives are lost in armed combat, no towns are burned by rampaging soldiers. Yet the economic and social devastation that they wreak are just as catastrophic.

This paper developed a conceptual framework for thinking about peacetime growth collapses. Taking inspiration from the writings of Carl von Clausewitz, we view these collapses as an expression of the same fundamental destructive force that dominates wartime: the priority given to capturing or holding on to power over and above other objectives. In the same ways in which armies burn fields and destroy roads during wartime to deprive their contenders of the supplies necessary to subsist,

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[36] To many Zimbabweans, it appeared that being in power was in fact, the endgame of the MDC, which began imitating some of the same conducts of ZANU-PF while in power (Wrong, 2009)

[37] According to national accounts data. Growth for this period is similar for the PPP-adjusted PWT and a bit lower foe the World Bank series (19.7% and 11.2%, respectively). However, because the PPP-adjusted series see a much larger collapse prior to 2008, per capita income in these series (in contrast to the national accounts) remain below their pre-collapse peaks.

politicians can destroy productive institutions when they believe that doing so puts them in a better position to win the battle for power.

An extensive literature in development economics has traced differences in per capita incomes to primary determinants such as institutions (North, 1991; Acemoglu et al, 2001; Rodrik et al, 2004), geography (Sachs, 2000) and trade (Frankel and Romer, 1999). Yet institutions, economic interactions and even responses to geographical constraints reflect collective decisions in which individuals and groups vie for personal and collective advantage. At times, they agree on rules to govern economically relevant interactions; often they disagree and match forces using an array of technologies of confrontation that range from armed combat to electoral competition.

Broadly speaking, we can think of two causes of economic failure. One occurs when the winners of this contest for power can impose on other institutions that work to their advantage, even if they are to the detriment not only of their adversaries but also of economic productivity and the well-being of future generations. This is the type of failure associated with extractive institutions, so well documented in the pathbreaking work of Acemoglu and Robinson (2012): institutions that benefit a few, concentrate wealth, and hold back the forces of creative development.

An alternative vision, sketched here, is that of economic failure as a by-product of the struggle for power. In our approach, economic failure is not a stratagem by some to create institutions that help them dominate others. It is rather a failure of groups vying for power to agree on and respect norms of interaction that limit their ability to impair or destroy the productive basis of societies. Economic failure occurs when societies prove incapable of containing and managing conflict and impeding it from spilling over into the arena of production.

We have developed an analytical toolkit to help us identify when we can trace an economic collapse to the destructiveness of political conflict. We show that when an economic collapse stems from destructive conflict, it should be traceable to decisions by political actors to pursue actions that cause large economic externalities but improve their chances of winning power. This can only occur if the stakes of power are high and incumbents face a real risk of losing power. We will then see the onset of contraction coinciding with the intensification of political conflict, short-term biases in policies rise at times at which popular support is key for political survival, and economic policies improve once political conflict recedes. Because physical or human capital is not being directly destroyed, these collapses should also be primarily accounted for by large productivity losses.

We have applied this framework to Venezuela and Zimbabwe, two prominent cases of peacetime collapses. We have found striking similarities between the cases that are consistent with the predictions of the models. The collapses coincide with periods of intensification of political conflict and in both cases come after surprise electoral victories by the opposition – events that are infrequent in authoritarian and hybrid regimes. Political actors directly targeted economic sectors that served as the engines of growth prior to the collapse (agriculture in Zimbabwe and oil in Venezuela) and derived visible political benefits from their destruction. Policies deteriorated markedly as political conflict worsened and improved as it receded.

Alternative explanations for peacetime growth collapses tend to emphasize poor policy choices resulting from policymaker ignorance or corruption (Toro, 2017; Hausmann, 2018; Cheatham, Roy and Labrador, 2021). Yet these explanations are fundamentally unsatisfactory. Leaders who have

managed to stay in power decades and outmaneuvered their opponents at every stage aren't exactly the best candidates for the charge of sheer stupidity. These same leaders have not shied away from seeking top talent in other areas (e.g., electoral campaign strategy) so it is unclear why they would not do it in the case of economic policy, unless, that is, the advice that they get from economists makes little political sense to them. Regarding corruption, there is no shortage of examples of governments that are corrupt to the core and don't generate anything even remotely resembling the economic crises that we discuss in this paper – namely because there are many ways to transfer funds to government cronies without generating massive policy distortions. To name just one example, Malaysian Prime Minister Najib Razak managed to siphon $700 mn to his bank accounts through state-owned 1MDB corporation (Wright and Clark, 2015) while keeping inflation at less than 2 % and growth at 3.2 %, yearly averages, throughout his period.

There are several natural next steps in this research agenda. The first one is to identify additional cases of economic collapse or underperformance that can be similarly diagnosed as stemming from economically destructive political conflict. The toolkit in this paper intends to be readily designed to do so. Some additional candidate cases could be Argentina in the first half of the 20th century, Lebanon in the first part of the 21st century, as well as much of sub-Saharan Africa during the 1980s or in Latin America during the 19th century, all cases in which the economies systematically diverged from those with similar initial conditions. The model could also have broader applicability to the global economy, potentially accounting for phenomena such as the collapse of world trade in the interwar years. Extensions of the theoretical framework could help us understand under what conditions political actors can bargain out of destructive conflict. A particularly important task is to understand what institutional protections help societies avoid the descent into destructive conflict and how these protections can be safeguarded amid processes of broader institutional change.

7   Appendices.

7.1   Appendix 1: Measuring economic collapses

To the best of our knowledge, the first paper to quantitatively study declines in per capita income is Becker and Mauro (2006). They define an output drop as an episode starting the first year of a decline in GDP per capita and ending when GDP per capita returns to its pre-event level. The authors add two restrictions; first, the duration of the decline must be at least two years, and the total output loss must be at least 5% of pre-event output. Their measure of magnitude of the drop is the cumulative output loss defined as the sum of differences between initial and realized income per capita. Hausmann, Rodríguez, and Wagner (2006) use a similar definition but don't impose additional restrictions and use per-worker GDP as their variable of interest. The authors measure the episode's duration, the peak-to-trough ratio, and the cumulative loss for each collapse.

Both Becker and Mauro (2006) and Hausmann, Rodríguez and Wagner (2006) place the end of the episode at the time at which the economy recovers its pre-contraction level of production[38]. We call these definitions **full recovery** definitions because they require fully regaining the level of pre-decline output to bring the episode to an end. This, however, runs the risk of conflating the period during which the economy is contracting with that in which the economy is recovering.

Other authors have simply centered on the period of declining output. Cerra and Saxena (2008) focus on economic contractions, defined as the intervals between a local maximum ("peak") and the next local minimum ("trough"). The authors compute the cumulative loss and the years between peak and trough to measure the collapse. IMF (2018) and Meneses and Saboin (2021) also define contractions using this peak-to-trough definition, but impose the restriction that GDP per capita must decline by at least 20% during this decline.

We call this second set of definitions **partial recovery** definitions because they do not require a full recovery but only a partial – in these cases a very small recovery – to bring the episode to an end. Peak-to-trough definitions are an extreme form of partial recovery definitions which bring the period of decline to an end as soon as the economy experiences any level of positive growth, no matter how small. This can lead to ignoring prolonged periods of secular stagnation, including double or multiple-dip contractions, during which output stays well below pre-contraction levels. Intuitively, if an economy sees GDP per capita fall by 20%, then recover by 0.1%, and then fall by an additional 10%, it would appear to make more sense to say that this economy suffered a collapse of 28% ((1-.2)*1.01*(1-.1)) than to say that its largest observed collapse was of 20%.

Reddy and Miniou (2009) use a less extreme partial recovery definition. They focus on what they call episodes of stagnation, which they define as the period between an onset - a year in which a country's per capita real income is lower than at any time in the previous two years and higher than at any time in the subsequent four years – and a turning point - a year in which a country's real income is at least 1% higher than it was in the previous year and at least 1% lower than it is in the subsequent year. While this definition excludes small recoveries, the threshold may still be too small, as it requires only 2% growth over two years to declare that the episode has come to an end. More recently, Splinter and Klomp (2021) adopt a full recovery definition but filter the data to sweep out business cycle fluctuations.

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[38] For simplicity, we refer to the variable of interest used to measure the collapse as production when there is no space for confusion.

None of these definitions seem fully satisfactory to us. There is an apparent contradiction in them between the objective of focusing on contraction episodes and identifying long, deep declines in output which may be punctuated by small recoveries. While the full recovery definitions will capture all long and deep contractions by requiring that income reach its pre-contraction output to say that the episode has come to an end, they also muddle together periods of contraction and recovery. The partial recovery definitions, in contrast, focus only on the contraction period but tend to miss long contractions punctuated by small recoveries.

Our definition addresses these problems by focusing on contraction episodes but imposing a more restrictive definition of both the start and the end of the episode. First, we define a set of episodes that begin when the economy declines from a record level of per capita income, and not just any local peak. In other words, these episodes must start from a level of per capita income that is the highest one attained up until that date and may not start at peaks that are lower than a previously attained level. Second, we set the end of the episode to a moment at which a global minimum is reached on the interval between the start of the crisis and the succeeding record. That is, the episode will end at a trough, but it must be the lowest trough attained until the economy experiences full recovery. This allows us to combine the goal of focusing only on contractions while at the same time using the time of full recovery to help define the real trough of the episode.

These episodes are fully defined by conditions (1a)-(1c) in the text and, in the absence of population growth, will also correspond to the economic collapses. Yet we also argue that a satisfactory definition should bring in conditions on population growth. Namely, we argue that episodes in which per capita income declines, but absolute income grows should not be considered economic collapses. One reason is intuitive: these economies are growing according to the most conventionally used growth indicator, which is that of absolute (and not per capita) GDP growth. In other words, it appears counterintuitive to refer to an economy experiencing positive GDP growth as undergoing a collapse. An additional reason is that in an economy in which population is growing, average living standards are not necessarily dropping for the country's original inhabitants (i.e., those living before the population grew). Our example of Persian Gulf countries, in which the decline in GDP per capita is driven by population influxes of immigrants seeking to access higher living standards, brings home the point that some of these economies, rather than collapsing, are simply receiving inflows of factors of production.

7.2 Appendix 2: Proofs of propositions and additional results.

Proof of Proposition 1: *Since accepting is a best response for both the winner and loser if their opponent accepts when (21) and (22) hold, then (1,1) is a Nash equilibrium. Let $C^i = C(P_i, P_j)$. The payoff for 1 from accepting if 2 accepts in an ϵ-perturbed game is $\delta(1 - \epsilon) + \epsilon C^1$ which is greater than or equal to $C^1(1 - \epsilon) + \epsilon C^1$, the payoff from contesting, if (21) holds. Similarly, $(1 - \delta)(1 - \epsilon) + \epsilon C^2 \geq C^2(1 - \epsilon) + \epsilon C^2$ if (22) holds, so (1,1) is trembling-hand perfect if (21) and (22) hold. (0,0) will not be trembling-hand perfect if either (21) or (22) hold because it involves at least one player playing a weakly dominated strategy. If (21) fails to hold, then the best response for the winner will be to contest if the loser accepts, and contesting will always be a best response for either side if the other side contests. Thus, if 1 is playing a best response, at least one of the players must be contesting. A similar reasoning holds when (22) fails to hold.∎*

Proof of Corollary 1: *Assume (21) holds as strict inequality and (22) as equality. For player 1 accepting is a best response to 2 accepting but both actions are best responses to 2 contesting. Thus (1,0) is also a Nash equilibrium. Player 1's payoff from accepting in an ϵ-perturbed game is $(1-\epsilon)C^1 + \epsilon\delta$ which is greater than or equal to $(1-\epsilon)C^1 + \epsilon C^1$, the payoff from contesting. For player 2, the payoff from contesting in an ϵ-perturbed game is $(1-\epsilon)C^2 + \epsilon C^2$ which is equal to $(1-\epsilon)(1-\delta) + \epsilon C^2$, the payoff from accepting. Thus (1,0) is trembling hand perfect. In the mixed strategy equilibrium (1,p), player 2's payoff in an ϵ-perturbed game $(1-\epsilon)[p(1-\delta) + (1-p)C^2] + \epsilon C^2 = 1 - \delta = C^2$, so that he continues to be indifferent between randomizing and playing any strategy. Since 1 is facing a mixed strategy, its selection is also optimal at $p = \epsilon$, confirming that (1,p) is trembling-hand perfect.*

Proof of Proposition 2. *If the election is uncontested, $A_{12} = A_{21} = A_{11} = A_{22} = 1$ and $V^i = q(E_i, E_j)\delta R + \left(1 - q(E_i, E_j)\right)(1-\delta)R$. But then if (22) were to hold as a strict inequality, group i could raise E_i and lower P_i by an infinitesimally small amount and increase its payoff, as $\frac{dV_i}{dE_i} = (2\delta - 1)q_1 > 0$. It follows that (22) must hold as an equality and $C(P^*, P^*) = 1 - \delta$. If the election is contested then (22) does not hold and $C(P^*, P^*) > 1 - \delta$ so that $A_{12} = A_{21} = 0$. Given that each actor's payoff is given by $C(P_i, P_j)$, P_i must be maximizing this function given P_j; if it were not, then it would be possible to improve payoffs by deviating from P^* infinitesimally in the direction of the function's positive gradient and still comply with the strict inequality $C(P_i, P_j) > 1 - \delta$.*

Proof of Corollary 2. *Differentiating $C(P^*, P^*) = 1 - \delta$ gives us $(C_1 + C_2)dP^* = -d\delta \rightarrow \frac{dP^*}{d\delta} = -\frac{1}{C_1 + C_2} > 0$ by Assumption 2. Let $\overline{\delta} = 1 - C(\overline{L}, \overline{L})$. Then it follows that for $\delta > \overline{\delta}, P^* > \overline{L}$ which is not feasible.*

Proof of Corollary 3. *The first part follows from the fact that $P^{**} = \frac{Argmax}{P_i \in [0, \overline{L_i}]}[C(P_i, P^{**})]$ is independent of δ. Let $\underline{\delta} = 1 - C(P^{**}, P^{**})$. If $\delta < \underline{\delta}$, then $C(P^{**}, P^{**}) < 1 - \delta$ and the loser has no incentive to contest the election.*

Proof of Corollary 4. *Assume that P^* is an uncontested election equilibrium for $\delta = \frac{1}{2} + \epsilon$. Then by Proposition 2, $C(P^*, P^*) = \frac{1}{2} - \epsilon$. If P^* is an SSPNE, then there is no $P'|V(P', P^*, A(P', P^*)) > V(P^*, P^*, A(P^*, P^*))$. Consider a small increase by player I in P from P^*. If $C_1 > 0$, then I will now contest the result if she loses, as C will now be strictly higher than $1 - \delta$. Because $C_2 < 0$, then j will continue to accept the result if I wins. Therefore, we are on the third segment of (23). Since V is the same at (P^*, P^*) on the first and third segments of (23), then we can assess the increase in utility by calculating $\frac{dV^i}{dP_i}$ along the third segment. In order for this to be an SSPNE, this increase must be less than or equal to zero, i.e.:*

$$\frac{dV^i}{dP_i} = -q_1(\delta - C) + (1-q)C_1 = -q_1(2\delta - 1) + (1-q)C_1 \leq 0 \qquad (26)$$

As $\delta \to \frac{1}{2}$, $\frac{dV^i}{dP_i} \to \frac{1}{2}C_1(0,0) > 0$. Thus, (26) cannot hold and P^* cannot be an SSPNE. By Corollary 3 we know that P^{**} cannot be an SSPNE either, so there is no SSPNE for $\delta = \frac{1}{2}$. Alternatively, let $\delta \to 1$. Then $C > Lim(1 - \delta) = 0$ ensures that the loser will never recognize the result and that there will be conflict independently of who wins. Thus $V^i = C$ and there is a SSPNE at P^{**}.∎

Proof of Proposition 3

Assume $P^* > \overline{L}$, where P^* is given by the solution to (24). Then $\delta > \overline{\delta}$ and, by Corollary 2, there is no uncontested SSPNE. However, since P^{**} is a continuous function from a convex compact subset of a Euclidean space to itself, then by Brouwer's fixed-point theorem, there exists a $P^{**} = \underset{P_i \in [0, \overline{L_i}]}{Argmax}[C(P_i, P^{**})] \leq \overline{L}$ and, by global destructiveness of conflict, $C(P^{**}, P^{**}) > C(P^*, P^*) = 1 - \delta$, making P^{**} a contested SSPNE. Assume instead $P^* \leq \overline{L}$. First, consider the case when $C_1(P^*, P^*) < 0$. $C_{11} < 0$ implies that for any $P' > P^*$, $C_1(P^*, P^*) < 0 \rightarrow C(P', P^*) < C(P^*, P^*) = 1 - \delta$. Thus at (P', P^*) player i continues to recognize j's victory, while by $C_2 < 0$, player j also continues to recognize j's victory. But then the payoffs will continue to be determined by the first segment of (23), along which $\frac{dV^i}{dP_i} = q_1(1 - 2\delta) < 0$, so that there is no deviation to a $P' > P^*$ that can raise i's payoff. Thus consider a deviation to a lower level $P' < P^*$. Note that by $C_2 < 0$, player j will contest i's victory at (P', P^*), so that i's payoff will be either $C(P', P^*)$ or $q'C(P', P^*) + (1 - q')(1 - \delta)$. Yet since $P' < P^*$, $C(P', P^*) < \frac{1}{2}$, i's payoff at P' cannot be higher than at P^*. As there is no deviation from P^* that can improve i's payoff, then P^* is an SSPNE. Consider alternatively the case $C_1(P^*, P^*) > 0$, and assume that each player recognizes their own defeat with probabilities p_i and p_j, respectively. Then player i's payoff will be:

$$V^i = q\left(p_j\delta + (1 - p_j)C\right) + (1 - q)(p_i(1 - \delta) + (1 - p_i)C) \tag{27}$$

With first-order conditions

$$\frac{\partial V^i}{\partial p_i} = (1 - q)(1 - \delta - C) = 0 \tag{28}$$

$$\frac{\partial V^i}{\partial P_i} = -q_1\left(p_j\delta + (1 - p_j)C\right) + q(1 - p_j)C_1 + q_1(p_i(1 - \delta) + (1 - p_i)C) + (1 - q)(1 - p_i)C_1 = 0 \tag{29}$$

Note that (28) is satisfied for any p_i at $P^*|C(P^*, P^*) = 1 - \delta$. Thus what we need to ensure is that P_i maximizes V^i given p_i, for which the relevant second-order condition is:

$$\frac{\partial^2 V^i}{\partial P_i^2} = q_{11}\left(p_j\delta + (1 - p_j)C\right) - q_1(1 - p_j)C_1 - q_1(1 - p_j)C_1 + q(1 - p_j)C_{11} - q_{11}(p_i(1 - \delta) + (1 - p_i)C) + q_1(1 - p_i)C_1 + q_1(1 - p_i)C_1 + (1 - q)(1 - p_i)C_{11} < 0 \tag{30}$$

At $C = 1 - \delta$ and $p_i = p_j = \overline{p}$, (29) collapses to:

$$\frac{\overline{p}}{1 - \overline{p}} = \frac{C_1}{q_1(2\delta - 1)} \tag{31}$$

While (30) collapses to:

$$\frac{\partial^2 V^i}{\partial P_i^2} = q_{11}(\overline{p}(2\delta - 1)) + (1 - \overline{p})C_{11} < 0 \tag{32}$$

confirming that P_i is a maximum. The expression in (31) is positive, and thus has a unique solution for $\overline{p} \in (0,1)$ as long as $C_1 > 0$. Thus P^* corresponds to a mixed-strategy SSPNE in which elections are uncontested with probability $\overline{p}$.∎

Additional results:

Remark 1 *The following condition is necessary for a pure-strategy uncontested SSPNE to exist:*

$$\frac{dV^i(P_i, P^*)}{dP_i}\bigg|_{P_i=P^*} = -q_1(\delta - C) + (1 - q)C_1 = -q_1(2\delta - 1) + (1 - q)C_1 \leq 0 \qquad (33)$$

Proof. *Let P^* be an uncontested SSPNE. Then either $C_1 < 0$, in which case (33) holds, or $C_1 > 0$. If $C_1 > 0$ and (33) does not hold, increasing P_i slightly will raise i's payoff, as i will stop recognizing j's victory but j will continue recognizing i's victory, putting the player on the third segment of (23) that (33) describes the first derivative of. So (33) is necessary for there not to be an optimal deviation from P^*.∎*

Note that while (33) is necessary, it may not be sufficient. In general, it is hard to come up with an intuitive sufficient condition for P^* to be an uncontested SSPNE with $C_1 > 0$. One possibility is combining (33) with

$$\frac{\partial^2 V^i(P_i, P^*)}{\partial P_i^2} = q_{11}(\delta - C) + 2q_1 C_1 + (1 - q)C_{11} < 0 \qquad (34)$$

Where it is important to note that (34) needs to hold at any $P_i > P^*$, whereas (33) need only hold at $P_i = P^*$. However, (34) may be unnecessarily stringent and in practice (33) will often ensure existence of an uncontested SSPNE for $C_1 > 0$ even if (34) does not hold.

Remark 2: $\tilde{\delta} = Min(\underline{\delta}, \hat{\delta})$, *where $\hat{\delta}$ is given by the lowest solution to the following system of equations:*

$$\hat{\delta} = 1 - C(\tilde{P}, \tilde{P}) \qquad (35)$$

$$1 = 2C(\tilde{P}, \tilde{P}) + \frac{C_1(\tilde{P}, \tilde{P})}{2q_1(\overline{L} - \tilde{P}, \overline{L} - \tilde{P})} \qquad (36)$$

Proof: *Consider any $\delta' < \hat{\delta}$ and let $P^*(\delta')$ be the corresponding levels of P^* defined by (24). We know that at $\delta' = \frac{1}{2}$, (33) does not hold (see proof of Corollary 4). But then it cannot hold at any $\delta' < \hat{\delta}$ given that (35) and (36) are continuous in δ and that if (33) holds at δ' then it must hold as a strict equality for some $\delta'' < \delta'$, making δ'' and $P^*(\delta'')$ a solution to (35) and (36) and contradicting the assumption that $\hat{\delta}$ is the lowest solution to that system of equations.∎*

8. References

Acemoglu, D. & Robinson, J. (2012). *Why Nations Fail: The Origins of Power, Prosperity and Poverty*. Crown.

Acemoglu, D., Johnson, S. & Robinson, J. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review, 91 (5)*: 1369-1401.

Banca y Negocios. (2021, January, 12). *Gobierno autorizará masiva apertura de cuentas en divisas convertibles*. Banca y Negocios. Retrieved May 25, 2022, from https://www.bancaynegocios.com/gobierno-autorizara-masiva-apertura-de-cuentas-en-divisas-convertibles/.

Barro, R. & Lee, J. (2013). A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics, 104,* pp. 184-198.

Bates, R. (1981). *States and Markets in Tropical Africa: The Political Basis of Agricultural Policy*. University of California Press, Berkeley.

BCV Ad hoc. (2021). *Uso de fondos. Banco Central de Venezuela, Junta Administradora Ad-Hoc*. BCV. Retrieved May 25, 2022, from https://www.bcvadhoc.com/uso-de-los-fondos

Becker, T. & Mauro, P. (2006). *Output Drops and the Shocks That Matter*. IMF Working Paper 06/172, International Monetary Fund, Washington, DC.

Besley, T. & Burgess, R. (1998). *Land Reform, Poverty Reduction and Growth: Evidence from India*. London School of Economics.

Bond, P. (1998). Mugabe under siege: Behind the protests. *SAR Journal, 13,* pp. 1-12.

Burns, A. & Mitchell, W. (1946). *Measuring Business Cycles. Studies in Business Cycles, No. 2*. National Bureau of Economic Research.

Cagan, P. (1956). The Monetary Dynamics of Hyperinflation. In: Friedman, M., Ed., Studies in the Quantity Theory of Money. *The Univety of Chicago Press*, 25-117.

Casper, B. (2015). IMF Programs and the Risk of a Coup d'état. Journal of Conflict Resolution Vol. 61, pp. 964-996

Cawthorne, A. (2013, November 11). *Venezuela arrests looters, store bosses in 'economic war'*. Reuters. Retrieved June 14, 2022, from https://www.reuters.com/article/us-venezuela-economy-idUSBRE9A90G520131111

Centre on Housing Rights and Evictions. (2001*). Land, Housing and Property Rights in Zimbabwe*. COHRE Africa Programme Mission Report.

Cerra, V. (2016). Inflation and the Black Market Exchange Rate in a Repressed Market: A Model of Venezuela. *IMF Working Paper No. 16/159*. DOI:10.5089/9781475523201.001

Cerra, V. & Saxena, S. (2008). Growth Dynamics: The Myth of Economic Recovery. *American Economic Review 98(1)*: 439-57.

Chan, S. & Gallagher, J. (2017). *Why Mugabe Won: the 2013 elections in Zimbabwe and their aftermath.* Cambridge University Press, Cambridge. https://doi.org/10.1017/S0001972018000281

Cheatham, A., Roy, D. & Labrador, R. (2021). *Venezuela: The Rise and Fall of a Petrostate.* Council on Foreign Relations, December 29. Retrieved May 25, 2022, from https://www.cfr.org/backgrounder/venezuela-crisis

Chetsanga, C. & Muchenje, T. (2003). *An Analysis of the Cause and Effect of the Brain Drain in Zimbabwe.* Scientific and Industrial Research and Development Centre.

Chitiyo, T. (2000). *Land violence and compensation: Re-conceptualising Zimbabwe's land and war veterans' debate.* Center for Conflict Resolution.

Clausewitz, C. (1832). *On War.* Princeton University Press.

Clemens, M. & Moss, T. (2005). *Costs and Causes of Zimbabwe's Crisis.* Center for Global Development. Retrieved May 25, 2022, from https://www.cgdev.org/publication/costs-and-causes-zimbabwes-crisis

CNN. (2002). *New warning to Mugabe rivals.* January 9.

Coate, S. & Morris, S. (1995). On the Formo f Transfers to Special Interests. *The Journal of Political Economy, 103(6)*: 1210-1235.

Constant, B. (1815*). Principes de Politique.* Wentworth Press.

Corrales, J. (2018). *Fixing Democracy: Why Constitutional Change Often Fails to Enhance Democracy.* Oxford University Press.

Correo del Caroní. (2013, December 13). *Gobierno estudia en serio aumentar precio de la gasolina.* Correo del Caroní. Retrieved May 25, 2022, from https://issuu.com/correodelcaroni/docs/13-12-2013

Datanálisis. (2016). *Informe Omnibus Septiembre 2016.* September.

Davies, R. & Jorn R. (2001). Zimbabwe: economic adjustment, income distribution and trade liberalization, in L Taylor, ed, External Liberalization, *Economic Performance and Social Policy*, Oxford University Press, New York, 365-386.

Davies, R. (2005). Memories of Underdevelopment: a personal account of Zimbabwe's economic decline in Brian Raftopoulos and Tyrone Savage, eds, Zimbabwe: Injustice and Political Reconciliation, *Institute for Justice and Reconciliation*, Cape Town.

Dawson, M. & Tim K. (2012). Anti-developmental Patrimonialism in Zimbabwe. *Journal of Contemporary African Studies, 30*, 49-66

Deininger, K., Jin, S. & Nagarajan, H. (2007). Land Reforms, Poverty Reduction, and Economic Growth: Evidence from India. *World Bank Policy Research Working Paper* No. 4448.

Department of International Development. (2008). Zimbabwe Country Profile 2008, DFID, London.

Díaz, E. (2014, April 20). *Los barrios no bajan.* Questión Digital. Retrieved May 25, 2022, from https://questiondigital.com/los-barrios-no-bajan/

Dietrich, C. (2000). The commercialization of military deployment in Africa. *African Security Review, 9*, 3-17.

Dorman, S. (2003). NGOs and the Constitutional Debate in Zimbabwe: From Inclusion to Exclusion. *Journal of Southern African Studies, 29*, 845–863.

Dornbusch, R. & Edwards, S. (1992). *The Macroeconomic populism in Latin America*. The University of Chicago Press.

Drazen, A. (2000). *The Political Bussiness Cycle After 25 Years*. NBER Macroeconomics Annual 2000. MIT Press, Cambridge. https://press.princeton.edu/books/paperback/9780691092577/political-economy-in-macroeconomics

Ebus, B. (2020, January 24). Gold and Grief. Woodrow Wilson Center. Retrieved May 25, 2022, from https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/PRESENTA TION%20EBUS.pdf

ENCOVI. (2020). *Encuesta Nacional de condiciones de Vida*. Universidad Católica Andres Bello, Caracas.

Equipo Anova. (2020). Impacto de las Sanciones Financieras Internacionales contra Venezuela: Nueva Evidencia. *ANOVA Policy Resarch, 3(1)*.

Espina, S. (2019, November, 17). *Nicolás Maduro: La dolarización informal es «una válvula de escape*. CNN en Español. Retrieved May 25, 2022, from https://cnnespanol.cnn.com/2019/11/17/alerta-maduro-la-dolarizacion-informal-es-una-valvula-de-escape/

Euronews. (2013, November 12). *Watch: Looting in Venezuela after government launches attack on 'bourgeois parasites*. Retrieved June 14, 2022, from https://www.euronews.com/2013/11/12/watch-looting-in-venezuela-after-government-launches-attack-on-bourgeois-paras

Feenstra, R., Inklaar, R. & Timmer, M. (2015). The Next Generation of the Penn World Table. *American Economic Review, 105(10),* 3150-3182.

FocusEconomics. (2021). *LatinFocus Consensus Forecast*. December.

Frankel, J. & Romer, D. (1999). Does Trade Cause Growth?. *American Economic Review, 89 (3)*, 379-399.

Freitez, A. (2017). *Espejo de la crisis humanitaria venezolana: Encuesta nacional de condiciones de vida 2017*. Universidad Catolica Andress Bello, Caracas.

Hanke, S. & Krus, N. (2012). World Hyperinflations. *CATO Working Paper*. . http://doi.org/10.2139/ssrn.2226980

Hatchard, J. (2001). Some Lessons on Constitution-Making from Zimbabwe. *Journal of African Law, 45,* 210–16.

Hausmann, R. & Rigobón, R. (2003). An Alternative Interpretation of the 'Resource Curse': Theory and Policy Implications. *In Fiscal Policy Formulation and Implementation in Oil-Producing Countries*. Edited by J.M Davis, R.

Hausmann, R. (2018, August 23). *Nicolás Maduro will not reverse Venezuela's economic collapse.* Financial Times. Retrieved May 25, 2022, from https://www.ft.com/content/2d83460c-a61c-11e8-a1b6-f368d365bf0e

Hausmann, R., Rodríguez, F. & Wagner, R. (2006). Growth Collapses. Center for International Development at Harvard University, *CID Working Paper 136*.

Human Rights Watch. (2002, March). *Zimbabwe: Fast Track Land Reform in Zimbabwe.* HRW Africa Division, Vol. 14, No. 1 (A). Retrieved May 25, 2022, from https://www.hrw.org/reports/2002/zimbabwe/ZimLand0302.pdf

IMF. (2001). Zimbabwe: 2000 Article IV Consultation: Staff Report; Staff Supplement; Public Information Notice on the Executive Board Discussion; Statement by the Executive Director for Zimbabwe and Statement by the Authorities of Zimbabwe. *IMF Staff Country Reports, 2001(005).* https://doi.org/10.5089/9781451841428.002

IMF. (2010). Zimbabwe: 2010 Article IV Consultation: Staff Report; Staff Supplement; Public Information Notice on the Executive Board Discussion; and Statement by the Executive Director for Zimbabwe. *IMF Staff Country Reports, 2010(186).* https://doi.org/10.5089/9781455207756.002

IMF. (2018, October). *Challenges to Steady Growth. World Economic Outlook.* Retrieved May 25, 2022, from https://www.imf.org/-/media/Files/Publications/WEO/2018/October/English/main-report/Text.ashx

International Crisis Group. (2004). Blood and Soil: Land, Politics and Conflict Prevention in Zimbabwe and South Africa. *ICG Report No. 85.*

Iyer, L. & Rodríguez, F. (2021). Hyperinflation in Venezuela. Keough School of Global Affairs. *University of Notre Dame.*

Karekwaivanane, G. (2017). The Struggle over State Power in Zimbabwe: Law and Politics since 1950. *African Studies, 139.*

Karl, T. (1987). *The Paradox of Plenty: oil booms and petro-states.* University California Press, Los Angeles, CA.

Kriger, N. (2007). Liberation from Constitutional Constraints: Land Reform in Zimbabwe. The SAIS Review of International Affairs, 27(2), 63–76. https://doi.org/10.1353/sais.2007.0034

Kayenze, G. (2004). Economic Structural Adjustment Program (ESAP): Precursor to Fast Track Resettlement? In M Masiiwa (Ed.) *Post-Independence Land Reform in Zimbabwe* (pp.90-123). Friedrich Ebert Stiftung

Makina, D. (2009). Recovery of the Financial Sector and Building Financial Inclusiveness, Comprehensive Economic Recovery in Zimbabwe Working Paper Series, No. 5. United Nations Development Programme.

Masunungure, E. (2020). Zimbabwe's Trajectory: Stepping Forward or Sliding Back.. Weaver Press.

Matyszak, D. (2010). Everything you ever wanted to know (and then some) about Zimbabwe's Indigenisation and economic empowerment legislation but (quite rightly) were too afraid to ask. Research Advocacy Unit rau_zim_ieea_truths_100406.pdf (kubatana.net)

Matyszak, D, (2019). Sanctions: The EU, US and Post-Mugabe Zimbabwe. Veritas 11/11/19 http://www.veritaszim.net/node/3800

McGuire, M. & Olson, M. (1996). The Economics of Autocracy and Majority Rule: The Invisible Hand and the Use of Force. *Journal of Economic Literature, 34(1)*, 72–96. http://doi.org/10.1007/978-1-349-26284-7_3

McIndoe, S. 2009. Hyperinflation in Zimbabwe Money Demand, Seigniorage and Aid shocks. *IIIS Discussion Paper, 293*.

Meneses, J. & Saboin, J. (2021). Growth Recoveries from Collapses. *IADB Discussion Paper Nº IDB-DP-880*. http://dx.doi.org/10.18235/0003419

Ministry of Lands, Agriculture, and Rural Resettlement. (2002). *Land Reform and Resettlement Programme: Revised Phase II*. Government of Zimbabwe.

Naldi, G. (1993). Land Reform in Zimbabwe: Some Legal A spects. *Journal of Modern African Studies, Vol. 31*, 586-589

Ndulu, M. (2010). Zimbabwe's Unfulfilled Struggle for a Legitimate Constitutional Order. Chapter 7 in Laurel E. Miller, *Framing the State in Times of Transition: Case Studies in Constitution Making.* United States Peace Institute

North, D. (1991). *Institutions. Journal of Economic Perspectives*, 5 (1), 97-112.

O'Neill, A. (2012). *The Rain That Clears the Chaff.* Alan Doyle.

Oliveros, L. (2020). *Impacto de las sanciones financieras y petroleras en la economía venezolana*. WOLA, Washington.

Orozco, J. (2013, August 17). *Venezuela Economy's 2Q Results to Show Growth, Tovar says*. Bloomberg Terminal.

Palmer, R. (1990). Land Reform in Zimbabwe, 1980-1990. *African Affairs, 89,* 163-181

Powell, E. (1977). *Joseph Chamberlain.* Thames and Hudson: London.

Power, S. (2003, December). *How to Kill a Country.* The Atlantic. Retrieved May 25, 2022, from https://www.theatlantic.com/magazine/archive/2003/12/how-to-kill-a-country/302845/

Presidency of the Republic. (2011, April 6). *Ley del Régimen de Propiedad de las Viviendas de la Gran Misión Vivienda Venezuela*. Decree N° 8.143. Retrieved May 25, 2022, from http://www.asambleanacional.gob.ve/storage/documentos/leyes/decreto-no-20220117144707.pdf

Raath, J. (2015, December 17). *How to ruin your country.* Politics Web. Retrieved May 25, 2022, from https://www.politicsweb.co.za/documents/how-to-ruin-your-country

Reagan, R. (1987, February 19). *White House Diaries.* Reagan Foundation. Retrieved June 14, 2022, from https://www.llagerfoundation.org/ronald-reagan/white-house-diaries/diary-entry-02191987/

Reddy, S. & Minoiu, C. (2009). Real Income Stagnation of Countries 1960–2001. *The Journal of Development Studies, 45(1),* 1-23, https://doi.org/10.1080/00220380802265249

Ricardo, D. (1817). On the Principles of Political Economy and Taxation. London, John Murray. In: Sraffa, P., Ed*., The Works and Correspondence of David Ricardo*, Vol. 1, Cambridge University Press, 1951.

Richardson, C. (2004a). The loss of property rights and the collapse of Zimbabwe. *Cato Journal, 25(1).*

Richardson, C. (2004b). *The Collapse of Zimbabwe in the Wake of the 2000-2003 Land Reforms.* The Edwin Mellen Press.

Rodríguez, F. & Hausmann, R. (2012). *Venezuela Before Chávez: Anatomy of an Economic Collapse.* The Pennsylvania State University Press.

Rodríguez, F. & Navarro, P. (2018, February 14). ¿Cómo moviliza votos el chavismo?. Prodavinci. Retrieved May 25, 2022, from https://prodavinci.com/como-moviliza-votos-el-chavismo/

Rodríguez, F. & Sachs, J. (1999). Why Do Resource-Abundant Economies Grow More Slowly? *Journal of Economic Growth, 4,* 277–303.

Rodríguez, F. (2014). Venezuela Red's Adjustment. *GEMs Paper 16.*

Rodríguez, F. (2018). Crude Realities: Understanding Venezuela's Economic Collapse. *WOLA.*

Rodríguez, F. (2019). Sanctions and the Venezuelan economy: What the data say. *Latam Economics Viewpoints.*

Rodríguez, F. (2022). *Scorched Earth: The Political Economy of Venezuela's Collapse 2012- 2020.* (unpublished manuscript).

Rodríguez, F. (forthcoming). *"Sanctions and Oil Production: Evidence from Venezuela's Orinoco Basin." Latin American Economic Review.*

Rodrik, D. (1999). Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses. *Journal of Economic Growth, 4(4),* 385–412. https://doi.org/10.1023/a:1009863208706

Rodrik, D., Subramanian, A. & Trebbi, F. (2004). Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development. *Journal of Economic Growth, 9(2),* 131-165. https://doi.org/10.1023/B:JOEG.0000031425.72248.85

Rogoff, K. & Siebert, A. (1988). Elections and macroeconomic policy cycles. *The Review of Economic Studies, 551,* 1-16

Rostow, W. (1960). *The Stages of Economic Growth: A Non-Communist Manifesto.* Cambridge University Press, Cambridge.

Sachs, J. (2000). The Geography of Economic Development. *Naval War College Review, 53(4).*

Selby, A. (2006). *Commercial Farmers and the State: Interest Group Politics and Land Reform in Zimbabwe.* PhD thesis, University of Oxford.

Shleifer, A. & Vishny, R. (1993). Corruption. *The Quarterly Journal of Economics, 108(3),* 599–617. https://doi.org/10.2307/2118402

Simpson, M. & Hawkins, T. (2018). *The Primacy of Regime Survival: State Fragility and Economic Destruction in Zimbabwe.* Palgrave MacMillan, London.

Skaperdas, S. & Garfinkel, M. (2007). Economics of Conflict: An Overview. *Handbook of Defense Economics.* Vol 2. https://doi.org/10.1016/S1574-0013(06)02022-9

Sparks, A. (2012). Vavi's ambiguity may soon detonate is own time bomb. *Business Day.*

Splinter, M. & Klomp, J. (2021). Do Sanctions Cause Economic Growth Collapses? *Netherlands Annual Review of Military Studies*, 115–132.

Tatum, J. (1999). *The Patrician Tribune: Publius Clodius Pulcher.* Chapel Hill and London: The University of North Carolina Press.

Tevera, D. & Chikanda, A. (2009). *Migrant Remittances and Household Survival in Zimbabwe.* Southern African Migration Project (SAMP) Series, No. 51. Kingston: Queen's University

Thomas-Greenfield, L. & Wharton, B. (2019, April). *Zimbabwe's Coup Net Gain or No Gain?.* Army University Press. Retrieved May 26, 2022, from https://www.armyupress.army.mil/journals/military-review/english-edition-archives/mar-apr-2019/6-zimbabwe/

Tollison, R. (1989). Chicago political economy. *Public Choice, 63,* 293-297.

Toro, F. (2017, September 28). *The great currency swindle.* The World Today. Retrieved June 14, 2022, from https://www.chathamhouse.org/publications/the-world-today/2017-10/great-currency-swindle

Tullock, G. (1983). Helping the poor vs. helping the well-organized. In Rowley, C. (Ed). *The Economics and Politics of Wealth Redistribution* (pp.171–178). Liberty Fund.

Turek, B. (1984, December 17). *Walesa calls for lifting of U.S. sanctions.* UPI. Retrieved June 14, 2022, from https://www.upi.com/Archives/1984/08/06/Walesa-calls-for-lifting-of-US-sanctions/6847460612800/

UNESCO. (2022). UIS.Stat. UNESCO Institute for Statistics. Retrieved June 16, 2022, from http://data.uis.unesco.org/Index.aspx

United Nations Development Program. (2007). *Country Factsheet – Zimbabwe.* UNDP.

United Nations Development Program. (2012). *Africa Human Development Report 2012. Towards a Food Secure Future.* United Nations.

Velasco, A. (2000). Debts and deficits with fragmented fiscal policymaking. *Journal of Public Economics, 76(1)*, 105-125. https://doi.org/10.1016/S0047-2727(99)00054-7

Watts, E. (2020). *Mortal Republic: How Rome Fell into Tyranny*. Basic Books.

Weisbrot, M. & Sachs, J. (2019, April). Economic Sanctions as Collective Punishment: The Case of Venezuela. Center For Economic and Policy Research. Retrieved May 25, 2022, from https://cepr.net/images/stories/reports/venezuela-sanctions-2019-04.pdf

World Bank. (2019). *Zimbabwe: Public Expenditure Review with a Focus on Agriculture*. The World Bank: Washington, D.C.

Wright, T. & Clark, S. (2015, June 2). Investigators Believe Money Flowed to Malaysian Leader Najib's Accounts Amid 1MDB Probe. The Wall Street Journal. Retrieved June 14, 2022, from https://www.wsj.com/articles/malaysian-investigators-probe-points-to-deposits-into-prime-ministers-accounts-1435866107

Wrong, M. (2009*). It's Our Turn to Eat: The Story of a Kenyan Whistle Blower*. Fourth Estate.

Young, C. & Turner, T. (1985). *The Rise and Decline of the Zaïrian State*. University of Wisconsin Press.